Appendix B

Air Quality Technical Report for the Carryover Storage and San Vicente Dam Raise EIR/EIS

Prepared by SRA

Air Quality Technical Report For Carryover Storage and San Vicente Dam Raise EIR/EIS

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1.0 INTRODUCTION

This Air Quality Technical Report presents the results of the Air Quality Impact Analysis for the Carryover Storage and San Vicente Dam Raise Project (CSP) proposed by the San Diego County Water Authority (Water Authority). The analysis addresses air emissions associated with construction and operational activities.

1.1 Purpose of and Need for the Proposed Action

The overall purpose of the CSP is to substantially increase the reliability and flexibility of the regional water supply by providing the Water Authority with facilities to accumulate and store approximately 100,000 acre feet (AF) of water. Through the use of carryover storage, water can be accumulated during wetter years/seasons, when supplies are available, and used in drier years/seasons or during droughts, when supplies are in higher demand. Carryover storage would provide approximately 100,000 AF of local storage and facilitate the reliable and efficient delivery of water to residents of the Water Authority service area through the year 2030.

1.2 Regulatory Setting

The San Vicente Reservoir is located in the San Diego Air Basin (SDAB). Air quality in the SDAB is regulated by the San Diego Air Pollution Control District (SDAPCD), which is responsible for administering standards and developing rules and regulations governing air emissions in the SDAB. Policies and guidelines governing air quality in the state of California are developed and implemented by the California Air Resources Board (CARB). The CARB is not involved in issuance of permits or specific source regulation, but delegates that authority and oversees the SDAPCD. The EPA is the federal regulatory agency with authority to regulate air quality. The EPA can delegate authority to administer certain federal regulatory requirements to state and/or local agencies; for example, the EPA has delegated authority to the SDAPCD to regulate stationary emission sources.

The following sections discuss relevant air quality standards, rules and regulations, and plans developed by the federal, state, and local government agencies that regulate air quality.

1.2.1 Federal

Air quality regulations were first promulgated with the federal Clean Air Act (CAA) of 1970. Air quality is defined by ambient air concentrations of seven specific pollutants identified by the EPA to be of concern with respect to health and welfare of the general public. These specific pollutants, known as “criteria air pollutants”, are a group of

common air pollutants regulated by the federal and state governments by means of ambient standards on the basis of criteria regarding health and/or environmental effects of pollution. These pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (including both PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb).

The following specific descriptions of health effects for each of the criteria air pollutants for which a National Ambient Air Quality Standard (NAAQS) has been established are based on EPA (2005a).

Ozone. O_3 is considered a photochemical oxidant, which is a chemical that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx), both byproducts of combustion, react in the presence of ultraviolet light. 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.

Carbon monoxide. CO is a product of combustion, and the main source of CO in the SCAB 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.

Nitrogen dioxide. 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 nitrogen oxide (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. Particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 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} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations, and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is 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 (Pb) 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.

The EPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the EPA to establish 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 EPA established both primary and secondary standards for the 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.

In September 1997, the EPA promulgated 8-hour O_3 and 24-hour and annual national standards for $PM_{2.5}$. However, due to a lawsuit in May 1999, the United States District Court rescinded these standards and the EPA's authority to enforce them. Subsequent to an appeal of this decision by the EPA, the United States Supreme Court in February 2001 upheld these standards. The EPA issued 8-hour O_3 area designations on April 15, 2004, and the 1-hour NAAQS for O_3 was rescinded on July 15, 2005. $PM_{2.5}$ area designations were adopted in 2005. The SDAB is considered a basic nonattainment area for the 8-hour O_3 NAAQS and an attainment area for $PM_{2.5}$. The SDAB is also considered a maintenance area for the NAAQS for CO. The SDAB is classified as an attainment/unclassifiable area for all other federal criteria pollutants.

For those pollutants for which an air basin is a Federal nonattainment area, a State Implementation Plan (SIP) must be developed that evaluates emissions that contribute to nonattainment pollutants in the atmosphere, develops plans and programs designed to attain and maintain the NAAQS, and presents an analysis that demonstrates that with the implementation of plans and programs proposed for each air basin, the air basin will attain the NAAQS. A demonstration of conformity with the purpose of the SIP must be made for a proposed Federal action (the selected alternative) in a Federal nonattainment or maintenance area when incremental emission rates attributable to the proposed Federal action would exceed the general conformity applicability thresholds. As discussed above, the attainment status of the SDAB with respect to criteria air pollutants is basic nonattainment for O_3, maintenance for CO. The emissions associated with the proposed Federal action are defined as the net emissions increases over the No-Action Alternative associated with the Proposed Action. Emissions associated with the Proposed Action were compared with the Federal *de minimis* levels set forth under 40 CFR Part 93 and the provisions of Part 51, Subchapter C., Chapter I, Title 40, Appendix W of the Code of Federal Regulations to evaluate applicability of the General Conformity Rule, as adopted by the SDAPCD in Rule 1501, Conformity of General Federal Actions.

1.2.2 State

The California Air Resources Board (CARB) is the state regulatory agency with authority to enforce regulations to both achieve and maintain the air quality standards. The CARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the California Ambient Air Quality Standards (CAAQS). The CARB 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 Federal CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The CARB has established the more stringent CAAQS for the seven criteria pollutants through the California Clean Air Act of 1988, and also has established CAAQS for additional pollutants, including sulfates (SO_4), hydrogen sulfide (H_2S), vinyl chloride and visibility-reducing particles.

The following specific descriptions of health effects for each of the criteria air pollutants for which a CAAQS has been established are based on CARB (2001).

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, a CARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride

through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visbility-Reducing Particles. The standard for visibility-reducing particles is not a health-based standard, but rather a public welfare standard that is designed to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality. The standard is based on an extinction coefficient which, for all areas outside the Lake Tahoe Air Basin, is 0.23 per kilometer. That standard is equivalent to particles in sufficient amount to reduce the visibility to less than ten miles when relative humidity is less than 70 percent.

The SDAB is considered a nonattainment area for the 1-hour and 8-hour O_3 CAAQS and a nonattainment area for the 24-hour and annual PM_{10} CAAQS. The SDAB is classified as an attainment/unclassifiable area for all other federal criteria pollutants. It should be noted that state classifications for the CAAQS for $PM_{2.5}$ have not been formally issued.

In addition to regulating criteria pollutants, the CARB has issued guidelines for the evaluation of toxic air contaminants (TACs). TACs are often referred to as "non-criteria" air pollutants because ambient air quality standards have not been established for them. Under certain conditions, toxic air pollutants may cause adverse health effects, including increased risk of cancer and/or acute and chronic noncancer effects.

The regulatory approach used in controlling toxic air pollutants levels in the SDAB relies on a quantitative risk assessment process, rather than on ambient air concentrations, to determine allowable emissions from sources (SCAQMD 1999). The California Air Toxics "Hot Spots" Information and Assessment Act, codified in California Health and Safety Code (Section 39660 et seq. and Section 44300 et seq.), requires operators of specific facilities to submit comprehensive air toxics emission inventory plans and reports to their local air district. In the SDAB, the Air Toxics "Hot Spots" program is administered by the SDAPCD. The SDAPCD reviews the reports and then places the facilities into high-, intermediate-, and low-priority categories, based on the potency, toxicity, quantity, and volume of hazardous emissions and on the proximity of potentially sensitive receptors to the facility. Facilities designated as high priority must prepare a health risk assessment.

1.2.3 Local

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. As stated above, the SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for the SDAB.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, and most recently in 2004. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SDAPCD has also developed the air basin's input to the SIP, which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The SIP includes the SDAPCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. The latest SIP update was submitted by the CARB to the EPA in 1998. The attainment schedule in the SIP called for the SDAB to attain the 1-hour NAAQS for O_3 by 1999. The SDAPCD determined that the SDAB had achieved its O_3 attainment goal, and was redesignated as an O_3 attainment area for the 1-hour NAAQS for O_3; however, as discussed above, the SDAB has been designated as a basic nonattainment area for the new 8-hour NAAQS for ozone.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the APCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for O_3.

Table 1-1 presents the current CAAQS and NAAQS. This analysis focuses on the six main criteria pollutants that are associated with emissions from construction and reservoir operations: O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Emissions of lead, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles from the Proposed Action would not be anticipated to have a significant impact because emissions would be negligible because these pollutants are associated with specific types of industries and sources (such as landfills, sulfur sources, oil and production and refining, and synthetic

organic chemical production); therefore, these pollutants were not evaluated in this analysis.

Table 1-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
Ozone (O_3)[6]	1-Hour	0.12 ppm (235 μg/m^3)	Same as Primary Standard	0.09 ppm (180 μg/m^3)
	8-Hour	0.08 ppm (157 μg/m^3)		0.070 ppm (137 μg/m^3)
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	Same as Primary Standard	-
	1-Hour	-		0.25 ppm (470 μg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	80 μg/m^3 (0.03 ppm)	-	-
	24-Hour	365 μg/m^3 (0.14 ppm)	-	0.04 ppm (105 μg/m^3)
	3-Hour	-	1300 μg/m^3 (0.5 ppm)	-
	1-Hour	-	-	0.25 ppm (655 μg/m^3)
Suspended Particulate Matter (PM_{10})	24-Hour	150 μg/m^3	Same as Primary Standard	50 μg/m^3
	Annual Arithmetic Mean	50 μg/m^3		20 μg/m^3 note 7
Fine Particulate Matter ($PM_{2.5}$)[6]	24-Hour	35 μg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 μg/m^3		12 μg/m^3 note 7
Lead (Pb)[8]	30-Day Average	-	-	1.5 μg/m^3
	Calendar Quarter	1.5 μg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 μg/m^3)
Sulfates (SO_4)	24-Hour			25 μg/m^3
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70 percent.
Vinyl chloride[8]	24 Hour			0.01 ppm (26 μg/m^3)

[1] NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[2] California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[4] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5] Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

[6] New federal 8-hour ozone and fine particulate matter standards were promulgated by EPA on 18 July 1997. The federal 1-hour O_3 standard continues to apply in areas that violated the standard. On April 15, 2004 the EPA issued attainment designations for the 8-hour standard and on July 15, 2005, phased out the 1-hour standard.

[7] On 5 June 2003, the Office of Administrative Law approved the amendments to the regulations for the state ambient air quality standards for particulate matter and sulfates. Those amendments established a new annual average standard for $PM_{2.5}$ of 12 μg/m^3 and reduced the level of the annual average standard for PM_{10} to 20 μg/m^3. The approved amendments were filed with the Secretary of State on 5 June 2003. The regulations became effective on 5 July 2003.

[8] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

ppm = parts per million; μg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter
Source: CARB 2005, EPA 2005b

1.3 Methods of Analysis

1.3.1 General Approach

The requirements under CEQA are to evaluate the project's impacts in comparison with baseline and no project conditions, to address compliance with local rules and regulations, to address compliance with the California Ambient Air Quality Standards (CAAQS), and to evaluate the potential for toxic air contaminant (TAC) impacts.

Six criteria pollutants were evaluated: O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. The evaluation of O_3 was conducted using the standard practice of evaluating emissions of VOCs and NOx, which are considered to be O_3 precursors. Although lead (Pb) is a criteria pollutant, it was included as a criteria pollutant mainly due to the past prevalent use of tetraethyl lead as a fuel additive. With the phase-out of tetraethyl lead in fuels, Pb is not included in the criteria pollutant analysis because emissions of Pb would be negligible from Project operations (i.e., less than 0.01 tons per year). While $PM_{2.5}$ standards have been promulgated by the U.S. Environmental Protection Agency (EPA) and adopted as of 2005, implementation of these standards is still in progress and CEQA significance thresholds have not yet been adopted in the SDAB. The EPA has recommended *de minimis* thresholds that apply under the General Conformity Rule which are also applicable significance thresholds under NEPA.

1.3.2 Models

Emission estimates were prepared for both the construction and operational phase of the project. Construction emissions were based on estimates of construction activity and requirements for the construction phase of the project. Construction emissions were estimated based on standard models used for emissions of heavy construction equipment and vehicles.

The CARB's OFFROAD model provided emission factors based on the fleet-averaged emissions for diesel-powered heavy construction equipment. OFFROAD emission factors were obtained from the CARB (CARB [Futaba] 2006). These factors represent average emissions for the fleet of heavy construction equipment in the San Diego Air Basin.

The EMFAC2002 model provided emission factors for on-road mobile sources, including heavy-duty trucks and construction worker vehicles. The EMFAC2002 model provides emission factors based on the mix of vehicles in a given air basin.

2.0 ALTERNATIVE 1: SAN VICENTE 100,000 ACRE-FEET (PROPOSED ACTION)

2.1 Environmental Setting

2.1.1 Study Area

The San Vicente Dam and Reservoir are located in south central San Diego County (Figure 1). The reservoir is formed by a 220-foot-high concrete gravity dam. The dam and reservoir are owned and operated by the City of San Diego for water supply purposes, mainly to supply the Alvarado Water Treatment Plant. The reservoir is bordered on the south by the community of Lakeside, on the east by the Barona Tribal lands, and on the north and west by mostly undeveloped land that is within the jurisdiction of the County of San Diego. Scattered residences occur both to the north and south of the reservoir, and extensive mining operations occur to the southwest. The site is within the USGS 7.5' San Vicente Reservoir Quadrangle**,** Township 14 South, Range 1 West, Sections 13, 14, 25, and 36; and Township 14 South, Range 1 East, Sections 16 – 20, 23, 24, and 29 - 31 (Figure 2). Access to the dam site is via Vigilante Road and Moreno Avenue.

2.1.2 Background

Major facilities that currently exist at the project site include San Vicente Dam and Reservoir, a marina, water conveyance facilities, access roads, and City of San Diego facilities, including a maintenance yard, trailers, and a reservoir keeper house.

San Vicente Dam and Reservoir

San Vicente Dam was constructed in 1943. The existing dam is 220 feet high with a crest length of 963 feet. The spillway is a 275-foot-long section near the center of the dam. The spillway crest elevation is 650 feet above mean sea level (AMSL).

San Vicente Reservoir is the southern terminus for the Water Authority's First Aqueduct, a pipeline corridor that contains San Diego Pipelines 1 and 2. The current storage capacity of the reservoir is approximately 90,000 AF. At this water elevation, the reservoir surface area is approximately 1,100 acres. In addition to water supply, the existing reservoir also provides public recreational facilities, including boating, fishing, and water skiing.

Emergency Storage Project

In August 1996, the Water Authority's Board of Directors approved the Emergency Storage Project (ESP) to provide local water storage to meet emergency needs within the Water Authority's service area, an initiative central to the agency's overall mission to

deliver a reliable supply of water to the region. The regional water supply system is vulnerable to hazards, such as strong seismic activities in southern California, severe floods, or prolonged droughts.

The Water Authority's ESP was designed to improve the reliability of the region's existing water supply system by the addition of approximately 90,000 AF of reservoir storage in San Diego County. The approved ESP includes the following major components: a new dam, pipeline, and pump station at Olivenhain (complete); the Lake Hodges Pump Station and pipeline (under construction); the San Vicente Pipeline (under construction); and the San Vicente Pump Station/Surge Control Facility (under construction). The ESP also includes raising the existing San Vicente Dam by 54 feet in order to provide approximately 52,100 AF of emergency storage capacity. The ESP impact footprint is illustrated in Figure 3. The Water Authority has not yet implemented the San Vicente Dam raise component of the ESP, and is now proposing to combine the approved ESP dam raise with a higher dam raise to accommodate the CSP.

Several of the project components of the San Vicente ESP are currently under construction. The San Vicente Pipeline Project (SVP) consists of an 11-mile-long pipeline connecting the San Vicente Reservoir to the Water Authority's Second Aqueduct. The SVP consists of constructing the pipeline tunnel, three vertical tunnel shafts, and a tunnel portal. The tunnel portal is located downstream of the San Vicente Dam. Construction of the SVP will be complete March 2009. The San Vicente Pump Station and Surge Control Facility construction is also ongoing in the vicinity of the dam. The construction timeframe for these ESP components is December 2006 to August 2009. The impact footprints for SVP and San Vicente Pump Station and Surge Control Facility are also illustrated in Figure 3.

The ESP was evaluated in an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (SCH No. 93011028) for which the Water Authority was Lead Agency under the California Environmental Quality Act (CEQA) and the U.S. Army Corps of Engineers (Corps) was Lead Agency under the National Environmental Policy Act (NEPA). The Water Authority's Board of Directors certified the Final EIR/EIS on August 15, 1996. The Corps issued a Record of Decision (ROD) for the EIR/EIS on August 4, 1997, and a 404 Permit under the Clean Water Act (Permit No. 95-2009200-DZ) on August 18, 1997.

2.2 Project Description

The Proposed Action would be to raise the San Vicente Dam an additional approximately 63 feet beyond the approved ESP dam raise, increasing the capacity of the San Vicente Reservoir by an additional 100,000 AF. The combined ESP/CSP would increase the existing reservoir capacity by approximately 152,100 AF, and increase the overall dam height by up to 117 feet. With implementation of both the ESP and CSP, the total dam height would be 337 feet with a spillway crest of 766 feet AMSL.

No additional conveyance facilities beyond those being constructed for the ESP would be needed for the additional carryover expansion of the San Vicente Reservoir. The dam raise would be accomplished using roller compacted concrete (RCC). The RCC would be placed against the downstream side of the existing dam. It is not technically advisable, nor economically feasible, to raise the dam for ESP purposes, and then raise it again at a later time for carryover storage purposes.

The Proposed Action would require the construction of two saddle dams to the west of the main dam, and relocation of the San Vicente Marina and marina access road (Figure 4). New marina facilities would replace the existing marina that would be inundated by the dam raise and subsequent reservoir inundation. The marina facilities would be shifted further west than what was contemplated by the ESP dam raise and increased reservoir water level. The Proposed Action would also include construction of a new outlet facility and installation of a bypass pipeline extending from the easterly saddle dam to the First Aqueduct Diversion Structure north of the proposed marina. During construction, temporary staging areas would be established to accommodate construction equipment, supplies, and materials. The staging areas would be located on City-owned property south or southwest of the existing dam and/or within the marina expansion area.

Four options are being evaluated for the source of aggregate material for RCC production. There are three on-site quarry options and one off-site option. Only one of the on-site quarry alternatives will be selected for aggregate production. The off-site quarry option involves the hauling of aggregate from an existing off-site commercial quarry. The location of the off-site quarry is still to be determined. However, several alternative quarry locations will be identified for analysis.

Construction of the San Vicente Dam raise would require lowering water levels in the reservoir prior to construction. The construction drawdown is expected to take up to one year, depending on local watershed inflows. The construction timeframe for the dam raise is approximately three years. Once construction is complete, refilling of the reservoir is expected to take three to five years, depending on the availability of imported water and local watershed inflows. The total time required to lower the reservoir, construct the dam raise, and refill the reservoir to the new water level would be approximately eight years.

For the Proposed Action, the Corps has determined that the jurisdictional ordinary high water mark (OHWM) for the reservoir is the existing San Vicente Dam spillway at 650 feet AMSL. This is also the baseline for the evaluation of existing environmental resources, and impacts to those resources.

2.3 Affected Environment

The nearest ambient air quality monitoring stations to the San Vicente Reservoir are the El Cajon monitoring station and the downtown San Diego monitoring station, which is the only station in the vicinity of the Project that measures CO and SO_2. Table 2-1

presents ambient air pollutant concentrations measured at the El Cajon and San Diego stations during the period 2003 through 2005.

Table 2-1. Ambient Background Concentrations ppm (unless otherwise indicated)

Pollutant	Averaging Time	2003	2004	2005	Most Stringent Ambient Air Quality Standard	Monitoring Station	Standard Exceeded?
Ozone	8 hour	0.073	0.078	0.072	0.070	El Cajon	Yes
	1 hour	0.102	0.096	0.092	0.09	El Cajon	Yes
PM_{10}	Annual Average	34.4	30.1	28	20 µg/m^3	El Cajon	Yes
	24 hour[1]	230	55	41	50 µg/m^3	El Cajon	Yes
$PM_{2.5}$	Annual Average	13.9	13.2	11.4	12 µg/m^3	El Cajon	Yes
	24 hour	43.7	44.4	27.5	35 µg/m^3	El Cajon	Yes
NO_2	Annual	0.020	0.019	0.019	0.053	El Cajon	No
	1 hour	0.130	0.075	0.079	0.25	El Cajon	No
CO	8 hour	3.88	4.04	4.71	9.0	San Diego	No
	1 hour	5.0	4.9	6.4	20	San Diego	No
SO_2	Annual	0.004	0.004	0.002	0.030	San Diego	No
	24 hour	0.008	0.008	0.007	0.04	San Diego	No
	1 hour	0.036	0.042	0.040	0.25	San Diego	No

[1]Highest values measured during the Cedar Fire event in 2003.
Sources: www.arb.ca.gov/adam; www.epa.gov/air/data/monvals.

2.4 Thresholds of Significance

Guidelines to address the significance of air quality impacts are based on Appendix G of the State CEQA Guidelines, which provides guidance that a project would have a significant environmental impact if it would:

1. Conflict or obstruct the implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP);
2. Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of PM_{10} or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen (NO_X) and volatile organic compounds (VOCs);
4. Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations; or
5. Create objectionable odors affecting a substantial number of people.

As stated above, projects that propose development that is consistent with the growth anticipated by the general plans and with growth forecasts developed by SANDAG for the applicable major statistical area (MSA) would be consistent with the RAQS and SIP.

Also, projects that are consistent with the SIP rules (i.e., the federally-approved rules and regulations adopted by the SDAPCD) are consistent with the SIP. Thus projects would be required to conform with measures adopted in the RAQS (including use of low-VOC architectural coatings, use of low-NO_x water heaters, and compliance with rules and regulations governing stationary sources) and would also be required to comply with all applicable rules and regulations adopted by the SDAPCD.

To determine whether a project would (a) result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or (b) result in a cumulatively considerable net increase of PM_{10} or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen (NO_X) and volatile organic compounds (VOCs), project emissions may be evaluated based on the quantitative emission thresholds established by the SDAPCD. As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIA).

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality. Since the SDAPCD does not have AQIA thresholds for emissions of VOCs, the use of the threshold for VOCs from the City of San Diego's Significance Determination Thresholds (City of San Diego 2004) is appropriate. Because the City of San Diego and the SDAPCD have not adopted thresholds for $PM_{2.5}$, thresholds of significance from the SCAQMD's *Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds* (SCAQMD 2006) were used to evaluate significance. The screening thresholds are included in Table 2-2 below.

In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the State and Federal Ambient Air Quality Standards, including appropriate background levels. For nonattainment pollutants (O_3, with O_3 precursors NO_x and VOCs) and PM_{10}, if emissions exceed the thresholds shown in Table 2-2, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

Table 2-2. Screening-level Criteria for Air Quality Impacts

Pollutant	Total Emissions		
Construction Emissions			
	Lb. per Day		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_x)	250		
Oxides of Sulfur (SO_x)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)[1]	137		
Operational Emissions			
	Lb. Per Hour	Lb. per Day	Tons per Year
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55	10
Oxides of Nitrogen (NO_x)	25	250	40
Oxides of Sulfur (SO_x)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOC)[2]	---	137	15

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as toxic air contaminants (TACs) or Hazardous Air Pollutants (HAPs). In San Diego County, the County Department of Planning and Land Use identifies an excess cancer risk level of 1 in 1 million or less for projects that do not implement Toxics Best Available Control Technology (T-BACT), and an excess cancer risk level of 10 in 1 million or less for projects that do implement T-BACT. The significance threshold for non-cancer health effects is a health hazard index of one or less. These significance thresholds are consistent with the San Diego Air Pollution Control District's Rule 1210 requirements for stationary sources. If a project has the potential to result in emissions of any TAC or HAP which result in a cancer risk of greater than 1 in 1 million without T-BACT, 10 in 1 million with T-BACT, or health hazard index of one or more, the project would be deemed to have a potentially significant impact.

With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-

12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Any project which has the potential to directly impact a sensitive receptor located within 1 mile and results in a health risk greater than the risk significance thresholds discussed above would be deemed to have a potentially significant impact.

Section 6318 of the San Diego County Zoning Ordinance requires all commercial and industrial uses "be operated as not to emit matter causing unpleasant odors which is perceptible by the average person at or beyond any lot line of the lot containing said uses." Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses." APCD Rule 51 (Public Nuisance) also prohibits emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of any person. A project that proposes a use which would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

The EPA has established the NAAQS that are applicable to the SDAB. As discussed above under CEQA Thresholds of Significance, a project's impacts would be considered significant if the project's operational impacts plus background concentrations would exceed the NAAQS for attainment pollutants.

In addition to the requirements to comply with the NAAQS for attainment pollutants, for geographic areas designated as nonattainment or maintenance areas for pollutants regulated under the CAA, Federal actions must demonstrate conformity with the SIP for the nonattainment pollutant if emissions related to the Federal action exceed the general conformity *de minimis* thresholds. For the SDAB, the *de minimis* thresholds for conformity are as follows:

- 100 tons per year for CO emissions
- 100 tons per year for NOx and VOC emissions (O_3 precursors)

To evaluate significance of the action, the NEPA analysis must take into account a comparison of the emissions attributable to the proposed project with the emissions associated with the Federal No Action alternative.

Should emissions be above the *de minimis* thresholds, further evaluation must be conducted to evaluate whether the Federal action's impacts would cause or contribute to a violation of an ambient air quality standard. This evaluation may include air dispersion modeling to estimate ambient pollutant concentrations due to emissions associated with the Federal action, or for nonattainment pollutants, an evaluation of the project's conformity with the SIP as required under Section 176(c) of the Federal CAA Amendments of 1990.

The impacts associated with construction and operation of the project were evaluated for significance based on these significance criteria.

2.5 Environmental Consequences

This section of the Air Quality Technical Report addresses potential air quality impacts and significance of impacts associated with the Proposed Action. The Proposed Action involves the raising of the existing San Vicente Dam by an additional 63 feet beyond the approved Emergency Storage Project dam height to provide an additional 100,000 acre-feet of carryover storage at San Vicente Reservoir.

2.5.1 Construction Impacts

Construction for the Proposed Action is comprised of several components. The components that are addressed in this analysis include projects that have not been previously addressed in the ESP environmental review.

Under the Proposed Action, two alternative construction scenarios have been considered. The first scenario involves development of an on-site quarry to provide construction materials for the dam raise. The second scenario involves importing of construction materials by trucking in materials on heavy-duty trucks. The two alternatives would result in differences in construction requirements and, therefore, emissions associated with construction. Both construction scenarios would require initial preparatory work for the construction. The construction requirements and impact assessment are presented below.

Preparatory Construction. The initial stage of construction (Package 1) involves the following steps:

- Mobilization
- Access Roads
- Foundation Excavation
- Relocation of Outlet Pipe
- Marina Grading
- Demobilization/Reclamation

The Water Authority has developed a detailed project construction schedule that provides heavy equipment estimates, personnel requirements, truck traffic estimates, and estimates of required grading/materials handling/import/export for each of the individual projects analyzed in this analysis.

Emission estimates have been prepared for individual construction projects listed above to evaluate the maximum daily emissions. As discussed in Section 1.3, emission

estimates were based on emission factors obtained from the CARB's OFFROAD model (CARB [Futaba] 2006). Emission rates for employee vehicles and heavy truck operations were developed from the CARB's EMFAC2002 model, which calculates emission rates for vehicles based on vehicle classes (for example, light-duty autos, medium-heavy trucks, heavy duty trucks) and vehicle miles traveled. Employee travel to and from the project site was assumed to have a trip length of 14 miles. Truck deliveries/material export was assumed to have a trip length of 10 miles. To estimate emissions of fugitive dust associated with truck traffic on unpaved surfaces, it was assumed that each truck would travel 0.5 miles on unpaved surfaces for each construction phase.

During the construction of access roads, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Based on the project description, the foundation would be prepared by drilling, blasting, and excavating the soil and weathered rock during the foundation excavation phase. For the new dam foundation, it is anticipated that about 200,000 cubic yards of overburden and weathered rock would need to be excavated. To remove the overburden, blasting will be required at the site. Fugitive dust emissions associated with blasting were estimated based on the EPA's emission factor for blasting for coal mining to remove overburden, which is a similar process. According to Section 11.9 of AP-42, emissions from blasting are calculated as follows:

$$\text{Lbs } PM_{10}/\text{blast} = 0.000014(A)^{1.5} \times 0.52 \text{ lbs } PM_{10}/\text{lbs TSP}$$

For conservative purposes, it was assumed that blasting to a depth of 1 foot would be required to remove the 200,000 cubic yards of overburden. Based on this assumption, it was estimated that a total of 200,000 square yards or 1,800,000 square feet of blasting would be required to remove overburden prior to project construction; thus a total of 17,580 lbs of PM_{10} would be associated with blasting over the entire duration of the foundation excavation phase of the Proposed Action. Based on the construction schedule, blasting would be conducted over a 7-month period, assuming construction would take place 7 days a week, 24 hours per day. The daily emissions would therefore be estimated at 83.71 lbs/day.

The project would utilize ammonium nitrate/fuel oil ANFO explosives to conduct blasting on site. Based on the EPA's AP-42 emission factors in Section 13.3, emissions from use of ANFO are estimated at 67 lbs CO per ton of explosive, and 17 lbs NOx per ton of explosive. Based on typical construction projects, it was estimated that a maximum of 10,000 lbs per day could be used at the site; thus the maximum daily emissions due to the use of ANFO would be 335 lbs/day of CO and 85 lbs/day of NOx.

Emission rates for materials handling (truck loading of excavated material) were obtained from the SCAQMD's 1993 CEQA Air Quality Handbook. The emission rates depend on the amount of materials being handled (in tons), the moisture content of the materials (in percent) and the mean wind speed (in miles per hour). For this project, it was assumed that excavated material had a 4.8% moisture content as recommended by EPA. The wind speed was assumed to be 12 mph. It was assumed that each truck could handle 18 cubic yards of material, and for the maximum daily emissions, based on the construction contractor estimate, it was assumed that a maximum of 64 trucks per day would haul material offsite. In addition, during the foundation excavation phase an estimated 2,800 concrete loads will be trucked on site. It was assumed that one cubic yard of material would weigh on average 1.6 tons.

Particulate emissions from materials handling during excavation were estimated using the methodology recommended in the SCAQMD CEQA Air Quality Handbook, Table A9-9-G, for material handling. The equation recommended in Table A9-9-G is as follows:

$$E = [0.00112 \times (\{[G/5]^{1.3}\}/\{[H/2]^{1.4}\})] \times [I/J]$$

Where
- E = PM_{10} emissions, lbs/day
- G = Wind speed, estimated as 12 miles per hour
- H = Moisture content, estimated as 4.8% for moist material
- I = Pounds of dirt handled per day
- J = 2000 lbs/ton of dirt

During the marina grading, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

During the marina grading phase, approximately 46,583 truckloads of material at 18 cy per truck would be excavated from the marina site and hauled offsite. Emissions were calculated as described above.

Tables 2-3 through 2-8 present a summary of construction emissions for each individual component of the project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 2-3. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.61	0.93	28.60	0.03	0.96	0.85
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**11.26**	**1.14**	**29.17**	**0.03**	**2.36**	**1.18**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 2-4. Estimated Construction Emissions - Access Roads
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	113.63	10.44	315.88	0.35	10.41	9.26
Worker Travel – Vehicle Emissions	6.75	0.55	0.56	0.00	0.04	0.04
Construction Truck Emissions	0.34	0.09	1.27	0.00	0.04	0.04
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	4.79	1.06
TOTAL	**120.72**	**11.08**	**317.71**	**0.35**	**115.28**	**31.40**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-5. Estimated Construction Emissions - Foundation Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	83.91	17.62
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	1.56	0.33
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	118.88	11.67	376.32	0.43	11.92	10.61
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
Construction Truck Emissions	3.53	0.92	13.05	0.03	0.46	0.46
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	49.22	10.34
TOTAL	**464.71**	**13.19**	**474.98**	**0.47**	**147.12**	**39.41**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-6. Estimated Construction Emissions - Outlet Relocation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	61.18	6.13	196.47	0.23	6.38	5.68
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**64.98**	**6.47**	**197.31**	**0.23**	**8.47**	**6.13**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-7. Estimated Construction Emissions - Marina Grading Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	92.45	9.50	328.92	0.38	9.77	8.70
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.05
Construction Truck Emissions	9.61	2.51	35.54	0.09	1.24	1.23
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	133.98	28.14
TOTAL	**109.54**	**12.62**	**365.08**	**0.48**	**245.04**	**59.12**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 2-8. Estimated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.22	2.09	63.72	0.07	2.16	1.92
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.18	0.01	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**23.37**	**2.52**	**63.99**	**0.07**	**2.87**	**2.09**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

On-site Quarry. For the on-site quarry alternative, the construction stages addressed in this analysis include the following:

- Mobilization
- RCC Test Section
- Foundation Treatment
- Dam Crest Demolition and Surface Preparation
- Quarry Operations
- Roller Compacted Concrete Placement
- Dam Seepage Control
- Outlet Facilities
- Saddle Dams
- Bypass Pipeline Diversion Structure
- Turnout/Bifurcation Structures
- Clearing/Grubbing
- Demobilization/Reclamation

As in the case of the Package 1 projects, the Water Authority has developed a detailed project construction schedule that provides heavy equipment estimates, personnel requirements, truck traffic estimates, and estimates of required grading/materials handling/import/export for each of the individual projects analyzed in this analysis.

Emission estimates have been prepared for individual construction projects listed above to evaluate the maximum daily emissions. As discussed in Section 3.1, emission estimates were based on emission factors obtained from the CARB's OFFROAD model (CARB [Futaba] 2006). Emission rates for employee vehicles and heavy truck operations were developed from the ARB's EMFAC2002 model, which calculates emission rates for vehicles based on vehicle classes (for example, light-duty autos, medium-heavy trucks, heavy duty trucks) and vehicle miles traveled. Employee travel to and from the project site was assumed to have a trip length of 14 miles. Truck deliveries/material export was assumed to have a trip length of 10 miles. To estimate emissions of fugitive dust associated with truck traffic on unpaved surfaces, it was assumed that each truck would travel 0.5 miles on unpaved surfaces for each construction phase.

The amount of material quarried in the on-site quarry was estimated based on AP-42 estimates of material needs, assuming 1865 lbs of coarse aggregate per cubic yard of concrete, and 1428 lbs of sand per cubic yard of concrete. Emissions associated with quarrying operations were estimated using the emission calculation for materials handling described above. Roller-compacted concrete (RCC) and convention concrete will be supplied by an on-site batch plant. The following are estimates for RCC and conventional concrete requirements:

Main Dam:

- Total RCC = 820,000 CY
- Foundation and Leveling Concrete = 115,000 CY

Inlet/Outlet Works Tower:

- Total Concrete = 4,000 CY

East Saddle Dam:

- Total RCC = 4,400 CY
- Foundation and Leveling Concrete = 4,600 CY

West Saddle Dam:

- Total RCC = 800 CY
- Foundation and Leveling Concrete = 1,400 CY

Blasting will be required for the quarrying operation. Fugitive dust emissions associated with blasting were estimated based on the EPA's emission factor for blasting for coal mining to remove overburden, which is a similar process. According to Section 11.9 of AP-42, emissions from blasting are calculated as follows:

$$\text{Lbs } PM_{10}/\text{blast} = 0.000014(A)^{1.5} \times 0.52 \text{ lbs } PM_{10}/\text{lbs TSP}$$

For conservative purposes, it was assumed that blasting to a depth of 1 foot would be required to remove the materials required for the approximately 690,000 cubic yards of RCC and conventional concrete required for construction of the dam, inlet/outlet works tower, and saddle dams. Based on this assumption, it was estimated that a total of 690,000 square yards or 6,210,000 square feet of blasting would be required to remove overburden prior to project construction; thus a total of 112,660 lbs of PM_{10} would be associated with blasting over the entire duration of the foundation excavation phase of the Proposed Action. Based on the construction schedule, blasting would be conducted over a 9-month period, assuming construction would take place 7 days a week, 24 hours per day. The daily emissions would therefore be estimated at 417.04 lbs/day.

The project would utilize ammonium nitrate/fuel oil ANFO explosives to conduct blasting on site. Based on the EPA's AP-42 emission factors in Section 13.3, emissions from use of ANFO are estimated at 67 lbs CO per ton of explosive, and 17 lbs NOx per ton of explosive. Based on typical construction projects, it was estimated that a maximum of 10,000 lbs per day could be used at the site; thus the maximum daily emissions due to the use of ANFO would be 335 lbs/day of CO and 85 lbs/day of NOx.

In addition to on-site and off-site blasting, the project would include on-site rock crushing operations of blast material to provide material on site. It was assumed that the rock crushing would be accomplished through the use of a portable rock crusher powered by an on-site generator. Fugitive dust emissions associated with rock crushing were estimated based on the EPA's AP-42 Section 11.19.2 emission factor, assuming that rock

crushing would be controlled through the use of water spray, of 0.00054 lbs PM_{10} per ton of rock crushed. It was assumed that rock crushing would involve approximately 50 percent of the total rock generated on site during grading/blasting.

Emissions from concrete batching were estimated using the EPA's AP-42 emission factors from AP-42 Section 11.12, Table 11.12-2, assuming central mix rather than truck mix concrete.

Tables 2-9 through 2-21 present a summary of construction emissions for each individual component of the project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 2-9. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.16	5.49	49.94	0.22	2.23	1.98
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**22.40**	**5.68**	**50.30**	**0.22**	**2.93**	**2.14**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-10. Estimated Construction Emissions - RCC Test Section
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.00	5.74	45.78	0.09	2.38	2.12
Concrete Batching Emissions	N/A	N/A	N/A	N/A	25.19	5.29
Worker Travel – Vehicle Emissions	8.39	0.70	0.69	0.01	0.05	0.05
Construction Truck Emissions	0.15	0.54	0.04	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**30.54**	**6.98**	**46.51**	**0.10**	**29.69**	**7.91**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-11. Estimated Construction Emissions - Foundation Treatment
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	27.13	7.27	58.85	0.12	2.81	2.50
Worker Travel – Vehicle Emissions	5.29	0.43	0.44	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**32.47**	**7.71**	**59.47**	**0.12**	**3.53**	**6.21**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-12. Estimated Construction Emissions - Dam Crest Demolition and Surface Preparation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.34	6.42	51.31	0.09	2.78	2.47
Worker Travel – Vehicle Emissions	4.74	0.39	0.39	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**30.13**	**6.82**	**51.88**	**0.09**	**3.50**	**2.65**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-13. Estimated Construction Emissions - Quarry Operations
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	1.17	0.25
Heavy Equipment Exhaust	104.28	28.72	230.69	0.41	11.44	10.18
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
TOTAL	**446.58**	**29.32**	**316.30**	**0.42**	**429.70**	**98.06**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 2-14. Estimated Construction Emissions - RCC Placement
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	34.77	7.30
Heavy Equipment Exhaust	204.86	53.65	458.24	1.44	21.59	19.22
Worker Travel – Vehicle Emissions	28.82	2.36	2.40	0.02	0.19	0.19
Construction Truck Emissions	1.01	0.26	3.72	0.01	0.13	0.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	14.01	2.94
TOTAL	**234.69**	**56.27**	**464.36**	**1.47**	**70.69**	**29.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-15. Estimated Construction Emissions - Dam Seepage Control
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.70	4.47	34.57	0.07	1.69	1.50
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**19.90**	**4.75**	**35.19**	**0.07**	**3.09**	**1.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-16. Estimated Construction Emissions - Outlet Facilities
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	1.34	0.28
Heavy Equipment Exhaust	18.75	5.51	41.63	0.08	1.98	1.76
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**22.73**	**5.86**	**42.49**	**0.08**	**5.41**	**2.51**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-17. Estimated Construction Emissions - Saddle Dams
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	0.54	0.11
Heavy Equipment Exhaust	25.13	6.85	57.19	0.11	2.73	2.43
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**31.43**	**7.39**	**58.07**	**0.11**	**4.69**	**2.88**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-18. Estimated Construction Emissions - Bypass Pipeline Diversion Structure
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.93	9.23	77.88	0.15	3.60	3.20
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**38.23**	**9.77**	**78.76**	**0.15**	**5.02**	**3.53**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-19. Estimated Construction Emissions - Turnout-Bifurcator Structures
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.62	5.75	48.41	0.09	2.36	2.10
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	0.10	0.36	0.03	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**24.73**	**6.44**	**55.21**	**0.09**	**3.77**	**2.43**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-20. Estimated Construction Emissions - Clearing-Grubbing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.74	4.30	34.10	0.06	1.96	1.74
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**19.72**	**4.65**	**34.96**	**0.06**	**4.05**	**2.21**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-21. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**2.19**	**0.18**	**0.18**	**0.00**	**0.01**	**0.01**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

The construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during Months 21 to 23, which was assumed to occur in 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Foundation Treatment
- Quarry Operations
- RCC Placement
- Outlet Facilities
- Bypass Pipeline Diversion Structure
- Turnout/Bifurcation Structures

Table 2-22 presents a summary of the maximum daily construction emissions associated with these construction activities.

Table 2-22. Estimated Maximum Daily Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, On-site Quarry Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	32.47	7.71	59.47	0.12	3.53	6.21
Quarry Operations	446.58	29.32	316.30	0.42	429.70	98.06
RCC Placement	234.69	56.27	464.36	1.47	70.69	29.78
Outlet Facilities	22.73	5.86	42.49	0.08	5.41	2.51
Bypass Pipeline Diversion Structure	38.23	9.77	78.76	0.15	5.02	3.53
Turnout/Bifurcation Structures	24.73	6.44	55.21	0.09	3.77	2.43
TOTAL	**799.43**	**115.37**	**1016.59**	**2.33**	**518.12**	**142.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

As shown in the table, the emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Offsite Trucked. For the offsite trucked alternative, the construction stages are the same as for the on-site quarry alternative. The difference is that the aggregate supply materials would be supplied by an offsite entity and would be brought to the construction site in heavy-duty trucks. Accordingly, the construction phases addressed in this analysis include the following:

- Mobilization
- RCC Test Section
- Foundation Treatment
- Dam Crest Demolition and Surface Preparation
- Quarry Operations
- Roller Compacted Concrete Placement
- Dam Seepage Control
- Outlet Facilities
- Saddle Dams
- Bypass Pipeline Diversion Structure
- Turnout/Bifurcation Structures
- Clearing/Grubbing
- Demobilization/Reclamation

With the exception of the Quarry Operations construction phase, emission estimates for the construction phases listed above would be the same as for the on-site quarry alternative. Emissions for the Aggregate Supply phase of project construction are presented in Table 2-23.

Table 2-23. Estimated Construction Emissions - Aggregate Supply
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.96	4.72	43.81	0.08	1.86	1.66
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	8.85	2.32	32.72	0.08	1.14	1.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	123.39	25.91
TOTAL	**28.82**	**7.37**	**76.86**	**0.16**	**126.36**	**28.73**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

For the offsite trucked alternative, the construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Foundation Treatment
- Aggregate Supply
- RCC Placement
- Outlet Facilities
- Saddle Dams
- Bypass Pipeline Diversion Structure
- Turnout/Bifurcation Structures

Table 2-24 presents a summary of the maximum daily construction emissions associated with these construction activities.

Table 2-24. Estimated Maximum Daily Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, Offsite Trucked Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	32.47	7.71	59.47	0.12	3.53	6.21
Aggregate Supply	28.82	7.37	76.86	0.16	126.36	28.73
RCC Placement	234.69	56.27	464.36	1.47	70.69	29.78
Outlet Facilities	22.73	5.86	42.49	0.08	5.41	2.51
Bypass Pipeline Diversion Structure	38.23	9.77	78.76	0.15	5.02	3.53
Turnout/Bifurcation Structures	24.73	6.44	55.21	0.09	3.77	2.43
TOTAL	**381.67**	**93.42**	**777.15**	**2.07**	**214.78**	**73.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*Yes*

As shown in the table, the emissions of NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Because the Proposed Action is subject to SDAPCD Rule 1501, Conformity of General Federal Actions, an evaluation of the applicability of the rule to the Proposed Action was conducted. The maximum annual construction scenario was identified based on an evaluation of the construction schedule to determine which construction phases would be constructed in a single year. The year 2010 was identified as the maximum construction scenario for both the on-site quarry and the offsite trucked alternative. The emissions from the on-site quarry alternative represented the maximum annual emissions scenario. Table 2-25 presents a summary of the estimated annual construction emissions for the project construction, along with an evaluation of construction emissions versus the federal *de minimis* thresholds for nonattainment and maintenance pollutants in the SDAB (i.e., CO, NOx, and VOCs).

Table 2-25. Estimated Construction Emissions
tons/year

Emission Source	CO	VOCs	NO_x
Mobilization	0.66	0.16	1.50
RCC Test Section	0.66	0.17	1.37
Foundation Treatment	3.66	0.98	7.95
Dam Crest Demo Surface Prep	2.66	0.67	5.39
Quarry Operations	14.08	3.88	31.14
RCC Placement	37.39	9.79	83.63
Dam Seepage Control	0.00	0.00	0.00
Outlet Facilities	3.42	1.01	7.60
Saddle Dams	2.64	0.72	6.00
Bypass Pipeline Diversion Structures	4.79	1.38	11.68
Turnout/Bifurcation Structures	1.24	0.35	2.90
Clearing/Grubbing	0.00	0.00	0.00
Demobilization-Reclamation	0.00	0.00	0.00
Worker Trips	11.33	0.93	0.94
Truck Traffic	0.27	0.07	1.00
TOTAL	**82.80**	**20.11**	**161.10**
De Minimis Threshold	100	100	100
Above Threshold?	*No*	*No*	*Yes*

As shown in Table 2-25, emissions of nonattainment pollutants are below the *de minimis* thresholds for CO and VOCs, but above the *de minimis* threshold for NOx. Accordingly, a conformity determination is required to demonstrate that emissions of NOx would conform with the SIP.

To develop the SIP emissions budget for construction equipment and on-road vehicles, the SDAPCD relies on output from the CARB's OFFROAD model (for construction equipment) and the San Diego Association of Governments' (SANDAG's) estimates of on-road traffic. Based on the 2010 estimated annual emissions reported for the SDAPCD, offroad diesel-powered construction equipment NOx emissions are estimated at 18.15 tons per day, and on-road vehicle emissions are estimated at 82.74 tons per day. The total heavy construction equipment emissions for the maximum simultaneous construction scenario are 159.16 tons/year or 0.45 tons per day assuming 350 days per year, which amounts to 2.5 percent of the offroad emissions budget in the current SIP. The total vehicular emissions for the maximum simultaneous construction scenario are 1.94 tons/year or 0.0055 tons per day assuming 350 days per year, which amounts to 0.0066 percent of the vehicular emissions budget in the current SIP. The emissions are thus a small portion of the total SIP emissions budget for offroad equipment and on-road vehicles and are well within the budget for these sources. The NOx emissions are therefore accounted for in the SIP budget estimates for construction and the project would be consistent with the SIP.

The Water Authority has provided estimates of NOx emissions to the SDAPCD to review in accordance with the requirements of SDAPCD Rule 1501. Based on a review of the current SIP inventory of emissions associated with construction, the emissions would be within the SIP emissions budget and the project would conform with the SIP.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." Because construction of the Proposed Action would result in additional traffic to the site, a CO "hot spots" analysis was conducted. The *Traffic Impact Analysis – San Vicente Dam Raise* (Linscott, Law, and Greenspan 2006) evaluated construction traffic to assess whether or not there would be a decrease in the level of service at the roadways and/or intersections affected by construction of the Proposed Action. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed to determine whether a CO "hot spot" is likely to form due to construction traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when (a) the level of service (LOS) of an intersection or roadway decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The Traffic Impact Analysis evaluated seven intersections in the project vicinity to assess the Existing, 2010 Plus On-site Quarry, and 2010 Offsite Trucked conditions and LOS. Based on the Traffic Impact Analysis, the following intersections were projected to experience a significant degradation in LOS due to traffic generated by the Proposed Action during construction.

On-site Quarry

- SR-67/Vigilante Road – am and pm peak hours
- SR-67/Willow Road – am and pm peak hours

Offsite Trucked

- SR-67/Vigilante Road – am and pm peak hours
- SR-67/Willow Road – am and pm peak hours

Because the offsite trucked alternative would result in a greater number of trips, and the intersections for which significant impacts are predicted are the same as for the on-site quarry, CO "hot spots" were evaluated for the offsite trucked option as a worst case analysis.

To evaluate the potential for CO "hot spots," the procedures in the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) were used. As recommended in the Protocol, CALINE4 modeling was conducted for the intersections identified above for the scenario without Project traffic, and the Project scenarios. Modeling was conducted based on the guidance in Appendix B of the Protocol to calculate maximum predicted 1-hour CO concentrations. Predicted 1-hour CO concentrations were then scaled to evaluate maximum predicted 8-hour CO concentrations using the recommended scaling factor of 0.7 for urban locations.

Inputs to the CALINE4 model were obtained from the Traffic Impact Analysis. As recommended in the Protocol, receptors were located at locations that were

approximately 3 meters from the mixing zone, and at a height of 1.8 meters. Average approach and departure speeds were estimated using a conservative speed of 1 mile per hour, and the emission factors for that speed were estimated from the EMFAC2002 emissions model (ARB 2002) for 2010, which was assumed to be the year in which the project would experience the highest traffic impact.

In accordance with the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol, it is also necessary to estimate future background CO concentrations in the project vicinity to determine the potential impact plus background and evaluate the potential for CO "hot spots" due to the project. As a conservative estimate of background CO concentrations, the existing maximum 1-hour background concentration of CO that was measured at the San Diego monitoring station for the period 2003 – 2005 of 6.4 ppm was used to represent future maximum background 1-hour CO concentrations. This is a conservative assumption, as the monitoring station is located in a congested area in San Diego. The existing maximum 8-hour background concentration of CO that was measured at the San Diego monitoring station during the period from 2003 – 2005 of 4.71 ppm was also used to provide a conservative estimate of the maximum 8-hour background concentrations in the project vicinity. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles.

The CALINE4 model outputs are provided in Appendix A of this report. Table 2-26 presents a summary of the predicted CO concentrations (impact plus background) for the intersections evaluated for the offsite trucked scenario. As shown in Table 2-26, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO.

Table 2-26. CO "Hot Spots" Evaluation - Offsite Trucked Scenario
Predicted CO Concentrations, ppm

Intersection	**CO Concentration**	
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm		
	am	***pm***
SR 67 and Vigilante Road	7.6	7.5
SR 67 and Willow Road	7.7	7.9
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm		
SR 67 and Vigilante Road	5.55	
SR 67 and Willow Road	5.76	

Project construction could result in TAC emissions mainly associated with diesel heavy equipment exhaust. Diesel exhaust is considered to have long-term carcinogenic and non-carcinogenic health effects. Because the construction equipment would be operating at various locations throughout the construction site, and because any operation near

existing receptors would be temporary, impacts associated with TAC emissions during construction are not considered significant.

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust; however, because the construction equipment would be operating at various locations throughout the construction site, and because any operation near existing receptors would be temporary, impacts associated with odors during construction are not considered significant.

2.5.2 Operational Impacts

Once a reservoir is fully operational, potential air quality impacts would include impacts associated with routine maintenance and operation of the reservoir, and impacts associated with recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations.

Operational and maintenance activities for the San Vicente 100,000 acre-feet reservoir would consist of various activities, including monitoring reservoir level and outlet and spillway discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. All of these activities would result in emissions associated with worker trips to the reservoir. Employee traffic for operation of the San Vicente reservoir would not be anticipated to be appreciably different from present levels. In the *Air Quality Technical Report* for the Emergency Water Storage Project (Ogden Environmental 1995), operation and maintenance activities were anticipated to result in four trips per day. Emissions associated with these trips would be negligible.

As described in the Recreation Master Plan Update, recreational activities at the San Vicente Reservoir would include expanded boating and fishing opportunities at the reservoir. The proposed marina would remain the focus of the recreational activities at the reservoir, and include a boat launch ramp, a floating dock with rental boat slips and office/storage space, a courtesy boarding dock, a fishing pier accessible to disabled persons, a city office building, parking for cars and vehicles with boat trailers, and handicapped spaces in both parking areas. Through the use of temporary concrete mats, or equivalent methods, the boat launch ramp could be extended for additional access to the reservoir during low water levels. The replacement boat dock would be a non-fixed floating dock that would adjust to fluctuating water levels, allowing boat access to the reservoir within an acceptable operating range. The marina would also include a comfort station, concession building, outdoor picnic area with shade shelters, and landscaped parking areas.

The proposed marina would continue to offer the wide range of boating activities which allow for: sail boats, power boats, row boats, inflatable boats and rental power boats. As with present conditions, boating would be restricted to daylight hours only. Water skiing

would still be permitted under the same rules and restrictions that currently apply. Swimming or any other direct body contact to water would not be permitted.

Exhaust emissions associated with personal vehicles and boating equipment as well as exhaust from the boats operating on the reservoir would be the primary source of air emissions associated with recreational use of the San Vicente Reservoir. The Proposed Action would include a larger reservoir and an expanded/relocated marina corresponding to an increase in recreational users and visitor trips, compared to current conditions. During peak summer months, the maximum daily recreational trips could increase from an estimated 225 ADT for the existing marina to possibly up to 360 ADT for the new marina (Weber, 2007). Emissions from vehicles were estimated assuming the San Diego County vehicle mix for the year 2015. Emissions from boats were estimated based on the project description for the maximum number of boats allowed on the reservoir at any one time; therefore, 291 boats were assumed to operate on the reservoir for four hours on a single maximum use day.

Emissions from boats were estimated using the EPA's emission standards as set forth in 40 CFR Part 94 for gasoline-powered marine engines. It was assumed that marine vessel engines would be on average 50 kW. Because the emission standards are provided in terms of hydrocarbons plus NOx, it was assumed that the emissions would be mainly NOx and that hydrocarbons in the exhaust would be negligible.

Operational emissions are shown in Table 2-26. Emissions from operation would be less than significant.

Table 2-26. Estimated Maximum Daily Operational Emissions - Carryover Storage and San Vicente Dam Raise Project

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Lbs/day						
Boating	1.03	N	19.25	N	12.83	12.70
Vehicles	41.57	6.10	3.87	0.06	0.55	0.54
TOTAL	**42.60**	**6.10**	**23.12**	**0.06**	**13.38**	**13.24**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Tons/year						
Boating	0.19	N	3.51	N	2.34	2.32
Vehicles	7.59	1.11	0.71	0.01	0.10	0.10
TOTAL	**7.78**	**1.11**	**4.42**	**0.01**	**2.44**	**2.42**
Significance Threshold	100	15	40	40	15	10
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N: Negligible emissions

2.6 Mitigation Measures

As discussed in Section 2.5, emissions associated with construction of the Proposed Action for both the on-site quarry and offsite trucked construction alternatives are above the quantitative significance thresholds and would result in a temporary, significant impact on the ambient air quality. Accordingly, mitigation measures are proposed to reduce impacts. Mitigation measures for construction include measures to control fugitive dust emissions. In accordance with the San Diego County Grading Ordinance, Section 87.428, dust control measures must be implemented for all grading projects taking place in the County of San Diego. The Grading Ordinance requires that:

> "All clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust."

These measures constitute best management practices for dust control. The SCAQMD's Air Quality Handbook, Table 11-4, provides control efficiencies to estimate the efficiency of the dust control measures required by the Grading Ordinance. Best management practices to reduce the amount of fugitive dust generated from construction of the proposed project, and their respective control efficiencies (based on control efficiencies provided in the SCAQMD CEQA Air Quality Handbook, Table 11-4), include the following:

- Multiple applications of water during grading between dozer/scraper passes – 34-68%
- Paving, chip sealing or chemical stabilization of internal roadways after completion of grading – 92.5%
- Use of sweepers or water trucks to remove "track-out" at any point of public street access – 25-60%
- Stabilization of dirt storage piles by chemical binders, tarps, fencing or other erosion control – 30-65%

General construction conditions include the requirement to meet all of the above control requirements. To model the most conservative construction estimates, only application of water during grading was taken into consideration when applying a control efficiency on particulate emissions. For conservative purposes, it was assumed that an average control efficiency of 50% (the control efficiency used in the URBEMIS2002 model for watering three times daily), would be realized from implementation of control measures for fugitive dust. It should be noted that this control measure would only control fugitive particulate emissions from grading and travel on unpaved roads. Watering twice daily would not control emissions from blasting, nor would it control emissions of particulate from equipment exhaust.

Tables 2-27 through 2-42 present estimates of construction emissions with implementation of dust control measures to mitigate fugitive emissions of PM_{10} and $PM_{2.5}$ for grading and travel on unpaved surfaces. No reductions are assumed for blasting and equipment/vehicle exhaust.

Table 2-27. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.16	5.49	49.94	0.22	2.23	1.98
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**22.40**	**5.68**	**50.30**	**0.22**	**2.59**	**2.07**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-28. Estimated Mitigated Construction Emissions - RCC Test Section Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.00	5.74	45.78	0.09	2.38	2.12
Concrete Batching Emissions	N/A	N/A	N/A	N/A	25.19	5.29
Worker Travel – Vehicle Emissions	8.39	0.70	0.69	0.01	0.05	0.05
Construction Truck Emissions	0.15	0.54	0.04	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.23
TOTAL	**30.54**	**6.98**	**46.51**	**0.10**	**28.67**	**7.71**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-29. Estimated Mitigated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	27.13	7.27	58.85	0.12	2.81	2.50
Worker Travel – Vehicle Emissions	5.29	0.43	0.44	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**32.47**	**7.71**	**59.47**	**0.12**	**3.19**	**2.61**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-30. Estimated Mitigated Construction Emissions - Dam Crest Demolition and Surface Preparation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.34	6.42	51.31	0.09	2.78	2.47
Worker Travel – Vehicle Emissions	4.74	0.39	0.39	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**30.13**	**6.82**	**51.88**	**0.09**	**3.16**	**2.58**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-31. Estimated Mitigated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	1.17	0.25
Heavy Equipment Exhaust	104.28	28.72	230.69	0.41	11.44	10.18
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
TOTAL	**446.58**	**29.32**	**316.30**	**0.42**	**429.70**	**98.06**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 2-32. Estimated Mitigated Construction Emissions - RCC Placement Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	-	-	-	-	34.77	7.30
Heavy Equipment Exhaust	204.86	53.65	458.24	1.44	21.59	19.22
Worker Travel – Vehicle Emissions	28.82	2.36	2.40	0.02	0.19	0.19
Construction Truck Emissions	1.01	0.26	3.72	0.01	0.13	0.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	7.01	1.47
TOTAL	**234.69**	**56.27**	**464.36**	**1.47**	**63.69**	**28.31**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-33. Estimated Mitigated Construction Emissions - Dam Seepage Control Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.70	4.47	34.57	0.07	1.69	1.50
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**19.90**	**4.75**	**35.19**	**0.07**	**2.41**	**1.69**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-34. Estimated Mitigated Construction Emissions - Outlet Facilities Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	1.34	0.28
Heavy Equipment Exhaust	18.75	5.51	41.63	0.08	1.98	1.76
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.23
TOTAL	**22.73**	**5.86**	**42.49**	**0.08**	**4.39**	**2.31**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-35. Estimated Mitigated Construction Emissions - Saddle Dams
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	0.54	0.11
Heavy Equipment Exhaust	25.13	6.85	57.19	0.11	2.73	2.43
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**31.43**	**7.39**	**58.07**	**0.11**	**4.01**	**2.74**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-36. Estimated Mitigated Construction Emissions - Bypass Pipeline Diversion Structure
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.93	9.23	77.88	0.15	3.60	3.20
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**38.23**	**9.77**	**78.76**	**0.15**	**4.34**	**3.40**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-37. Estimated Mitigated Construction Emissions - Turnout-Bifurcator Structures
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.62	5.75	48.41	0.09	2.36	2.10
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	0.10	0.36	0.03	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**24.73**	**6.44**	**55.21**	**0.09**	**3.09**	**2.29**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-38. Estimated Mitigated Construction Emissions - Clearing-Grubbing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.74	4.30	34.10	0.06	1.96	1.74
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.23
TOTAL	**19.72**	**4.65**	**34.96**	**0.06**	**3.03**	**2.01**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-39. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**2.19**	**0.18**	**0.18**	**0.00**	**0.01**	**0.01**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 2-40 presents a summary of the mitigated maximum daily construction emissions associated with these construction activities.

Table 2-40. Estimated Maximum Daily Mitigated Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, On-site Quarry Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	32.47	7.71	59.47	0.12	3.19	2.61
Quarry Operations	446.58	29.32	316.30	0.42	429.70	98.06
RCC Placement	234.69	56.27	464.36	1.47	63.69	28.31
Outlet Facilities	22.73	5.86	42.49	0.08	4.39	2.31
Bypass Pipeline Diversion Structure	38.23	9.77	78.76	0.15	4.34	3.40
Turnout/Bifurcation Structures	24.73	6.44	55.21	0.09	3.09	2.29
TOTAL	**799.43**	**115.37**	**1016.59**	**2.33**	**508.4**	**136.98**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

For the offsite trucked alternative, the construction stages are the same as for the on-site quarry alternative, except that the aggregate supply materials would be supplied by an offsite entity and would be brought to the construction site in heavy-duty trucks. Emissions for the aggregate supply phase of project construction with mitigation are presented in Table 2-41.

Table 2-41. Estimated Mitigated Construction Emissions - Aggregate Supply Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.96	4.72	43.81	0.08	1.86	1.66
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	8.85	2.32	32.72	0.08	1.14	1.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	61.70	12.96
TOTAL	**28.82**	**7.37**	**76.86**	**0.16**	**64.73**	**15.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 2-42 presents a summary of the mitigated maximum daily construction emissions associated with the offsite trucked construction alternative.

Table 2-42. Estimated Maximum Daily Mitigated Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, Offsite Trucked Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	32.47	7.71	59.47	0.12	3.19	2.61
Aggregate Supply	28.82	7.37	76.86	0.16	64.73	15.78
RCC Placement	234.69	56.27	464.36	1.47	63.69	28.31
Outlet Facilities	22.73	5.86	42.49	0.08	4.39	2.31
Bypass Pipeline Diversion Structure	38.23	9.77	78.76	0.15	4.34	3.40
Turnout/Bifurcation Structures	24.73	6.44	55.21	0.09	3.09	2.29
TOTAL	**381.67**	**93.42**	**777.15**	**2.07**	**143.43**	**54.7**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

2.7 Residual Impacts After Mitigation

As shown in Table 2-40, the maximum daily emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ would remain above the quantitative significance thresholds and temporary impacts associated with construction of the on-site quarry alternative would remain significant impact after mitigation.

As shown in Table 2-42, the maximum daily emissions of NOx and PM_{10} would remain above the quantitative significance thresholds and temporary impacts associated with the construction of the offsite trucked alternative would remain significant impact after mitigation.

2.8 Cumulative Impacts

In analyzing cumulative impacts from a Proposed Action, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "non-attainment" for the State AAQS. A project that has a significant impact on air quality with regard to emissions of NO_x, VOCs, and/or PM_{10} as determined by the screening criteria outlined above would have a significant cumulative effect. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects are in excess of screening levels identified above, and the project's contribution accounts for more than an insignificant proportion of the cumulative total emissions.

With regard to past and present projects, the background ambient air quality, as measured at the monitoring stations maintained and operated by the SDAPCD, measures the concentrations of pollutants from existing sources. Past and present project impacts are therefore included in the background ambient air quality data.

PM_{10} emissions associated with construction generally result in near-field impacts. Because the SDAB is considered a nonattainment area for the CAAQS for PM_{10}, and because PM_{10} impacts are considered significant, construction of the Proposed Action would result in a temporary but significant cumulative impact on the ambient air quality.

With regard to cumulative impacts associated with ozone precursors, in general, provided a project is consistent with the community and general plans, it has been accounted for in the ozone attainment demonstration contained within the State Implementation Plan and would not cause a cumulatively significant impact on the ambient air quality for ozone. The Water Authority has developed the Carryover Storage and San Vicente Dam Raise project to meet the demands of the region rather than induce growth and, as such, would be consistent with community and general plans and growth projections for San Diego County. However, because emissions of ozone precursors associated with construction of the Proposed Action are considered significant, the Proposed Action would result in a temporary but significant cumulative impact on the ambient air quality.

The planned or reasonably foreseeable projects were generally accounted for in the Traffic Impact Analysis, and were therefore considered in the evaluation of CO "hot spots." Based on the CO "hot spots" evaluation, a cumulative impact associated with traffic emissions is not anticipated.

3.0 ALTERNATIVE 2: MOOSA 100,000 ACRE-FEET

3.1 Environmental Setting

Moosa Valley is located in a relatively unpopulated area 3.5 miles northwest of Valley Center in San Diego County (Figure 1). The site is approximately 15 miles north of the City of Escondido and four miles east of Interstate 15 (I-15). Existing uses within Moosa Valley include Turner Lake, scattered residences, agricultural lands and undeveloped areas. Access to the site is via Old Castle Road, Lilac Road and Betsworth Road (Figure 5).

3.2 Project Description

This alternative would provide for approximately 100,000 AF of carryover storage at Moosa Valley through construction of a new dam and inundation of a natural canyon (Figure 6). A new 384-foot high dam would be constructed. The dam crest elevation would be 1,258 feet AMSL. A saddle dam with spillway would be constructed approximately 1,000 feet to the northeast of the main dam; the spillway elevation would be 1,246 feet AMSL. The saddle dam/spillway would be approximately 84 feet high and 1,090 feet long. Both the main dam and saddle dam would be concrete-face rockfill dams. Dam construction is estimated to take about four years.

The following new conveyance facilities would be required to connect the reservoir to the Water Authority's aqueduct system: three pump stations, flow regulatory storage tank, pipeline, and appurtenant facilities. The Moosa Creek pump station would lift water from the Moosa Reservoir to a flow regulatory storage tank. Water would be conveyed by gravity from the tank to the Second Aqueduct via a 6.4-mile-long, 90-inch-diameter steel pipeline. The pipeline alignment would follow Moosa Creek to Old Castle Road and continue west to the Second Aqueduct on the west side of I-15. The pipeline would be installed within an open-cut trench, except for the portion crossing I-15, which would be in a tunnel. Additional facilities would include a marina, new access roads, and new electrical supply to the pump station and other facilities. A portion of the First Aqueduct located below the reservoir inundation area would require reconstruction.

3.3 Affected Environment

The nearest ambient air quality monitoring stations to the Moosa Reservoir are the Escondido monitoring station and the downtown San Diego monitoring station, which is the nearest monitoring station in San Diego County that measures SO_2. Table 3-1 presents ambient air pollutant concentrations measured at the Escondido and San Diego stations during the period 2003 through 2005.

Table 3-1. Ambient Background Concentrations
ppm (unless otherwise indicated)

Pollutant	Averaging Time	2003	2004	2005	Most Stringent Ambient Air Quality Standard	Monitoring Station	Standard Exceeded?
Ozone	8 hour	0.083	0.086	0.079	0.070	Escondido	Yes
	1 hour	0.105	0.099	0.095	0.09	Escondido	Yes
PM_{10}	Annual Average	32.7	27.3	23.9	20 µg/m^3	Escondido	Yes
	24 hour[1]	179	57	42	50 µg/m^3	Escondido	Yes
$PM_{2.5}$	Annual Average	14.2	14.1	12.3	12 µg/m^3	Escondido	Yes
	24 hour	69.2	67.3	43.1	35 µg/m^3	Escondido	Yes
NO_2	Annual	0.020	0.018	0.016	0.053	Escondido	No
	1 hour	0.135	0.080	0.076	0.25	Escondido	No
CO	8 hour[1]	10.64	3.61	3.10	9.0	San Diego	No
	1 hour[1]	12.7	6.3	5.9	20	San Diego	No
SO_2	Annual	0.004	0.004	0.002	0.030	San Diego	No
	24 hour	0.008	0.008	0.007	0.04	San Diego	No
	1 hour	0.036	0.042	0.040	0.25	San Diego	No

[1]Highest values measured during the Cedar Fire event in 2003.
Sources: www.arb.ca.gov/adam; www.epa.gov/air/data/monvals.

3.4 Thresholds of Significance

Thresholds of significance are the same as for the Proposed Action as presented in Section 2.4.

3.5 Environmental Consequences

This section of the Air Quality Technical Report addresses potential air quality impacts and significance of impacts associated with the Moosa 100,000 Acre-Feet Alternative. This alternative involves construction of a new 384-foot high dam in Moosa Valley to create the reservoir with capacity of 100,000 acre-feet. This alternative would also require construction of new conveyance facilities as described in Section 3.2, including three pump stations, flow regulatory storage tank, pipeline, and appurtenant facilities. Additional facilities would include a marina, new access roads, and new electrical supply to the pump station and other facilities. A portion of the First Aqueduct located below the reservoir inundation area would require reconstruction.

3.5.1 Construction Impacts

Construction for the Moosa 100,000 Acre-Feet Alternative is comprised of several components. These components are as follows:

- Moosa Dam
- Drain/Fill Pipeline from Moosa Dam to Second Aqueduct
- Pump Station at Moosa Creek
- Interconnection between Moosa Pipeline and Second Aqueduct

- Relocation of First Aqueduct west of Moosa Dam
- Pump Station and Water Line for VCMWD (North)
- Pump Station and Water Line for VCMWD (South)
- Relocation of Public Roads and Electrical Systems

The construction requirements and impact assessment for each components, and for overall construction, are presented below.

Moosa Dam. Construction of the Moosa Dam involves the following steps:

- Mobilization
- Earthwork
- Clearing
- Foundation Treatment
- Spillway
- Quarry
- Outlet Works
- Embankment
- Demobilization/Reclamation

The Water Authority has developed a detailed project construction schedule that provides heavy equipment estimates, personnel requirements, truck traffic estimates, and estimates of required grading/materials handling/import/export for each of the individual projects analyzed in this analysis.

Emission estimates have been prepared for individual construction projects listed above to evaluate the maximum daily emissions. As discussed in Section 1.3, emission estimates were based on emission factors obtained from the CARB's OFFROAD model (CARB [Futaba] 2006). Emission rates for employee vehicles and heavy truck operations were developed from the ARB's EMFAC2002 model, which calculates emission rates for vehicles based on vehicle classes (for example, light-duty autos, medium-heavy trucks, heavy duty trucks) and vehicle miles traveled. Employee travel to and from the project site was assumed to have a trip length of 14 miles. Truck deliveries/material export was assumed to have a trip length of 10 miles. To estimate emissions of fugitive dust associated with truck traffic on unpaved surfaces, it was assumed that each truck would travel 0.5 miles on unpaved surfaces for each construction phase.

Based on the project description, the foundation would be prepared by drilling, blasting, and excavating the soil and weathered rock during the foundation excavation phase. For the new dam foundation, it is anticipated that about 310,000 cubic yards of overburden and weathered rock would need to be excavated. To remove the overburden, blasting will be required at the site. Fugitive dust emissions associated with blasting were estimated based on the EPA's emission factor for blasting for coal mining to remove

overburden, which is a similar process. According to Section 11.9 of AP-42, emissions from blasting are calculated as follows:

$$\text{Lbs } PM_{10}/\text{blast} = 0.000014(A)^{1.5} \times 0.52 \text{ lbs } PM_{10}/\text{lbs TSP}$$

For conservative purposes, it was assumed that blasting to a depth of 1 foot would be required to remove the 310,000 cubic yards of overburden. Based on this assumption, it was estimated that a total of 310,000 square yards or 2,790,000 square feet of blasting would be required to remove overburden prior to project construction; thus a total of 33,926 lbs of PM_{10} would be associated with blasting over the entire duration of the earthwork phase of the Proposed Action. Based on the construction schedule, blasting would be conducted over a 7-month period, assuming construction would take place 7 days a week, 24 hours per day. The daily emissions would therefore be estimated at 161.55 lbs/day.

The project would utilize ammonium nitrate/fuel oil ANFO explosives to conduct blasting on site. Based on the EPA's AP-42 emission factors in Section 13.3, emissions from use of ANFO are estimated at 67 lbs CO per ton of explosive, and 17 lbs NOx per ton of explosive. Based on typical construction projects, it was estimated that a maximum of 10,000 lbs per day could be used at the site; thus the maximum daily emissions due to the use of ANFO would be 335 lbs/day of CO and 85 lbs/day of NOx.

Emission rates for materials handling (truck loading of excavated material) were obtained from the SCAQMD's 1993 CEQA Air Quality Handbook. The emission rates depend on the amount of materials being handled (in tons), the moisture content of the materials (in percent) and the mean wind speed (in miles per hour). For this project, it was assumed that excavated material had a 4.8% moisture content as recommended by EPA. The wind speed was assumed to be 12 mph. It was assumed that each truck could handle 18 cubic yards of material, and for the maximum daily emissions, based on the construction contractor estimate, it was assumed that a maximum of 64 trucks per day would haul material offsite.

Particulate emissions from materials handling during excavation were estimated using the methodology recommended in the SCAQMD CEQA Air Quality Handbook, Table A9-9-G, for material handling. The equation recommended in Table A9-9-G is as follows:

$$E = [0.00112 \times (\{[G/5]^{1.3}\}/\{[H/2]^{1.4}\})] \times [I/J]$$

Where
- E = PM_{10} emissions, lbs/day
- G = Wind speed, estimated as 12 miles per hour
- H = Moisture content, estimated as 4.8% for moist material
- I = Pounds of dirt handled per day
- J = 2000 lbs/ton of dirt

Tables 3-2 through 3-10 present a summary of construction emissions for each individual component of the Moosa Dam construction project. To evaluate the maximum daily and

total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-2. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.60	5.58	67.70	0.08	3.16	2.81
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**27.19**	**5.72**	**68.02**	**0.08**	**3.86**	**2.97**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-3. Estimated Construction Emissions - Earthwork
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	161.55	33.93
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	2.11	0.44
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	70.95	14.56	178.45	0.22	8.54	9.06
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
TOTAL	**408.32**	**14.75**	**263.65**	**0.22**	**172.22**	**43.45**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-4. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.80	13.72	173.93	0.21	8.24	7.33
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.44	0.12	1.63	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	6.15	1.29
TOTAL	**72.07**	**14.15**	**175.88**	**0.21**	**14.47**	**8.70**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-5. Estimated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	142.82	29.78	339.77	0.52	16.64	14.81
Worker Travel – Vehicle Emissions	12.77	1.04	1.06	0.01	0.08	0.08
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**155.69**	**30.85**	**341.19**	**0.53**	**18.10**	**15.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-6. Estimated Construction Emissions - Spillway Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.98	4.31	31.33	0.10	1.70	1.51
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.12	0.45	0.03	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.71	0.36
TOTAL	**20.38**	**5.03**	**31.63**	**0.10**	**3.45**	**1.91**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-7. Estimated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	0.18	0.04
Heavy Equipment Exhaust	74.69	18.53	140.70	0.25	7.91	7.04
Worker Travel – Vehicle Emissions	10.94	0.91	0.90	0.01	0.07	0.07
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**420.65**	**19.45**	**226.69**	**0.26**	**425.54**	**94.80**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 3-8. Estimated Construction Emissions - Outlet Works
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	33.85	7.52	72.36	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.47	0.28	0.29	0.00	0.02	0.02
Construction Truck Emissions	0.17	0.04	0.63	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.39	0.50
TOTAL	**37.49**	**7.84**	**73.28**	**0.15**	**6.30**	**3.98**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-9. Estimated Construction Emissions - Embankment
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	83.09	14.95	209.25	0.40	9.76	8.69
Worker Travel – Vehicle Emissions	6.57	0.54	0.55	0.00	0.04	0.04
Construction Truck Emissions	5.05	1.32	18.67	0.05	0.65	0.64
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	70.41	14.79
TOTAL	**94.71**	**16.81**	**228.47**	**0.45**	**80.86**	**24.16**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-10. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	28.62	6.28	72.97	0.08	3.48	3.10
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**31.04**	**6.48**	**73.35**	**0.08**	**4.19**	**3.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Drain/Fill Pipeline from Moosa Dam to Second Aqueduct. Construction of the drain/fill pipeline from Moosa Dam to the Second Aqueduct involves the following steps:

- Mobilization
- Clearing
- Excavation
- Pipe Installation (Trenching)
- Access Roads
- Demobilization

During the access road construction and the site preparation/excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-11 through 3-17 present a summary of construction emissions for each individual component of the Drainfill Pipeline from Moosa Dam to Second Aqueduct construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-11. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**18.15**	**1.93**	**43.69**	**0.09**	**2.65**	**1.90**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-12. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	39.75	3.87	96.65	0.18	4.21	3.75
Worker Travel – Vehicle Emissions	4.92	0.40	0.41	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**44.72**	**8.15**	**97.24**	**0.18**	**4.93**	**3.93**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-13. Estimated Construction Emissions - Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	45.37	3.90	98.73	0.16	4.26	3.79
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
TOTAL	**47.89**	**4.11**	**98.94**	**0.16**	**104.28**	**24.81**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-14. Estimated Construction Emissions - Pipe Installation (Trenching)
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.51	6.46	158.73	0.28	7.25	6.45
Worker Travel – Vehicle Emissions	9.12	0.76	0.75	0.01	0.06	0.06
Construction Truck Emissions	0.49	1.81	0.13	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	6.84	1.44
TOTAL	**77.12**	**9.03**	**159.61**	**0.29**	**14.15**	**9.45**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-15. Estimated Construction Emissions - Access Roads
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	7.21	0.77	18.64	0.04	0.86	0.77
Worker Travel – Vehicle Emissions	0.91	0.07	0.08	0.00	0.01	0.01
TOTAL	**8.12**	**0.84**	**18.72**	**0.04**	**100.87**	**21.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-16. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	42.59	4.12	102.14	0.19	4.59	4.00
Worker Travel – Vehicle Emissions	1.28	0.11	0.10	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**43.92**	**4.24**	**102.42**	**0.19**	**5.29**	**4.16**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Pump Station at Moosa Creek. Construction of the pump station at Moosa Creek involves the following steps:

- Mobilization
- Excavation
- Building
- Pumps
- Electric Systems
- Electric Power
- Demobilization

During the site preparation/excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-17 through 3-23 present a summary of construction emissions for each individual component of the Pump Station at Moosa Creek construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-17. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**16.77**	**1.78**	**39.99**	**0.08**	**2.14**	**1.67**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-18. Estimated Construction Emissions - Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	49.57	4.42	111.29	0.19	4.86	4.33
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**52.80**	**4.70**	**111.74**	**0.19**	**5.57**	**4.50**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-19. Estimated Construction Emissions - Building
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	0.38
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**18.35**	**1.91**	**39.77**	**0.08**	**3.88**	**0.85**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-20. Estimated Construction Emissions - Pumps
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.51	0.90	21.87	0.04	1.02	0.91
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.05
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**16.04**	**1.52**	**22.67**	**0.05**	**1.79**	**1.11**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-21. Estimated Construction Emissions - Electric Systems
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	2.55	0.28	6.78	0.01	0.30	0.27
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**3.69**	**0.38**	**7.05**	**0.01**	**1.00**	**0.43**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-22. Estimated Construction Emissions - Electric Power
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	7.30	0.56	14.60	0.02	0.59	0.53
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
TOTAL	**9.12**	**0.71**	**14.75**	**0.02**	**0.60**	**0.54**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-23. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	30.61	3.09	76.67	0.15	3.37	3.00
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**32.12**	**3.22**	**76.97**	**0.15**	**4.07**	**3.16**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Interconnection Between Moosa Pipeline and Second Aqueduct. Construction of the interconnection between Moosa Pipeline and the Second Aqueduct involves the following steps:

- Mobilization
- Excavation
- Vault Construction
- Installation of Valves and Pipes
- Demobilization

During the site preparation/excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-24 through 3-28 present a summary of construction emissions for each individual component of the Interconnection between Moosa Pipeline and Second Aqueduct construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month

estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-24. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	11.68	1.27	31.09	0.06	1.40	1.25
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**13.52**	**1.43**	**31.33**	**0.06**	**1.75**	**1.33**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-25. Estimated Construction Emissions - Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	-	-	-	-	100.00	21.00
Heavy Equipment Exhaust	26.74	2.44	61.44	0.11	2.65	2.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**28.25**	**2.57**	**61.74**	**0.11**	**103.35**	**23.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-26. Estimated Construction Emissions - Vault Construction
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	11.67	1.25	30.29	0.06	1.40	1.25
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**13.86**	**1.43**	**30.47**	**0.06**	**1.41**	**1.26**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-27. Estimated Construction Emissions - Installation of Valves and Pumps Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.42	0.89	21.63	0.04	1.01	0.90
Worker Travel – Vehicle Emissions	2.01	0.16	0.17	0.00	0.01	0.01
Construction Truck Emissions	0.01	0.01	0.05	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**10.44**	**1.05**	**21.85**	**0.04**	**1.19**	**0.95**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-28. Estimated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.16	2.15	52.28	0.10	2.41	2.14
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**22.00**	**2.31**	**52.52**	**0.10**	**2.76**	**2.22**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Relocate First Aqueduct West of Moosa Dam. Relocation of the First Aqueduct west of Moosa Dam involves the following steps:

- Mobilization
- Clearing
- Excavation
- Pipe Installation (Trench)
- Pipe Installation (Tunnel)
- Tunneling
- Access Roads
- Demobilization

During the site preparation/excavation phase and access road construction phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive

dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-29 through 3-36 present a summary of construction emissions for each individual component of the Relocation of the First Aqueduct west of Moosa Dam construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-29. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**18.15**	**1.93**	**43.69**	**0.09**	**2.65**	**1.90**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-30. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	39.75	3.87	96.65	0.18	4.21	3.75
Worker Travel – Vehicle Emissions	4.92	0.40	0.41	0.00	0.03	0.03
TOTAL	**44.67**	**4.27**	**97.06**	**0.18**	**4.24**	**3.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-31. Estimated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	47.96	4.40	110.02	0.19	4.83	1.01
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**50.38**	**4.60**	**110.40**	**0.19**	**105.54**	**22.17**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-32. Estimated Construction Emissions - Pipe Installation (Trench) Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	62.34	5.88	144.17	0.25	6.64	5.91
Worker Travel – Vehicle Emissions	8.94	0.73	0.74	0.01	0.06	0.01
Construction Truck Emissions	0.49	0.13	1.81	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	6.84	1.44
TOTAL	**71.77**	**6.74**	**146.72**	**0.26**	**13.60**	**7.42**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-33. Estimated Construction Emissions - Pipeline Installation (Tunnel) Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.93	1.68	43.04	0.06	1.85	1.65
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	0.49	0.13	1.81	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	6.84	1.44
TOTAL	**27.46**	**2.14**	**45.18**	**0.06**	**8.78**	**3.18**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-34. Estimated Construction Emissions - Tunneling
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	74.68	5.90	151.46	0.23	6.53	5.81
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**78.33**	**6.20**	**151.76**	**0.23**	**6.55**	**5.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-35. Estimated Construction Emissions - Access Roads
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	52.13	4.90	122.04	0.22	5.38	4.79
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**55.78**	**5.20**	**122.34**	**0.22**	**105.40**	**25.81**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-36. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	38.53	3.79	93.80	0.17	4.20	3.74
Worker Travel – Vehicle Emissions	1.28	0.11	0.10	0.00	0.01	0.01
TOTAL	**39.81**	**3.90**	**93.90**	**0.17**	**4.21**	**3.75**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Pump Station and Water Line for VCMWD (North). Construction of the pump station and water line for VCMWD (North) involves the following steps:

- Mobilization
- Clearing
- Excavation
- Building
- Tanks
- Pumps
- Electrical Systems
- Installation of Pipeline
- Demobilization

During the site preparation/excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-37 through 3-45 present a summary of construction emissions for each individual component of the Pump Station and Water Line for VCMWD (North) construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-37. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**18.12**	**1.93**	**43.60**	**0.09**	**2.30**	**1.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-38. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	35.46	3.62	89.58	0.17	3.95	3.52
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
TOTAL	**37.28**	**3.77**	**89.73**	**0.17**	**3.96**	**3.53**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-39. Estimated Construction Emissions - Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	40.36	3.52	88.60	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**44.01**	**3.82**	**88.90**	**0.15**	**103.89**	**24.46**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-40. Estimated Construction Emissions - Building
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**17.57**	**1.84**	**39.53**	**0.08**	**3.19**	**1.91**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-41. Estimated Construction Emissions - Tanks
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	9.87	1.05	25.51	0.05	1.18	0.11
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**11.01**	**1.15**	**25.78**	**0.05**	**1.88**	**0.34**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-42. Estimated Construction Emissions - Pumps
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	5.25	0.55	13.21	0.03	0.63	0.11
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**12.78**	**1.17**	**14.01**	**0.04**	**1.34**	**0.34**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-43. Estimated Construction Emissions - Electrical Systems
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	3.37	0.35	8.18	0.01	0.40	0.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**4.88**	**0.48**	**8.48**	**0.01**	**1.10**	**0.59**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-44. Estimated Construction Emissions - Installation of Pipeline
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.24	3.08	75.47	0.14	3.44	0.40
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.02
TOTAL	**37.44**	**3.59**	**75.99**	**0.14**	**3.48**	**0.42**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-45. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.46	3.12	77.07	0.14	3.48	3.10
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**34.15**	**3.26**	**77.39**	**0.14**	**4.18**	**3.26**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Pump Station and Water Line for VCMWD (South). Construction of the pump station and water line for VCMWD (North) involves the following steps:

- Mobilization
- Clearing
- Excavation
- Building
- Tanks
- Pumps
- Electrical Systems
- Installation of Pipeline
- Demobilization

During the site preparation/excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-46 through 3-54 present a summary of construction emissions for each individual component of the Pump Station and Water Line for VCMWD (South) construction project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-46. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**16.77**	**1.78**	**40.00**	**0.08**	**2.14**	**1.67**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-47. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	35.46	3.62	89.58	0.17	3.95	3.52
Worker Travel – Vehicle Emissions	3.10	0.26	0.25	0.00	0.02	0.02
TOTAL	**38.56**	**3.88**	**89.83**	**0.17**	**3.97**	**3.54**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-48. Estimated Construction Emissions - Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	40.36	3.52	88.60	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
TOTAL	**42.91**	**3.73**	**88.81**	**0.15**	**103.89**	**24.46**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-49. Estimated Construction Emissions - Building
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	2.74	0.22	0.23	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**17.76**	**1.85**	**39.55**	**0.08**	**3.19**	**1.91**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-50. Estimated Construction Emissions - Tanks
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	9.87	1.05	25.51	0.05	1.18	0.11
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**11.01**	**1.15**	**25.78**	**0.05**	**1.88**	**0.34**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-51. Estimated Construction Emissions - Pumps
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	5.25	0.55	13.21	0.03	0.63	0.11
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**12.78**	**1.17**	**14.01**	**0.04**	**1.34**	**0.34**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-52. Estimated Construction Emissions - Electrical Systems
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	3.37	0.35	8.18	0.01	0.40	0.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**4.88**	**0.48**	**8.48**	**0.01**	**1.10**	**0.59**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-53. Estimated Construction Emissions - Installation of Pipeline
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.24	3.08	75.47	0.14	3.44	0.40
Worker Travel – Vehicle Emissions	2.74	0.23	0.22	0.00	0.02	0.02
TOTAL	**33.98**	**3.31**	**75.69**	**0.14**	**3.46**	**0.42**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-54. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.46	3.12	77.07	0.14	3.48	3.10
Worker Travel – Vehicle Emissions	1.28	0.10	0.11	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**33.79**	**3.23**	**77.36**	**0.14**	**4.18**	**3.26**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Relocate Public Roads and Electrical Systems. Relocation of public roads and electrical systems involves the following steps:

- Mobilization
- Clearing
- Removal of Existing Lines
- Installation of Electric Lines

- Excavation
- Demobilization

During the excavation phase, it was assumed that approximately 10 acres/day of grading could occur. Emissions of fugitive dust during grading for the access roads were calculated based on the URBEMIS2002 uncontrolled PM_{10} emission factor of 10 lbs/acre-day for grading; therefore, uncontrolled emissions could be as high as 100 lbs/day of PM_{10}.

Tables 3-55 through 3-60 present a summary of construction emissions for each individual component of the relocation of public roads and electrical systems. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 3-55. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**16.59**	**1.76**	**39.99**	**0.08**	**2.14**	**1.67**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-56. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	23.38	2.07	52.58	0.09	2.22	1.98
Worker Travel – Vehicle Emissions	2.01	0.16	0.17	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**25.44**	**2.24**	**52.93**	**0.09**	**2.92**	**2.14**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-57. Estimated Construction Emissions - Removal of Existing Lines Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.81	1.25	32.41	0.05	1.32	1.17
Worker Travel – Vehicle Emissions	1.64	0.14	0.13	0.00	0.01	0.01
TOTAL	**17.45**	**1.39**	**32.54**	**0.05**	**1.33**	**1.18**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-58. Estimated Construction Emissions - Installation of Electric Lines Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.79	8.26	99.23	0.06	4.62	4.11
Worker Travel – Vehicle Emissions	2.92	0.24	0.24	0.00	0.02	0.02
Construction Truck Emissions	0.02	0.09	0.01	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**35.73**	**8.59**	**99.48**	**0.06**	**4.98**	**4.20**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-59. Estimated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	97.16	24.64	291.42	0.17	13.69	12.18
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**100.86**	**24.95**	**291.90**	**0.17**	**114.40**	**33.35**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-60. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	50.15	12.93	147.10	0.09	7.26	6.46
Worker Travel – Vehicle Emissions	2.37	0.20	0.19	0.00	0.02	0.02
Construction Truck Emissions	0.25	0.06	0.91	0.00	0.03	0.03
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	3.42	0.72
TOTAL	**52.77**	**13.19**	**148.20**	**0.09**	**10.73**	**7.23**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

The construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during month 13 of construction, assumed to be in 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Moosa Dam
  - Earthwork
  - Clearing
  - Foundation
  - Outlet
- Drain/Fill Pipeline from Moosa Dam to Second Aqueduct
  - Clearing
  - Excavation
  - Pipe Installation
- Pump Station at Moosa Creek
  - Excavation
  - Electric Power
- Relocation of First Aqueduct west of Moosa Dam
  - Excavation
  - Pipe Installation (Trenching)
  - Tunneling
- Pump Station and Water Line for VCMWD (North)
  - Pumps
  - Installation of Pipeline

Table 3-61 presents a summary of the maximum daily construction emissions associated with these construction activities.

As shown in the table, the emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Table 3-61 Estimated Maximum Daily Construction Emissions - Moosa 100,000 Acre-Feet Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Moosa Dam						
Earthwork	408.32	14.75	263.65	0.22	172.22	43.45
Clearing	72.07	14.15	175.88	0.21	14.47	8.70
Foundation	155.69	30.85	341.19	0.53	18.10	15.19
Outlet	37.49	7.84	73.28	0.15	6.30	3.98
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct						
Clearing	44.72	8.15	97.24	0.18	4.93	3.93
Excavation	47.89	4.11	98.94	0.16	104.28	24.81
Pipe Installation	77.12	9.03	159.61	0.29	14.15	9.45
Pump Station at Moosa Creek						
Excavation	52.80	4.70	111.74	0.19	5.57	4.50
Electric Power	9.12	0.71	14.75	0.02	0.60	0.54
Relocation of First Aqueduct west of Moosa Dam						
Excavation	50.38	4.60	110.40	0.19	105.54	22.17
Pipe Installation (Trenching)	71.77	6.74	146.72	0.26	13.60	7.42
Tunneling	78.33	6.20	151.76	0.23	6.55	5.83
Pump Station and Water Line for VCMWD (North)						
Pumps	12.78	1.17	14.01	0.04	1.34	0.34
Installation of Pipeline	37.44	3.59	75.99	0.14	3.48	0.42
TOTAL	**1155.92**	**116.59**	**1835.16**	**2.81**	**471.13**	**150.73**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

Along with the Proposed Action, project alternatives, if selected, would be subject to SDAPCD Rule 1501, Conformity of General Federal Actions. Therefore, an evaluation of the applicability of the rule to the Moosa 100,000 Acre-Feet Alternative was conducted. The maximum annual construction scenario was identified based on an evaluation of the construction schedule to determine which construction phases would be constructed in a single year. The year 2010 was identified as the maximum construction scenario for both the on-site quarry and the offsite trucked alternative. The emissions from the on-site quarry alternative represented the maximum annual emissions scenario. Table 3-62 presents a summary of the estimated annual construction emissions for the

project construction, along with an evaluation of construction emissions versus the federal *de minimis* thresholds for nonattainment and maintenance pollutants in the SDAB (i.e., CO, NOx, and VOCs).

Table 3-62. Estimated Construction Emissions – Moosa 100,000 Acre-Feet Alternative
tons/year

Emission Source	CO	VOCs	NO_x
Moosa Dam	65.18	13.62	154.05
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct	20.31	1.87	46.38
Pump Station at Moosa Creek	7.33	0.69	17.10
Relocate First Aqueduct West of Moosa Dam	7.24	0.61	15.44
Pump Station and Water Line for VCMWD North	6.64	0.65	15.95
Pump Station and Water Line for VCMWD South	4.79	0.46	11.40
Worker Trips	12.91	1.06	1.07
Truck Traffic	0.89	0.23	3.29
TOTAL	**125.29**	**19.18**	**264.68**
De Minimis Threshold	100	100	100
Above Threshold?	*Yes*	*No*	*Yes*

As shown in Table 3-62, emissions of nonattainment pollutants are below the *de minimis* thresholds for VOCs, but above the *de minimis* threshold for CO and NOx. Furthermore, emissions associated with the Moosa 100,000 Acre-Feet Alternative would be higher than for the Proposed Action. Accordingly, a conformity determination is required to demonstrate that emissions of CO and NOx for the Moosa 100,000 Acre-Feet Alternative would conform with the SIP.

To develop the SIP emissions budget for construction equipment and on-road vehicles, the SDAPCD relies on output from the CARB's OFFROAD model (for construction equipment) and the San Diego Association of Governments' (SANDAG's) estimates of on-road traffic. Based on the 2010 estimated annual emissions reported for the SDAPCD, offroad diesel-powered construction equipment NOx emissions are estimated at 18.15 tons per day, and on-road vehicle emissions are estimated at 82.74 tons per day. The total heavy construction equipment emissions for the maximum simultaneous construction scenario are 260.32 tons/year or 0.74 tons per day assuming 350 days per year, which amounts to 4.1 percent of the offroad emissions budget in the current SIP. The total vehicular emissions for the maximum simultaneous construction scenario are 4.36 tons/year or 0.0125 tons per day assuming 350 days per year, which amounts to 0.015 percent of the vehicular emissions budget in the current SIP. The emissions are thus a small portion of the total SIP emissions budget for offroad equipment and on-road vehicles and are well within the budget for these sources. The NOx emissions are therefore accounted for in the SIP budget estimates for construction and the project would be consistent with the SIP.

Based on the 2010 estimated annual emissions reported for the SDAPCD, offroad diesel-powered construction equipment CO emissions are estimated at 9.15 tons per day, and on-road vehicle emissions are estimated at 438.05 tons per day. The total heavy construction equipment emissions for the maximum simultaneous construction scenario are 125.29 tons/year or 0.36 tons per day assuming 350 days per year, which amounts to 3.9 percent of the offroad emissions budget in the current SIP. The total vehicular emissions for the maximum simultaneous construction scenario are 13.8 tons/year or 0.039 tons per day assuming 350 days per year, which amounts to 0.009 percent of the vehicular emissions budget in the current SIP. The emissions are thus a small portion of the total SIP emissions budget for offroad equipment and on-road vehicles and are well within the budget for these sources. The CO emissions are therefore accounted for in the SIP budget estimates for construction and the project would be consistent with the SIP.

Based on a review of the current SIP inventory of emissions associated with construction, the emissions associated with the Moosa 100,000 Acre-Feet Alternative would be within the SIP emissions budget and the project would conform with the SIP.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." Because construction of the Proposed Action would result in additional traffic to the site, a CO "hot spots" analysis was conducted. The *Traffic Impact Analysis – San Vicente Dam Raise* (Linscott, Law, and Greenspan 2006) evaluated construction traffic for the Moosa 100,000 Acre-Feet Alternative to assess whether or not there would be a decrease in the level of service at the roadways and/or intersections affected by construction of the Proposed Action. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed to determine whether a CO "hot spot" is likely to form due to construction traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when (a) the level of service (LOS) of an intersection or roadway decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The Traffic Impact Analysis evaluated eight intersections in the project vicinity to assess the Existing and 2010 Plus Project conditions and LOS. Based on the Traffic Impact Analysis, the following intersections were projected to experience a significant degradation in LOS due to traffic generated by the Proposed Action during construction.

- Lilac Road/Betsworth Road – pm peak hour
- I-15 SB Ramps/Gopher Canyon Road – am and pm peak hours

To evaluate the potential for CO "hot spots," the procedures in the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) were used. As recommended in the Protocol, CALINE4 modeling was conducted for the intersections identified above for the scenario without Project traffic, and the Project scenarios. Modeling was conducted based on the guidance in Appendix B of the Protocol to calculate maximum predicted 1-hour CO concentrations. Predicted 1-hour CO concentrations were then scaled to evaluate maximum predicted 8-hour CO concentrations using the recommended scaling factor of 0.7 for urban locations.

Inputs to the CALINE4 model were obtained from the Traffic Impact Analysis. As recommended in the Protocol, receptors were located at locations that were approximately 3 meters from the mixing zone, and at a height of 1.8 meters. Average approach and departure speeds were estimated using a conservative speed of 1 mile per hour, and the emission factors for that speed were estimated from the EMFAC2002 emissions model (ARB 2002) for 2010, which was assumed to be the year in which the project would experience the highest traffic impact.

In accordance with the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol, it is also necessary to estimate future background CO concentrations in the project vicinity to determine the potential impact plus background and evaluate the potential for CO "hot spots" due to the project. As a conservative estimate of background CO concentrations, the existing maximum 1-hour background concentration of CO that was measured at the Escondido monitoring station for the period 2004 – 2005 of 6.3 ppm was used to represent future maximum background 1-hour CO concentrations. This is a conservative assumption, as the monitoring station is located in a congested area in Escondido on East Valley Parkway. The existing maximum 8-hour background concentration of CO that was measured at the Escondido monitoring station during the period from 2004 – 2005 of 3.61 ppm was also used to provide a conservative estimate of the maximum 8-hour background concentrations in the project vicinity. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles.

The CALINE4 model outputs are provided in Appendix A of this report. Table 3-63 presents a summary of the predicted CO concentrations (impact plus background) for the intersections evaluated for the offsite trucked scenario. As shown in Table 3-63, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO.

Table 3-63. CO "Hot Spots" Evaluation - Offsite Trucked Scenario
Predicted CO Concentrations, ppm

Intersection	CO Concentration	
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm		
	am	***pm***
Lilac Road and Betsworth Road	-	7.0
I-15 SB and Gopher Canyon Road	7.0	7.2
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm		
Lilac Road and Betsworth Road	4.10	
I-15 SB and Gopher Canyon Road	4.24	

Project construction could result in TAC emissions mainly associated with diesel heavy equipment exhaust. Diesel exhaust is considered to have long-term carcinogenic and non-carcinogenic health effects. Because the construction equipment would be operating at various locations throughout the construction site, and because any operation near existing receptors would be temporary, impacts associated with TAC emissions during construction are not considered significant.

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust; however, because the construction equipment would be operating at various locations throughout the construction site, and because any operation near existing receptors would be temporary, impacts associated with odors during construction are not considered significant.

3.5.2 Operational Impacts

Once a reservoir is fully operational, potential air quality impacts would include impacts associated with routine maintenance and operation of the reservoir, and impacts associated with recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations.

Operational and maintenance activities for the Moosa 100,000 acre-feet reservoir would consist of similar activities to those anticipated for the Proposed Action (San Vicente 100,000 acre-feet reservoir), including monitoring reservoir level and outlet and spillway discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. All of these activities would result in emissions associated with worker trips to the reservoir. Operation and maintenance activities were anticipated to result in four trips per day. Emissions associated with these trips would be negligible.

Similar to the San Vicente Reservoir, recreational activities at the Moosa Reservoir would include boating and fishing opportunities. It was assumed that activities would be similar to those evaluated for the San Vicente Reservoir. Therefore, 291 boats were assumed to operate on the reservoir for four hours on a single maximum use day.

Emissions from boats were estimated using the EPA's emission standards as set forth in 40 CFR Part 94 for gasoline-powered marine engines. It was assumed that marine vessels would be on average 50 kW. Because the emission standards are provided in terms of hydrocarbons plus NOx, it was assumed that the emissions would be mainly NOx and that hydrocarbons in the exhaust would be negligible.

Operational emissions are shown in Table 3-64. Emissions from operation would be less than significant.

Table 3-64. Estimated Maximum Daily Operational Emissions - Moosa 100,000 Acre-Feet Alternative

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Lbs/day						
Boating	1.03	N	19.25	N	12.83	12.70
Vehicles	41.57	6.10	3.87	0.06	0.55	0.54
TOTAL	**42.60**	**6.10**	**23.12**	**0.06**	**13.38**	**13.24**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Tons/year						
Boating	0.19	N	3.51	N	2.34	2.32
Vehicles	7.59	1.11	0.71	0.01	0.10	0.10
TOTAL	**7.78**	**1.11**	**4.42**	**0.01**	**2.44**	**2.42**
Significance Threshold	100	15	40	40	15	10
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N: Negligible Emissions

3.6 Mitigation Measures

As discussed in Section 3.5, emissions associated with construction of the Moosa 100,000 acre-feet Alternative are above the quantitative significance thresholds and would result in a temporary, significant impact on the ambient air quality. Accordingly, mitigation measures are proposed to reduce impacts. Mitigation measures for construction include measures to control fugitive dust emissions. In accordance with the San Diego County Grading Ordinance, Section 87.428, dust control measures must be implemented for all grading projects taking place in the County of San Diego. The Grading Ordinance requires that:

> "All clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that

> measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust."

These measures constitute best management practices for dust control. The SCAQMD's Air Quality Handbook, Table 11-4, provides control efficiencies to estimate the efficiency of the dust control measures required by the Grading Ordinance. Best management practices to reduce the amount of fugitive dust generated from construction of the proposed project, and their respective control efficiencies (based on control efficiencies provided in the SCAQMD CEQA Air Quality Handbook, Table 11-4), include the following:

- Multiple applications of water during grading between dozer/scraper passes – 34-68%
- Paving, chip sealing or chemical stabilization of internal roadways after completion of grading – 92.5%
- Use of sweepers or water trucks to remove "track-out" at any point of public street access – 25-60%
- Stabilization of dirt storage piles by chemical binders, tarps, fencing or other erosion control – 30-65%
- Hydroseeding of graded residential lots – 30-65%

General construction conditions include the requirement to meet all of the above control requirements. To model the most conservative construction estimates, only application of water during grading was taken into consideration when applying a control efficiency on particulate emissions. For conservative purposes, it was assumed that an average control efficiency of 50% (the control efficiency used in the URBEMIS2002 model for watering three times daily), would be realized from implementation of control measures for fugitive dust. It should be noted that this control measure would only control fugitive particulate emissions from grading and travel on unpaved roads. Watering twice daily would not control emissions from blasting, nor would it control emissions of particulate from equipment exhaust.

Tables 3-65 through 3-124 present estimates of construction emissions with implementation of dust control measures to mitigate emissions of PM_{10} and $PM_{2.5}$.

Moosa Dam

Table 3-65. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.60	5.58	67.70	0.08	3.16	2.81
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**27.29**	**5.72**	**68.02**	**0.08**	**3.52**	**2.90**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-66. Estimated Mitigated Construction Emissions - Earthwork Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	161.55	33.93
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	2.11	0.44
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	70.95	14.56	178.45	0.22	8.54	9.06
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
TOTAL	**408.32**	**14.75**	**263.65**	**0.22**	**172.22**	**13.45**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-67. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.80	13.72	173.93	0.21	8.24	7.33
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.44	0.12	1.63	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.54	0.33
TOTAL	**72.07**	**14.15**	**175.88**	**0.21**	**9.86**	**7.74**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-68. Estimated Mitigated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	142.82	29.78	339.77	0.52	16.64	14.81
Worker Travel – Vehicle Emissions	12.77	1.04	1.06	0.01	0.08	0.08
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.18	0.04
TOTAL	**155.69**	**30.85**	**341.19**	**0.53**	**16.91**	**14.94**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-69. Estimated Mitigated Construction Emissions - Spillway Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.98	4.31	31.33	0.10	1.70	1.51
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.12	0.45	0.03	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.43	0.09
TOTAL	**20.38**	**5.03**	**31.63**	**0.10**	**2.17**	**1.64**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-70. Estimated Mitigated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	0.18	0.04
Heavy Equipment Exhaust	74.69	18.53	140.70	0.25	7.91	7.04
Worker Travel – Vehicle Emissions	10.94	0.91	0.90	0.01	0.07	0.07
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**420.65**	**19.45**	**226.69**	**0.26**	**425.37**	**94.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 3-71. Estimated Mitigated Construction Emissions - Outlet Works Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	33.85	7.52	72.36	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.47	0.28	0.29	0.00	0.02	0.02
Construction Truck Emissions	0.17	0.04	0.63	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.20	0.25
TOTAL	**37.49**	**7.84**	**73.28**	**0.15**	**5.11**	**3.73**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-72. Estimated Mitigated Construction Emissions - Embankment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	83.09	14.95	209.25	0.40	9.76	8.69
Worker Travel – Vehicle Emissions	6.57	0.54	0.55	0.00	0.04	0.04
Construction Truck Emissions	5.05	1.32	18.67	0.05	0.65	0.64
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	35.21	7.40
TOTAL	**94.71**	**16.81**	**228.47**	**0.45**	**45.66**	**16.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-73. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	28.62	6.28	72.97	0.08	3.48	3.10
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**31.04**	**6.48**	**73.35**	**0.08**	**3.85**	**3.20**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Drain/Fill Pipeline from Moosa Dam to Second Aqueduct.

Table 3-74. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**18.15**	**1.93**	**43.69**	**0.09**	**3.31**	**1.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-75. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	39.75	3.87	96.65	0.18	4.21	3.75
Worker Travel – Vehicle Emissions	4.92	0.40	0.41	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**44.72**	**8.15**	**97.24**	**0.18**	**4.59**	**3.86**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-76. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	-	-	-	-	50.00	10.50
Heavy Equipment Exhaust	45.37	3.90	98.73	0.16	4.26	3.79
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
TOTAL	**47.89**	**4.11**	**98.94**	**0.16**	**54.28**	**14.31**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-77. Estimated Mitigated Construction Emissions - Pipe Installation (Trenching) Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.51	6.46	158.73	0.28	7.25	6.45
Worker Travel – Vehicle Emissions	9.12	0.76	0.75	0.01	0.06	0.06
Construction Truck Emissions	0.49	1.81	0.13	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	3.42	0.72
TOTAL	**77.12**	**9.03**	**159.61**	**0.29**	**10.79**	**7.29**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-78. Estimated Mitigated Construction Emissions - Access Roads Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	50.00	10.50
Heavy Equipment Exhaust	7.21	0.77	18.64	0.04	0.86	0.77
Worker Travel – Vehicle Emissions	0.91	0.07	0.08	0.00	0.01	0.01
TOTAL	**8.12**	**0.84**	**18.72**	**0.04**	**50.87**	**11.28**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-79. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	42.59	4.12	102.14	0.19	4.59	4.00
Worker Travel – Vehicle Emissions	1.28	0.11	0.10	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**43.92**	**4.24**	**102.42**	**0.19**	**4.95**	**4.09**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Pump Station at Moosa Creek.

Table 3-80. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**16.77**	**1.78**	**39.99**	**0.08**	**1.97**	**1.64**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-81. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	49.57	4.42	111.29	0.19	4.86	4.33
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**52.80**	**4.70**	**111.74**	**0.19**	**5.23**	**4.43**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-82. Estimated Mitigated Construction Emissions - Building Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	0.38
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.22
TOTAL	**18.35**	**1.91**	**39.77**	**0.08**	**2.86**	**0.64**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-83. Estimated Mitigated Construction Emissions - Pumps Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.51	0.90	21.87	0.04	1.02	0.91
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.05
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**16.04**	**1.52**	**22.67**	**0.05**	**1.42**	**1.04**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-84. Estimated Mitigated Construction Emissions - Electric Systems Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	2.55	0.28	6.78	0.01	0.30	0.27
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**3.69**	**0.38**	**7.05**	**0.01**	**0.66**	**0.36**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-85. Estimated Mitigated Construction Emissions - Electric Power Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	7.30	0.56	14.60	0.02	0.59	0.53
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
TOTAL	**9.12**	**0.71**	**14.75**	**0.02**	**0.60**	**0.54**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-86. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	30.61	3.09	76.67	0.15	3.37	3.00
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**32.12**	**3.22**	**76.97**	**0.15**	**3.73**	**3.09**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Interconnection Between Moosa Pipeline and Second Aqueduct.

Table 3-87. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	11.68	1.27	31.09	0.06	1.40	1.25
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**13.52**	**1.43**	**31.33**	**0.06**	**1.58**	**1.30**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-88. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	-	-	-	-	50.00	10.50
Heavy Equipment Exhaust	26.74	2.44	61.44	0.11	2.65	2.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**28.25**	**2.57**	**61.74**	**0.11**	**53.35**	**13.02**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-89. Estimated Mitigated Construction Emissions - Vault Construction Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	11.67	1.25	30.29	0.06	1.40	1.25
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**13.86**	**1.43**	**30.47**	**0.06**	**1.41**	**1.26**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-90. Estimated Mitigated Construction Emissions - Installation of Valves and Pumps Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.42	0.89	21.63	0.04	1.01	0.90
Worker Travel – Vehicle Emissions	2.01	0.16	0.17	0.00	0.01	0.01
Construction Truck Emissions	0.01	0.01	0.05	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.09	0.02
TOTAL	**10.44**	**1.06**	**21.85**	**0.04**	**1.11**	**0.93**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-91. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.16	2.15	52.28	0.10	2.41	2.14
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**22.00**	**2.31**	**52.52**	**0.10**	**2.59**	**2.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Relocate First Aqueduct West of Moosa Dam.

Table 3-92. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**18.15**	**1.93**	**43.69**	**0.09**	**2.31**	**1.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-93. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	39.75	3.87	96.65	0.18	4.21	3.75
Worker Travel – Vehicle Emissions	4.92	0.40	0.41	0.00	0.03	0.03
TOTAL	**44.67**	**4.27**	**97.06**	**0.18**	**4.24**	**3.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-94. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	-	-	-	-	50.00	10.50
Heavy Equipment Exhaust	47.96	4.40	110.02	0.19	4.83	4.30
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**50.38**	**4.60**	**110.40**	**0.19**	**55.20**	**14.89**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-95. Estimated Mitigated Construction Emissions - Pipe Installation (Trench) Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	62.34	5.88	144.17	0.25	6.64	5.91
Worker Travel – Vehicle Emissions	8.94	0.73	0.74	0.01	0.06	0.01
Construction Truck Emissions	0.49	0.13	1.81	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	3.42	0.72
TOTAL	**71.77**	**6.74**	**146.72**	**0.26**	**10.18**	**6.70**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-96. Estimated Mitigated Construction Emissions - Pipeline Installation (Tunnel) Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	22.93	1.68	43.04	0.06	1.85	1.65
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	0.49	0.13	1.81	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	3.42	0.72
TOTAL	**27.43**	**2.14**	**45.18**	**0.06**	**5.36**	**2.46**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-97. Estimated Mitigated Construction Emissions - Tunneling Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	74.68	5.90	151.46	0.23	6.53	5.81
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**78.33**	**6.20**	**151.76**	**0.23**	**6.55**	**5.83**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-98. Estimated Mitigated Construction Emissions - Access Roads Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	50.00	10.50
Heavy Equipment Exhaust	52.13	4.90	122.04	0.22	5.38	4.79
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**55.78**	**5.20**	**122.34**	**0.22**	**55.40**	**15.31**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-99. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	38.53	3.79	93.80	0.17	4.20	3.74
Worker Travel – Vehicle Emissions	1.28	0.11	0.10	0.00	0.01	0.01
TOTAL	**39.81**	**3.90**	**93.90**	**0.17**	**4.21**	**3.75**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Pump Station and Water Line for VCMWD (North).

Table 3-100. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.28	1.77	43.36	0.09	1.95	1.74
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**18.12**	**1.93**	**43.60**	**0.09**	**2.13**	**1.80**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-101. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	35.46	3.62	89.58	0.17	3.95	3.52
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
TOTAL	**37.28**	**3.77**	**89.73**	**0.17**	**3.96**	**3.53**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-102. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	40.36	3.52	88.60	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
TOTAL	**44.01**	**3.82**	**88.90**	**0.15**	**103.89**	**24.46**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-103. Estimated Mitigated Construction Emissions - Building Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**17.57**	**1.84**	**39.53**	**0.08**	**2.51**	**1.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-104. Estimated Mitigated Construction Emissions - Tanks Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	9.87	1.05	25.51	0.05	1.18	0.11
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**11.01**	**1.15**	**25.78**	**0.05**	**1.54**	**0.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-105. Estimated Mitigated Construction Emissions - Pumps Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	5.25	0.55	13.21	0.03	0.63	0.11
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**12.78**	**1.17**	**14.01**	**0.04**	**1.00**	**0.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-106. Estimated Mitigated Construction Emissions - Electrical Systems Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	3.37	0.35	8.18	0.01	0.40	0.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**4.88**	**0.48**	**8.48**	**0.01**	**0.76**	**0.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-107. Estimated Mitigated Construction Emissions - Installation of Pipeline Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.24	3.08	75.47	0.14	3.44	0.40
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.02
TOTAL	**37.44**	**3.59**	**75.99**	**0.14**	**3.48**	**0.42**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-108. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.46	3.12	77.07	0.14	3.48	3.10
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**34.15**	**3.26**	**77.39**	**0.14**	**3.84**	**3.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Pump Station and Water Line for VCMWD (South).

Table 3-109. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.82	0.15	0.15	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**16.77**	**1.78**	**40.00**	**0.08**	**1.97**	**1.63**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-110. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	35.46	3.62	89.58	0.17	3.95	3.52
Worker Travel – Vehicle Emissions	3.10	0.26	0.25	0.00	0.02	0.02
TOTAL	**38.56**	**3.88**	**89.83**	**0.17**	**3.97**	**3.54**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-111. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	50.00	10.50
Heavy Equipment Exhaust	40.36	3.52	88.60	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
TOTAL	**42.91**	**3.73**	**88.81**	**0.15**	**53.89**	**13.96**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-112. Estimated Mitigated Construction Emissions - Building Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.92	1.60	38.96	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	2.74	0.22	0.23	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**17.76**	**1.85**	**39.55**	**0.08**	**2.51**	**1.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-113. Estimated Mitigated Construction Emissions - Tanks Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	9.87	1.05	25.51	0.05	1.18	0.11
Worker Travel – Vehicle Emissions	1.09	0.09	0.09	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**11.01**	**1.15**	**25.78**	**0.05**	**1.54**	**0.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-114. Estimated Mitigated Construction Emissions - Pumps Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	5.25	0.55	13.21	0.03	0.63	0.11
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**12.78**	**1.17**	**14.01**	**0.04**	**1.00**	**0.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-115. Estimated Mitigated Construction Emissions - Electrical Systems Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	3.37	0.35	8.18	0.01	0.40	0.36
Worker Travel – Vehicle Emissions	1.46	0.12	0.12	0.00	0.01	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**4.88**	**0.48**	**8.48**	**0.01**	**0.76**	**0.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-116. Estimated Mitigated Construction Emissions - Installation of Pipeline Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	31.24	3.08	75.47	0.14	3.44	0.40
Worker Travel – Vehicle Emissions	2.74	0.23	0.22	0.00	0.02	0.02
TOTAL	**33.98**	**3.31**	**75.69**	**0.14**	**3.46**	**0.42**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3-117. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.46	3.12	77.07	0.14	3.48	3.10
Worker Travel – Vehicle Emissions	1.28	0.10	0.11	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**33.79**	**3.23**	**77.36**	**0.14**	**3.84**	**3.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Relocate Public Roads and Electrical Systems.

Table 3-118. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	14.93	1.62	39.76	0.08	1.79	1.59
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**16.59**	**1.76**	**39.99**	**0.08**	**1.97**	**1.64**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-119. Estimated Mitigated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	23.38	2.07	52.58	0.09	2.22	1.98
Worker Travel – Vehicle Emissions	2.01	0.16	0.17	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**25.44**	**2.24**	**52.93**	**0.09**	**2.58**	**2.07**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-120. Estimated Mitigated Construction Emissions - Removal of Existing Lines
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	15.81	1.25	32.41	0.05	1.32	1.17
Worker Travel – Vehicle Emissions	1.64	0.14	0.13	0.00	0.01	0.01
TOTAL	**17.45**	**1.39**	**32.54**	**0.05**	**1.33**	**1.18**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

Table 3-121. Estimated Mitigated Construction Emissions - Installation of Electric Lines
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	32.79	8.26	99.23	0.06	4.62	4.11
Worker Travel – Vehicle Emissions	2.92	0.24	0.24	0.00	0.02	0.02
Construction Truck Emissions	0.02	0.09	0.01	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**35.73**	**8.59**	**99.48**	**0.06**	**4.81**	**4.17**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-122. Estimated Mitigated Construction Emissions - Excavation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	-	-	-	-	50.00	10.50
Heavy Equipment Exhaust	97.16	24.64	291.42	0.17	13.69	12.18
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**100.86**	**24.95**	**291.90**	**0.17**	**64.06**	**22.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 3-123. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	50.15	12.93	147.10	0.09	7.26	6.46
Worker Travel – Vehicle Emissions	2.37	0.20	0.19	0.00	0.02	0.02
Construction Truck Emissions	0.25	0.06	0.91	0.00	0.03	0.03
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.71	0.36
TOTAL	**52.77**	**13.19**	**148.20**	**0.09**	**9.02**	**6.90**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

The construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during month 13 of construction, assumed to be in 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Moosa Dam
  - Earthwork
  - Clearing
  - Foundation
  - Outlet
- Drain/Fill Pipeline from Moosa Dam to Second Aqueduct
  - Clearing

    - Excavation
    - Pipe Installation
- Pump Station at Moosa Creek
    - Excavation
    - Electric Power
- Relocation of First Aqueduct west of Moosa Dam
    - Excavation
    - Pipe Installation (Trenching)
    - Tunneling
- Pump Station and Water Line for VCMWD (North)
    - Pumps
    - Installation of Pipeline

Table 3-124 presents a summary of the mitigated maximum daily construction emissions associated with these construction activities.

Table 3-124. Estimated Mitigated Maximum Daily Construction Emissions - Moosa 100,000 Acre-Feet Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Moosa Dam						
Earthwork	408.32	14.75	263.65	0.22	172.22	13.45
Clearing	72.07	14.15	175.88	0.21	9.86	7.74
Foundation	155.69	30.85	341.19	0.53	16.91	14.94
Outlet	37.49	7.84	73.28	0.15	5.11	3.73
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct						
Clearing	44.72	8.15	97.24	0.18	4.59	3.86
Excavation	47.89	4.11	98.94	0.16	54.28	14.31
Pipe Installation	77.12	9.03	159.61	0.29	10.79	7.29
Pump Station at Moosa Creek						
Excavation	52.80	4.70	111.74	0.19	5.23	4.43
Electric Power	9.12	0.71	14.75	0.02	0.60	0.54
Relocation of First Aqueduct west of Moosa Dam						
Excavation	50.38	4.60	110.40	0.19	55.20	14.89
Pipe Installation (Trenching)	71.77	6.74	146.72	0.26	10.18	6.70
Tunneling	78.33	6.20	151.76	0.23	6.55	5.83
Pump Station and Water Line for VCMWD (North)						
Pumps	12.78	1.17	14.01	0.04	1.00	0.27
Installation of Pipeline	37.44	3.59	75.99	0.14	3.48	0.42
TOTAL	**1155.92**	**116.59**	**1835.16**	**2.82**	**355.99**	**98.40**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

3.7 Residual Impacts After Mitigation

As shown in Table 3-124 the maximum daily emissions of CO, VOCs, NOx, PM_{10}, and $PM_{2.5}$ would remain above the quantitative significance thresholds and temporary impacts associated with construction of the Moosa 100,000 Acre-Feet Alternative would remain significant impact after mitigation.

3.8 Cumulative Impacts

As discussed in Section 2.8 for the Proposed Action, in analyzing cumulative impacts from a Proposed Action, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "non-attainment" for the State AAQS. A project that has a significant impact on air quality with regard to emissions of NO_x, VOCs, and/or PM_{10} as determined by the screening criteria outlined above would have a significant cumulative effect. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects are in excess of screening levels identified above, and the project's contribution accounts for more than an insignificant proportion of the cumulative total emissions.

The Water Authority has developed the CSP and project alternatives, including the Moosa 100,000 Acre-Feet Alternative, to meet the demands of the region rather than induce growth and, as such, would be consistent with community and general plans and growth projections for San Diego County. However, because emissions of ozone precursors associated with construction of the Moosa 100,000 Acre-Feet Alternative are considered significant, the Moosa 100,000 Acre-Feet Alternative would result in a temporary but significant cumulative impact on the ambient air quality.

The planned or reasonably foreseeable projects were generally accounted for in the Traffic Impact Analysis, and were therefore considered in the evaluation of CO "hot spots." Based on the CO "hot spots" evaluation, a cumulative impact associated with traffic emissions is not anticipated.

4.0 ALTERNATIVE 3: SAN VICENTE 50,000 ACRE-FEET AND MOOSA 50,000 ACRE-FEET

4.1 Environmental Setting

The locations of San Vicente Reservoir and Moosa Valley are described in the previous two sections, along with existing and surrounding uses, USGS coordinates and access.

4.2 Project Description

This alternative involves a reduced raise of San Vicente Dam, which would provide approximately 50,000 AF of carryover storage at San Vicente Reservoir, and construction

of a new dam at Moosa Valley to create a new reservoir that would provide another 50,000 AF of carry storage capacity. Figures 2 and 5 depict the 50,000 AF inundation limits at San Vicente Reservoir and Moosa Valley, respectively. The two projects taken together would provide a combined 100,000 AF of carryover storage. It is assumed that both projects would be constructed concurrently.

San Vicente Dam would be raised an additional 32 feet beyond the approved 54-foot dam raise for the ESP, increasing the overall height of the dam by 86 feet (or a total dam height of up 306 feet). The dam raise would increase the usable volume of San Vicente Reservoir by approximately 102,100 AF. The elevation of the spillway crest would be raised from 650 to 735 feet AMSL. The San Vicente Dam raise associated with Alternative 3 would be accomplished using the same methods and techniques described for the Proposed Action; namely continuous (20 to 24 hours per day) RCC placement on the downstream face of the dam. The same options for the provision of aggregate for RCC production that are under consideration for the Proposed Action are also being evaluated for this alternative. Reservoir water level lowering would be the same as described for the Proposed Action. The reduced increase in reservoir capacity and elevation, as compared to the Proposed Action, would not require the construction of saddle dams. As with the Proposed Action, additional facilities associated with this alternative would include a downstream control facility, outlet pipeline, relocated Bypass Pipeline, relocated marina facilities, and new access roads to the dam crest, relocated marina, and Diversion Structure.

In addition to an approximate 50,000-acre-foot increase in the capacity of San Vicente Reservoir, a new 300-foot high dam would be constructed at Moosa Valley to create a reservoir with 50,000 AF of carryover storage. The dam crest elevation would be 1,185 feet AMSL. A spillway would be constructed approximately 1,500 feet to the northeast of the main dam; the spillway crest elevation would be 1,170 feet AMSL. As described in Alternative 2, the main dam would be a concrete-face rockfill dam. This alternative would involve the same conveyance facilities as Alternative 2. The pipeline would follow the same alignment described in Alternative 2. Additional facilities would include a marina, new access roads, and new electrical supply to the pump station and other facilities. A portion of the First Aqueduct located below the reservoir inundation area would require reconstruction.

4.3 Affected Environment

The existing ambient air quality for both the San Vicente Reservoir and the Moosa Reservoir are described in the previous two sections.

4.4 Thresholds of Significance

Thresholds of significance are the same as for the Proposed Action as presented in Section 2.4.

4.5 Environmental Consequences

This section of the Air Quality Technical Report addresses potential air quality impacts and significance of impacts associated with the San Vicente 50,000 Acre-Feet and Moosa 50,000 Acre-Feet Alternative. This alternative involves raising the San Vicente Dam by 32 feet above the approved 54-foot height for the ESP, and construction of a new 300-foot high dam in Moosa Valley to create an additional 100,000 acre-feet of water storage capacity. This alternative would also require construction of new conveyance facilities as described in Sections 2.2 and 3.2 for the San Vicente and Moosa Reservoirs

4.5.1 Construction Impacts

Construction for the San Vicente 50,000 Acre-Feet Reservoir would be accomplished in the same manner as for the San Vicente 100,000 Acre-Feet Reservoir as presented in Section 2.5.1. Construction for the Moosa 50,000 Acre-Feet Alternative would be accomplished in the same manner as for the Moosa 100,000 Acre-Feet Reservoir as presented in Section 3.5.1.

Construction for the San Vicente 50,000 Acre-Feet Reservoir is comprised of several components. These components are as follows:

Preparatory Construction. The initial stage of construction (Package 1) involves the following steps:

- Mobilization
- Access Roads
- Foundation Excavation
- Relocation of Outlet Pipe
- Marina Grading
- Demobilization/Reclamation

On-site Quarry. For the on-site quarry alternative, the construction stages addressed in this analysis include the following:

- Mobilization
- RCC Test Section
- Foundation Treatment
- Dam Crest Demolition and Surface Preparation
- Quarry Operations
- Roller Compacted Concrete Placement
- Dam Seepage Control
- Outlet Facilities
- Bypass Pipeline Diversion Structure
- Clearing/Grubbing

- Demobilization/Reclamation

Offsite Trucked. For the offsite trucked alternative, the construction stages are the same as for the on-site quarry alternative. The difference is that the aggregate supply materials would be supplied by an offsite entity and would be brought to the construction site in heavy-duty trucks.

Moosa Reservoir. Construction of the Moosa 50,000 Acre-Feet Reservoir is comprised of several components. These components are as follows:

- Moosa Dam
- Drain/Fill Pipeline from Moosa Dam to Second Aqueduct
- Pump Station at Moosa Creek
- Interconnection between Moosa Pipeline and Second Aqueduct
- Relocation of First Aqueduct west of Moosa Dam
- Pump Station and Water Line for VCMWD (North)
- Pump Station and Water Line for VCMWD (South)
- Relocation of Public Roads and Electrical Systems

It was assumed that the preparatory construction phase for San Vicente Dam construction would be the same for the 50,000 Acre-Feet alternative as for the 100,000 Acre-Feet alternative. Tables 4-1 through 4-6 present a summary of construction emissions for the preparatory construction phase for the San Vicente 50,000 Acre-Feet Reservoir construction project.

Table 4-1. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	8.61	0.93	28.60	0.03	0.96	0.85
Worker Travel – Vehicle Emissions	2.55	0.21	0.21	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**11.26**	**1.14**	**29.17**	**0.03**	**2.36**	**1.18**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-2. Estimated Construction Emissions - Access Roads
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Grading	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	113.63	10.44	315.88	0.35	10.41	9.26
Worker Travel – Vehicle Emissions	6.75	0.55	0.56	0.00	0.04	0.04
Construction Truck Emissions	0.34	0.09	1.27	0.00	0.04	0.04
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	4.79	1.06
TOTAL	**120.72**	**11.08**	**317.71**	**0.35**	**115.28**	**31.40**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-3. Estimated Construction Emissions - Foundation Excavation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	83.91	17.62
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	1.56	0.33
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	118.88	11.67	376.32	0.43	11.92	10.61
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
Construction Truck Emissions	3.53	0.92	13.05	0.03	0.46	0.46
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	49.22	10.34
TOTAL	**464.71**	**13.19**	**474.98**	**0.47**	**147.12**	**39.41**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-4. Estimated Construction Emissions - Outlet Relocation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	61.18	6.13	196.47	0.23	6.38	5.68
Worker Travel – Vehicle Emissions	3.65	0.30	0.30	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**64.98**	**6.47**	**197.31**	**0.23**	**8.47**	**6.13**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-5. Estimated Construction Emissions - Marina Grading
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust	N/A	N/A	N/A	N/A	100.00	21.00
Heavy Equipment Exhaust	92.45	9.50	328.92	0.38	9.77	8.70
Worker Travel – Vehicle Emissions	7.48	0.61	0.62	0.01	0.05	0.05
Construction Truck Emissions	9.61	2.51	35.54	0.09	1.24	1.23
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	133.98	28.14
TOTAL	**109.54**	**12.62**	**365.08**	**0.48**	**245.04**	**59.12**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 4-6. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	20.22	2.09	63.72	0.07	2.16	1.92
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.18	0.01	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**23.37**	**2.52**	**63.99**	**0.07**	**2.87**	**2.09**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

On-site Quarry. As for the San Vicente 100,000 Acre-Feet Reservoir, for the on-site quarry alternative for the San Vicente 50,000 Acre-Feet Reservoir, the construction stages addressed in this analysis include the following:

- Mobilization
- RCC Test Section
- Foundation Treatment
- Dam Crest Demolition and Surface Preparation
- Quarry Operations
- Roller Compacted Concrete Placement
- Dam Seepage Control
- Outlet Facilities
- Bypass Pipeline Diversion Structure

- Clearing/Grubbing
- Demobilization/Reclamation

Tables 4-7 through 4-17 present a summary of construction emissions for each individual component of the project. To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions from the individual components of the project that will be undergoing construction simultaneously.

Table 4-7. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.34	4.01	31.19	0.05	1.69	1.50
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**18.58**	**4.20**	**31.55**	**0.05**	**2.39**	**1.66**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-8. Estimated Construction Emissions - RCC Test Section
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	44.00	11.47	91.55	0.17	4.75	4.23
Concrete Batching Emissions	N/A	N/A	N/A	N/A	25.19	5.29
Worker Travel – Vehicle Emissions	8.39	0.70	0.69	0.01	0.05	0.05
Construction Truck Emissions	0.15	0.54	0.04	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**52.54**	**12.71**	**92.28**	**0.18**	**32.06**	**10.02**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-9. Estimated Construction Emissions - Foundation Treatment
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	58.33	15.76	126.59	0.26	6.00	5.34
Worker Travel – Vehicle Emissions	5.29	0.43	0.44	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**63.67**	**16.20**	**127.21**	**0.26**	**6.72**	**5.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-10. Estimated Construction Emissions - Dam Crest Demolition and Surface Preparation
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	86.92	22.05	176.66	0.31	9.52	8.47
Worker Travel – Vehicle Emissions	4.74	0.39	0.39	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**91.71**	**22.45**	**177.23**	**0.31**	**10.24**	**8.65**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-11. Estimated Construction Emissions - Quarry Operations
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	1.17	0.25
Heavy Equipment Exhaust	50.61	13.94	119.90	0.35	5.44	4.84
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
TOTAL	**412.91**	**14.54**	**205.51**	**0.36**	**423.70**	**92.72**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 4-12. Estimated Construction Emissions - RCC Placement
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	34.77	7.30
Heavy Equipment Exhaust	153.43	40.14	341.20	1.02	16.21	14.43
Worker Travel – Vehicle Emissions	28.82	2.36	2.40	0.02	0.19	0.19
Construction Truck Emissions	1.01	0.26	3.72	0.01	0.13	0.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	14.01	2.94
TOTAL	**183.26**	**42.76**	**347.32**	**1.05**	**65.31**	**24.99**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-13. Estimated Construction Emissions - Dam Seepage Control
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	24.48	6.56	51.04	0.10	2.47	2.20
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**27.68**	**6.84**	**51.66**	**0.10**	**3.87**	**2.53**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-14. Estimated Construction Emissions - Outlet Facilities
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	1.34	0.28
Heavy Equipment Exhaust	68.23	19.84	161.15	0.31	7.51	6.68
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**72.21**	**20.19**	**162.01**	**0.31**	**10.94**	**7.43**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-15. Estimated Construction Emissions - Bypass Pipeline Diversion Structure
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.27	19.17	162.75	0.31	7.52	6.69
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**73.57**	**19.71**	**163.63**	**0.31**	**8.94**	**7.03**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-16. Estimated Construction Emissions - Clearing-Grubbing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	27.66	7.58	61.66	0.12	3.38	3.01
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.05	0.43
TOTAL	**31.64**	**7.93**	**62.52**	**0.12**	**5.45**	**3.47**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-17. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	2.92	0.80	7.73	0.02	0.30	0.27
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**5.11**	**0.98**	**7.91**	**0.02**	**0.31**	**0.28**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

The construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during Months 21 to

23, which was assumed to occur in 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Foundation Treatment
- Quarry Operations
- RCC Placement
- Outlet Facilities
- Bypass Pipeline Diversion Structure

Table 4-18 presents a summary of the maximum daily construction emissions associated with these construction activities.

Table 4-18. Estimated Maximum Daily Construction Emissions - San Vicente 50,000 Acre-Feet Alternative, On-site Quarry Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	63.67	16.20	127.21	0.26	6.72	5.52
Quarry Operations	412.91	14.54	205.51	0.36	423.70	92.72
RCC Placement	183.26	42.76	347.32	1.05	65.31	24.99
Outlet Facilities	72.21	20.19	162.01	0.31	10.94	7.43
Bypass Pipeline Diversion Structure	73.57	19.71	163.63	0.31	8.94	7.03
TOTAL	**805.62**	**113.40**	**1005.68**	**2.29**	**515.61**	**137.69**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

As shown in the table, the emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Offsite Trucked. For the offsite trucked alternative, the construction stages are the same as for the on-site quarry alternative. The difference is that the aggregate supply materials would be supplied by an offsite entity and would be brought to the construction site in heavy-duty trucks. Accordingly, the construction phases addressed in this analysis include the following:

- Mobilization
- RCC Test Section
- Foundation Treatment
- Dam Crest Demolition and Surface Preparation
- Quarry Operations
- Roller Compacted Concrete Placement
- Dam Seepage Control
- Outlet Facilities

- Bypass Pipeline Diversion Structure
- Clearing/Grubbing
- Demobilization/Reclamation

With the exception of the Aggregate Supply construction phase, emission estimates for the construction phases listed above would be the same as for the on-site quarry alternative. Emissions for the Aggregate Supply phase of project construction are presented in Table 4-19.

Table 4-19. Estimated Construction Emissions - Aggregate Supply
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	24.89	7.37	68.95	0.13	2.88	2.56
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	8.29	2.17	30.64	0.08	1.07	1.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	115.53	24.26
TOTAL	**37.19**	**38.34**	**71.45**	**0.21**	**119.51**	**27.98**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

For the offsite trucked alternative, the construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Foundation Treatment
- Aggregate Supply
- RCC Placement
- Outlet Facilities
- Bypass Pipeline Diversion Structure

Table 4-20 presents a summary of the maximum daily construction emissions associated with these construction activities.

Table 4-20. Estimated Maximum Daily Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, Offsite Trucked Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	63.67	16.20	127.21	0.26	6.72	5.52
Aggregate Supply	37.19	38.34	71.45	0.21	119.51	27.98
RCC Placement	183.26	42.76	347.32	1.05	65.31	24.99
Outlet Facilities	72.21	20.19	162.01	0.31	10.94	7.43
Bypass Pipeline Diversion Structure	73.57	19.71	163.63	0.31	8.94	7.03
TOTAL	**429.90**	**137.20**	**871.62**	**2.14**	**211.42**	**72.95**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*Yes*	*Yes*	*No*	*Yes*	*Yes*

As discussed above, the Moosa 50,000 Acre-Feet Reservoir would also be constructed for this alternative. The following describes the individual components of construction for the 50,000 Acre-Foot reservoir.

Moosa Dam. Construction of the Moosa Dam involves the following steps:

- Mobilization
- Earthwork
- Clearing
- Foundation Treatment
- Spillway
- Quarry
- Outlet Works
- Embankment
- Demobilization/Reclamation

Based on the project description, the foundation would be prepared by drilling, blasting, and excavating the soil and weathered rock during the foundation excavation phase. For the new dam foundation, it is anticipated that about 255,000 cubic yards of overburden and weathered rock would need to be excavated. To remove the overburden, blasting will be required at the site. Fugitive dust emissions associated with blasting were estimated based on the EPA's emission factor for blasting for coal mining to remove overburden, which is a similar process. According to Section 11.9 of AP-42, emissions from blasting are calculated as follows:

$$\text{Lbs } PM_{10}/\text{blast} = 0.000014(A)^{1.5} \times 0.52 \text{ lbs } PM_{10}/\text{lbs TSP}$$

For conservative purposes, it was assumed that blasting to a depth of 1 foot would be required to remove the 255,000 cubic yards of overburden. Based on this assumption, it was estimated that a total of 255,000 square yards or 2,295,000 square feet of blasting would be required to remove overburden prior to project construction; thus a total of

25,311 lbs of PM_{10} would be associated with blasting over the entire duration of the earthwork phase of the Proposed Action. Based on the construction schedule, blasting would be conducted over a 7-month period, assuming construction would take place 7 days a week, 24 hours per day. The daily emissions would therefore be estimated at 120.53 lbs/day.

The project would utilize ammonium nitrate/fuel oil ANFO explosives to conduct blasting on site. Based on the EPA's AP-42 emission factors in Section 13.3, emissions from use of ANFO are estimated at 67 lbs CO per ton of explosive, and 17 lbs NOx per ton of explosive. Based on typical construction projects, it was estimated that a maximum of 10,000 lbs per day could be used at the site; thus the maximum daily emissions due to the use of ANFO would be 335 lbs/day of CO and 85 lbs/day of NOx.

Emission rates for materials handling (truck loading of excavated material) were obtained from the SCAQMD's 1993 CEQA Air Quality Handbook. The emission rates depend on the amount of materials being handled (in tons), the moisture content of the materials (in percent) and the mean wind speed (in miles per hour). For this project, it was assumed that excavated material had a 4.8% moisture content as recommended by EPA. The wind speed was assumed to be 12 mph. It was assumed that each truck could handle 18 cubic yards of material, and for the maximum daily emissions, based on the construction contractor estimate, it was assumed that a maximum of 64 trucks per day would haul material offsite.

Particulate emissions from materials handling during excavation were estimated using the methodology recommended in the SCAQMD CEQA Air Quality Handbook, Table A9-9-G, for material handling. The equation recommended in Table A9-9-G is as follows:

$$E = [0.00112 \times (\{[G/5]^{1.3}\}/\{[H/2]^{1.4}\})] \times [I/J]$$

Where
- E = PM_{10} emissions, lbs/day
- G = Wind speed, estimated as 12 miles per hour
- H = Moisture content, estimated as 4.8% for moist material
- I = Pounds of dirt handled per day
- J = 2000 lbs/ton of dirt

Tables 4-21 through 4-29 present a summary of construction emissions for each individual component of the Moosa Dam construction project.

Emissions from construction for other components of the Moosa Dam alternative (i.e., pump stations, interconnection, etc.) would be the same for the 50,000 acre-feet alternative as for the 100,000 acre-feet alternative.

Table 4-21. Estimated Construction Emissions - Mobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.60	5.58	67.70	0.08	3.16	2.81
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**27.19**	**5.72**	**68.02**	**0.08**	**3.86**	**2.97**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-22. Estimated Construction Emissions - Earthwork
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	120.53	25.31
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	1.99	0.42
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	70.95	14.56	178.45	0.22	8.54	9.06
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
TOTAL	**408.32**	**14.75**	**263.65**	**0.22**	**131.08**	**34.81**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-23. Estimated Construction Emissions - Clearing
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.80	13.72	173.93	0.21	8.24	7.33
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.44	0.12	1.63	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	6.15	1.29
TOTAL	**72.07**	**14.15**	**175.88**	**0.21**	**14.47**	**8.70**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-24. Estimated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	142.82	29.78	339.77	0.52	16.64	14.81
Worker Travel – Vehicle Emissions	12.77	1.04	1.06	0.01	0.08	0.08
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.37	0.29
TOTAL	**155.69**	**30.85**	**341.19**	**0.53**	**18.10**	**15.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-25. Estimated Construction Emissions - Spillway Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.98	4.31	31.33	0.10	1.70	1.51
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.12	0.45	0.03	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.71	0.36
TOTAL	**20.38**	**5.03**	**31.63**	**0.10**	**3.45**	**1.91**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-26. Estimated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	0.18	0.04
Heavy Equipment Exhaust	74.69	18.53	140.70	0.25	7.91	7.04
Worker Travel – Vehicle Emissions	10.94	0.91	0.90	0.01	0.07	0.07
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**420.65**	**19.45**	**226.69**	**0.26**	**425.54**	**94.80**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 4-27. Estimated Construction Emissions - Outlet Works
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	33.85	7.52	72.36	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.47	0.28	0.29	0.00	0.02	0.02
Construction Truck Emissions	0.17	0.04	0.63	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	2.39	0.50
TOTAL	**37.49**	**7.84**	**73.28**	**0.15**	**6.30**	**3.98**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-28. Estimated Construction Emissions - Embankment
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	83.09	14.95	209.25	0.40	9.76	8.69
Worker Travel – Vehicle Emissions	6.57	0.54	0.55	0.00	0.04	0.04
Construction Truck Emissions	5.05	1.32	18.67	0.05	0.65	0.64
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	70.41	14.79
TOTAL	**94.71**	**16.81**	**228.47**	**0.45**	**80.86**	**24.16**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-29. Estimated Construction Emissions - Demobilization
Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	28.62	6.28	72.97	0.08	3.48	3.10
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.68	0.14
TOTAL	**31.04**	**6.48**	**73.35**	**0.08**	**4.19**	**3.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

To evaluate the maximum daily and total construction emissions for the project, the construction schedule, which provides month-by-month estimates of project construction and equipment requirements, was used to develop calculations of monthly total emissions

from the individual components of the project that will be undergoing construction simultaneously.

The construction schedule indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during month 13 of construction, assumed to be in 2010. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario identified, when the following construction phases would occur:

- Moosa Dam
  - Earthwork
  - Clearing
  - Foundation
  - Outlet
- Drain/Fill Pipeline from Moosa Dam to Second Aqueduct
  - Clearing
  - Excavation
  - Pipe Installation
- Pump Station at Moosa Creek
  - Excavation
  - Electric Power
- Relocation of First Aqueduct west of Moosa Dam
  - Excavation
  - Pipe Installation (Trenching)
  - Tunneling
- Pump Station and Water Line for VCMWD (North)
  - Pumps
  - Installation of Pipeline

Table 4-30 presents a summary of the maximum daily construction emissions associated with these construction activities.

Table 4-30. Estimated Maximum Daily Construction Emissions - Moosa 50,000 Acre-Feet Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Moosa Dam						
Earthwork	408.32	14.75	263.65	0.22	131.08	34.81
Clearing	72.07	14.15	175.88	0.21	14.47	8.70
Foundation	155.69	30.85	341.19	0.53	18.10	15.19
Outlet	37.49	7.84	73.28	0.15	6.30	3.98
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct						
Clearing	44.72	8.15	97.24	0.18	4.93	3.93
Excavation	47.89	4.11	98.94	0.16	104.28	24.81
Pipe Installation	77.12	9.03	159.61	0.29	14.15	9.45
Pump Station at Moosa Creek						
Excavation	52.80	4.70	111.74	0.19	5.57	4.50
Electric Power	9.12	0.71	14.75	0.02	0.60	0.54
Relocation of First Aqueduct west of Moosa Dam						
Excavation	50.38	4.60	110.40	0.19	105.54	22.17
Pipe Installation (Trenching)	71.77	6.74	146.72	0.26	13.60	7.42
Tunneling	78.33	6.20	151.76	0.23	6.55	5.83
Pump Station and Water Line for VCMWD (North)						
Pumps	12.78	1.17	14.01	0.04	1.34	0.34
Installation of Pipeline	37.44	3.59	75.99	0.14	3.48	0.42
TOTAL	**1155.92**	**116.59**	**1835.16**	**2.81**	**429.99**	**142.09**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

As shown in the table, the emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Because construction of both reservoirs would occur simultaneously, the total emissions for both the San Vicente 50,000 Acre-Feet Reservoir and the Moosa 50,000 Acre-Feet Reservoir are shown in Table 4-31

Table 4-31. Estimated Simultaneous Maximum Daily Construction Emissions - San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
San Vicente Dam	805.62	113.40	1005.68	2.29	515.61	137.69
Moosa Dam	1155.92	116.59	1835.16	2.81	429.99	142.09
TOTAL	**1961.54**	**229.99**	**2840.84**	**5.10**	**945.6**	**279.78**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*

As shown in the table, the emissions of CO, VOCs, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Along with the Proposed Action, project alternatives, if selected, would be subject to SDAPCD Rule 1501, Conformity of General Federal Actions. Therefore, an evaluation of the applicability of the rule to the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative was conducted. The maximum annual construction scenario was identified based on an evaluation of the construction schedule to determine which construction phases would be constructed in a single year. The year 2010 was identified as the maximum construction scenario for both the on-site quarry and the offsite trucked alternative. The emissions from the on-site quarry alternative represented the maximum annual emissions scenario. Table 4-32 presents a summary of the estimated annual construction emissions for the project construction, along with an evaluation of construction emissions versus the federal *de minimis* thresholds for nonattainment and maintenance pollutants in the SDAB (i.e., CO, NOx, and VOCs).

As shown in Table 4-32, emissions of nonattainment pollutants are below the *de minimis* thresholds for VOCs, but above the *de minimis* threshold for CO and NOx. Furthermore, emissions associated with the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative would be higher than for the Proposed Action. Accordingly, a conformity determination is required to demonstrate that emissions of CO and NOx for the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative would conform with the SIP.

To develop the SIP emissions budget for construction equipment and on-road vehicles, the SDAPCD relies on output from the CARB's OFFROAD model (for construction equipment) and the San Diego Association of Governments' (SANDAG's) estimates of on-road traffic. Based on the 2010 estimated annual emissions reported for the SDAPCD, offroad diesel-powered construction equipment NOx emissions are estimated at 18.15 tons per day, and on-road vehicle emissions are estimated at 82.74 tons per day. The total heavy construction equipment emissions for the maximum simultaneous construction scenario are 450.23 tons/year or 1.29 tons per day assuming 350 days per year, which amounts to 7.1 percent of the offroad emissions budget in the current SIP. The total vehicular emissions for the maximum simultaneous construction scenario are 6.25 tons/year or 0.018 tons per day assuming 350 days per year, which amounts to 0.022 percent of the vehicular emissions budget in the current SIP. The emissions are thus a

small portion of the total SIP emissions budget for offroad equipment and on-road vehicles and are well within the budget for these sources. The NOx emissions are therefore accounted for in the SIP budget estimates for construction and the project would be consistent with the SIP.

Table 4-32. Estimated Construction Emissions – San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative tons/year

Emission Source	CO	VOCs	NO_x
Moose 50,000 Acre-Feet Alternative			
Moosa Dam	61.93	12.90	146.58
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct	20.60	1.89	46.99
Pump Station at Moosa Creek	7.33	0.69	17.10
Relocate First Aqueduct West of Moosa Dam	7.24	0.61	15.44
Pump Station and Water Line for VCMWD North	6.64	0.65	15.95
Pump Station and Water Line for VCMWD South	21.04	2.10	51.61
Worker Trips	12.39	1.01	1.03
Truck Traffic	0.90	0.23	3.31
Subtotal Moosa	**138.07**	**20.09**	**298.01**
San Vicente 50,000 Acre-Feet Alternative			
Mobilization	0.49	0.12	0.94
RCC Test Section	1.32	0.34	2.75
Foundation Treatment	6.12	1.65	13.29
Dam Crest Demo Surface Prep	9.13	2.32	18.55
Agg. Supply	6.83	1.88	16.19
RCC Placement	25.32	6.62	56.30
Outlet Facilities	11.26	3.27	26.59
Bypass Pipeline Div. Structure	9.08	2.59	21.97
Worker Trips	12.43	1.02	1.03
Truck Traffic	0.24	0.06	0.88
Subtotal San Vicente	**82.22**	**19.88**	**158.49**
TOTAL	**220.29**	**39.97**	**456.59**
De Minimis Threshold	100	100	100
Above Threshold?	*Yes*	*No*	*Yes*

Based on the 2010 estimated annual emissions reported for the SDAPCD, offroad diesel-powered construction equipment CO emissions are estimated at 9.15 tons per day, and on-road vehicle emissions are estimated at 438.05 tons per day. The total heavy construction equipment emissions for the maximum simultaneous construction scenario are 194.33 tons/year or 0.56 tons per day assuming 350 days per year, which amounts to 6.1 percent of the offroad emissions budget in the current SIP. The total vehicular emissions for the maximum simultaneous construction scenario are 25.96 tons/year or 0.074 tons per day assuming 350 days per year, which amounts to 0.017 percent of the vehicular emissions budget in the current SIP. The emissions are thus a small portion of the total SIP emissions budget for offroad equipment and on-road vehicles and are well within the budget for these sources. The CO emissions are therefore accounted for in the SIP budget estimates for construction and the project would be consistent with the SIP.

Based on a review of the current SIP inventory of emissions associated with construction, the emissions associated with the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative would be within the SIP emissions budget and the project would conform with the SIP.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." Because construction of the Proposed Action would result in additional traffic to the site, a CO "hot spots" analysis was conducted. The *Traffic Impact Analysis – San Vicente Dam Raise* (Linscott, Law, and Greenspan 2006) evaluated construction traffic for the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative to assess whether or not there would be a decrease in the level of service at the roadways and/or intersections affected by construction of the Proposed Action. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed to determine whether a CO "hot spot" is likely to form due to construction traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when (a) the level of service (LOS) of an intersection or roadway decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

Based on the *Traffic Impact Analysis*, the intersections affected under the San Vicente 50,000 Acre-Feet and Moosa 50,000 Acre-Feet Alternative would be the same as for the individual reservoirs with 100,000 acre-feet capacity. Impacts would be the same or slightly lower than for the larger reservoir at individual intersections due to the slightly lower traffic anticipated. Because the higher traffic levels did not indicate a CO "hot spot" at any of the affected intersections for the Proposed Action or the Moosa 100,000 Acre-Feet Alternative, impacts for the San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative would not result in CO "hot spots" due to construction traffic.

4.5.2 Operational Impacts

Once a reservoir is fully operational, potential air quality impacts would include impacts associated with routine maintenance and operation of the reservoir, and impacts associated with recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations.

Operational and maintenance activities for the San Vicente 50,000 Acre-Feet Alternative and the Moosa 50,000 Acre-Feet Alternative would consist of similar activities to those anticipated for the Proposed Action (San Vicente 100,000 acre-feet reservoir), including monitoring reservoir level and outlet and spillway discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. All of

these activities would result in emissions associated with worker trips to the reservoir. Operation and maintenance activities were anticipated to result in four trips per day. Emissions associated with these trips would be negligible.

Recreational activities at both reservoirs would include boating and fishing opportunities. It was assumed that activities would be similar to those evaluated for the Proposed Action, and that boating traffic would be split between the two reservoirs due to a lower surface area for recreational use available under this alternative. Operational emissions would thus be the same as for other alternatives and emissions from operation would be less than significant.

4.6 Mitigation Measures

As discussed in Section 4.5, emissions associated with construction of the San Vicente 50,000 Acre-Feet and Moosa 50,000 Acre-Feet Alternative are above the quantitative significance thresholds and would result in a temporary, significant impact on the ambient air quality. Accordingly, mitigation measures are proposed to reduce impacts. Mitigation measures for construction include measures to control fugitive dust emissions. In accordance with the San Diego County Grading Ordinance, Section 87.428, dust control measures must be implemented for all grading projects taking place in the County of San Diego. The Grading Ordinance requires that:

> "All clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust."

These measures constitute best management practices for dust control. The SCAQMD's Air Quality Handbook, Table 11-4, provides control efficiencies to estimate the efficiency of the dust control measures required by the Grading Ordinance. Best management practices to reduce the amount of fugitive dust generated from construction of the proposed project, and their respective control efficiencies (based on control efficiencies provided in the SCAQMD CEQA Air Quality Handbook, Table 11-4), include the following:

- Multiple applications of water during grading between dozer/scraper passes – 34-68%
- Paving, chip sealing or chemical stabilization of internal roadways after completion of grading – 92.5%
- Use of sweepers or water trucks to remove "track-out" at any point of public street access – 25-60%
- Stabilization of dirt storage piles by chemical binders, tarps, fencing or other erosion control – 30-65%
- Hydroseeding of graded residential lots – 30-65%

General construction conditions include the requirement to meet all of the above control requirements. To model the most conservative construction estimates, only application of water during grading was taken into consideration when applying a control efficiency on particulate emissions. For conservative purposes, it was assumed that an average control efficiency of 50% (the control efficiency used in the URBEMIS2002 model for watering three times daily), would be realized from implementation of control measures for fugitive dust. It should be noted that this control measure would only control fugitive particulate emissions from grading and travel on unpaved roads. Watering twice daily would not control emissions from blasting, nor would it control emissions of particulate from equipment exhaust.

Tables 4-33 through 4-52 present estimates of construction emissions with implementation of dust control measures to mitigate emissions of PM_{10} and $PM_{2.5}$.

San Vicente Dam

Table 4-33. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.34	4.01	31.19	0.05	1.69	1.50
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**18.58**	**4.20**	**31.55**	**0.05**	**2.05**	**1.59**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-34. Estimated Mitigated Construction Emissions - RCC Test Section Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	44.00	11.47	91.55	0.17	4.75	4.23
Concrete Batching Emissions	N/A	N/A	N/A	N/A	25.19	5.29
Worker Travel – Vehicle Emissions	8.39	0.70	0.69	0.01	0.05	0.05
Construction Truck Emissions	0.15	0.54	0.04	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.23
TOTAL	**52.54**	**12.71**	**92.28**	**0.18**	**31.04**	**9.80**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-35. Estimated Mitigated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	58.33	15.76	126.59	0.26	6.00	5.34
Worker Travel – Vehicle Emissions	5.29	0.43	0.44	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**63.67**	**16.20**	**127.21**	**0.26**	**6.38**	**5.45**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-36. Estimated Mitigated Construction Emissions - Dam Crest Demolition and Surface Preparation Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	86.92	22.05	176.66	0.31	9.52	8.47
Worker Travel – Vehicle Emissions	4.74	0.39	0.39	0.00	0.03	0.03
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**91.71**	**22.45**	**177.23**	**0.31**	**9.90**	**8.58**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-37. Estimated Mitigated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	1.17	0.25
Heavy Equipment Exhaust	50.61	13.94	119.90	0.35	5.44	4.84
Worker Travel – Vehicle Emissions	7.30	0.60	0.61	0.01	0.05	0.05
TOTAL	**412.91**	**14.54**	**205.51**	**0.36**	**423.70**	**92.72**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 4-38. Estimated Mitigated Construction Emissions - RCC Placement Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	34.77	7.30
Heavy Equipment Exhaust	153.43	40.14	341.20	1.02	16.21	14.43
Worker Travel – Vehicle Emissions	28.82	2.36	2.40	0.02	0.19	0.19
Construction Truck Emissions	1.01	0.26	3.72	0.01	0.13	0.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	7.01	1.47
TOTAL	**183.26**	**42.76**	**347.32**	**1.05**	**58.31**	**23.52**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-39. Estimated Mitigated Construction Emissions - Dam Seepage Control Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	24.48	6.56	51.04	0.10	2.47	2.20
Worker Travel – Vehicle Emissions	3.10	0.25	0.26	0.00	0.02	0.02
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**27.68**	**6.84**	**51.66**	**0.10**	**3.19**	**2.39**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-40. Estimated Mitigated Construction Emissions - Outlet Facilities Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Concrete Batching	N/A	N/A	N/A	N/A	1.34	0.28
Heavy Equipment Exhaust	68.23	19.84	161.15	0.31	7.51	6.68
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.23
TOTAL	**72.21**	**20.19**	**162.01**	**0.31**	**16.92**	**7.23**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-41. Estimated Mitigated Construction Emissions - Bypass Pipeline Diversion Structure Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.27	19.17	162.75	0.31	7.52	6.69
Worker Travel – Vehicle Emissions	6.20	0.51	0.52	0.00	0.04	0.04
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**73.57**	**19.71**	**163.63**	**0.31**	**8.26**	**6.89**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-42. Estimated Mitigated Construction Emissions - Clearing-Grubbing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	27.66	7.58	61.66	0.12	3.38	3.01
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.15	0.04	0.54	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.03	0.22
TOTAL	**31.64**	**7.93**	**62.52**	**0.12**	**4.45**	**3.27**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-43. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	2.92	0.80	7.73	0.02	0.30	0.27
Worker Travel – Vehicle Emissions	2.19	0.18	0.18	0.00	0.01	0.01
TOTAL	**5.11**	**0.98**	**7.91**	**0.02**	**0.31**	**0.28**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Moosa Dam

Table 4-44. Estimated Mitigated Construction Emissions - Mobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	25.60	5.58	67.70	0.08	3.16	2.81
Worker Travel – Vehicle Emissions	1.64	0.13	0.14	0.00	0.01	0.01
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**27.19**	**5.72**	**68.02**	**0.08**	**3.52**	**2.90**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-45. Estimated Mitigated Construction Emissions - Earthwork Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	120.53	25.31
Fugitive Dust – Materials Handling	N/A	N/A	N/A	N/A	1.99	0.42
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Heavy Equipment Exhaust	70.95	14.56	178.45	0.22	8.54	9.06
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
TOTAL	**408.32**	**14.75**	**263.65**	**0.22**	**131.08**	**34.81**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-46. Estimated Mitigated Construction Emissions - Clearing Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	67.80	13.72	173.93	0.21	8.24	7.33
Worker Travel – Vehicle Emissions	3.83	0.31	0.32	0.00	0.02	0.02
Construction Truck Emissions	0.44	0.12	1.63	0.00	0.06	0.06
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	3.08	0.65
TOTAL	**72.07**	**14.15**	**175.88**	**0.21**	**11.40**	**8.06**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-47. Estimated Mitigated Construction Emissions - Foundation Treatment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	142.82	29.78	339.77	0.52	16.64	14.81
Worker Travel – Vehicle Emissions	12.77	1.04	1.06	0.01	0.08	0.08
Construction Truck Emissions	0.10	0.03	0.36	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.69	0.15
TOTAL	**155.69**	**30.85**	**341.19**	**0.53**	**17.42**	**15.05**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-48. Estimated Mitigated Construction Emissions - Spillway Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	16.98	4.31	31.33	0.10	1.70	1.51
Worker Travel – Vehicle Emissions	3.28	0.27	0.27	0.00	0.02	0.02
Construction Truck Emissions	0.12	0.45	0.03	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.86	0.18
TOTAL	**20.38**	**5.03**	**31.63**	**0.10**	**2.60**	**1.73**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-49. Estimated Mitigated Construction Emissions - Quarry Operations Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Fugitive Dust - Blasting	N/A	N/A	N/A	N/A	417.04	87.58
Explosives Emissions	335.00	N/A	85.00	N/A	N/A	N/A
Fugitive Dust – Rock Crushing	N/A	N/A	N/A	N/A	0.18	0.04
Heavy Equipment Exhaust	74.69	18.53	140.70	0.25	7.91	7.04
Worker Travel – Vehicle Emissions	10.94	0.91	0.90	0.01	0.07	0.07
Construction Truck Emissions	0.02	0.01	0.09	0.00	0.00	0.00
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.17	0.04
TOTAL	**420.65**	**19.45**	**226.69**	**0.26**	**425.37**	**94.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*Yes*

N/A: This pollutant is not generated by the emission source.

Table 4-50. Estimated Mitigated Construction Emissions - Outlet Works Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	33.85	7.52	72.36	0.15	3.87	3.44
Worker Travel – Vehicle Emissions	3.47	0.28	0.29	0.00	0.02	0.02
Construction Truck Emissions	0.17	0.04	0.63	0.00	0.02	0.02
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	1.20	0.25
TOTAL	**37.49**	**7.84**	**73.28**	**0.15**	**5.11**	**3.73**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-51. Estimated Mitigated Construction Emissions - Embankment Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	83.09	14.95	209.25	0.40	9.76	8.69
Worker Travel – Vehicle Emissions	6.57	0.54	0.55	0.00	0.04	0.04
Construction Truck Emissions	5.05	1.32	18.67	0.05	0.65	0.64
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	35.21	7.40
TOTAL	**94.71**	**16.81**	**228.47**	**0.45**	**45.66**	**16.77**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-52. Estimated Mitigated Construction Emissions - Demobilization Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	28.62	6.28	72.97	0.08	3.48	3.10
Worker Travel – Vehicle Emissions	2.37	0.19	0.20	0.00	0.02	0.02
Construction Truck Emissions	0.05	0.01	0.18	0.00	0.01	0.01
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	0.34	0.07
TOTAL	**31.04**	**6.48**	**73.35**	**0.08**	**3.85**	**3.20**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Tables 4-53 presents the mitigated maximum daily emissions associated with construction of the San Vicente 50,000 Acre-Feet Reservoir for the Onsite Quarry Alternative.

Table 4-53. Estimated Mitigated Maximum Daily Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, Onsite Quarry Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	63.67	16.20	127.21	0.26	6.38	5.45
Quarry Operations	412.91	14.54	205.51	0.36	423.70	92.72
RCC Placement	183.26	42.76	347.32	1.05	58.31	23.52
Outlet Facilities	72.21	20.19	162.01	0.31	16.92	7.23
Bypass Pipeline Diversion Structure	73.57	19.71	163.63	0.31	8.26	6.89
TOTAL	**805.62**	**113.4**	**1005.68**	**2.29**	**513.57**	**135.81**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

For the offsite trucked alternative, the construction stages are the same as for the on-site quarry alternative, except that the aggregate supply materials would be supplied by an offsite entity and would be brought to the construction site in heavy-duty trucks. Emissions for the aggregate supply phase of project construction with mitigation are presented in Table 4-54.

Table 4-54. Estimated Mitigated Construction Emissions - Aggregate Supply Lbs/day

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Heavy Equipment Exhaust	24.89	7.37	68.95	0.13	2.88	2.56
Worker Travel – Vehicle Emissions	4.01	0.33	0.33	0.00	0.03	0.03
Construction Truck Emissions	8.29	2.17	30.64	0.08	1.07	1.13
Fugitive Dust – Truck Traffic	N/A	N/A	N/A	N/A	57.77	12.13
TOTAL	**37.19**	**38.34**	**71.45**	**0.21**	**61.75**	**15.82**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

N/A: This pollutant is not generated by the emission source.

Table 4-55 presents a summary of the mitigated maximum daily construction emissions associated with the offsite trucked construction alternative.

Table 4-55. Estimated Maximum Daily Mitigated Construction Emissions - Carryover Storage and San Vicente Dam Raise Project, Offsite Trucked Alternative Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Foundation Treatment	32.47	7.71	59.47	0.12	3.19	2.61
Aggregate Supply	**37.19**	**38.34**	**71.45**	**0.21**	**61.75**	**15.82**
RCC Placement	234.69	56.27	464.36	1.47	63.69	28.31
Outlet Facilities	22.73	5.86	42.49	0.08	4.39	2.31
Bypass Pipeline Diversion Structure	38.23	9.77	78.76	0.15	4.34	3.40
Turnout/Bifurcation Structures	24.73	6.44	55.21	0.09	3.09	2.29
TOTAL	**390.04**	**124.39**	**771.74**	**2.12**	**140.45**	**54.74**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*No*	*No*	*Yes*	*No*	*Yes*	*No*

Table 4-56 presents the mitigated maximum daily emissions associated with construction of the Moosa 50,000 Acre-Feet Reservoir.

As shown in the table, the emissions of CO, NOx, PM_{10}, and $PM_{2.5}$ are above the quantitative significance thresholds.

Because construction of both reservoirs would occur simultaneously, the total emissions for both the San Vicente 50,000 Acre-Feet Reservoir (Onsite Quarry Alternative) and the Moosa 50,000 Acre-Feet Reservoir are shown in Table 4-59.

4.7 Residual Impacts After Mitigation

As shown in Table 4-57, the maximum daily emissions of CO, VOCs, NOx, PM_{10}, and $PM_{2.5}$ would remain above the quantitative significance thresholds and temporary impacts associated with construction of the San Vicente 50,000 Acre-Feet (Onsite Quarry Alternative) and Moosa 50,000 Acre-Feet Alternative would remain significant impact after mitigation.

Table 4-56. Estimated Mitigated Maximum Daily Construction Emissions - Moosa 50,000 Acre-Feet Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Moosa Dam						
Earthwork	408.32	14.75	263.65	0.22	131.08	34.81
Clearing	72.07	14.15	175.88	0.21	11.40	8.06
Foundation	155.69	30.85	341.19	0.53	17.42	15.05
Outlet	37.49	7.84	73.28	0.15	5.11	3.73
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct						
Clearing	44.72	8.15	97.24	0.18	4.59	3.86
Excavation	47.89	4.11	98.94	0.16	54.28	14.31
Pipe Installation	77.12	9.03	159.61	0.29	10.79	7.29
Pump Station at Moosa Creek						
Excavation	52.80	4.70	111.74	0.19	5.23	4.43
Electric Power	9.12	0.71	14.75	0.02	0.60	0.54
Relocation of First Aqueduct west of Moosa Dam						
Excavation	50.38	4.60	110.40	0.19	55.20	14.89
Pipe Installation (Trenching)	71.77	6.74	146.72	0.26	10.18	6.70
Tunneling	78.33	6.20	151.76	0.23	6.55	5.83
Pump Station and Water Line for VCMWD (North)						
Pumps	12.78	1.17	14.01	0.04	1.00	0.27
Installation of Pipeline	37.44	3.59	75.99	0.14	3.48	0.42
TOTAL	**1155.92**	**116.59**	**1835.16**	**2.81**	**316.91**	**120.19**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*

Table 4-57. Estimated Simultaneous Maximum Daily Construction Emissions - San Vicente 50,000 Acre-Feet Alternative and Moosa 50,000 Acre-Feet Alternative
Lbs/day

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
San Vicente Dam	805.62	113.4	1005.68	2.29	513.57	135.81
Moosa Dam	1155.92	116.59	1835.16	2.81	316.91	120.19
TOTAL	**1961.54**	**229.99**	**2840.84**	**5.10**	**830.48**	**256.00**
Significance Threshold	550	137	250	250	100	55
Above Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*

4.8 Cumulative Impacts

As discussed in Section 2.8 for the Proposed Action, in analyzing cumulative impacts from a Proposed Action, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "non-attainment" for the State AAQS. A project that has a significant impact on air quality with regard to emissions of PM_{10}, NO_x and/or VOCs as determined by the screening criteria outlined above would have a significant cumulative effect. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects are in excess of screening levels identified above, and the project's contribution accounts for more than an insignificant proportion of the cumulative total emissions.

The Water Authority has developed the Carryover Storage and San Vicente Dam Raise project and project alternatives, including the San Vicente 50,000 Acre-Feet and Moosa 50,000 Acre-Feet Alternative, to meet the demands of the region rather than induce growth and, as such, would be consistent with community and general plans and growth projections for San Diego County. However, because emissions of ozone precursors associated with construction of this alternative are considered significant, the San Vicente 50,000 Acre-Feet and Moosa 50,000 Acre-Feet Alternative would result in a temporary but significant cumulative impact on the ambient air quality.

The planned or reasonably foreseeable projects were generally accounted for in the Traffic Impact Analysis, and were therefore considered in the evaluation of CO "hot spots." Based on the CO "hot spots" evaluation, a cumulative impact associated with traffic emissions is not anticipated.

5.0 REFERENCES

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Appendix A

Air Emission Calculations

Model Outputs

Table A-1
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Mobilization

Equipment	FUEL	No of Equip ment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	1	8	60	1.80	0.23	8.55	0.01	0.21	0.054	0.007	0.256	0.000	0.006
988G Wheel Loaders	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G Broom Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Pneumatic Wheel	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Steel Wheel	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tandem Roller 10 Ton	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachm	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	1	8	60	2.70	0.24	4.49	0.00	0.25	0.081	0.007	0.135	0.000	0.007
Motor Grader 163H Global	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Push Pull Scrapers 627G	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
6000 Gallon Water Truck	DIESEL	1	8	60	3.25	0.35	14.14	0.02	0.39	0.098	0.011	0.424	0.001	0.012
Concrete pump	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
500KW Generators	DIESEL	1	8	60	0.86	0.11	1.42	0.00	0.11	0.026	0.003	0.043	0.000	0.003
Grout Pump	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w Compressor	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					8.61	0.93	28.60	0.03	0.96	0.26	0.03	0.86	0.00	0.03

Table A-2
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Access Roads

Equipment	FUEL	No of Equip ment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	2	8	360	2.71	0.35	12.89	0.01	0.32	0.487	0.064	2.320	0.003	0.058
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	360	3.59	0.47	17.10	0.02	0.43	0.646	0.084	3.078	0.003	0.077
988G Wheel Loaders	DIESEL	1	8	360	3.58	0.39	15.58	0.02	0.43	0.645	0.070	2.805	0.003	0.077
D7G Dozers(Track type)	DIESEL	2	8	360	3.83	0.50	18.23	0.02	0.46	0.689	0.090	3.282	0.004	0.082
D4 Dozer	DIESEL	4	8	360	13.72	1.22	22.81	0.02	1.27	2.470	0.220	4.106	0.004	0.228
Cat IT28G Broom Truck	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL	2	8	360	7.08	0.42	11.65	0.01	0.42	1.275	0.076	2.097	0.002	0.076
Roller, Pneumatic Wheel	DIESEL	2	8	360	4.20	0.37	6.99	0.01	0.39	0.757	0.067	1.258	0.001	0.070
Roller, Steel Wheel	DIESEL	2	8	360	8.38	0.50	13.78	0.02	0.50	1.508	0.089	2.480	0.003	0.089
Tandem Roller 10 Ton	DIESEL	2	8	360	7.12	0.42	11.71	0.01	0.42	1.281	0.076	2.107	0.002	0.076
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachm	DIESEL	2	8	360	4.07	0.36	6.76	0.01	0.38	0.732	0.065	1.218	0.001	0.068
Excavator Cat 312	DIESEL	2	8	360	5.40	0.48	8.97	0.01	0.50	0.971	0.087	1.615	0.002	0.090
Motor Grader 163H Global	DIESEL	2	8	360	3.36	0.44	15.99	0.02	0.40	0.605	0.079	2.878	0.003	0.072
Push Pull Scrapers 627G	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	4	8	360	13.78	1.80	64.28	0.07	1.65	2.481	0.324	11.570	0.013	0.297
6000 Gallon Water Truck	DIESEL	2	8	360	6.51	0.71	28.29	0.03	0.78	1.171	0.127	5.092	0.006	0.140
Concrete pump	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	3.25	0.35	14.14	0.02	0.39	0.586	0.064	2.546	0.003	0.070
Grout Truck	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	1	8	360	3.25	0.35	14.14	0.02	0.39	0.586	0.064	2.546	0.003	0.070
Vacuum Truck	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	1	8	360	3.65	0.22	6.01	0.01	0.22	0.657	0.039	1.081	0.001	0.039
Compressors	DIESEL	2	8	360	1.88	0.23	3.10	0.00	0.24	0.338	0.042	0.558	0.001	0.043
Dewatering Pumps	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	3	8	360	14.26	0.85	23.45	0.03	0.85	2.567	0.152	4.221	0.005	0.152
500KW Generators	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w Compressor	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	0	8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					113.63	10.44	315.88	0.35	10.41	20.45	1.88	56.86	0.06	1.87

Table A-3
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Foundation Excavation

Equipment	FUEL	No of Equip ment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	2	8	210	2.71	0.35	12.89	0.01	0.32	0.284	0.037	1.353	0.002	0.034
Grove Crane 15T	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	210	3.59	0.47	17.10	0.02	0.43	0.377	0.049	1.795	0.002	0.045
988G Wheel Loaders	DIESEL	2	8	210	7.17	0.78	31.16	0.04	0.86	0.753	0.082	3.272	0.004	0.090
D7G Dozers(Track type)	DIESEL	2	8	210	3.83	0.50	18.23	0.02	0.46	0.402	0.052	1.914	0.002	0.048
D4 Dozer	DIESEL	2	8	210	6.86	0.61	11.41	0.01	0.63	0.720	0.064	1.198	0.001	0.067
Cat IT28G Broom Truck	DIESEL	1	8	210	3.06	0.18	5.03	0.01	0.18	0.321	0.019	0.528	0.001	0.019
Compactors														
CS-683E Vib Compactors	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Pneumatic Wheel	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Steel Wheel	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tandem Roller 10 Ton	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachr	DIESEL	2	8	210	4.07	0.36	6.76	0.01	0.38	0.427	0.038	0.710	0.001	0.039
Excavator Cat 312	DIESEL	2	8	210	5.40	0.48	8.97	0.01	0.50	0.567	0.051	0.942	0.001	0.052
Motor Grader 163H Global	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Push Pull Scrapers 627G	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	4	8	210	13.78	1.80	64.28	0.07	1.65	1.447	0.189	6.749	0.008	0.173
6000 Gallon Water Truck	DIESEL	2	8	210	6.51	0.71	28.29	0.03	0.78	0.683	0.074	2.970	0.004	0.082
Concrete pump	DIESEL	1	8	210	0.90	0.11	1.49	0.00	0.11	0.095	0.012	0.156	0.000	0.012
Flat Bed	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck	DIESEL	2	8	210	6.51	0.71	28.29	0.03	0.78	0.683	0.074	2.970	0.004	0.082
Misc Mixing Equipment	DIESEL	2	8	210	6.51	0.71	28.29	0.03	0.78	0.683	0.074	2.970	0.004	0.082
Pressure Washer Truck	DIESEL	2	8	210	6.51	0.71	28.29	0.03	0.78	0.683	0.074	2.970	0.004	0.082
Vacuum Truck	DIESEL	2	8	210	6.51	0.71	28.29	0.03	0.78	0.683	0.074	2.970	0.004	0.082
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	210	1.88	0.23	3.10	0.00	0.24	0.197	0.024	0.326	0.000	0.025
Dewatering Pumps	DIESEL	2	8	210	1.80	0.22	2.97	0.00	0.23	0.189	0.023	0.312	0.000	0.024
Drills Various sizes and types	DIESEL	4	8	210	19.01	1.13	31.27	0.03	1.13	1.996	0.118	3.283	0.004	0.118
500KW Generators	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	1	8	210	0.90	0.11	1.49	0.00	0.11	0.095	0.012	0.156	0.000	0.012
Misc Grouting Equipment	DIESEL	2	8	210	9.51	0.56	15.63	0.02	0.56	0.998	0.059	1.642	0.002	0.059
Power Jet w Compressor	DIESEL	2	8	210	1.88	0.23	3.10	0.00	0.24	0.197	0.024	0.326	0.000	0.025
Welding Operations	DIESEL	0	8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					118.88	11.67	376.32	0.43	11.92	12.48	1.23	39.51	0.05	1.25

Table A-4
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Outlet Relocation

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	1	8	120	1.35	0.18	6.44	0.01	0.16	0.081	0.011	0.387	0.000	0.010
Grove Crane 15T	DIESEL	1	8	120	1.35	0.18	6.44	0.01	0.16	0.081	0.011	0.387	0.000	0.010
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	1	8	120	1.80	0.23	8.55	0.01	0.21	0.108	0.014	0.513	0.001	0.013
988G Wheel Loaders	DIESEL	1	8	120	3.58	0.39	15.58	0.02	0.43	0.215	0.023	0.935	0.001	0.026
D7G Dozers(Track type)	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	1	8	120	3.43	0.31	5.70	0.01	0.32	0.206	0.018	0.342	0.000	0.019
Cat IT28G Broom Truck	DIESEL	1	8	120	3.06	0.18	5.03	0.01	0.18	0.183	0.011	0.302	0.000	0.011
Compactors														
CS-683E Vib Compactors	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Pneumatic Wheel	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Steel Wheel	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tandem Roller 10 Ton	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachr	DIESEL	1	8	120	2.03	0.18	3.38	0.00	0.19	0.122	0.011	0.203	0.000	0.011
Excavator Cat 312	DIESEL	1	8	120	2.70	0.24	4.49	0.00	0.25	0.162	0.014	0.269	0.000	0.015
Motor Grader 163H Global	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Push Pull Scrapers 627G	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	1	8	120	3.45	0.45	16.07	0.02	0.41	0.207	0.027	0.964	0.001	0.025
6000 Gallon Water Truck	DIESEL	1	8	120	3.25	0.35	14.14	0.02	0.39	0.195	0.021	0.849	0.001	0.023
Concrete pump	DIESEL	2	8	120	1.80	0.22	2.97	0.00	0.23	0.108	0.013	0.178	0.000	0.014
Flat Bed	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck	DIESEL	1	8	120	3.25	0.35	14.14	0.02	0.39	0.195	0.021	0.849	0.001	0.023
Misc Mixing Equipment	DIESEL	1	8	120	3.25	0.35	14.14	0.02	0.39	0.195	0.021	0.849	0.001	0.023
Pressure Washer Truck	DIESEL	2	8	120	6.51	0.71	28.29	0.03	0.78	0.390	0.042	1.697	0.002	0.047
Vacuum Truck	DIESEL	2	8	120	6.51	0.71	28.29	0.03	0.78	0.390	0.042	1.697	0.002	0.047
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	1	8	120	0.90	0.11	1.49	0.00	0.11	0.054	0.007	0.089	0.000	0.007
Drills Various sizes and types	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
500KW Generators	DIESEL	2	8	120	1.72	0.21	2.84	0.00	0.22	0.103	0.013	0.171	0.000	0.013
Grout Pump	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	2	8	120	9.51	0.56	15.63	0.02	0.56	0.570	0.034	0.938	0.001	0.034
Power Jet w Compressor	DIESEL	0	8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	2	8	120	1.72	0.21	2.84	0.00	0.22	0.103	0.013	0.171	0.000	0.013
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					61.18	6.13	196.47	0.23	6.38	3.67	0.37	11.79	0.01	0.38

Table A-5
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Marina Grading

Equipment	FUEL	No of Equip ment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	240	3.59	0.47	17.10	0.02	0.43	0.431	0.056	2.052	0.002	0.052
988G Wheel Loaders	DIESEL	2	8	240	7.17	0.78	31.16	0.04	0.86	0.860	0.093	3.740	0.005	0.103
D7G Dozers(Track type)	DIESEL	2	8	240	3.83	0.50	18.23	0.02	0.46	0.460	0.060	2.188	0.002	0.055
D4 Dozer	DIESEL	3	8	240	10.29	0.92	17.11	0.02	0.95	1.235	0.110	2.053	0.002	0.114
Cat IT28G Broom Truck	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL	4	8	240	14.17	0.84	23.30	0.03	0.84	1.700	0.101	2.796	0.003	0.101
Roller, Pneumatic Wheel	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Steel Wheel	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tandem Roller 10 Ton	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachm	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	2	8	240	5.40	0.48	8.97	0.01	0.50	0.648	0.058	1.077	0.001	0.060
Motor Grader 163H Global	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Push Pull Scrapers 627G	DIESEL	6	8	240	21.20	2.30	92.19	0.11	2.54	2.545	0.277	11.063	0.014	0.304
Various Trucks														
769D Dump Trucks	DIESEL	4	8	240	13.78	1.80	64.28	0.07	1.65	1.654	0.216	7.713	0.009	0.198
6000 Gallon Water Truck	DIESEL	4	8	240	13.01	1.41	56.58	0.07	1.56	1.562	0.170	6.789	0.008	0.187
Concrete pump	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
500KW Generators	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w Compressor	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	0	8	240	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					92.45	9.50	328.92	0.38	9.77	11.09	1.14	39.47	0.05	1.17

Table A-6
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Package 1 - Demobilization

Equipment	FUEL	No of Equip ment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	60	3.59	0.47	17.10	0.02	0.43	0.108	0.014	0.513	0.001	0.013
988G Wheel Loaders	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	2	8	60	6.86	0.61	11.41	0.01	0.63	0.206	0.018	0.342	0.000	0.019
Cat IT28G Broom Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Pneumatic Wheel	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Roller, Steel Wheel	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tandem Roller 10 Ton	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Compactor Attachm	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	1	8	60	2.70	0.24	4.49	0.00	0.25	0.081	0.007	0.135	0.000	0.007
Motor Grader 163H Global	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Push Pull Scrapers 627G	DIESEL	2	8	60	7.07	0.77	30.73	0.04	0.85	0.212	0.023	0.922	0.001	0.025
Various Trucks														
769D Dump Trucks	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
6000 Gallon Water Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Asphalt Pavers 130 H.P1	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
500KW Generators	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w Compressor	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	0	8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					20.22	2.09	63.72	0.07	2.16	0.61	0.06	1.91	0.00	0.06

Table A-7
Construction Worker Estimates And Emission Calculations
Carryover Storage and San Vicente Dam
Package 1

2010 Construction Worker Estimates and Emission Calculations

Construction Phase	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)
Mobilization	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Access Roads	Light-duty truck, catalyst	37	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Foundation Excavation	Light-duty truck, catalyst	40	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Relocation of Outlet Pipe	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Marina Grading	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Demobilization/Reclamation	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Supervision/Inspection	Light-duty truck, catalyst	24	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013

Construction Phase	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	2	30	0.076604	0.006371	0.006266	5.56E-05	0.000498
Access Roads	***6.75***	***0.56***	***0.55***	***0.00***	***0.04***	12	30	1.214713	0.101018	0.093359	0.000881	0.007899
Foundation Excavation	***7.30***	***0.61***	***0.60***	***0.01***	***0.05***	7	30	0.766035	0.063705	0.062659	0.000556	0.004982
Relocation of Outlet Pipe	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	4	30	0.218867	0.018201	0.017903	0.000159	0.001423
Marina Grading	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	8	30	0.897356	0.074626	0.0734	0.000651	0.005836
Demobilization/Reclamation	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	2	30	0.093019	0.007736	0.007609	6.75E-05	0.000605
Supervision/Inspection	***4.38***	***0.36***	***0.36***	***0.00***	***0.03***	12	30	0.787922	0.065525	0.064449	0.000571	0.005124

Assuming workers would travel from
El Cajon area to San Vicente Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

Table A-8
Construction Truck Trip Emissions
Carryover Storage and San Vicente Dam Raise
Package 1

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in 2	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	2	30	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***
Access Roads	Heavy-duty truck	7	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.34***	***1.27***	***0.09***	***0.00***	***0.04***	12	30	***0.06***	***0.23***	***0.02***	***0.00***	***0.01***
Foundation Excavation	Heavy-duty truck	72	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***3.53***	***13.05***	***0.92***	***0.03***	***0.46***	7	30	***0.37***	***1.37***	***0.10***	***0.00***	***0.05***
Relocation of Outlet Pipe	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	4	30	***0.01***	***0.03***	***0.00***	***0.00***	***0.00***
Marina Grading	Heavy-duty truck	196	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***9.61***	***35.54***	***2.51***	***0.09***	***1.24***	8	30	***1.15***	***4.26***	***0.30***	***0.01***	***0.15***
Demobilization/Reclamation	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	2	30	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***

Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area.
Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)

Unpaved Road Emissions

Emission Factor		Silt content	Mean vehicle weight	Surface moisture content	Exponents for pm-10		
Emission Factor, lb PM10/VMT	k, lb/VMT	s, %	W, tons	Mdry	a	b	c
1.3672	2.6	8.5	13	4.8	0.8	0.4	0.3

Unpaved Road Dust per Phase

		With Watering - assumed 51% effective
Mobilization	1.37	0.67
Access Roads	4.79	2.34
Foundation Excavation	49.22	24.12
Relocation of Outlet Pipe	2.05	1.00
Marina Grading	133.98	65.65
Demobilization/Reclamation	0.68	0.33

Table A-9
Fugitive Dust Emissions
Carryover Storage and San Vicente Dam Raise
Foundation Excavation Package 1

Calculation - Table A9-9-G, SCAQMD CEQA AQ Handbook

				Assume:		
				1.6 tons	**Total lbs**	
Earthwork	**Cut**	**Fill**	**Total**	**per c.y.**	**PM10**	**lbs/day**
200000	200,000	0	200,000	320000	328.3575	1.563607

Table A-10
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Mobilization

				60	Emissions					2010 Emission, tons (total)				
Equipment	No of Equipment	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	8	60	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	1	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Conventional Concrete Plant	1	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Ice Plant		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	2	8	60	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Var Conveyors type /size		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	1	8	60	60	6.59	1.74	19.45	0.17	0.60	0.198	0.052	0.583	0.005	0.018
Grout Pump		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					22.16	5.49	49.94	0.22	2.23	0.66	0.16	1.50	0.01	0.07

Table A-11
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - RCC Test Section

					60	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	1	0.50	8	60	60	0.86	0.23	1.41	0.00	0.13	0.026	0.007	0.042	0.000	0.004
Compactors															
CS-683E Vib Compactors			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	1	0.50	8	60	60	0.42	0.14	0.38	0.00	0.04	0.012	0.004	0.012	0.000	0.001
Double Drum Roller 434C	1	0.50	8	60	60	0.52	0.14	0.87	0.00	0.08	0.016	0.004	0.026	0.000	0.002
Smooth Drum Roller 583C	1	0.50	8	60	60	1.39	0.33	2.51	0.00	0.15	0.042	0.010	0.075	0.000	0.004
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Backhoe w/Compactor Attachment	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Backhoe w/Joint Machine Attch.	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Excavator Cat 312			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	1	0.50	8	60	60	2.04	0.54	5.18	0.01	0.20	0.061	0.016	0.155	0.000	0.006
Blasting Powder Truck			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	1	0.50	8	60	60	0.81	0.19	1.46	0.00	0.08	0.024	0.006	0.044	0.000	0.003
Concrete pump	1	0.50	8	60	60	0.40	0.14	0.37	0.00	0.03	0.012	0.004	0.011	0.000	0.001
End Dump Trucks			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Grout Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Mixer Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Pressure Washer Truck			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	1	0.50	8	60	60	1.58	0.37	2.85	0.00	0.17	0.047	0.011	0.085	0.000	0.005
Var Conveyors type /size			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	1	0.50	8	60	60	1.58	0.37	2.85	0.00	0.17	0.047	0.011	0.085	0.000	0.005
Misc Mixing Equipment	2	0.50	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Power Jet w/Compressor	1	0.50	8	60	60	0.41	0.14	0.38	0.00	0.04	0.012	0.004	0.011	0.000	0.001
Road Header			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Welding Operations			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						22.00	5.74	45.78	0.09	2.38	0.66	0.17	1.37	0.00	0.07

Table A-12
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Foundation Treatment

					270	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.55	8	270	270	1.48	0.40	2.45	0.00	0.22	0.200	0.054	0.330	0.001	0.030
Motor Grader 163H Global			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	1	0.60	8	270	270	2.44	0.64	6.22	0.01	0.24	0.330	0.087	0.840	0.001	0.032
Blasting Powder Truck			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.10	8	270	270	0.29	0.08	0.77	0.00	0.03	0.039	0.011	0.104	0.000	0.004
Grout Truck	2	0.35	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Mixer Truck	1	0.30	8	270	270	0.88	0.24	2.32	0.01	0.09	0.118	0.032	0.313	0.001	0.012
Pressure Washer Truck	4	0.46	8	270	270	5.37	1.47	14.22	0.03	0.55	0.725	0.199	1.920	0.004	0.074
Vacuum Truck	1	0.70	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	1	0.30	8	270	270	0.95	0.22	1.71	0.00	0.10	0.128	0.030	0.230	0.000	0.013
Conventional Concrete Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	4	0.55	8	270	270	1.82	0.63	1.68	0.00	0.16	0.246	0.085	0.227	0.000	0.022
Dewatering Pumps			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	4	0.55	8	270	270	6.96	1.62	12.52	0.02	0.73	0.940	0.219	1.690	0.003	0.098
2000KW Generators			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	2	0.35	8	270	270	0.55	0.19	0.51	0.00	0.05	0.075	0.026	0.069	0.000	0.007
Misc Grouting Equipment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.15	8	270	270	0.25	0.09	0.23	0.00	0.02	0.034	0.012	0.031	0.000	0.003
Road Header			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.70	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Welding Operations			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						27.13	7.27	58.85	0.12	2.81	3.66	0.98	7.95	0.02	0.38

Table A-13
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Dam Crest Demolition and Surface Preparation

					210	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.30	8	210	210	0.99	0.35	3.53	0.01	0.13	0.104	0.037	0.370	0.001	0.014
988G Wheel Loaders		0.80	8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	1		8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	3	0.45	8	210	210	1.37	0.37	2.26	0.00	0.20	0.144	0.039	0.238	0.000	0.021
Backhoe w/GEVR Attachment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	1	0.15	8	210	210	0.24	0.06	0.44	0.00	0.03	0.026	0.006	0.046	0.000	0.003
Concrete pump			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	5	0.30	8	210	210	4.38	1.20	11.59	0.03	0.45	0.460	0.126	1.217	0.003	0.047
Flat Bed	1	0.15	8	210	210	0.44	0.12	1.16	0.00	0.04	0.046	0.013	0.122	0.000	0.005
Grout Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	16	0.30	8	210	210	15.19	3.54	27.31	0.04	1.59	1.595	0.372	2.868	0.004	0.167
2000KW Generators			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.30	8	210	210	0.50	0.17	0.46	0.00	0.04	0.052	0.018	0.048	0.000	0.005
Road Header			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	4	0.30	8	210	210	1.36	0.37	2.24	0.00	0.20	0.142	0.039	0.235	0.000	0.021
Various Saws			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.30	8	210	210	0.88	0.24	2.32	0.01	0.09	0.092	0.025	0.243	0.001	0.009
Welding Operations			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						25.34	6.42	51.31	0.09	2.78	2.66	0.67	5.39	0.01	0.29

Table A-14
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Aggregate Supply

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	270 Days In Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	2010 Emis Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	1	0.30	24	24	270	270	1.12	0.40	3.99	0.01	0.15	0.151	0.054	0.539	0.001	0.020
Tower Crane			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders	2	0.85	24	24	270	270	8.39	3.02	29.99	0.05	1.13	1.132	0.407	4.049	0.007	0.152
988G Wheel Loaders	1	0.85	24	24	270	270	8.20	2.25	21.71	0.05	0.83	1.107	0.303	2.931	0.007	0.113
D7G Dozers(Track type)	2	0.85	24	24	270	270	8.94	3.21	31.98	0.05	1.20	1.207	0.434	4.317	0.007	0.162
D4 Dozer	1	0.85	24	24	270	270	4.36	1.18	7.21	0.01	0.65	0.589	0.160	0.973	0.002	0.088
Compactors																
CS-683E Vib Compactors			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks																
769D Dump Trucks			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.10	24	24	270	270	0.88	0.24	2.32	0.01	0.09	0.118	0.032	0.313	0.001	0.012
Grout Truck			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	1	0.75	24	24	270	270	6.57	1.80	17.39	0.04	0.67	0.887	0.243	2.347	0.005	0.090
Vacuum Truck			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment																
Aggregate Crushing Plant	1	0.85	24	24	270	270	8.07	1.88	14.51	0.02	0.84	1.090	0.254	1.959	0.003	0.114
Grout Mixing Plant			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	1	0.85	24	24	270	270	8.07	1.88	14.51	0.02	0.84	1.090	0.254	1.959	0.003	0.114
Miscellaneous Equipment																
Brush Chipper			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	4	0.90	24	24	270	270	8.93	3.09	8.25	0.02	0.79	1.206	0.417	1.114	0.002	0.106
Dewatering Pumps			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	4	0.90	24	24	270	270	34.18	7.97	61.45	0.09	3.57	4.614	1.076	8.296	0.013	0.483
2000KW Generators			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.75	24	24	270	270	6.57	1.80	17.39	0.04	0.67	0.887	0.243	2.347	0.005	0.090
Welding Operations			24		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							104.28	28.72	230.69	0.41	11.44	14.08	3.88	31.14	0.05	1.54

Table A-15
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - RCC Placement

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	540 Days In Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	2010 Emis Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane	1	0.40	24	24	365	540	1.49	0.53	5.32	0.01	0.20	0.271	0.098	0.971	0.002	0.037
Grove Crane 15T			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	2	0.40	24	24	365	540	2.98	1.07	10.64	0.02	0.40	0.543	0.195	1.941	0.003	0.073
Tower Crane			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	1	0.45	24	24	365	540	2.37	0.85	8.46	0.01	0.32	0.432	0.155	1.545	0.003	0.058
D4 Dozer	2	0.45	24	24	365	540	4.62	1.25	7.63	0.01	0.69	0.843	0.229	1.393	0.003	0.126
Compactors																
CS-683E Vib Compactors	1	0.45	24	24	365	540	3.18	0.74	5.72	0.01	0.33	0.581	0.135	1.045	0.002	0.061
Double Drum Roller 224D	2	0.45	24	24	365	540	2.24	0.77	2.07	0.00	0.20	0.409	0.141	0.378	0.001	0.036
Double Drum Roller 434C	2	0.45	24	24	365	540	2.83	0.77	4.68	0.01	0.42	0.517	0.140	0.853	0.002	0.077
Smooth Drum Roller 583C	2	0.45	24	24	365	540	7.53	1.76	13.54	0.02	0.79	1.374	0.320	2.471	0.004	0.144
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Backhoe w/Compactor Attachment	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Backhoe w/Joint Machine Attch.	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Excavator Cat 312			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	1	0.45	24	24	365	540	2.08	0.75	7.42	0.01	0.28	0.379	0.136	1.355	0.002	0.051
Various Trucks																
769D Dump Trucks	5	0.45	24	24	365	540	27.49	7.25	69.97	0.12	2.70	5.017	1.323	12.770	0.023	0.493
Blasting Powder Truck			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	2	0.45	24	24	365	540	4.39	1.02	7.89	0.01	0.46	0.801	0.187	1.440	0.002	0.084
Concrete pump			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.35	24	24	365	540	3.06	0.84	8.11	0.02	0.31	0.559	0.153	1.481	0.003	0.057
Grout Truck	1	0.45	24	24	365	540	3.94	1.08	10.43	0.02	0.40	0.719	0.197	1.904	0.004	0.073
Mixer Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Pressure Washer Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Vacuum Truck	1	0.45	24	24	365	540	3.94	1.08	10.43	0.02	0.40	0.719	0.197	1.904	0.004	0.073
Plant/Conveyor Equipment																
Aggregate Crushing Plant			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.35	24	24	365	540	3.32	0.77	5.97	0.01	0.35	0.606	0.141	1.090	0.002	0.063
Ice Plant	1	0.05	24	24	365	540	0.47	0.11	0.85	0.00	0.05	0.087	0.020	0.156	0.000	0.009
RCC Batch Plant	2	0.50	24	24	365	540	9.49	2.21	17.07	0.03	0.99	1.733	0.404	3.115	0.005	0.181
Var Conveyors type /size	6	0.45	24	24	365	540	25.64	5.98	46.09	0.07	2.68	4.679	1.091	8.411	0.013	0.489
Miscellaneous Equipment																
Brush Chipper			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.45	24	24	365	540	2.23	0.77	2.06	0.00	0.20	0.408	0.141	0.376	0.001	0.036
Dewatering Pumps			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
2000KW Generators	3	0.50	24	24	365	540	29.64	7.82	87.51	0.77	2.72	5.408	1.427	15.971	0.141	0.497
Grout Pump	1	0.45	24	24	365	540	1.07	0.37	0.99	0.00	0.09	0.195	0.068	0.180	0.000	0.017
Misc Grouting Equipment	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
Misc Mixing Equipment	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
Power Jet w/Compressor	3	0.45	24	24	365	540	3.35	1.16	3.09	0.01	0.30	0.611	0.211	0.565	0.001	0.054
Road Header			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Welding Operations			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							204.86	53.65	458.24	1.44	21.59	37.39	9.79	83.63	0.26	3.94

Table A-16
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Dam Seepage Control

					0	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.70	8	0	0	2.04	0.56	5.41	0.01	0.21	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	1	0.50	8	0	0	1.46	0.40	3.86	0.01	0.15	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	1	0.75	8	0	0	2.19	0.60	5.80	0.01	0.22	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.70	8	0	0	1.16	0.40	1.07	0.00	0.10	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	3	0.70	8	0	0	6.65	1.55	11.95	0.02	0.70	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.70	8	0	0	1.16	0.40	1.07	0.00	0.10	0.000	0.000	0.000	0.000	0.000
Road Header			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.70	8	0	0	2.04	0.56	5.41	0.01	0.21	0.000	0.000	0.000	0.000	0.000
Welding Operations			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						16.70	4.47	34.57	0.07	1.69	0.00	0.00	0.00	0.00	0.00

Table A-17
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Outlet Facilities

Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
					720	Emissions					2010 Em Emission, tons (total)				
Cranes															
100 T Truck Crane	1	0.55	8	365	720	0.68	0.25	2.44	0.00	0.09	0.124	0.045	0.445	0.001	0.017
Grove Crane 15T	1	0.35	8	365	720	0.43	0.16	1.55	0.00	0.06	0.079	0.028	0.283	0.000	0.011
Plant Erection Cranes	1	0.12	8	365	720	0.15	0.05	0.53	0.00	0.02	0.027	0.010	0.097	0.000	0.004
Tower Crane	1	0.70	8	365	720	0.87	0.31	3.10	0.01	0.12	0.158	0.057	0.566	0.001	0.021
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.08	8	365	720	0.26	0.09	0.94	0.00	0.04	0.048	0.017	0.172	0.000	0.006
988G Wheel Loaders	1	0.08	8	365	720	0.26	0.07	0.68	0.00	0.03	0.047	0.013	0.124	0.000	0.005
D7G Dozers(Track type)	2	0.08	8	365	720	0.28	0.10	1.00	0.00	0.04	0.051	0.018	0.183	0.000	0.007
D4 Dozer	1	0.08	8	365	720	0.14	0.04	0.23	0.00	0.02	0.025	0.007	0.041	0.000	0.004
Compactors															
CS-683E Vib Compactors			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	2	0.08	8	365	720	0.16	0.04	0.27	0.00	0.02	0.030	0.008	0.049	0.000	0.004
Backhoe w/GEVR Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.12	8	365	720	0.32	0.09	0.53	0.00	0.05	0.059	0.016	0.097	0.000	0.009
Motor Grader 163H Global			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	2	0.08	8	365	720	0.65	0.17	1.66	0.00	0.06	0.119	0.031	0.303	0.001	0.012
Blasting Powder Truck	1	0.12	8	365	720	0.35	0.10	0.93	0.00	0.04	0.064	0.018	0.169	0.000	0.006
Cat IT28G w/Broom Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	2	0.58	8	365	720	0.92	0.32	0.85	0.00	0.08	0.168	0.058	0.155	0.000	0.015
End Dump Trucks			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.35	8	365	720	1.02	0.28	2.70	0.01	0.10	0.186	0.051	0.494	0.001	0.019
Grout Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	3	0.58	8	365	720	5.08	1.39	13.45	0.03	0.52	0.927	0.254	2.454	0.006	0.094
Pressure Washer Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.60	8	365	720	1.90	0.44	3.41	0.01	0.20	0.347	0.081	0.623	0.001	0.036
Ice Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.58	8	365	720	0.96	0.33	0.89	0.00	0.08	0.175	0.061	0.162	0.000	0.015
Dewatering Pumps	2	0.35	8	365	720	0.55	0.19	0.51	0.00	0.05	0.101	0.035	0.094	0.000	0.009
Drills Various sizes and types	2	0.23	8	365	720	1.46	0.34	2.62	0.00	0.15	0.266	0.062	0.478	0.001	0.028
2000KW Generators			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.52	8	365	720	0.86	0.30	0.79	0.00	0.08	0.157	0.054	0.145	0.000	0.014
Road Header	1	0.08	8	365	720	0.06	0.02	0.06	0.00	0.01	0.011	0.004	0.010	0.000	0.001
Saw Cutting Machines			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.12	8	365	720	0.70	0.19	1.85	0.00	0.07	0.128	0.035	0.338	0.001	0.013
Welding Operations	2	0.45	8	365	720	0.68	0.24	0.63	0.00	0.06	0.125	0.043	0.115	0.000	0.011
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						18.75	5.51	41.63	0.08	1.98	3.42	1.01	7.60	0.01	0.36

Table A-18
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Saddle Dams

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	210 Days In Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	2010 Emis Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders	2	0.35	8		210	210	1.15	0.41	4.12	0.01	0.15	0.121	0.043	0.432	0.001	0.016
988G Wheel Loaders	2	0.35	8		210	210	2.25	0.62	5.96	0.01	0.23	0.236	0.065	0.626	0.001	0.024
D7G Dozers(Track type)	1	0.35	8		210	210	0.61	0.22	2.19	0.00	0.08	0.064	0.023	0.230	0.000	0.009
D4 Dozer	1	0.25	8		210	210	0.43	0.12	0.71	0.00	0.06	0.045	0.012	0.074	0.000	0.007
Compactors																
CS-683E Vib Compactors	1	0.25	8		210	210	0.59	0.14	1.06	0.00	0.06	0.062	0.014	0.111	0.000	0.006
Double Drum Roller 224D	1	0.25	8		210	210	0.21	0.07	0.19	0.00	0.02	0.022	0.008	0.020	0.000	0.002
Double Drum Roller 434C	1	0.25	8		210	210	0.26	0.07	0.43	0.00	0.04	0.028	0.007	0.045	0.000	0.004
Smooth Drum Roller 583C	1	0.25	8		210	210	0.70	0.16	1.25	0.00	0.07	0.073	0.017	0.132	0.000	0.008
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment	2	0.15	8		210	210	0.30	0.08	0.50	0.00	0.05	0.032	0.009	0.053	0.000	0.005
Backhoe w/GEVR Attachment	2	0.25	8		210	210	0.51	0.14	0.84	0.00	0.08	0.053	0.014	0.088	0.000	0.008
Backhoe w/Compactor Attachment	1	0.25	8		210	210	0.25	0.07	0.42	0.00	0.04	0.027	0.007	0.044	0.000	0.004
Backhoe w/Joint Machine Attch.	1	0.15	8		210	210	0.15	0.04	0.25	0.00	0.02	0.016	0.004	0.026	0.000	0.002
Excavator Cat 312	2	0.25	8		210	210	0.67	0.18	1.11	0.00	0.10	0.071	0.019	0.117	0.000	0.011
Motor Grader 163H Global	1	0.15	8		210	210	0.23	0.08	0.82	0.00	0.03	0.024	0.009	0.087	0.000	0.003
Various Trucks																
769D Dump Trucks	4	0.22	8		210	210	3.58	0.95	9.12	0.02	0.35	0.376	0.099	0.958	0.002	0.037
Blasting Powder Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Cat IT28G w/Broom Attachment	1	0.25	8		210	210	0.41	0.09	0.73	0.00	0.04	0.043	0.010	0.077	0.000	0.004
Concrete pump	1	0.25	8		210	210	0.20	0.07	0.18	0.00	0.02	0.021	0.007	0.019	0.000	0.002
End Dump Trucks			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Grout Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Mixer Truck	2	0.25	8		210	210	1.46	0.40	3.86	0.01	0.15	0.153	0.042	0.406	0.001	0.016
Pressure Washer Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Vacuum Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Plant/Conveyor Equipment																
Aggregate Crushing Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.15	8		210	210	0.47	0.11	0.85	0.00	0.05	0.050	0.012	0.090	0.000	0.005
Ice Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Var Conveyors type /size			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment																
Brush Chipper			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.35	8		210	210	0.58	0.20	0.53	0.00	0.05	0.061	0.021	0.056	0.000	0.005
Dewatering Pumps			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	3	0.22	8		210	210	2.09	0.49	3.76	0.01	0.22	0.219	0.051	0.394	0.001	0.023
2000KW Generators			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	1	0.15	8		210	210	0.12	0.04	0.11	0.00	0.01	0.012	0.004	0.012	0.000	0.001
Misc Grouting Equipment	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Misc Mixing Equipment	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Power Jet w/Compressor	2	0.25	8		210	210	0.41	0.14	0.38	0.00	0.04	0.043	0.015	0.040	0.000	0.004
Road Header			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.25	8		210	210	1.46	0.40	3.86	0.01	0.15	0.153	0.042	0.406	0.001	0.016
Welding Operations			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							25.13	6.85	57.19	0.11	2.73	2.64	0.72	6.00	0.01	0.29

Table A-19
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Bypass Pipeline Diversion Structure

					300	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	2	0.65	8	300	300	1.61	0.58	5.76	0.01	0.22	0.242	0.087	0.864	0.001	0.033
Grove Crane 15T	2	0.55	8	300	300	1.36	0.49	4.88	0.01	0.18	0.205	0.074	0.731	0.001	0.028
Plant Erection Cranes			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	2	0.42	8	300	300	1.47	0.53	5.27	0.01	0.20	0.221	0.079	0.790	0.001	0.030
D4 Dozer	2	0.40	8	300	300	1.37	0.37	2.26	0.00	0.20	0.205	0.056	0.339	0.001	0.031
Compactors															
CS-683E Vib Compactors			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	2	0.42	8	300	300	0.85	0.23	1.41	0.00	0.13	0.128	0.035	0.211	0.000	0.019
Backhoe w/GEVR Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	3	0.65	8	300	300	2.62	0.71	4.33	0.01	0.39	0.394	0.107	0.650	0.001	0.059
Motor Grader 163H Global	1	0.60	8	300	300	0.92	0.33	3.30	0.01	0.12	0.138	0.050	0.495	0.001	0.019
Various Trucks															
769D Dump Trucks	4	0.42	8	300	300	6.84	1.80	17.42	0.03	0.67	1.026	0.271	2.612	0.005	0.101
Blasting Powder Truck	1	0.60	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Cat IT28G w/Broom Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	1	0.45	8	300	300	0.36	0.12	0.33	0.00	0.03	0.054	0.018	0.049	0.000	0.005
End Dump Trucks			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.45	8	300	300	1.31	0.36	3.48	0.01	0.13	0.197	0.054	0.522	0.001	0.020
Grout Truck			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	2	0.30	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Pressure Washer Truck	1	0.60	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Vacuum Truck			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.30	8	300	300	0.95	0.22	1.71	0.00	0.10	0.142	0.033	0.256	0.000	0.015
Ice Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	1	0.30	8	300	300	0.95	0.22	1.71	0.00	0.10	0.142	0.033	0.256	0.000	0.015
Compressors	2	0.65	8	300	300	1.08	0.37	0.99	0.00	0.09	0.161	0.056	0.149	0.000	0.014
Dewatering Pumps			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	1	0.25	8	300	300	0.19	0.07	0.18	0.00	0.02	0.028	0.010	0.026	0.000	0.003
Saw Cutting Machines			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.65	8	300	300	3.79	1.04	10.05	0.02	0.39	0.569	0.156	1.507	0.003	0.058
Welding Operations	2	0.65	8	300	300	0.99	0.34	0.91	0.00	0.09	0.148	0.051	0.137	0.000	0.013
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						31.93	9.23	77.88	0.15	3.60	4.79	1.38	11.68	0.02	0.54

Table A-20
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Turnout-Bifurcation Structures

					120	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	1	0.50	8	120	120	0.62	0.22	2.22	0.00	0.08	0.037	0.013	0.133	0.000	0.005
Grove Crane 15T	1	0.60	8	120	120	0.74	0.27	2.66	0.00	0.10	0.045	0.016	0.160	0.000	0.006
Plant Erection Cranes			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	1	0.50	8	120	120	0.82	0.30	2.94	0.00	0.11	0.049	0.018	0.176	0.000	0.007
988G Wheel Loaders			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	1	0.25	8	120	120	0.44	0.16	1.57	0.00	0.06	0.026	0.009	0.094	0.000	0.004
D4 Dozer	2	0.80	8	120	120	2.74	0.74	4.52	0.01	0.41	0.164	0.045	0.271	0.001	0.025
Compactors															
CS-683E Vib Compactors			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.50	8	120	120	1.35	0.36	2.22	0.00	0.20	0.081	0.022	0.133	0.000	0.012
Motor Grader 163H Global			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	2	0.50	8	120	120	4.07	1.07	10.37	0.02	0.40	0.244	0.064	0.622	0.001	0.024
Blasting Powder Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	1	0.50	8	120	120	0.40	0.14	0.37	0.00	0.03	0.024	0.008	0.022	0.000	0.002
End Dump Trucks			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	2	0.50	8	120	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Pressure Washer Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.50	8	120	120	1.58	0.37	2.85	0.00	0.17	0.095	0.022	0.171	0.000	0.010
Ice Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	1	0.15	8	120	120	0.12	0.04	0.11	0.00	0.01	0.007	0.003	0.007	0.000	0.001
Dewatering Pumps	1	0.40	8	120	120	0.32	0.11	0.29	0.00	0.03	0.019	0.007	0.018	0.000	0.002
Drills Various sizes and types	1	0.50	8	120	120	1.58	0.37	2.85	0.00	0.17	0.095	0.022	0.171	0.000	0.010
2000KW Generators			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.50	8	120	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Welding Operations			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						20.62	5.75	48.41	0.09	2.36	1.24	0.35	2.90	0.01	0.14

Table A-21
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Clearing and Grubbing

					0	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.65	8	0	0	2.14	0.77	7.64	0.01	0.29	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	2	0.50	8	0	0	1.71	0.46	2.83	0.01	0.26	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	1	0.70	8	0	0	0.94	0.26	1.56	0.00	0.14	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	2	0.50	8	0	0	2.92	0.80	7.73	0.02	0.30	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.15	8	0	0	0.44	0.12	1.16	0.00	0.04	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	2	0.70	8	0	0	4.43	1.03	7.97	0.01	0.46	0.000	0.000	0.000	0.000	0.000
Compressors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	4	0.70	8	0	0	3.16	0.86	5.22	0.01	0.47	0.000	0.000	0.000	0.000	0.000
Water Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						15.74	4.30	34.10	0.06	1.96	0.00	0.00	0.00	0.00	0.00

Table A-22
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Demobilization and Reclamation

				0	Emissions					2010 Emission, tons (total)				
Equipment	No of Equipment	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-23
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Worker Trips

2010 Construction Worker Estimates and Emission Calculations

Construction Phase	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)
Mobilization	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Test Section	Light-duty truck, catalyst	46	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Foundation Treatment	Light-duty truck, catalyst	29	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Crest Demo Surface Prep	Light-duty truck, catalyst	26	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Aggregate Supply	Light-duty truck, catalyst	40	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Craft	Light-duty truck, catalyst	158	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Mechanic	Light-duty truck, catalyst	2	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Batch Plant & Setup	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Spillway and Weir Crew	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Front End	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Craft	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 60"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 120"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Remove Rock Dam	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Seepage Control	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Saddle Dams	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Bypass Pipeline Diversion Structure	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Turnout/Bifurcation Structures	Light-duty truck, catalyst	22	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Demobilization/Reclamation	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Supervision/Inspection	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013

	Emissions, lbs/day					Months in	Days/mont	Emissions, tons/year				
	CO	NOx	VOCs	SOx	PM10			CO	NOx	VOCs	SOx	PM10
Mobilization	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	2	30	0.06566	0.00546	0.005371	4.76E-05	0.000427
RCC Test Section	***8.39***	***0.70***	***0.69***	***0.01***	***0.05***	2	30	0.251697	0.020932	0.020588	0.000183	0.001637
Foundation Treatment	***5.29***	***0.44***	***0.43***	***0.00***	***0.03***	9	30	0.714054	0.059382	0.058407	0.000518	0.004644
Dam Crest Demo Surface Prep	***4.74***	***0.39***	***0.39***	***0.00***	***0.03***	7	30	0.497923	0.041408	0.040728	0.000361	0.003238
Aggregate Supply	***7.30***	***0.61***	***0.60***	***0.01***	***0.05***	12	30	1.313204	0.109209	0.107415	0.000952	0.00854
RCC Placement Craft	***28.82***	***2.40***	***2.36***	***0.02***	***0.19***	9	30	3.890366	0.323531	0.318217	0.002821	0.025299
RCC Placement Mechanic	***0.36***	***0.03***	***0.03***	***0.00***	***0.00***	9	30	0.049245	0.004095	0.004028	3.57E-05	0.00032
RCC Placement Batch Plant & Setup	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	3	21.65	0.071077	0.005911	0.005814	5.15E-05	0.000462
Spillway and Weir Crew	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	2	21.65	0.078975	0.006568	0.00646	5.73E-05	0.000514
Outlet Facilities Front End	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	4	21.65	0.157949	0.013135	0.01292	0.000115	0.001027
Outlet Facilities Craft	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	12	21.65	0.49754	0.041376	0.040697	0.000361	0.003236
Outlet Facilities Tunnel Men 60"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	2	25.71	0.075028	0.006239	0.006137	5.44E-05	0.000488
Outlet Facilities Tunnel Men 120"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	4	25.71	0.150055	0.012479	0.012274	0.000109	0.000976
Remove Rock Dam	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	1	25.71	0.035169	0.002925	0.002877	2.55E-05	0.000229
Dam Seepage Control	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	0	25.71	0	0	0	0	0
Saddle Dams	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	12	30	1.116223	0.092827	0.091303	0.00081	0.007259
Bypass Pipeline Diversion Structure	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	12	30	1.116223	0.092827	0.091303	0.00081	0.007259
Turnout/Bifurcation Structures	***4.01***	***0.33***	***0.33***	***0.00***	***0.03***	6	30	0.361131	0.030032	0.029539	0.000262	0.002348
Clearing/Grubbing	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	0	30	0	0	0	0	0
Demobilization/Reclamation	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0	30	0	0	0	0	0
Supervision/Inspection	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	12	30	0.886412	0.073716	0.072505	0.000643	0.005764

Assuming workers would travel from
El Cajon area to San Vicente Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

Table A-24
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Construction Truck Trips

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in 2	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	2	30	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***
RCC Test Section	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	2	30	***0.00***	***0.02***	***0.00***	***0.00***	***0.00***
Foundation Treatment	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	9	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Dam Crest Demo & Surface Prep	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	7	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Aggregate Supply	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	12	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
RCC Placement	Heavy-duty truck	20.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***1.01***	***3.72***	***0.26***	***0.01***	***0.13***	12	30	***0.18***	***0.67***	***0.05***	***0.00***	***0.02***
Dam Seepage Control	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Outlet Facilities	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	12	30	***0.03***	***0.10***	***0.01***	***0.00***	***0.00***
Saddle Dams	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	12	30	***0.02***	***0.07***	***0.00***	***0.00***	***0.00***
Bypass Pipeline Diversion Structure	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	12	30	***0.02***	***0.07***	***0.00***	***0.00***	***0.00***
Turnout/Bifurcation Structures	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	6	30	***0.01***	***0.03***	***0.00***	***0.00***	***0.00***
Clearing/Grubbing	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Demobilization/Reclamation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***

Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area.
Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)

Fugitive Dust Calculations

Unpaved Road Emissions

Emission Factor Emission Factor, lb PM10/VMT	k, lb/VMT	Silt content s, %	Mean vehicle weight W, tons	Surface moisture content Mdry	Exponents for pm-10 a	b	c
1.3672	2.6	8.5	13	4.8	0.8	0.4	0.3

Unpaved Road Dust per Phase

		With Watering - assumed 50% effective
Mobilization	0.68	0.34
RCC Test Section	2.05	1.03
Foundation Treatment	0.68	0.34
Dam Crest Demo & Surface Prep	0.68	0.34
Aggregate Supply	0.00	0.00
RCC Placement	14.01	7.01
Dam Seepage Control	1.37	0.68
Outlet Facilities	2.05	1.03
Saddle Dams	1.37	0.68
Bypass Pipeline Diversion Structure	1.37	0.68
Turnout/Bifurcation Structures	1.37	0.68
Clearing/Grubbing	2.05	1.03
Demobilization/Reclamation	0.00	0.00

Table A-25
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Fugitive Dust Emissions

Rock Crushing

Calculation - EPA AP-42, Section 11.19.2

Emission Factor	0.00054	lbs PM10/Ton Rock Crushed		
Earthwork:	**Total Concrete, CY**	**Total Sand and Aggregate Required**	**Total lbs PM10**	**lbs/day**
Main Dam	677500	1115503.75	301.186	0.836628
Inlet/Outlet Works Tower	3300	5433.45	1.467032	0.004075
East Saddle Dam	7300	12019.45	3.245252	0.009015
West Saddle Dam	1700	2799.05	0.755744	0.002099
				0.851817

Table A-26
Carryover Storage and San Vicente Dam Raise
Onsite Quarry - Concrete Batching Emissions

Concrete Batch Plant Emissions

Total RCC			
Main Dam	677,500		
Inlet/Outlet Works Tower	3,300		
East Saddle Dam	7300		
West Saddle Dam	900		
AP-42 Emission Factors - Concrete Batching (assuming fabric filters)			
	PM10 emissions, lbs/cubic yard		
Cement Unloading to Elevated Storage Silo	0.00034		
Cement Supplement Unloading	0.0049		
Mixer Loading	0.0048		
Emissions	total Emissions, lbs	Total Duration,	Emissions, lbs/day
Main Dam	6802.10	9	25.19296296
Inlet/Outlet Works Tower	33.13	1	1.1044
East Saddle Dam	73.29	7	0.349009524
West Saddle Dam	9.04	7	0.043028571

Table A-27
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Mobilization

				60	Emissions					2010 Emission, tons (total)				
Equipment	No of Equipment	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	8	60	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	1	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Conventional Concrete Plant	1	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Ice Plant		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	2	8	60	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Var Conveyors type /size		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	1	8	60	60	6.59	1.74	19.45	0.17	0.60	0.198	0.052	0.583	0.005	0.018
Grout Pump		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations		8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					22.16	5.49	49.94	0.22	2.23	0.66	0.16	1.50	0.01	0.07

Table A-28
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - RCC Test Section

					60	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	1	0.50	8	60	60	0.86	0.23	1.41	0.00	0.13	0.026	0.007	0.042	0.000	0.004
Compactors															
CS-683E Vib Compactors			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	1	0.50	8	60	60	0.42	0.14	0.38	0.00	0.04	0.012	0.004	0.012	0.000	0.001
Double Drum Roller 434C	1	0.50	8	60	60	0.52	0.14	0.87	0.00	0.08	0.016	0.004	0.026	0.000	0.002
Smooth Drum Roller 583C	1	0.50	8	60	60	1.39	0.33	2.51	0.00	0.15	0.042	0.010	0.075	0.000	0.004
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Backhoe w/Compactor Attachment	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Backhoe w/Joint Machine Attch.	1	0.50	8	60	60	0.51	0.14	0.84	0.00	0.08	0.015	0.004	0.025	0.000	0.002
Excavator Cat 312			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	1	0.50	8	60	60	2.04	0.54	5.18	0.01	0.20	0.061	0.016	0.155	0.000	0.006
Blasting Powder Truck			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	1	0.50	8	60	60	0.81	0.19	1.46	0.00	0.08	0.024	0.006	0.044	0.000	0.003
Concrete pump	1	0.50	8	60	60	0.40	0.14	0.37	0.00	0.03	0.012	0.004	0.011	0.000	0.001
End Dump Trucks			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Grout Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Mixer Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Pressure Washer Truck			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	1	0.50	8	60	60	1.58	0.37	2.85	0.00	0.17	0.047	0.011	0.085	0.000	0.005
Var Conveyors type /size			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	1	0.50	8	60	60	1.58	0.37	2.85	0.00	0.17	0.047	0.011	0.085	0.000	0.005
Misc Mixing Equipment	2	0.50	8	60	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Power Jet w/Compressor	1	0.50	8	60	60	0.41	0.14	0.38	0.00	0.04	0.012	0.004	0.011	0.000	0.001
Road Header			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.50	8	60	60	1.46	0.40	3.86	0.01	0.15	0.044	0.012	0.116	0.000	0.004
Welding Operations			8	60	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						22.00	5.74	45.78	0.09	2.38	0.66	0.17	1.37	0.00	0.07

Table A-29
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Foundation Treatment

					270	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.55	8	270	270	1.48	0.40	2.45	0.00	0.22	0.200	0.054	0.330	0.001	0.030
Motor Grader 163H Global			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	1	0.60	8	270	270	2.44	0.64	6.22	0.01	0.24	0.330	0.087	0.840	0.001	0.032
Blasting Powder Truck			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.10	8	270	270	0.29	0.08	0.77	0.00	0.03	0.039	0.011	0.104	0.000	0.004
Grout Truck	2	0.35	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Mixer Truck	1	0.30	8	270	270	0.88	0.24	2.32	0.01	0.09	0.118	0.032	0.313	0.001	0.012
Pressure Washer Truck	4	0.46	8	270	270	5.37	1.47	14.22	0.03	0.55	0.725	0.199	1.920	0.004	0.074
Vacuum Truck	1	0.70	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	1	0.30	8	270	270	0.95	0.22	1.71	0.00	0.10	0.128	0.030	0.230	0.000	0.013
Conventional Concrete Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	4	0.55	8	270	270	1.82	0.63	1.68	0.00	0.16	0.246	0.085	0.227	0.000	0.022
Dewatering Pumps			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	4	0.55	8	270	270	6.96	1.62	12.52	0.02	0.73	0.940	0.219	1.690	0.003	0.098
2000KW Generators			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	2	0.35	8	270	270	0.55	0.19	0.51	0.00	0.05	0.075	0.026	0.069	0.000	0.007
Misc Grouting Equipment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.15	8	270	270	0.25	0.09	0.23	0.00	0.02	0.034	0.012	0.031	0.000	0.003
Road Header			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.70	8	270	270	2.04	0.56	5.41	0.01	0.21	0.276	0.076	0.730	0.002	0.028
Welding Operations			8	270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						27.13	7.27	58.85	0.12	2.81	3.66	0.98	7.95	0.02	0.38

Table A-30
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Dam Crest Demolition and Surface Preparation

					210	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.30	8	210	210	0.99	0.35	3.53	0.01	0.13	0.104	0.037	0.370	0.001	0.014
988G Wheel Loaders		0.80	8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	1		8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	3	0.45	8	210	210	1.37	0.37	2.26	0.00	0.20	0.144	0.039	0.238	0.000	0.021
Backhoe w/GEVR Attachment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	1	0.15	8	210	210	0.24	0.06	0.44	0.00	0.03	0.026	0.006	0.046	0.000	0.003
Concrete pump			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	5	0.30	8	210	210	4.38	1.20	11.59	0.03	0.45	0.460	0.126	1.217	0.003	0.047
Flat Bed	1	0.15	8	210	210	0.44	0.12	1.16	0.00	0.04	0.046	0.013	0.122	0.000	0.005
Grout Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	16	0.30	8	210	210	15.19	3.54	27.31	0.04	1.59	1.595	0.372	2.868	0.004	0.167
2000KW Generators			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.30	8	210	210	0.50	0.17	0.46	0.00	0.04	0.052	0.018	0.048	0.000	0.005
Road Header			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	4	0.30	8	210	210	1.36	0.37	2.24	0.00	0.20	0.142	0.039	0.235	0.000	0.021
Various Saws			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.30	8	210	210	0.88	0.24	2.32	0.01	0.09	0.092	0.025	0.243	0.001	0.009
Welding Operations			8	210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						25.34	6.42	51.31	0.09	2.78	2.66	0.67	5.39	0.01	0.29

Table A-31
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Aggregate Supply

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	270 Days In Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	2010 Emis Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	1	0.10	8		270	270	0.12	0.04	0.44	0.00	0.02	0.017	0.006	0.060	0.000	0.002
Tower Crane			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders	2	0.75	8		270	270	2.47	0.89	8.82	0.01	0.33	0.333	0.120	1.191	0.002	0.045
988G Wheel Loaders	1	0.75	8		270	270	2.41	0.66	6.39	0.01	0.25	0.326	0.089	0.862	0.002	0.033
D7G Dozers(Track type)	2	0.75	8		270	270	2.63	0.95	9.40	0.02	0.35	0.355	0.128	1.270	0.002	0.048
D4 Dozer	1	0.75	8		270	270	1.28	0.35	2.12	0.00	0.19	0.173	0.047	0.286	0.001	0.026
Compactors																
CS-683E Vib Compactors			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks																
769D Dump Trucks			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.10	8		270	270	0.29	0.08	0.77	0.00	0.03	0.039	0.011	0.104	0.000	0.004
Grout Truck			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	1	0.75	8		270	270	2.19	0.60	5.80	0.01	0.22	0.296	0.081	0.782	0.002	0.030
Vacuum Truck			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment																
Aggregate Crushing Plant			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	1	0.75	8		270	270	2.37	0.55	4.27	0.01	0.25	0.320	0.075	0.576	0.001	0.034
Miscellaneous Equipment																
Brush Chipper			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.75	8		270	270	2.19	0.60	5.80	0.01	0.22	0.296	0.081	0.782	0.002	0.030
Welding Operations			8		270	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							15.96	4.72	43.81	0.08	1.86	2.15	0.64	5.91	0.01	0.25

Table A-32
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - RCC Placement

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
						540	Emissions					2010 Emis Emission, tons (total)				
Cranes																
100 T Truck Crane	1	0.40	24	24	365	540	1.49	0.53	5.32	0.01	0.20	0.271	0.098	0.971	0.002	0.037
Grove Crane 15T			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	2	0.40	24	24	365	540	2.98	1.07	10.64	0.02	0.40	0.543	0.195	1.941	0.003	0.073
Tower Crane			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	1	0.45	24	24	365	540	2.37	0.85	8.46	0.01	0.32	0.432	0.155	1.545	0.003	0.058
D4 Dozer	2	0.45	24	24	365	540	4.62	1.25	7.63	0.01	0.69	0.843	0.229	1.393	0.003	0.126
Compactors																
CS-683E Vib Compactors	1	0.45	24	24	365	540	3.18	0.74	5.72	0.01	0.33	0.581	0.135	1.045	0.002	0.061
Double Drum Roller 224D	2	0.45	24	24	365	540	2.24	0.77	2.07	0.00	0.20	0.409	0.141	0.378	0.001	0.036
Double Drum Roller 434C	2	0.45	24	24	365	540	2.83	0.77	4.68	0.01	0.42	0.517	0.140	0.853	0.002	0.077
Smooth Drum Roller 583C	2	0.45	24	24	365	540	7.53	1.76	13.54	0.02	0.79	1.374	0.320	2.471	0.004	0.144
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Backhoe w/Compactor Attachment	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Backhoe w/Joint Machine Attch.	2	0.45	24	24	365	540	2.74	0.74	4.53	0.01	0.41	0.500	0.136	0.826	0.002	0.075
Excavator Cat 312			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	1	0.45	24	24	365	540	2.08	0.75	7.42	0.01	0.28	0.379	0.136	1.355	0.002	0.051
Various Trucks																
769D Dump Trucks	5	0.45	24	24	365	540	27.49	7.25	69.97	0.12	2.70	5.017	1.323	12.770	0.023	0.493
Blasting Powder Truck			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	2	0.45	24	24	365	540	4.39	1.02	7.89	0.01	0.46	0.801	0.187	1.440	0.002	0.084
Concrete pump			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.35	24	24	365	540	3.06	0.84	8.11	0.02	0.31	0.559	0.153	1.481	0.003	0.057
Grout Truck	1	0.45	24	24	365	540	3.94	1.08	10.43	0.02	0.40	0.719	0.197	1.904	0.004	0.073
Mixer Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Pressure Washer Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Vacuum Truck	1	0.45	24	24	365	540	3.94	1.08	10.43	0.02	0.40	0.719	0.197	1.904	0.004	0.073
Plant/Conveyor Equipment																
Aggregate Crushing Plant			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.35	24	24	365	540	3.32	0.77	5.97	0.01	0.35	0.606	0.141	1.090	0.002	0.063
Ice Plant	1	0.05	24	24	365	540	0.47	0.11	0.85	0.00	0.05	0.087	0.020	0.156	0.000	0.009
RCC Batch Plant	2	0.50	24	24	365	540	9.49	2.21	17.07	0.03	0.99	1.733	0.404	3.115	0.005	0.181
Var Conveyors type /size	6	0.45	24	24	365	540	25.64	5.98	46.09	0.07	2.68	4.679	1.091	8.411	0.013	0.489
Miscellaneous Equipment																
Brush Chipper			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.45	24	24	365	540	2.23	0.77	2.06	0.00	0.20	0.408	0.141	0.376	0.001	0.036
Dewatering Pumps			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
2000KW Generators	3	0.50	24	24	365	540	29.64	7.82	87.51	0.77	2.72	5.408	1.427	15.971	0.141	0.497
Grout Pump	1	0.45	24	24	365	540	1.07	0.37	0.99	0.00	0.09	0.195	0.068	0.180	0.000	0.017
Misc Grouting Equipment	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
Misc Mixing Equipment	2	0.45	24	24	365	540	8.55	1.99	15.36	0.02	0.89	1.560	0.364	2.804	0.004	0.163
Power Jet w/Compressor	3	0.45	24	24	365	540	3.35	1.16	3.09	0.01	0.30	0.611	0.211	0.565	0.001	0.054
Road Header			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.45	24	24	365	540	7.88	2.16	20.87	0.05	0.80	1.438	0.394	3.808	0.009	0.146
Welding Operations			24		365	540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							204.86	53.65	458.24	1.44	21.59	37.39	9.79	83.63	0.26	3.94

Table A-33
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Dam Seepage Control

Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
					0	Emissions					2010 Em Emission, tons (total)				
Cranes															
100 T Truck Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.70	8	0	0	2.04	0.56	5.41	0.01	0.21	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	1	0.50	8	0	0	1.46	0.40	3.86	0.01	0.15	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	1	0.75	8	0	0	2.19	0.60	5.80	0.01	0.22	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.70	8	0	0	1.16	0.40	1.07	0.00	0.10	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	3	0.70	8	0	0	6.65	1.55	11.95	0.02	0.70	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.70	8	0	0	1.16	0.40	1.07	0.00	0.10	0.000	0.000	0.000	0.000	0.000
Road Header			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	1	0.70	8	0	0	2.04	0.56	5.41	0.01	0.21	0.000	0.000	0.000	0.000	0.000
Welding Operations			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						16.70	4.47	34.57	0.07	1.69	0.00	0.00	0.00	0.00	0.00

Table A-33
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Outlet Facilities

					720	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	1	0.55	8	365	720	0.68	0.25	2.44	0.00	0.09	0.124	0.045	0.445	0.001	0.017
Grove Crane 15T	1	0.35	8	365	720	0.43	0.16	1.55	0.00	0.06	0.079	0.028	0.283	0.000	0.011
Plant Erection Cranes	1	0.12	8	365	720	0.15	0.05	0.53	0.00	0.02	0.027	0.010	0.097	0.000	0.004
Tower Crane	1	0.70	8	365	720	0.87	0.31	3.10	0.01	0.12	0.158	0.057	0.566	0.001	0.021
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.08	8	365	720	0.26	0.09	0.94	0.00	0.04	0.048	0.017	0.172	0.000	0.006
988G Wheel Loaders	1	0.08	8	365	720	0.26	0.07	0.68	0.00	0.03	0.047	0.013	0.124	0.000	0.005
D7G Dozers(Track type)	2	0.08	8	365	720	0.28	0.10	1.00	0.00	0.04	0.051	0.018	0.183	0.000	0.007
D4 Dozer	1	0.08	8	365	720	0.14	0.04	0.23	0.00	0.02	0.025	0.007	0.041	0.000	0.004
Compactors															
CS-683E Vib Compactors			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	2	0.08	8	365	720	0.16	0.04	0.27	0.00	0.02	0.030	0.008	0.049	0.000	0.004
Backhoe w/GEVR Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.12	8	365	720	0.32	0.09	0.53	0.00	0.05	0.059	0.016	0.097	0.000	0.009
Motor Grader 163H Global			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	2	0.08	8	365	720	0.65	0.17	1.66	0.00	0.06	0.119	0.031	0.303	0.001	0.012
Blasting Powder Truck	1	0.12	8	365	720	0.35	0.10	0.93	0.00	0.04	0.064	0.018	0.169	0.000	0.006
Cat IT28G w/Broom Attachment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	2	0.58	8	365	720	0.92	0.32	0.85	0.00	0.08	0.168	0.058	0.155	0.000	0.015
End Dump Trucks			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.35	8	365	720	1.02	0.28	2.70	0.01	0.10	0.186	0.051	0.494	0.001	0.019
Grout Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	3	0.58	8	365	720	5.08	1.39	13.45	0.03	0.52	0.927	0.254	2.454	0.006	0.094
Pressure Washer Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.60	8	365	720	1.90	0.44	3.41	0.01	0.20	0.347	0.081	0.623	0.001	0.036
Ice Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.58	8	365	720	0.96	0.33	0.89	0.00	0.08	0.175	0.061	0.162	0.000	0.015
Dewatering Pumps	2	0.35	8	365	720	0.55	0.19	0.51	0.00	0.05	0.101	0.035	0.094	0.000	0.009
Drills Various sizes and types	2	0.23	8	365	720	1.46	0.34	2.62	0.00	0.15	0.266	0.062	0.478	0.001	0.028
2000KW Generators			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	2	0.52	8	365	720	0.86	0.30	0.79	0.00	0.08	0.157	0.054	0.145	0.000	0.014
Road Header	1	0.08	8	365	720	0.06	0.02	0.06	0.00	0.01	0.011	0.004	0.010	0.000	0.001
Saw Cutting Machines			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	365	720	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.12	8	365	720	0.70	0.19	1.85	0.00	0.07	0.128	0.035	0.338	0.001	0.013
Welding Operations	2	0.45	8	365	720	0.68	0.24	0.63	0.00	0.06	0.125	0.043	0.115	0.000	0.011
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						18.75	5.51	41.63	0.08	1.98	3.42	1.01	7.60	0.01	0.36

Table A-34
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Saddle Dams

Equipment	No of Equipment	Use Factor	Hrs Per Day	Total Hrs Per Day	Days in Service /Year	210 Days In Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	2010 Emis Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders	2	0.35	8		210	210	1.15	0.41	4.12	0.01	0.15	0.121	0.043	0.432	0.001	0.016
988G Wheel Loaders	2	0.35	8		210	210	2.25	0.62	5.96	0.01	0.23	0.236	0.065	0.626	0.001	0.024
D7G Dozers(Track type)	1	0.35	8		210	210	0.61	0.22	2.19	0.00	0.08	0.064	0.023	0.230	0.000	0.009
D4 Dozer	1	0.25	8		210	210	0.43	0.12	0.71	0.00	0.06	0.045	0.012	0.074	0.000	0.007
Compactors																
CS-683E Vib Compactors	1	0.25	8		210	210	0.59	0.14	1.06	0.00	0.06	0.062	0.014	0.111	0.000	0.006
Double Drum Roller 224D	1	0.25	8		210	210	0.21	0.07	0.19	0.00	0.02	0.022	0.008	0.020	0.000	0.002
Double Drum Roller 434C	1	0.25	8		210	210	0.26	0.07	0.43	0.00	0.04	0.028	0.007	0.045	0.000	0.004
Smooth Drum Roller 583C	1	0.25	8		210	210	0.70	0.16	1.25	0.00	0.07	0.073	0.017	0.132	0.000	0.008
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment	2	0.15	8		210	210	0.30	0.08	0.50	0.00	0.05	0.032	0.009	0.053	0.000	0.005
Backhoe w/GEVR Attachment	2	0.25	8		210	210	0.51	0.14	0.84	0.00	0.08	0.053	0.014	0.088	0.000	0.008
Backhoe w/Compactor Attachment	1	0.25	8		210	210	0.25	0.07	0.42	0.00	0.04	0.027	0.007	0.044	0.000	0.004
Backhoe w/Joint Machine Attch.	1	0.15	8		210	210	0.15	0.04	0.25	0.00	0.02	0.016	0.004	0.026	0.000	0.002
Excavator Cat 312	2	0.25	8		210	210	0.67	0.18	1.11	0.00	0.10	0.071	0.019	0.117	0.000	0.011
Motor Grader 163H Global	1	0.15	8		210	210	0.23	0.08	0.82	0.00	0.03	0.024	0.009	0.087	0.000	0.003
Various Trucks																
769D Dump Trucks	4	0.22	8		210	210	3.58	0.95	9.12	0.02	0.35	0.376	0.099	0.958	0.002	0.037
Blasting Powder Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Cat IT28G w/Broom Attachment	1	0.25	8		210	210	0.41	0.09	0.73	0.00	0.04	0.043	0.010	0.077	0.000	0.004
Concrete pump	1	0.25	8		210	210	0.20	0.07	0.18	0.00	0.02	0.021	0.007	0.019	0.000	0.002
End Dump Trucks			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Grout Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Mixer Truck	2	0.25	8		210	210	1.46	0.40	3.86	0.01	0.15	0.153	0.042	0.406	0.001	0.016
Pressure Washer Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Vacuum Truck	1	0.25	8		210	210	0.73	0.20	1.93	0.00	0.07	0.077	0.021	0.203	0.000	0.008
Plant/Conveyor Equipment																
Aggregate Crushing Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.15	8		210	210	0.47	0.11	0.85	0.00	0.05	0.050	0.012	0.090	0.000	0.005
Ice Plant			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Var Conveyors type /size			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment																
Brush Chipper			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	2	0.35	8		210	210	0.58	0.20	0.53	0.00	0.05	0.061	0.021	0.056	0.000	0.005
Dewatering Pumps			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	3	0.22	8		210	210	2.09	0.49	3.76	0.01	0.22	0.219	0.051	0.394	0.001	0.023
2000KW Generators			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	1	0.15	8		210	210	0.12	0.04	0.11	0.00	0.01	0.012	0.004	0.012	0.000	0.001
Misc Grouting Equipment	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Misc Mixing Equipment	1	0.25	8		210	210	0.79	0.18	1.42	0.00	0.08	0.083	0.019	0.149	0.000	0.009
Power Jet w/Compressor	2	0.25	8		210	210	0.41	0.14	0.38	0.00	0.04	0.043	0.015	0.040	0.000	0.004
Road Header			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.25	8		210	210	1.46	0.40	3.86	0.01	0.15	0.153	0.042	0.406	0.001	0.016
Welding Operations			8		210	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							25.13	6.85	57.19	0.11	2.73	2.64	0.72	6.00	0.01	0.29

Table A-35
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Bypass Pipeline Diversion Structure

					300	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	2	0.65	8	300	300	1.61	0.58	5.76	0.01	0.22	0.242	0.087	0.864	0.001	0.033
Grove Crane 15T	2	0.55	8	300	300	1.36	0.49	4.88	0.01	0.18	0.205	0.074	0.731	0.001	0.028
Plant Erection Cranes			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	2	0.42	8	300	300	1.47	0.53	5.27	0.01	0.20	0.221	0.079	0.790	0.001	0.030
D4 Dozer	2	0.40	8	300	300	1.37	0.37	2.26	0.00	0.20	0.205	0.056	0.339	0.001	0.031
Compactors															
CS-683E Vib Compactors			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	2	0.42	8	300	300	0.85	0.23	1.41	0.00	0.13	0.128	0.035	0.211	0.000	0.019
Backhoe w/GEVR Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	3	0.65	8	300	300	2.62	0.71	4.33	0.01	0.39	0.394	0.107	0.650	0.001	0.059
Motor Grader 163H Global	1	0.60	8	300	300	0.92	0.33	3.30	0.01	0.12	0.138	0.050	0.495	0.001	0.019
Various Trucks															
769D Dump Trucks	4	0.42	8	300	300	6.84	1.80	17.42	0.03	0.67	1.026	0.271	2.612	0.005	0.101
Blasting Powder Truck	1	0.60	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Cat IT28G w/Broom Attachment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	1	0.45	8	300	300	0.36	0.12	0.33	0.00	0.03	0.054	0.018	0.049	0.000	0.005
End Dump Trucks			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.45	8	300	300	1.31	0.36	3.48	0.01	0.13	0.197	0.054	0.522	0.001	0.020
Grout Truck			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	2	0.30	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Pressure Washer Truck	1	0.60	8	300	300	1.75	0.48	4.64	0.01	0.18	0.263	0.072	0.696	0.002	0.027
Vacuum Truck			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.30	8	300	300	0.95	0.22	1.71	0.00	0.10	0.142	0.033	0.256	0.000	0.015
Ice Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	1	0.30	8	300	300	0.95	0.22	1.71	0.00	0.10	0.142	0.033	0.256	0.000	0.015
Compressors	2	0.65	8	300	300	1.08	0.37	0.99	0.00	0.09	0.161	0.056	0.149	0.000	0.014
Dewatering Pumps			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	1	0.25	8	300	300	0.19	0.07	0.18	0.00	0.02	0.028	0.010	0.026	0.000	0.003
Saw Cutting Machines			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	300	300	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.65	8	300	300	3.79	1.04	10.05	0.02	0.39	0.569	0.156	1.507	0.003	0.058
Welding Operations	2	0.65	8	300	300	0.99	0.34	0.91	0.00	0.09	0.148	0.051	0.137	0.000	0.013
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						31.93	9.23	77.88	0.15	3.60	4.79	1.38	11.68	0.02	0.54

Table A-36
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Turnout-Bifurcation Structures

					120	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	1	0.50	8	120	120	0.62	0.22	2.22	0.00	0.08	0.037	0.013	0.133	0.000	0.005
Grove Crane 15T	1	0.60	8	120	120	0.74	0.27	2.66	0.00	0.10	0.045	0.016	0.160	0.000	0.006
Plant Erection Cranes			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	1	0.50	8	120	120	0.82	0.30	2.94	0.00	0.11	0.049	0.018	0.176	0.000	0.007
988G Wheel Loaders			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	1	0.25	8	120	120	0.44	0.16	1.57	0.00	0.06	0.026	0.009	0.094	0.000	0.004
D4 Dozer	2	0.80	8	120	120	2.74	0.74	4.52	0.01	0.41	0.164	0.045	0.271	0.001	0.025
Compactors															
CS-683E Vib Compactors			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	2	0.50	8	120	120	1.35	0.36	2.22	0.00	0.20	0.081	0.022	0.133	0.000	0.012
Motor Grader 163H Global			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	2	0.50	8	120	120	4.07	1.07	10.37	0.02	0.40	0.244	0.064	0.622	0.001	0.024
Blasting Powder Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	1	0.50	8	120	120	0.40	0.14	0.37	0.00	0.03	0.024	0.008	0.022	0.000	0.002
End Dump Trucks			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	2	0.50	8	120	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Pressure Washer Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	1	0.50	8	120	120	1.58	0.37	2.85	0.00	0.17	0.095	0.022	0.171	0.000	0.010
Ice Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	1	0.15	8	120	120	0.12	0.04	0.11	0.00	0.01	0.007	0.003	0.007	0.000	0.001
Dewatering Pumps	1	0.40	8	120	120	0.32	0.11	0.29	0.00	0.03	0.019	0.007	0.018	0.000	0.002
Drills Various sizes and types	1	0.50	8	120	120	1.58	0.37	2.85	0.00	0.17	0.095	0.022	0.171	0.000	0.010
2000KW Generators			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	2	0.50	8	120	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Welding Operations			8	120	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						20.62	5.75	48.41	0.09	2.36	1.24	0.35	2.90	0.01	0.14

Table A-37
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Clearing and Grubbing

					0	Emissions					2010 Em Emission, tons (total)				
Equipment	No of Equipment	Use Factor	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	2	0.65	8	0	0	2.14	0.77	7.64	0.01	0.29	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	2	0.50	8	0	0	1.71	0.46	2.83	0.01	0.26	0.000	0.000	0.000	0.000	0.000
Compactors															
CS-683E Vib Compactors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	1	0.70	8	0	0	0.94	0.26	1.56	0.00	0.14	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	2	0.50	8	0	0	2.92	0.80	7.73	0.02	0.30	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	0.15	8	0	0	0.44	0.12	1.16	0.00	0.04	0.000	0.000	0.000	0.000	0.000
Grout Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	2	0.70	8	0	0	4.43	1.03	7.97	0.01	0.46	0.000	0.000	0.000	0.000	0.000
Compressors			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	4	0.70	8	0	0	3.16	0.86	5.22	0.01	0.47	0.000	0.000	0.000	0.000	0.000
Water Truck			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations			8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
						SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
						15.74	4.30	34.10	0.06	1.96	0.00	0.00	0.00	0.00	0.00

Table A-38
Heavy Construction Equipment Emissions
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Demobilization and Reclamation

				0	Emissions						2010 Emission, tons (total)			
Equipment	No of Equipment	Hrs Per Day	Days in Service /Year	Days In Service	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	1	8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations		8	0	0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-39
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Worker Trips

2010 Construction Worker Estimates and Emission Calculations

Construction Phase	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)
Mobilization	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Test Section	Light-duty truck, catalyst	46	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Foundation Treatment	Light-duty truck, catalyst	29	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Crest Demo Surface Prep	Light-duty truck, catalyst	26	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Aggregate Supply	Light-duty truck, catalyst	22	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Craft	Light-duty truck, catalyst	158	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Mechanic	Light-duty truck, catalyst	2	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Batch Plant & Setup	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Spillway and Weir Crew	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Front End	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Craft	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 60"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 120"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Remove Rock Dam	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Seepage Control	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Saddle Dams	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Bypass Pipeline Diversion Structure	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Turnout/Bifurcation Structures	Light-duty truck, catalyst	22	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Demobilization/Reclamation	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Supervision/Inspection	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013

Construction Phase	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	2	30	0.06566	0.00546	0.005371	4.76E-05	0.000427
RCC Test Section	***8.39***	***0.70***	***0.69***	***0.01***	***0.05***	2	30	0.251697	0.020932	0.020588	0.000183	0.001637
Foundation Treatment	***5.29***	***0.44***	***0.43***	***0.00***	***0.03***	9	30	0.714054	0.059382	0.058407	0.000518	0.004644
Dam Crest Demo Surface Prep	***4.74***	***0.39***	***0.39***	***0.00***	***0.03***	7	30	0.497923	0.041408	0.040728	0.000361	0.003238
Aggregate Supply	***4.01***	***0.33***	***0.33***	***0.00***	***0.03***	12	30	0.722262	0.060065	0.059078	0.000524	0.004697
RCC Placement Craft	***28.82***	***2.40***	***2.36***	***0.02***	***0.19***	9	30	3.890366	0.323531	0.318217	0.002821	0.025299
RCC Placement Mechanic	***0.36***	***0.03***	***0.03***	***0.00***	***0.00***	9	30	0.049245	0.004095	0.004028	3.57E-05	0.00032
RCC Placement Batch Plant & Setup	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	3	21.65	0.071077	0.005911	0.005814	5.15E-05	0.000462
Spillway and Weir Crew	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	2	21.65	0.078975	0.006568	0.00646	5.73E-05	0.000514
Outlet Facilities Front End	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	4	21.65	0.157949	0.013135	0.01292	0.000115	0.001027
Outlet Facilities Craft	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	12	21.65	0.49754	0.041376	0.040697	0.000361	0.003236
Outlet Facilities Tunnel Men 60"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	2	25.71	0.075028	0.006239	0.006137	5.44E-05	0.000488
Outlet Facilities Tunnel Men 120"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	4	25.71	0.150055	0.012479	0.012274	0.000109	0.000976
Remove Rock Dam	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	1	25.71	0.035169	0.002925	0.002877	2.55E-05	0.000229
Dam Seepage Control	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	0	25.71	0	0	0	0	0
Saddle Dams	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	12	30	1.116223	0.092827	0.091303	0.00081	0.007259
Bypass Pipeline Diversion Structure	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	12	30	1.116223	0.092827	0.091303	0.00081	0.007259
Turnout/Bifurcation Structures	***4.01***	***0.33***	***0.33***	***0.00***	***0.03***	6	30	0.361131	0.030032	0.029539	0.000262	0.002348
Clearing/Grubbing	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	0	30	0	0	0	0	0
Demobilization/Reclamation	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0	30	0	0	0	0	0
Supervision/Inspection	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	12	30	0.886412	0.073716	0.072505	0.000643	0.005764

Assuming workers would travel from
El Cajon area to San Vicente Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

Table A-40
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Construction Truck Trips

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in 2	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	2	30	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***
RCC Test Section	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	2	30	***0.00***	***0.02***	***0.00***	***0.00***	***0.00***
Foundation Treatment	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	9	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Dam Crest Demo & Surface Prep	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	7	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Aggregate Supply Offsite Trucked	Heavy-duty truck	180.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***8.85***	***32.73***	***2.32***	***0.08***	***1.14***	12	30	***1.59***	***5.89***	***0.42***	***0.02***	***0.21***
RCC Placement	Heavy-duty truck	20.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***1.01***	***3.72***	***0.26***	***0.01***	***0.13***	12	30	***0.18***	***0.67***	***0.05***	***0.00***	***0.02***
Dam Seepage Control	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Outlet Facilities	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	12	30	***0.03***	***0.10***	***0.01***	***0.00***	***0.00***
Saddle Dams	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	12	30	***0.02***	***0.07***	***0.00***	***0.00***	***0.00***
Bypass Pipeline Diversion Structure	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	12	30	***0.02***	***0.07***	***0.00***	***0.00***	***0.00***
Turnout/Bifurcation Structures	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	6	30	***0.01***	***0.03***	***0.00***	***0.00***	***0.00***
Clearing/Grubbing	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Demobilization/Reclamation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
												Totals							Totals				
Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area. Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)												CO	NOx	VOCs	SOx	PM10			CO	NOx	VOCs	SOx	PM10
												10.84	40.07	2.84	0.10	1.40			1.86	6.89	0.49	0.02	0.24

Fugitive Dust Calculations

Unpaved Road Emissions

Emission Factor Emission Factor, lb PM10/VMT	k, lb/VMT	Silt content s, %	Mean vehicle weight W, tons	Surface moisture content Mdry	Exponents for pm-10 a	b	c
1.3672	2.6	8.5	13	4.8	0.8	0.4	0.3

Unpaved Road Dust per Phase

		With Watering - assumed 51% effective
Mobilization	0.68	0.33
RCC Test Section	2.05	1.00
Foundation Treatment	0.68	0.33
Dam Crest Demo & Surface Prep	0.68	0.33
Aggregate Supply	123.39	60.46
RCC Placement	14.01	6.87
Dam Seepage Control	1.37	0.67
Outlet Facilities	2.05	1.00
Saddle Dams	1.37	0.67
Bypass Pipeline Diversion Structure	1.37	0.67
Turnout/Bifurcation Structures	1.37	0.67
Clearing/Grubbing	2.05	1.00
Demobilization/Reclamation	0.00	0.00

Table A-41
Carryover Storage and San Vicente Dam Raise
Offsite Trucked - Concrete Batching Emissions

Concrete Batch Plant Emissions

Total RCC	
Main Dam	677,500
Inlet/Outlet Works Tower	3,300
East Saddle Dam	7300
West Saddle Dam	900

AP-42 Emission Factors - Concrete Batching (assuming fabric filters)

	PM10 emissions, lbs/cubic yard
Cement Unloading to Elevated Storage Silo	0.00034
Cement Supplement Unloading	0.0049
Mixer Loading	0.0048

Emissions	total Emissions, lbs	Total Duration,	Emissions, lbs/day
Main Dam	6802.10	9	25.19296296
Inlet/Outlet Works Tower	33.13	1	1.1044
East Saddle Dam	73.29	7	0.349009524
West Saddle Dam	9.04	7	0.043028571

Table A-42
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Mobilization**

If Edit needed see "Equipment" Sheet | 30 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	7.735726	1.66	20.26	0.01	0.98	0.12	0.025	0.304	0.000	0.015
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Fork Loader	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.12	0.026	0.322	0.000	0.016
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.12	0.025	0.301	0.000	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			25.60	5.58	67.70	0.08	3.16	0.38	0.08	1.02	0.00	0.05

Table A-43
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Earthwork

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Earthwork**

If Edit needed see "Equipment" Sheet | 210 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.827312	0.29	0.76	0.00	0.07	0.09	0.030	0.080	0.000	0.008
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	23.20718	4.97	60.78	0.03	2.93	2.44	0.522	6.382	0.003	0.307
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.09	0.118	2.891	0.006	0.130
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	16.39592	3.51	42.94	0.02	2.07	1.72	0.369	4.509	0.002	0.217
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.81	0.173	2.108	0.001	0.102
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	2.86229	0.67	5.15	0.01	0.30	0.30	0.070	0.540	0.001	0.031
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.14	0.037	0.413	0.004	0.013
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			70.95	14.56	178.45	0.22	8.54	7.45	1.53	18.74	0.02	0.90

Table A-44
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Clearing

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.1** **MOOSA DAM**

YEAR: 2010 **Clearing**

If Edit needed see "Equipment" Sheet 780 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	2	6.329855	1.48	11.38	0.02	0.66	1.16	0.269	2.077	0.003	0.121
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	23.20718	4.97	60.78	0.03	2.93	4.24	0.908	11.092	0.005	0.534
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.89	0.205	5.024	0.010	0.226
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.12	0.032	0.359	0.003	0.011
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	24.59388	5.27	64.41	0.03	3.10	4.49	0.962	11.755	0.005	0.566
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			67.80	13.72	173.93	0.21	8.24	12.37	2.50	31.74	0.04	1.50

Table A-45
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Foundation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Foundation**

If Edit needed see "Equipment" Sheet | 825 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	8	25.31942	5.90	45.52	0.07	2.65	4.62	1.077	8.307	0.013	0.483
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	8	6.618498	2.29	6.11	0.01	0.58	1.21	0.417	1.115	0.002	0.106
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL	1	2.431877	0.57	4.37	0.01	0.25	0.44	0.103	0.798	0.001	0.046
Dozer D8 Cat	DIESEL	4	30.9429	6.63	81.04	0.04	3.90	5.65	1.210	14.790	0.007	0.713
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	8	27.56881	3.00	73.42	0.15	3.30	5.03	0.547	13.399	0.027	0.602
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.12	0.032	0.359	0.003	0.011
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Grout Pump	DIESEL	3	2.378523	0.82	2.20	0.00	0.21	0.43	0.150	0.401	0.001	0.038
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	24.59388	5.27	64.41	0.03	3.10	4.49	0.962	11.755	0.005	0.566
Loader 980 Cat	DIESEL	2	0.981324	0.26	2.90	0.03	0.09	0.18	0.047	0.529	0.005	0.016
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	2	15.33367	3.29	40.16	0.02	1.93	2.80	0.600	7.329	0.003	0.353
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	4	2.661062	0.70	7.86	0.07	0.24	0.49	0.128	1.434	0.013	0.045
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	3	1.995796	0.53	5.89	0.05	0.18	0.36	0.096	1.076	0.009	0.033
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			142.82	29.78	339.77	0.52	16.64	26.06	5.43	62.01	0.09	3.04

Table A-46
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Spillway

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Spillway**

If Edit needed see "Equipment" Sheet | 180 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	6.329855	1.48	11.38	0.02	0.66	0.57	0.133	1.024	0.002	0.060
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.654625	0.57	1.53	0.00	0.15	0.15	0.051	0.137	0.000	0.013
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	0.520791	0.14	1.54	0.01	0.05	0.05	0.012	0.138	0.001	0.004
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.06	0.016	0.177	0.002	0.005
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.12	0.032	0.354	0.003	0.011
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	5.724581	1.33	10.29	0.02	0.60	0.52	0.120	0.926	0.001	0.054
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.75837	0.26	0.70	0.00	0.07	0.07	0.024	0.063	0.000	0.006
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.98	4.31	31.33	0.10	1.70	1.53	0.39	2.82	0.01	0.15

Table A-47
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Quarry

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.1** **MOOSA DAM**

YEAR: 2010 **Quarry**

If Edit needed see "Equipment" Sheet 714 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	14	44.30899	10.33	79.66	0.12	4.63	8.09	1.885	14.538	0.022	0.846
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	14	11.58237	4.00	10.69	0.02	1.02	2.11	0.730	1.952	0.004	0.186
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	2	15.47145	3.32	40.52	0.02	1.95	2.82	0.605	7.395	0.003	0.356
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	5	3.326327	0.88	9.82	0.09	0.31	0.61	0.160	1.793	0.016	0.056
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			74.69	18.53	140.70	0.25	7.91	13.63	3.38	25.68	0.05	1.44

Table A-48
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Outlet

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Outlet**

If Edit needed see "Equipment" Sheet | 210 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.654625	0.57	1.53	0.00	0.15	0.17	0.060	0.160	0.000	0.015
Concrete Pump	DIESEL	1	0.792841	0.27	0.73	0.00	0.07	0.08	0.029	0.077	0.000	0.007
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	1.041582	0.27	3.08	0.03	0.10	0.11	0.029	0.323	0.003	0.010
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL	1	2.762979	0.75	4.56	0.01	0.41	0.29	0.079	0.479	0.001	0.043
Loader 966 Cat	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.86	0.184	2.254	0.001	0.109
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.47026	0.13	0.78	0.00	0.07	0.05	0.013	0.082	0.000	0.007
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	2.86229	0.67	5.15	0.01	0.30	0.30	0.070	0.540	0.001	0.031
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	2	1.516739	0.52	1.40	0.00	0.13	0.16	0.055	0.147	0.000	0.014
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			33.85	7.52	72.36	0.15	3.87	3.55	0.79	7.60	0.02	0.41

Table A-49
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Embankment

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Embankment**

If Edit needed see "Equipment" Sheet | 720 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	4	9.434541	2.20	16.96	0.03	0.99	1.72	0.401	3.096	0.005	0.180
Compressor	DIESEL	1	0.827312	0.29	0.76	0.00	0.07	0.15	0.052	0.139	0.000	0.013
Concrete Pump	DIESEL	2	1.585682	0.55	1.46	0.00	0.14	0.29	0.100	0.267	0.001	0.026
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	1.041582	0.27	3.08	0.03	0.10	0.19	0.050	0.561	0.005	0.017
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	4	30.9429	6.63	81.04	0.04	3.90	5.65	1.210	14.790	0.007	0.713
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	10	34.46101	3.75	91.77	0.18	4.12	6.29	0.684	16.748	0.033	0.752
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL	3	1.471986	0.39	4.35	0.04	0.14	0.27	0.071	0.793	0.007	0.025
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	3	1.995796	0.53	5.89	0.05	0.18	0.36	0.096	1.076	0.009	0.033
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			83.09	14.95	209.25	0.40	9.76	15.16	2.73	38.19	0.07	1.78

Table A-50
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA | **TABLE 2.1** | **MOOSA DAM**

YEAR: 2010 | **Demobilization**

If Edit needed see "Equipment" Sheet | 60 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	0.520791	0.14	1.54	0.01	0.05	0.02	0.004	0.046	0.000	0.001
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	7.735726	1.66	20.26	0.01	0.98	0.23	0.050	0.608	0.000	0.029
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.02	0.005	0.059	0.001	0.002
Fork Loader	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.25	0.053	0.644	0.000	0.031
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.23	0.049	0.602	0.000	0.029
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.09	0.022	0.171	0.000	0.010
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.02	0.005	0.059	0.001	0.002
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			28.62	6.28	72.97	0.08	3.48	0.86	0.19	2.19	0.00	0.10

Table A-51
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **Mobilization**

If Edit needed see "Equipment" Sheet 45 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.04	0.004	0.102	0.000	0.005
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.04	0.004	0.108	0.000	0.005
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.03	0.003	0.081	0.000	0.004
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.37	0.04	0.98	0.00	0.04

Table A-52
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Clearing

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **Clearing**

If Edit needed see "Equipment" Sheet 75 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.18	0.011	0.293	0.000	0.011
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.06	0.007	0.169	0.000	0.008
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	0.65	0.070	1.721	0.003	0.077
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.13	0.015	0.359	0.001	0.016
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.06	0.007	0.168	0.000	0.008
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.16	0.010	0.265	0.000	0.010
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			39.75	3.87	96.65	0.18	4.21	1.49	0.15	3.62	0.01	0.16

Table A-53
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **Excavation**

If Edit needed see "Equipment" Sheet 630 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	1.74	0.103	2.853	0.003	0.103
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.33	0.027	0.558	0.001	0.040
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	1.26	0.137	3.350	0.007	0.150
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.31	0.033	0.816	0.002	0.037
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.34	0.021	0.549	0.001	0.026
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	1.57	0.093	2.580	0.003	0.093
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			45.37	3.90	98.73	0.16	4.26	8.28	0.71	18.02	0.03	0.78

Table A-54
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Pipe Installation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **PipeInstall**

If Edit needed see "Equipment" Sheet 750 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	1	3.542459	0.21	5.83	0.01	0.21	0.65	0.038	1.063	0.001	0.038
Compressor	DIESEL	3	2.687551	0.23	4.59	0.00	0.33	0.49	0.041	0.837	0.001	0.060
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	4	10.18675	1.11	27.13	0.05	1.22	1.86	0.202	4.951	0.010	0.222
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	1.26	0.137	3.350	0.007	0.150
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	1.19	0.129	3.162	0.006	0.142
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.78	0.046	1.290	0.001	0.046
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	2	2.015663	0.17	3.44	0.00	0.25	0.37	0.031	0.628	0.001	0.045
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	2	0.221945	0.02	0.38	0.00	0.03	0.04	0.003	0.069	0.000	0.005
Water Truck	DIESEL	4	13.01269	1.41	34.65	0.07	1.56	2.37	0.258	6.324	0.013	0.284
Welder & Gen Set	DIESEL	2	1.642392	0.14	2.80	0.00	0.20	0.30	0.025	0.511	0.001	0.037
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			67.51	6.46	158.73	0.28	7.25	12.32	1.18	28.97	0.05	1.32

Table A-55
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Access Roads

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **AccessRoads**

If Edit needed see "Equipment" Sheet 15 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.00	0.000	0.007	0.000	0.001
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			7.21	0.77	18.64	0.04	0.86	0.05	0.01	0.14	0.00	0.01

Table A-56
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Second Aqueduct - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.2**

YEAR: 2010 **Demobilization**

If Edit needed see "Equipment" Sheet 75 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.04	0.003	0.066	0.000	0.005
Asphalt Mix Truck	DIESEL	3	9.759517	1.06	25.99	0.05	1.17	0.37	0.040	0.975	0.002	0.044
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL	1	2.381587	0.15	3.86	0.00	0.18	0.09	0.005	0.145	0.000	0.007
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.26	0.028	0.688	0.001	0.031
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.07	0.007	0.179	0.000	0.008
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	2	3.358804	0.37	8.94	0.02	0.40	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.11	0.007	0.174	0.000	0.008
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.18	0.011	0.293	0.000	0.011
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			42.59	4.12	102.14	0.19	4.59	1.60	0.15	3.83	0.01	0.17

Table A-57
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

Mobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			15	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.11	0.01	0.30	0.00	0.01

Table A-58
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

Excavation

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			210	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.24	0.026	0.626	0.001	0.028
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.09	0.008	0.161	0.000	0.012
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.18	0.019	0.474	0.001	0.021
Dump Truck 10 CY	DIESEL	1	3.446101	0.37	9.18	0.02	0.41	0.36	0.039	0.964	0.002	0.043
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.38	0.041	1.004	0.002	0.045
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.18	0.019	0.470	0.001	0.021
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.19	0.012	0.316	0.000	0.015
Pump Submersible	DIESEL	4	3.710262	0.23	6.02	0.01	0.29	0.39	0.024	0.632	0.001	0.030
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.45	0.027	0.742	0.001	0.027
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			49.57	4.42	111.29	0.19	4.86	5.20	0.46	11.69	0.02	0.51

Table A-59
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Building

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

Building

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			720	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.46	0.051	1.238	0.002	0.056
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	2.72	0.29	7.11	0.01	0.33

Table A-60
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Pumps

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

Pumps

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			270	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.36	0.039	0.948	0.002	0.043
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.44	0.048	1.170	0.002	0.053
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.24	0.026	0.646	0.001	0.029
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.11	0.009	0.189	0.000	0.014
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			8.51	0.90	21.87	0.04	1.02	1.15	0.12	2.95	0.01	0.14

Table A-61
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Electrical Systems

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

ElectricSystems

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			240	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.31	0.033	0.814	0.002	0.037
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			2.55	0.28	6.78	0.01	0.30	0.31	0.03	0.81	0.00	0.04

Table A-62
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Electric Power

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

ElectricPower

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			60	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			7.30	0.56	14.60	0.02	0.59	0.22	0.02	0.44	0.00	0.02

Table A-63
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.3

Demobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			210	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.24	0.026	0.626	0.001	0.028
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.18	0.019	0.474	0.001	0.021
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.19	0.020	0.502	0.001	0.023
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.19	0.020	0.502	0.001	0.023
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.18	0.019	0.470	0.001	0.021
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			30.61	3.09	76.67	0.15	3.37	3.21	0.32	8.05	0.02	0.35

Table A-64
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.4

Mobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			15	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			11.68	1.27	31.09	0.06	1.40	0.09	0.01	0.23	0.00	0.01

Table A-65
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.4

Excavation

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			30	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.07	0.004	0.117	0.000	0.004
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.01	0.001	0.015	0.000	0.001
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.10	0.011	0.275	0.001	0.012
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.03	0.003	0.067	0.000	0.003
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.06	0.004	0.106	0.000	0.004
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			26.74	2.44	61.44	0.11	2.65	0.40	0.04	0.92	0.00	0.04

Table A-66
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Vault Construction

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.4

YEAR: 2010

VaultConstruction

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			60	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.02	0.002	0.042	0.000	0.003
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			11.67	1.25	30.29	0.06	1.40	0.35	0.04	0.91	0.00	0.04

Table A-67
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Installation of Valves and Pipes

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.4

YEAR: 2010

InstallValvesPipes

If Edit needed see "Equipment" Sheet

			90	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.11	0.012	0.305	0.001	0.014
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.15	0.016	0.390	0.001	0.018
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.08	0.009	0.215	0.000	0.010
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.04	0.003	0.063	0.000	0.005
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			8.42	0.89	21.63	0.04	1.01	0.38	0.04	0.97	0.00	0.05

Table A-68
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.4

Demobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			60	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.02	0.001	0.030	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.03	0.002	0.046	0.000	0.003
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.21	0.022	0.551	0.001	0.025
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			20.16	2.15	52.28	0.10	2.41	0.60	0.06	1.57	0.00	0.07

Table A-69
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.5

Mobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			45	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.04	0.004	0.102	0.000	0.005
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.04	0.004	0.108	0.000	0.005
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.03	0.003	0.081	0.000	0.004
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.37	0.04	0.98	0.00	0.04

Table A-70
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Clearing

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.5

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			15	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.04	0.002	0.059	0.000	0.002
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	0.13	0.014	0.344	0.001	0.015
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.03	0.003	0.072	0.000	0.003
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.03	0.002	0.053	0.000	0.002
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			39.75	3.87	96.65	0.18	4.21	0.30	0.03	0.72	0.00	0.03

Table A-71
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.5**

YEAR: 2010 **Excavation**

If Edit needed see "Equipment" Sheet 135 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.64	0.038	1.055	0.001	0.038
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.12	0.010	0.206	0.000	0.015
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.11	0.012	0.305	0.001	0.014
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	4	13.7844	1.50	36.71	0.07	1.65	0.93	0.101	2.478	0.005	0.111
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.24	0.026	0.646	0.001	0.029
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.11	0.012	0.302	0.001	0.014
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.13	0.008	0.203	0.000	0.010
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.29	0.017	0.477	0.001	0.017
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			47.96	4.40	110.02	0.19	4.83	3.24	0.30	7.43	0.01	0.33

Table A-72
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Pipeline (Trenching)

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.5**

YEAR: 2010 **TrenchPipe**

If Edit needed see "Equipment" Sheet 120 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.29	0.017	0.469	0.001	0.017
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	1	3.542459	0.21	5.83	0.01	0.21	0.21	0.013	0.350	0.000	0.013
Compressor	DIESEL	3	2.687551	0.23	4.59	0.00	0.33	0.16	0.014	0.275	0.000	0.020
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	3	7.640063	0.83	20.35	0.04	0.91	0.46	0.050	1.221	0.002	0.055
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.10	0.011	0.271	0.001	0.012
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	1	3.446101	0.37	9.18	0.02	0.41	0.21	0.022	0.551	0.001	0.025
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.20	0.021	0.520	0.001	0.023
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.39	0.042	1.040	0.002	0.047
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.22	0.023	0.574	0.001	0.026
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.08	0.009	0.216	0.000	0.010
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.06	0.003	0.090	0.000	0.004
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.06	0.003	0.090	0.000	0.004
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.26	0.015	0.424	0.000	0.015
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	2	2.015663	0.17	3.44	0.00	0.25	0.12	0.010	0.206	0.000	0.015
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	2	0.221945	0.02	0.38	0.00	0.03	0.01	0.001	0.023	0.000	0.002
Water Truck	DIESEL	4	13.01269	1.41	34.65	0.07	1.56	0.78	0.085	2.079	0.004	0.093
Welder & Gen Set	DIESEL	3	2.463589	0.21	4.20	0.00	0.30	0.15	0.012	0.252	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			62.34	5.88	144.17	0.25	6.64	3.74	0.35	8.65	0.02	0.40

Table A-73
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Pipeline (Tunneling)

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.5**

YEAR: 2010 **TunnelPipe**

If Edit needed see "Equipment" Sheet 3.5*30 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.93	0.101	2.475	0.005	0.111
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	1	1.007832	0.08	1.72	0.00	0.12	0.18	0.015	0.314	0.000	0.023
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	2	1.642392	0.14	2.80	0.00	0.20	0.30	0.025	0.511	0.001	0.037
Winch	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	1.74	0.103	2.853	0.003	0.103
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			22.93	1.68	43.04	0.06	1.85	4.18	0.31	7.85	0.01	0.34

Table A-74
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Tunneling

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.5**

YEAR: 2010 **Tunneling**

If Edit needed see "Equipment" Sheet 441 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.11	0.009	0.181	0.000	0.013
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	1.26	0.137	3.350	0.007	0.150
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL	3	16.34955	1.01	26.51	0.03	1.27	2.98	0.183	4.838	0.005	0.232
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL	6	28.52063	1.69	46.90	0.05	1.69	5.21	0.308	8.559	0.009	0.308
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL	3	9.725929	1.06	25.90	0.05	1.16	1.77	0.193	4.727	0.009	0.212
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			74.68	5.90	151.46	0.23	6.53	13.63	1.08	27.64	0.04	1.19

Table A-75
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Access Roads

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.5**

YEAR: 2010 **AccessRoads**

If Edit needed see "Equipment" Sheet 45 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.21	0.013	0.352	0.000	0.013
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.11	0.006	0.176	0.000	0.006
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.01	0.001	0.022	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.04	0.003	0.069	0.000	0.005
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	5.083477	0.55	13.54	0.03	0.61	0.11	0.012	0.305	0.001	0.014
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	0.23	0.025	0.619	0.001	0.028
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	5.38723	0.59	14.35	0.03	0.64	0.12	0.013	0.323	0.001	0.014
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			52.13	4.90	122.04	0.22	5.38	1.17	0.11	2.75	0.00	0.12

Table A-76
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.5

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			15	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.01	0.001	0.013	0.000	0.001
Asphalt Mix Truck	DIESEL	3	9.759517	1.06	25.99	0.05	1.17	0.07	0.008	0.195	0.000	0.009
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.05	0.006	0.138	0.000	0.006
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.02	0.001	0.035	0.000	0.002
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.04	0.002	0.059	0.000	0.002
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			38.53	3.79	93.80	0.17	4.20	0.29	0.03	0.70	0.00	0.03

Table A-77
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Mobilization**

If Edit needed see "Equipment" Sheet 15 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.01	0.001	0.027	0.000	0.001
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.12	0.01	0.33	0.00	0.01

Table A-78
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Clearing

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Clearing**

If Edit needed see "Equipment" Sheet 60 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	0.52	0.056	1.377	0.003	0.062
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.11	0.012	0.287	0.001	0.013
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.05	0.005	0.134	0.000	0.006
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			35.46	3.62	89.58	0.17	3.95	1.06	0.11	2.69	0.01	0.12

Table A-79
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Excavation**

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			150	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.36	0.021	0.586	0.001	0.021
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.04	0.004	0.074	0.000	0.005
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.07	0.006	0.115	0.000	0.008
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.13	0.014	0.338	0.001	0.015
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.52	0.056	1.377	0.003	0.062
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.13	0.015	0.359	0.001	0.016
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	0.64	0.038	1.060	0.001	0.038
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			40.36	3.52	88.60	0.15	3.87	3.03	0.26	6.65	0.01	0.29

Table A-80
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Building

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Building**

If Edit needed see "Equipment" Sheet 240 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.39	0.042	1.040	0.002	0.047
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.31	0.033	0.814	0.002	0.037
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.39	0.042	1.040	0.002	0.047
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.22	0.023	0.574	0.001	0.026
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.39	0.042	1.040	0.002	0.047
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.10	0.008	0.168	0.000	0.012
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	1.79	0.19	4.67	0.01	0.21

Table A-81
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Tanks

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Tanks**

If Edit needed see "Equipment" Sheet 60 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.02	0.002	0.042	0.000	0.003
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			9.87	1.05	25.51	0.05	1.18	0.30	0.03	0.77	0.00	0.04

Table A-82
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Pumps

ALTERNATIVE NO. 2 - 100,000 AF MOOSA **TABLE 2.6**

YEAR: 2010 **Pumps**

If Edit needed see "Equipment" Sheet 150 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.20	0.022	0.527	0.001	0.024
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.13	0.015	0.359	0.001	0.016
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.06	0.005	0.105	0.000	0.008
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			5.25	0.55	13.21	0.03	0.63	0.39	0.04	0.99	0.00	0.05

Table A-84
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Electrical Systems

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.6** | **ALTERNATIVE NO. 2 - 100,000 AF MOOSA**

YEAR: 2010 | **ElectricSystems**

If Edit needed see "Equipment" Sheet | 120 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.15	0.017	0.407	0.001	0.018
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.05	0.004	0.084	0.000	0.006
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			3.37	0.35	8.18	0.01	0.40	0.20	0.02	0.49	0.00	0.02

Table A-85
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Pipeline Installation

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.6** | **ALTERNATIVE NO. 2 - 100,000 AF MOOSA**

YEAR: 2010 | **InstallPipeline**

If Edit needed see "Equipment" Sheet | 240 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.07	0.006	0.119	0.000	0.009
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.22	0.018	0.367	0.000	0.026
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.61	0.066	1.628	0.003	0.073
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.20	0.022	0.542	0.001	0.024
Dump Truck 10 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.24	0.135	3.304	0.007	0.148
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.39	0.042	1.040	0.002	0.047
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.22	0.023	0.574	0.001	0.026
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.16	0.018	0.433	0.001	0.019
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.11	0.007	0.180	0.000	0.009
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.52	0.031	0.848	0.001	0.031
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	1	0.110972	0.01	0.19	0.00	0.01	0.01	0.001	0.023	0.000	0.002
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			31.24	3.08	75.47	0.14	3.44	3.75	0.37	9.06	0.02	0.41

Table A-86
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.6

Demobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			180	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.09	0.008	0.158	0.000	0.011
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.29	0.032	0.780	0.002	0.035
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.29	0.032	0.780	0.002	0.035
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.05	0.004	0.089	0.000	0.006
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.15	0.017	0.406	0.001	0.018
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.16	0.018	0.430	0.001	0.019
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.29	0.032	0.780	0.002	0.035
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.16	0.018	0.430	0.001	0.019
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.15	0.016	0.403	0.001	0.018
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.26	0.016	0.417	0.000	0.020
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.43	0.025	0.704	0.001	0.025
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.59	0.064	1.559	0.003	0.070
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			32.46	3.12	77.07	0.14	3.48	2.92	0.28	6.94	0.01	0.31

Table A-87
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Mobilization

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Mobilization**

If Edit needed see "Equipment" Sheet 15 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.11	0.01	0.30	0.00	0.01

Table A-88
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Clearing

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Clearing**

If Edit needed see "Equipment" Sheet 60 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	0.52	0.056	1.377	0.003	0.062
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.11	0.012	0.287	0.001	0.013
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.05	0.005	0.134	0.000	0.006
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			35.46	3.62	89.58	0.17	3.95	1.06	0.11	2.69	0.01	0.12

Table A-89
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Excavation

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Excavation**

If Edit needed see "Equipment" Sheet 120 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.29	0.017	0.469	0.001	0.017
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.03	0.003	0.059	0.000	0.004
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.05	0.005	0.092	0.000	0.007
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.10	0.011	0.271	0.001	0.012
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.41	0.045	1.101	0.002	0.049
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.20	0.021	0.520	0.001	0.023
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.11	0.012	0.287	0.001	0.013
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.10	0.011	0.268	0.001	0.012
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.20	0.021	0.520	0.001	0.023
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.11	0.007	0.180	0.000	0.009
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.11	0.007	0.180	0.000	0.009
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	0.52	0.031	0.848	0.001	0.031
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.20	0.021	0.520	0.001	0.023
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			40.36	3.52	88.60	0.15	3.87	2.42	0.21	5.32	0.01	0.23

Table A-90
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Building

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Building**

If Edit needed see "Equipment" Sheet 150 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.19	0.021	0.509	0.001	0.023
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.13	0.015	0.359	0.001	0.016
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.06	0.005	0.105	0.000	0.008
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	1.12	0.12	2.92	0.01	0.13

Table A-91
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Tanks

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Tanks**

If Edit needed see "Equipment" Sheet 60 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.02	0.002	0.042	0.000	0.003
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			9.87	1.05	25.51	0.05	1.18	0.30	0.03	0.77	0.00	0.04

Table A-92
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Pumps

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Pumps**

If Edit needed see "Equipment" Sheet 90 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.12	0.013	0.316	0.001	0.014
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.08	0.009	0.215	0.000	0.010
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.04	0.003	0.063	0.000	0.005
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			5.25	0.55	13.21	0.03	0.63	0.24	0.02	0.59	0.00	0.03

Table A-93
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Electrical Systems

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **ElectricSystems**

If Edit needed see "Equipment" Sheet

			90	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.11	0.012	0.305	0.001	0.014
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.04	0.003	0.063	0.000	0.005
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			3.37	0.35	8.18	0.01	0.40	0.15	0.02	0.37	0.00	0.02

Table A-94
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Pipeline Installation

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **InstallPipeline**

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			60	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.02	0.001	0.030	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.05	0.005	0.092	0.000	0.007
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.15	0.017	0.407	0.001	0.018
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	0.31	0.034	0.826	0.002	0.037
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.04	0.004	0.108	0.000	0.005
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.03	0.002	0.045	0.000	0.002
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.13	0.008	0.212	0.000	0.008
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	1	0.110972	0.01	0.19	0.00	0.01	0.00	0.000	0.006	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			31.24	3.08	75.47	0.14	3.44	0.94	0.09	2.26	0.00	0.10

Table A-95
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Demobilization

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH) **TABLE 2.7**

YEAR: 2010 **Demobilization**

If Edit needed see "Equipment" Sheet 150 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.08	0.006	0.132	0.000	0.009
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.04	0.004	0.074	0.000	0.005
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.13	0.014	0.338	0.001	0.015
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.13	0.015	0.359	0.001	0.016
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.13	0.015	0.359	0.001	0.016
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.21	0.013	0.348	0.000	0.017
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.36	0.021	0.586	0.001	0.021
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.49	0.053	1.300	0.003	0.058
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			32.46	3.12	77.07	0.14	3.48	2.43	0.23	5.78	0.01	0.26

Table A-96
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Mobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

Mobilization

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			30	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.03	0.003	0.072	0.000	0.003
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.03	0.003	0.067	0.000	0.003
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.22	0.02	0.60	0.00	0.03

Table A-97
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Clearing

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			30	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.14	0.008	0.235	0.000	0.008
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	2	3.388985	0.37	9.03	0.02	0.41	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.10	0.011	0.275	0.001	0.012
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			23.38	2.07	52.58	0.09	2.22	0.35	0.03	0.79	0.00	0.03

Table A-98
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Remove Old Electric Lines

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

YEAR: 2010

RemoveOldElecLines

If Edit needed see "Equipment" Sheet

			30	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.02	0.002	0.054	0.000	0.002
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.14	0.008	0.235	0.000	0.008
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			15.81	1.25	32.41	0.05	1.32	0.24	0.02	0.49	0.00	0.02

Table A-99
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Installation of Electric Lines

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

YEAR: 2010

InstallElecLines

If Edit needed see "Equipment" Sheet

			240	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.57	0.034	0.938	0.001	0.034
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.20	0.022	0.542	0.001	0.024
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.16	0.018	0.433	0.001	0.019
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.78	0.085	2.079	0.004	0.093
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.31	1.32	33.26	0.06	1.42	1.72	0.16	3.99	0.01	0.17

Table A-100
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Excavation

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

			75	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.18	0.011	0.293	0.000	0.011
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.08	0.009	0.224	0.000	0.010
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.03	0.003	0.057	0.000	0.004
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.06	0.007	0.169	0.000	0.008
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL	4	13.7844	1.50	36.71	0.07	1.65	0.52	0.056	1.377	0.003	0.062
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.07	0.007	0.179	0.000	0.008
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.06	0.007	0.168	0.000	0.008
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			36.60	3.72	91.77	0.17	4.09	1.37	0.14	3.44	0.01	0.15

Table A-101
Moosa 100,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Demobilization

ALTERNATIVE NO. 2 - 100,000 AF MOOSA

TABLE 2.8

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			60		Emissions					Emission, tons (total)		
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.03	0.003	0.053	0.000	0.004
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.07	0.007	0.179	0.000	0.008
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.05	0.005	0.134	0.000	0.006
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.09	0.005	0.139	0.000	0.007
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			19.26	1.93	47.34	0.09	2.19	0.58	0.06	1.42	0.00	0.07

Table A-1.02
Mesa 2015 DEIS Alternative Fuel Alternative
Construction Truck Trip Emissions

Concrete to Place	Vehicle Class	No. of Trucks Per Concrete Pour	Speed (mph)	VMT per vehicle (mi)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	SO_2 Running Exhaust (g/mi)	SO_4 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO	NO_x	VOC_s	SO_x	$PM10$	CO	NO_x	VOC_s	SO_x	$PM10$
											Emissions, lbs/day					Emissions, tons/year				
1.1 Mesa Drive																				
Mobilization	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0
Cell work	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	12.0	0.0	0.0	0.0	0.0
Stockpile Cap (Mass)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Grounds (Mass Excavation)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	21.0	0.0	0.0	0.0	0.0
Rollback	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Cap Mass	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Cap Mass Stockpile	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
2.1 Drain Pipe Pipe Iron Mesa Pipe																				
Site Rough Grading																				
Mobilization	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	4.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	30.0	0.0	0.0	0.0	0.0
Mass Grading (cut only)	Mass dump truck	10	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	33.0	0.0	0.0	0.0	0.0
Mass Grading (fill only)	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	21.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
3.1 Pour Foundation at Mesa Creek																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	21.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
4.1 Interconnect at Intersection Mesa Pipe																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	21.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
5.1 Mesa Drive Pipe Iron and Water Line																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Mobilization	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	4.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	12.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
6.1 Pump Station at Water Line																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
7.1 Pump Station at Water Line																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	12.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
8.1 Mesa Drive Pipe Iron and Water Line																				
Site Rough	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	1.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Mass Grading	Mass dump truck	1.1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	24.0	0.0	0.0	0.0	0.0
Grounds	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00		0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	6.0	0.0	0.0	0.0	0.0
Grounds (cuts)	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
Waste Soil Hauling	Mass dump truck	1	25	10	2.125	0.024	0.002	0.001	0.000	0.004	0.03	0.00	0.00	0.00	0.00	36.0	0.0	0.0	0.0	0.0
											Totals									
Assumptions:											CO	NO_x	VOC_s	SO_x	$PM10$	CO	NO_x	VOC_s	SO_x	$PM10$
1 mile to site is 5 mi for staging and HCC											0.03	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0
1 mile to site is 10 mi for materials provided												54.10	2.43	0.01	1.39		3.06	0.13	0.01	0.11
from Arizona sources																				
Emission factors from 2010																				
EMFAC2011, 25 mph, Heavy Duty																				
Diesel on-road HDDV.																				

Unpaved Road Emissions

Emission Factor Equation: $E = k(s/12)^a(W/3)^b$	k, lb/VMT	Silt content s, %	Mean vehicle weight W, tons	Surface moisture content Mcw	Exponents for pm10 a	b
	2.6	8.5	20	0.2	0.8	0.4

Unpaved Road Dust per Phase

	With Watering - assumed 50% effective	
1.1 Mesa Drive		
Site Rough	0.68	0.34
Cell work	0.00	0.00
Stockpile Cap (Mass)	6.15	3.08
Grounds (Mass Excavation)	1.37	0.68
Mass Grading	4.71	2.35
Rollback	3.71	1.85
Cap Mass	6.34	3.17
Cap Mass Stockpile	74.41	37.21
Grounds (cuts)	0.68	0.34
Waste Soil Hauling	0.00	0.00
2.1 Drain Pipe Pipe Iron Mesa Pipe to Site Rough		
Site Rough	0.68	0.34
Grounds	0.68	0.34
Mass Grading	0.00	0.00
Grounds (cuts)	0.84	3.42
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
3.1 Pump Station at Mesa Creek		
Site Rough	6.34	3.17
Grounds	0.68	0.34
Mass Grading	0.68	0.34
Grounds	0.68	0.34
Waste Soil Hauling	0.68	0.34
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
4.1 Interconnection Intersection Mesa Pipe and Second Aqueduct		
Site Rough	6.34	3.17
Grounds	0.68	0.34
Mass Grading	0.00	0.00
Grounds	0.17	0.09
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
5.1 Pump Station at Mesa Drive		
Site Rough	0.68	0.34
Grounds	0.00	0.00
Mass Grading	0.00	0.00
Grounds (cuts)	0.84	3.42
Waste Soil Hauling	0.84	3.42
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
6.1 Pump Station and Water Line		
Site Rough	6.34	3.17
Grounds	0.00	0.00
Mass Grading	0.00	0.00
Grounds	1.37	0.68
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
7.1 Pump Station and Water Line		
Site Rough	6.34	3.17
Grounds	0.00	0.00
Mass Grading	0.00	0.00
Grounds	1.37	0.68
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00
8.1 Mesa Drive Pipe Iron and Water Line		
Site Rough	6.34	3.17
Grounds	0.00	0.00
Mass Grading	0.00	0.00
Grounds	1.37	0.68
Waste Soil Hauling	0.00	0.00
Grounds (cuts)	0.00	0.00
Waste Soil Hauling	0.00	0.00

Table A-103
Moosa 100,000 Acre-Feet Alternative
Worker Commute Emissions

2010 Construction Worker Estimates and Emission Calculations

Construction Phase	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Days in Co Emissions, tons/year CO	NOx	VOCs	SOx	PM10
2.1 Moosa Dam																														
Mobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0
Earthwork	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	120	0.142264	0.011831	0.011637	0.000103	0.000925
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	365	0.699007	0.058131	0.057176	0.000507	0.004546
Foundation Treatment	Light-duty truck, catalyst	70	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***12.77***	***1.06***	***1.04***	***0.01***	***0.08***	365	2.330024	0.19377	0.190587	0.00169	0.015152
Outlet Works	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	210	0.344716	0.028667	0.028196	0.00025	0.002242
Spillway	Light-duty truck, catalyst	19	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.47***	***0.29***	***0.28***	***0.00***	***0.02***	0	0	0	0	0	0
Quarry	Light-duty truck, catalyst	60	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***10.94***	***0.91***	***0.90***	***0.01***	***0.07***	240	1.313204	0.109209	0.107415	0.000952	0.00854
Embankment	Light-duty truck, catalyst	36	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***6.57***	***0.55***	***0.54***	***0.00***	***0.04***	240	0.787922	0.065525	0.064449	0.000571	0.005124
Demobilization	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	365	0.499291	0.041522	0.04084	0.000362	0.003247
2.2 Drain/Fill Pipeline from Moosa Dam to 2nd Aqueduct			27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013										
																					0.00	***0.00***	***0.00***	***0.00***	***0.00***					
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	45	0.110802	0.009214	0.009063	8.04E-05	0.000721
Excavation	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	365	0.466005	0.038754	0.038117	0.000338	0.00303
Pipe Install (trench)	Light-duty truck, catalyst	50	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***9.12***	***0.76***	***0.75***	***0.01***	***0.06***	330	1.504712	0.125135	0.12308	0.001091	0.009785
Access Roads	Light-duty truck, catalyst	5	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***0.91***	***0.08***	***0.07***	***0.00***	***0.01***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	365	0.466005	0.038754	0.038117	0.000338	0.00303
2.3 Pump Station at Moosa Creek																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	15	0.013679	0.001138	0.001119	9.92E-06	8.9E-05
Excavation	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	210	0.344716	0.028667	0.028196	0.00025	0.002242
Building	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	240	0.393961	0.032763	0.032225	0.000286	0.002562
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	0	0	0	0	0	0
Electric Systems	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	0	0	0	0	0	0
Electric Power	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	60	0.054717	0.00455	0.004476	3.97E-05	0.000356
Demobilization	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	365	0.299575	0.024913	0.024504	0.000217	0.001948
2.4 Interconnection between Moosa Pipeline and Second Aqueduct																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Vault Construction	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0	0	0	0	0	0
Install Valves/Pipes	Light-duty truck, catalyst	11	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.01***	***0.17***	***0.16***	***0.00***	***0.01***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	4	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***0.73***	***0.06***	***0.06***	***0.00***	***0.00***	0	0	0	0	0	0
2.5 Relocate 1st Aqueduct																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	45	0.053349	0.004437	0.004364	3.87E-05	0.000347
Pipe Install (trench)	Light-duty truck, catalyst	49	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***8.94***	***0.74***	***0.73***	***0.01***	***0.06***	60	0.268112	0.022297	0.021931	0.000194	0.001744
Pipe Install (tunnel)	Light-duty truck, catalyst	22	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.01***	***0.33***	***0.33***	***0.00***	***0.03***	105	0.21066	0.017519	0.017231	0.000153	0.00137
Tunneling	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	75	0.136792	0.011376	0.011189	9.92E-05	0.00089
Access Roads	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	15	0.009575	0.000796	0.000783	6.94E-06	6.23E-05
Supervision/Inspection	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	180	0.229811	0.019112	0.018798	0.000167	0.001494
2.6 Pump Station and Water Line VCMD (North)																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Building	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	0	0	0	0	0	0
Tanks	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	0	0	0	0	0	0
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	90	0.336508	0.027985	0.027525	0.000244	0.002188
Electric Systems	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	120	0.087547	0.007281	0.007161	6.35E-05	0.000569
Install Pipeline	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	210	0.65113	0.054149	0.05326	0.000472	0.004234
Demobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	180	0.147735	0.012286	0.012084	0.000107	0.000961
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	365	0.332861	0.027681	0.027227	0.000241	0.002165
2.7 Pump Station and Water Line VCMD (South)																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	15	0.013679	0.001138	0.001119	9.92E-06	8.9E-05
Clearing	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	60	0.093019	0.007736	0.007609	6.75E-05	0.000605
Excavation	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	120	0.153207	0.012741	0.012532	0.000111	0.000996
Building	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	120	0.16415	0.013651	0.013427	0.000119	0.001067
Tanks	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	60	0.03283	0.00273	0.002685	2.38E-05	0.000213
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	0	0	0	0	0	0
Electric Systems	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Install Pipeline	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	240	0.218867	0.018201	0.017903	0.000159	0.001423
2.8 Relocated Public Rds and Electrical Systems																														
Mobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	11	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.01***	***0.17***	***0.16***	***0.00***	***0.01***	0	0	0	0	0	0
Remove Existing Electric Lines	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0	0
Install Electric Lines	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0

Assuming workers would travel from
Escondido area to Moosa Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

CO	NOx	VOCs	SOx	PM10	CO	NOx	VOCs	SOx	PM10
209.93	17.46	17.17	0.15	1.37	12.91	1.07	1.06	0.01	0.08

Table A-104
Moosa 100,000 Acre-Feet Alternative
Fugitive Dust Emissions

Rock Crushing

Calculation - EPA AP-42, Section 11.19.2

Emission Factor 0.00054 lbs PM10/Ton Rock Crushed

Earthwork:	**Total Rock for Crushing**	**Total lbs PM10**	**lbs/day**
Main Dam	235000	63.45	0.17625
			0.17625

Table A-105
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Mobilization

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 1
YEAR: 2010

TABLE 2.10b
Mobilizatior

If Edit needed see "Equipment" Sheet

Days 60

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Conventional Concrete Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Ice Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	2	8	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Var Conveyors type /size	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL	1	8	60	0.76	0.26	0.70	0.00	0.07	0.023	0.008	0.021	0.000	0.002
Grout Pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					16.34	4.01	31.19	0.05	1.69	0.49	0.12	0.94	0.00	0.05

Table A-106
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
RCC Test Section

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY
YEAR: 2010

TABLE 2.10b
RCC Test Section

If Edit needed see "Equipment" Sheet

Days 60

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	1	8	60	1.71	0.46	2.83	0.01	0.26	0.051	0.014	0.085	0.000	0.008
Compactors														
CS-683E Vib Compactors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL	1	8	60	0.83	0.29	0.77	0.00	0.07	0.025	0.009	0.023	0.000	0.002
Double Drum Roller 434C	DIESEL	1	8	60	1.05	0.28	1.73	0.00	0.16	0.031	0.009	0.052	0.000	0.005
Smooth Drum Roller 583C	DIESEL	1	8	60	2.79	0.65	5.01	0.01	0.29	0.084	0.020	0.150	0.000	0.009
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Backhoe w/Compactor Attachment	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Backhoe w/Joint Machine Attch.	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Excavator Cat 312	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	1	8	60	4.07	1.07	10.37	0.02	0.40	0.122	0.032	0.311	0.001	0.012
Blasting Powder Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	1	8	60	1.62	0.38	2.92	0.00	0.17	0.049	0.011	0.088	0.000	0.005
Concrete pump	DIESEL	1	8	60	0.79	0.27	0.73	0.00	0.07	0.024	0.008	0.022	0.000	0.002
End Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Mixer Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Pressure Washer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Var Conveyors type /size	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Misc Mixing Equipment	DIESEL	2	8	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Power Jet w/Compressor	DIESEL	1	8	60	0.83	0.29	0.76	0.00	0.07	0.025	0.009	0.023	0.000	0.002
Road Header	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Welding Operations	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					44.00	11.47	91.55	0.17	4.75	1.32	0.34	2.75	0.01	0.14

Table A-107
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Foundation Treatment

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

TABLE 2.10b
Foundation Treatment

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 210

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	No of Equipment
Cranes															
100 T Truck Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grove Crane 15T	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Plant Erection Cranes	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Tower Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
988G Wheel Loaders	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
D7G Dozers(Track type)	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
D4 Dozer	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Compactors															
CS-683E Vib Compactors	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Double Drum Roller 224D	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Double Drum Roller 434C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Smooth Drum Roller 583C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/GEVR Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/Compactor Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/Joint Machine Attch.	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Excavator Cat 312	DIESEL	2	8	210	2.69	0.73	4.45	0.01	0.40	0.283	0.077	0.467	0.001	0.042	2
Motor Grader 163H Global	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Various Trucks															
769D Dump Trucks	DIESEL	1	8	210	4.07	1.07	10.37	0.02	0.40	0.428	0.113	1.088	0.002	0.042	1
Blasting Powder Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Cat IT28G w/Broom Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Concrete pump	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
End Dump Trucks	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Flat Bed	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	1
Grout Truck	DIESEL	2	8	210	5.84	1.60	15.46	0.03	0.59	0.613	0.168	1.623	0.004	0.062	2
Mixer Truck	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	1
Pressure Washer Truck	DIESEL	4	8	210	11.68	3.20	30.91	0.07	1.19	1.226	0.336	3.246	0.007	0.125	4
Vacuum Truck	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	1
Plant/Conveyor Equipment															
Aggregate Crushing Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grout Mixing Plant	DIESEL	1	8	210	3.16	0.74	5.69	0.01	0.33	0.332	0.077	0.597	0.001	0.035	1
Conventional Concrete Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Ice Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
RCC Batch Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Var Conveyors type /size	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Miscellaneous Equipment															
Brush Chipper	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Compressors	DIESEL	4	8	210	3.31	1.14	3.06	0.01	0.29	0.347	0.120	0.321	0.001	0.031	4
Dewatering Pumps	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Drills Various sizes and types	DIESEL	4	8	210	12.66	2.95	22.76	0.03	1.32	1.329	0.310	2.390	0.004	0.139	4
2000KW Generators	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grout Pump	DIESEL	2	8	210	1.59	0.55	1.46	0.00	0.14	0.166	0.058	0.154	0.000	0.015	2
Misc Grouting Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Misc Mixing Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Power Jet w/Compressor	DIESEL	2	8	210	1.65	0.57	1.53	0.00	0.15	0.174	0.060	0.160	0.000	0.015	2
Road Header	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Saw Cutting Machines	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Various Saws	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Water Truck	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	1
Welding Operations	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	
					58.33	15.76	126.59	0.26	6.00	6.12	1.65	13.29	0.03	0.63	

Table A-108
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Dam Crest Demolition and Surface Preparation

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

TABLE 2.10b
Dam Crest Demo Surface Prep

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service (Days: 210)	CO lbs/day (Emissions)	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total) (Emission, tons (total))	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	DIESEL	2	8	210	3.29	1.18	11.76	0.02	0.44	0.345	0.124	1.235	0.002	0.046	0.000
988G Wheel Loaders	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	1	8	210	1.71	0.46	2.83	0.01	0.26	0.180	0.049	0.297	0.001	0.027	0.000
Compactors															
CS-683E Vib Compactors	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	DIESEL	3	8	210	3.04	0.83	5.03	0.01	0.45	0.320	0.087	0.528	0.001	0.048	0.000
Backhoe w/GEVR Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	1	8	210	1.62	0.38	2.92	0.00	0.17	0.171	0.040	0.307	0.000	0.018	0.000
Concrete pump	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	5	8	210	14.60	4.00	38.64	0.09	1.48	1.532	0.420	4.057	0.009	0.156	0.000
Flat Bed	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	0.000
Grout Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	16	8	210	50.64	11.81	91.04	0.14	5.30	5.317	1.240	9.559	0.014	0.556	0.000
2000KW Generators	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	210	1.65	0.57	1.53	0.00	0.15	0.174	0.060	0.160	0.000	0.015	0.000
Road Header	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	4	8	210	4.52	1.22	7.46	0.01	0.67	0.474	0.129	0.783	0.001	0.071	0.000
Various Saws	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	0.000
Welding Operations	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					86.92	22.05	176.66	0.31	9.52	9.13	2.32	18.55	0.03	1.00	0.00

Table A-109
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Aggregate Supply

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY
YEAR: 2010

TABLE 2.10b
Agg. Supply

If Edit needed see "Equipment" Sheet

Equipment	FUEL	HP	Load Factor	Emission Factors CO (lb/bhp-hr)	VOC (lb/bhp-hr)	NOX (lb/bhp-hr)	SOX (lb/bhp hr)	PM10 (lb/bhp-hr)	No of Equipment	Days Hrs Per Day	Days in Service (360)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																					
100 T Truck Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Tower Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																					
966G Wheel Loaders	DIESEL	238	46.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	2	8	360	3.29	1.18	11.76	0.02	0.44	0.592	0.213	2.117	0.003	0.080
988G Wheel Loaders	DIESEL	475	46.5	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	3.22	0.88	8.51	0.02	0.33	0.579	0.159	1.532	0.003	0.059
D7G Dozers(Track type)	DIESEL	200	59	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	2	8	360	3.51	1.26	12.54	0.02	0.47	0.631	0.227	2.257	0.004	0.085
D4 Dozer	DIESEL	105	59	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	1	8	360	1.71	0.46	2.83	0.01	0.26	0.308	0.084	0.509	0.001	0.046
Compactors																					
CS-683E Vib Compactors	DIESEL	173	43	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL	31	57.5	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL	66	57.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL	153	57.5	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators																					
Backhoe w/Breaker Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	84	58	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL	180	57.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks																					
769D Dump Trucks	DIESEL	518	41	2.3970E-03	6.3208E-04	6.1012E-03	1.0800E-05	2.3544E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	125	41	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Vacuum Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment																					
Aggregate Crushing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Grout Mixing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Miscellaneous Equipment																					
Brush Chipper	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04	4	8	360	3.31	1.14	3.06	0.01	0.29	0.596	0.206	0.550	0.001	0.053
Dewatering Pumps	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	4	8	360	12.66	2.95	22.76	0.03	1.32	2.279	0.531	4.097	0.006	0.238
2000KW Generators	DIESEL	2682	74	4.1477E-04	1.0944E-04	1.2249E-03	1.0800E-05	3.8096E-05	1	8	360	6.59	1.74	19.45	0.17	0.60	1.185	0.313	3.501	0.031	0.109
Grout Pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Welding Operations	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
												SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
												50.61	13.94	119.90	0.35	5.44	9.11	2.51	21.58	0.06	0.98

Table A-110
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
RCC Placement

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY
YEAR: 2010

TABLE 2.10b
RCC Placement

If Edit needed see "Equipment" Sheet

Equipment	FUEL	HP	Load Factor	Emission Factors CO (lb/bhp-hr)	VOC (lb/bhp-hr)	NOX (lb/bhp-hr)	SOX (lb/bhp hr)	PM10 (lb/bhp-hr)	No of Equipment	Hrs Per Day	Days in Service (Days 465)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																					
100 T Truck Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Grove Crane 15T	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Tower Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																					
966G Wheel Loaders	DIESEL	238	46.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL	475	46.5	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	200	59	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	1	8	360	1.75	0.63	6.27	0.01	0.24	0.316	0.113	1.129	0.002	0.042
D4 Dozer	DIESEL	105	59	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	360	3.42	0.93	5.65	0.01	0.51	0.616	0.167	1.018	0.002	0.092
Compactors																					
CS-683E Vib Compactors	DIESEL	173	43	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	1	8	360	2.36	0.55	4.24	0.01	0.25	0.425	0.099	0.763	0.001	0.044
Double Drum Roller 224D	DIESEL	31	57.5	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04	2	8	360	1.66	0.57	1.53	0.00	0.15	0.299	0.103	0.276	0.001	0.026
Double Drum Roller 434C	DIESEL	66	57.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	360	2.10	0.57	3.46	0.01	0.31	0.377	0.102	0.623	0.001	0.056
Smooth Drum Roller 583C	DIESEL	153	57.5	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	5.58	1.30	10.03	0.02	0.58	1.004	0.234	1.805	0.003	0.105
Graders/Scrapers/Excavators																					
Backhoe w/Breaker Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/Compactor Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/Joint Machine Attch.	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Excavator Cat 312	DIESEL	84	58	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL	180	57.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	1	8	360	1.54	0.55	5.50	0.01	0.21	0.277	0.100	0.990	0.002	0.037
Various Trucks																					
769D Dump Trucks	DIESEL	518	41	2.3970E-03	6.3208E-04	6.1012E-03	1.0800E-05	2.3544E-04	5	8	360	20.36	5.37	51.83	0.09	2.00	3.665	0.967	9.330	0.017	0.360
Blasting Powder Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	125	41	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	3.25	0.76	5.84	0.01	0.34	0.585	0.136	1.052	0.002	0.061
Concrete pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Mixer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Pressure Washer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Vacuum Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Plant/Conveyor Equipment																					
Aggregate Crushing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
RCC Batch Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Var Conveyors type /size	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	6	8	360	18.99	4.43	34.14	0.05	1.99	3.418	0.797	6.145	0.009	0.357
Miscellaneous Equipment																					
Brush Chipper	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
2000KW Generators	DIESEL	2682	74	4.1477E-04	1.0944E-04	1.2249E-03	1.0800E-05	3.8096E-05	3	8	360	19.76	5.21	58.34	0.51	1.81	3.556	0.938	10.502	0.093	0.327
Grout Pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04	1	8	360	0.79	0.27	0.73	0.00	0.07	0.143	0.049	0.132	0.000	0.013
Misc Grouting Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Misc Mixing Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Power Jet w/Compressor	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04	3	8	360	2.48	0.86	2.29	0.00	0.22	0.447	0.154	0.412	0.001	0.039
Road Header	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
												SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
												153.43	40.14	341.20	1.02	16.21	27.62	7.23	61.42	0.18	2.92

Table A-111
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Dam Seepage Control

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

TABLE 2.10b
Dam Seepage Control

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Days Hrs Per Day	Days in Service (120)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Grout Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Vacuum Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	120	1.65	0.57	1.53	0.00	0.15	0.099	0.034	0.092	0.000	0.009
Dewatering Pumps	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	3	8	120	9.49	2.21	17.07	0.03	0.99	0.570	0.133	1.024	0.002	0.060
2000KW Generators	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	120	1.65	0.57	1.53	0.00	0.15	0.099	0.034	0.092	0.000	0.009
Road Header	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Welding Operations	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					24.48	6.56	51.04	0.10	2.47	1.47	0.39	3.06	0.01	0.15

Table A-112
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Outlet Facilities

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

TABLE 2.10b
Outlet Facilities

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Days Hrs Per Day	Days in Service (660)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Grove Crane 15T	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Plant Erection Cranes	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Tower Crane	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	360	3.29	1.18	11.76	0.02	0.44	0.592	0.213	2.117	0.003	0.080
988G Wheel Loaders	DIESEL	1	8	360	3.22	0.88	8.51	0.02	0.33	0.579	0.159	1.532	0.003	0.059
D7G Dozers(Track type)	DIESEL	2	8	360	3.51	1.26	12.54	0.02	0.47	0.631	0.227	2.257	0.004	0.085
D4 Dozer	DIESEL	1	8	360	1.71	0.46	2.83	0.01	0.26	0.308	0.084	0.509	0.001	0.046
Compactors														
CS-683E Vib Compactors	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/GEVR Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	2	8	360	2.69	0.73	4.45	0.01	0.40	0.485	0.131	0.800	0.002	0.072
Motor Grader 163H Global	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	2	8	360	8.15	2.15	20.73	0.04	0.80	1.466	0.387	3.732	0.007	0.144
Blasting Powder Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Cat IT28G w/Broom Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	2	8	360	1.59	0.55	1.46	0.00	0.14	0.285	0.099	0.264	0.001	0.025
End Dump Trucks	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	3	8	360	8.76	2.40	23.18	0.05	0.89	1.576	0.432	4.173	0.009	0.160
Pressure Washer Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL	2	8	360	1.59	0.55	1.46	0.00	0.14	0.285	0.099	0.264	0.001	0.025
Drills Various sizes and types	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
2000KW Generators	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Road Header	DIESEL	1	8	360	0.76	0.26	0.70	0.00	0.07	0.137	0.047	0.126	0.000	0.012
Saw Cutting Machines	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL	2	8	360	1.52	0.52	1.40	0.00	0.13	0.273	0.094	0.252	0.001	0.024
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					68.23	19.84	161.15	0.31	7.51	12.28	3.57	29.01	0.06	1.35

Table A-113
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Bypass Pipeline Diversion Structure

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

TABLE 2.10b
Bypass Pipeline Div. Structure

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 390

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Grove Crane 15T	DIESEL	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Plant Erection Cranes	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	2	8	360	3.51	1.26	12.54	0.02	0.47	0.631	0.227	2.257	0.004	0.085
D4 Dozer	DIESEL	2	8	360	3.42	0.93	5.65	0.01	0.51	0.616	0.167	1.018	0.002	0.092
Compactors														
CS-683E Vib Compactors	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/GEVR Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	3	8	360	4.04	1.09	6.67	0.01	0.60	0.727	0.197	1.200	0.002	0.109
Motor Grader 163H Global	DIESEL	1	8	360	1.54	0.55	5.50	0.01	0.21	0.277	0.100	0.990	0.002	0.037
Various Trucks														
769D Dump Trucks	DIESEL	4	8	360	16.29	4.30	41.46	0.07	1.60	2.932	0.773	7.464	0.013	0.288
Blasting Powder Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Cat IT28G w/Broom Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	1	8	360	0.79	0.27	0.73	0.00	0.07	0.143	0.049	0.132	0.000	0.013
End Dump Trucks	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Pressure Washer Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Vacuum Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Compressors	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL	1	8	360	0.76	0.26	0.70	0.00	0.07	0.137	0.047	0.126	0.000	0.012
Saw Cutting Machines	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL	2	8	360	1.52	0.52	1.40	0.00	0.13	0.273	0.094	0.252	0.001	0.024
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					67.27	19.17	162.75	0.31	7.52	12.11	3.45	29.29	0.06	1.35

Table A-114
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Clearing and Grubbing

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY
YEAR: 2010

TABLE 2.10b
Clearing-Grubbing

If Edit needed see "Equipment" Sheet

Days 150

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	150	3.29	1.18	11.76	0.02	0.44	0.247	0.089	0.882	0.001	0.033
988G Wheel Loaders	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	2	8	150	3.42	0.93	5.65	0.01	0.51	0.257	0.070	0.424	0.001	0.038
Compactors														
CS-683E Vib Compactors	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	1	8	150	1.35	0.36	2.22	0.00	0.20	0.101	0.027	0.167	0.000	0.015
Motor Grader 163H Global	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	2	8	150	5.84	1.60	15.46	0.03	0.59	0.438	0.120	1.159	0.003	0.045
Flat Bed	DIESEL	1	8	150	2.92	0.80	7.73	0.02	0.30	0.219	0.060	0.580	0.001	0.022
Grout Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL	2	8	150	6.33	1.48	11.38	0.02	0.66	0.475	0.111	0.854	0.001	0.050
Compressors	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL	4	8	150	4.52	1.22	7.46	0.01	0.67	0.339	0.092	0.560	0.001	0.051
Water Truck	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					27.66	7.58	61.66	0.12	3.38	2.07	0.57	4.62	0.01	0.25

Table A-115
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Onsite Quarry Alternative
Demobilization-Reclamation

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY
YEAR: 2010

TABLE 2.10b
Demob-Reclamation

If Edit needed see "Equipment" Sheet

Equipment	FUEL	HP	Load Factor	No of Equipment	Days Hrs Per Day	Days in Service (60)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																
100 T Truck Crane	DIESEL	194	43		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	194	43		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	194	43		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL	194	43		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																
966G Wheel Loaders	DIESEL	238	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL	475	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	200	59		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	105	59		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors																
CS-683E Vib Compactors	DIESEL	173	43		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL	31	57.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL	66	57.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL	153	57.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators																
Backhoe w/Breaker Attachment	DIESEL	79	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	79	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL	79	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL	79	46.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	84	58		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL	180	57.5		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks																
769D Dump Trucks	DIESEL	518	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	125	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	23	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	489	41	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment																
Aggregate Crushing Plant	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment																
Brush Chipper	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	37	48		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	23	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL	22	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	23	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	161	62		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	37	48		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL	22	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	56	73		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL	56	73		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	489	41		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	22	74		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
							2.92	0.80	7.73	0.02	0.30	0.09	0.02	0.23	0.00	0.01

Table A-116
San Vicente 50,000 Acre-Feet Alternative
Worker Commute Emissions
Onsite Quarry Alternative

2010 Construction Worker Estimates and Emission Calculations

Construction Phase		No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)
Mobilization	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Test Section	Light-duty truck, catalyst	46	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Foundation Treatment	Light-duty truck, catalyst	29	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Crest Demo Surface Prep	Light-duty truck, catalyst	26	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Aggregate Supply	Light-duty truck, catalyst	40	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Craft	Light-duty truck, catalyst	158	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Mechanic	Light-duty truck, catalyst	2	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
RCC Placement Batch Plant & Setup	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Spillway and Weir Crew	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Front End	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Craft	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 60"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Outlet Facilities Tunnel Men 120"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Remove Rock Dam	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Dam Seepage Control	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Bypass Pipeline Diversion Structure	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Demobilization/Reclamation	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013
Supervision/Inspection	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013

Construction Phase	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Days/mont Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	60 0.06566	0.00546	0.005371	4.76E-05	0.000427
RCC Test Section	***8.39***	***0.70***	***0.69***	***0.01***	***0.05***	60 0.251697	0.020932	0.020588	0.000183	0.001637
Foundation Treatment	***5.29***	***0.44***	***0.43***	***0.00***	***0.03***	210 0.555376	0.046186	0.045428	0.000403	0.003612
Dam Crest Demo Surface Prep	***4.74***	***0.39***	***0.39***	***0.00***	***0.03***	210 0.497923	0.041408	0.040728	0.000361	0.003238
Aggregate Supply	***7.30***	***0.61***	***0.60***	***0.01***	***0.05***	270 0.984903	0.081907	0.080561	0.000714	0.006405
RCC Placement Craft	***28.82***	***2.40***	***2.36***	***0.02***	***0.19***	330 4.754891	0.395427	0.388932	0.003448	0.030921
RCC Placement Mechanic	***0.36***	***0.03***	***0.03***	***0.00***	***0.00***	330 0.060188	0.005005	0.004923	4.37E-05	0.000391
RCC Placement Batch Plant & Setup	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	330 0.361131	0.030032	0.029539	0.000262	0.002348
Spillway and Weir Crew	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	330 0.601885	0.050054	0.049232	0.000437	0.003914
Outlet Facilities Front End	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	330 0.601885	0.050054	0.049232	0.000437	0.003914
Outlet Facilities Craft	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	330 0.631979	0.052557	0.051694	0.000458	0.00411
Outlet Facilities Tunnel Men 60"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	330 0.481508	0.040043	0.039386	0.000349	0.003131
Outlet Facilities Tunnel Men 120"	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	330 0.481508	0.040043	0.039386	0.000349	0.003131
Remove Rock Dam	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	330 0.451414	0.037541	0.036924	0.000327	0.002936
Dam Seepage Control	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	0 0	0	0	0	0
Bypass Pipeline Diversion Structure	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	270 0.837167	0.069621	0.068477	0.000607	0.005444
Clearing/Grubbing	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	0 0	0	0	0	0
Demobilization/Reclamation	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0 0	0	0	0	0
Supervision/Inspection	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	330 0.812545	0.067573	0.066463	0.000589	0.005284

Assuming workers would travel from
El Cajon area to San Vicente Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

CO	NOx	VOCs	SOx	PM10	CO	NOx	VOCs	SOx	PM10
99.22	8.25	8.12	0.07	0.65	12.43	1.03	1.02	0.01	0.08

Table A-117
San Vicente 50,000 Acre-Feet Alternative
Construction Truck Emissions
Onsite Quarry Alternative

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Months in 2	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	2	30	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***
RCC Test Section	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	2	30	***0.00***	***0.02***	***0.00***	***0.00***	***0.00***
Foundation Treatment	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	9	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Dam Crest Demo & Surface Prep	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	7	30	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Aggregate Supply Onsite Quarry	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	12	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
RCC Placement	Heavy-duty truck	20	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.98***	***3.63***	***0.26***	***0.01***	***0.13***	12	30	***0.18***	***0.65***	***0.05***	***0.00***	***0.02***
Dam Seepage Control	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Outlet Facilities	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	12	30	***0.03***	***0.10***	***0.01***	***0.00***	***0.00***
Bypass Pipeline Diversion Structure	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	12	30	***0.02***	***0.07***	***0.00***	***0.00***	***0.00***
Clearing/Grubbing	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Demobilization/Reclamation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	0	30	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
												Totals							Totals				
												CO	NOx	VOCs	SOx	PM10			CO	NOx	VOCs	SOx	PM10
												1.77	6.53	0.46	0.02	0.23			0.24	0.88	0.06	0.00	0.03

Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area.
Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)

Table A-118
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Mobilization

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 1
YEAR: 2010

TABLE 2.10a
Mobilizatior

If Edit needed see "Equipment" Sheet

Days 60

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Conventional Concrete Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Ice Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	2	8	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Var Conveyors type /size	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL	1	8	60	0.76	0.26	0.70	0.00	0.07	0.023	0.008	0.021	0.000	0.002
Grout Pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					16.34	4.01	31.19	0.05	1.69	0.49	0.12	0.94	0.00	0.05

Table A-119
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
RCC Test Section

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
RCC Test Section

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 60

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	1	8	60	1.71	0.46	2.83	0.01	0.26	0.051	0.014	0.085	0.000	0.008
Compactors														
CS-683E Vib Compactors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL	1	8	60	0.83	0.29	0.77	0.00	0.07	0.025	0.009	0.023	0.000	0.002
Double Drum Roller 434C	DIESEL	1	8	60	1.05	0.28	1.73	0.00	0.16	0.031	0.009	0.052	0.000	0.005
Smooth Drum Roller 583C	DIESEL	1	8	60	2.79	0.65	5.01	0.01	0.29	0.084	0.020	0.150	0.000	0.009
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Backhoe w/Compactor Attachment	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Backhoe w/Joint Machine Attch.	DIESEL	1	8	60	1.01	0.28	1.68	0.00	0.15	0.030	0.008	0.050	0.000	0.005
Excavator Cat 312	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	1	8	60	4.07	1.07	10.37	0.02	0.40	0.122	0.032	0.311	0.001	0.012
Blasting Powder Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	1	8	60	1.62	0.38	2.92	0.00	0.17	0.049	0.011	0.088	0.000	0.005
Concrete pump	DIESEL	1	8	60	0.79	0.27	0.73	0.00	0.07	0.024	0.008	0.022	0.000	0.002
End Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Mixer Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Pressure Washer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Var Conveyors type /size	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	1	8	60	3.16	0.74	5.69	0.01	0.33	0.095	0.022	0.171	0.000	0.010
Misc Mixing Equipment	DIESEL	2	8	60	6.33	1.48	11.38	0.02	0.66	0.190	0.044	0.341	0.001	0.020
Power Jet w/Compressor	DIESEL	1	8	60	0.83	0.29	0.76	0.00	0.07	0.025	0.009	0.023	0.000	0.002
Road Header	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Welding Operations	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					44.00	11.47	91.55	0.17	4.75	1.32	0.34	2.75	0.01	0.14

Table A-120
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Foundation Treatment

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Foundation Treatment

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 270

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	No of Equipment
Cranes															
100 T Truck Crane	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grove Crane 15T	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Plant Erection Cranes	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Tower Crane	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
988G Wheel Loaders	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
D7G Dozers(Track type)	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
D4 Dozer	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Compactors															
CS-683E Vib Compactors	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Double Drum Roller 224D	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Double Drum Roller 434C	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Smooth Drum Roller 583C	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/GEVR Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/Compactor Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Backhoe w/Joint Machine Attch.	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Excavator Cat 312	DIESEL	2	8	270	2.69	0.73	4.45	0.01	0.40	0.363	0.099	0.600	0.001	0.054	2
Motor Grader 163H Global	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Various Trucks															
769D Dump Trucks	DIESEL	1	8	270	4.07	1.07	10.37	0.02	0.40	0.550	0.145	1.399	0.002	0.054	1
Blasting Powder Truck	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Cat IT28G w/Broom Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Concrete pump	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
End Dump Trucks	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Flat Bed	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040	1
Grout Truck	DIESEL	2	8	270	5.84	1.60	15.46	0.03	0.59	0.788	0.216	2.087	0.005	0.080	2
Mixer Truck	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040	1
Pressure Washer Truck	DIESEL	4	8	270	11.68	3.20	30.91	0.07	1.19	1.576	0.432	4.173	0.009	0.160	4
Vacuum Truck	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040	1
Plant/Conveyor Equipment															
Aggregate Crushing Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grout Mixing Plant	DIESEL	1	8	270	3.16	0.74	5.69	0.01	0.33	0.427	0.100	0.768	0.001	0.045	1
Conventional Concrete Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Ice Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
RCC Batch Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Var Conveyors type /size	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Miscellaneous Equipment															
Brush Chipper	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Compressors	DIESEL	4	8	270	3.31	1.14	3.06	0.01	0.29	0.447	0.154	0.412	0.001	0.039	4
Dewatering Pumps	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Drills Various sizes and types	DIESEL	4	8	270	12.66	2.95	22.76	0.03	1.32	1.709	0.398	3.073	0.005	0.179	4
2000KW Generators	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Grout Pump	DIESEL	2	8	270	1.59	0.55	1.46	0.00	0.14	0.214	0.074	0.198	0.000	0.019	2
Misc Grouting Equipment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Misc Mixing Equipment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Power Jet w/Compressor	DIESEL	2	8	270	1.65	0.57	1.53	0.00	0.15	0.223	0.077	0.206	0.000	0.020	2
Road Header	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Saw Cutting Machines	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Various Saws	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
Water Truck	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040	1
Welding Operations	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	
					58.33	15.76	126.59	0.26	6.00	7.87	2.13	17.09	0.03	0.81	

Table A-121
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Dam Crest Demolition and Surface Preparation

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Dam Crest Demo Surface Prep

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service (Days: 210)	CO lbs/day (Emissions)	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total) (Emission, tons (total))	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM10 tons (total)
Cranes															
100 T Truck Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders															
966G Wheel Loaders	DIESEL	2	8	210	3.29	1.18	11.76	0.02	0.44	0.345	0.124	1.235	0.002	0.046	0.000
988G Wheel Loaders	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	1	8	210	1.71	0.46	2.83	0.01	0.26	0.180	0.049	0.297	0.001	0.027	0.000
Compactors															
CS-683E Vib Compactors	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators															
Backhoe w/Breaker Attachment	DIESEL	3	8	210	3.04	0.83	5.03	0.01	0.45	0.320	0.087	0.528	0.001	0.048	0.000
Backhoe w/GEVR Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Various Trucks															
769D Dump Trucks	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	1	8	210	1.62	0.38	2.92	0.00	0.17	0.171	0.040	0.307	0.000	0.018	0.000
Concrete pump	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	5	8	210	14.60	4.00	38.64	0.09	1.48	1.532	0.420	4.057	0.009	0.156	0.000
Flat Bed	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	0.000
Grout Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment															
Aggregate Crushing Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment															
Brush Chipper	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	16	8	210	50.64	11.81	91.04	0.14	5.30	5.317	1.240	9.559	0.014	0.556	0.000
2000KW Generators	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	210	1.65	0.57	1.53	0.00	0.15	0.174	0.060	0.160	0.000	0.015	0.000
Road Header	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	4	8	210	4.52	1.22	7.46	0.01	0.67	0.474	0.129	0.783	0.001	0.071	0.000
Various Saws	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	210	2.92	0.80	7.73	0.02	0.30	0.306	0.084	0.811	0.002	0.031	0.000
Welding Operations	DIESEL		8	210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					86.92	22.05	176.66	0.31	9.52	9.13	2.32	18.55	0.03	1.00	0.00

Table A-121
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Aggregate Supply

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Agg. Supply

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Days Hrs Per Day	Days in Service (270)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	1	8	270	1.24	0.45	4.43	0.01	0.17	0.167	0.060	0.598	0.001	0.023
Tower Crane	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	270	3.29	1.18	11.76	0.02	0.44	0.444	0.160	1.588	0.003	0.060
988G Wheel Loaders	DIESEL	1	8	270	3.22	0.88	8.51	0.02	0.33	0.434	0.119	1.149	0.003	0.044
D7G Dozers(Track type)	DIESEL	2	8	270	3.51	1.26	12.54	0.02	0.47	0.473	0.170	1.693	0.003	0.064
D4 Dozer	DIESEL	1	8	270	1.71	0.46	2.83	0.01	0.26	0.231	0.063	0.382	0.001	0.035
Compactors														
CS-683E Vib Compactors	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040
Grout Truck	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040
Vacuum Truck	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL	1	8	270	3.16	0.74	5.69	0.01	0.33	0.427	0.100	0.768	0.001	0.045
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	270	2.92	0.80	7.73	0.02	0.30	0.394	0.108	1.043	0.002	0.040
Welding Operations	DIESEL		8	270	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					24.89	7.37	68.95	0.13	2.88	3.36	1.00	9.31	0.02	0.39

Table A-122
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
RCC Placement

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
RCC Placement

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 465

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Grove Crane 15T	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Tower Crane	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	1	8	360	1.75	0.63	6.27	0.01	0.24	0.316	0.113	1.129	0.002	0.042
D4 Dozer	DIESEL	2	8	360	3.42	0.93	5.65	0.01	0.51	0.616	0.167	1.018	0.002	0.092
Compactors														
CS-683E Vib Compactors	DIESEL	1	8	360	2.36	0.55	4.24	0.01	0.25	0.425	0.099	0.763	0.001	0.044
Double Drum Roller 224D	DIESEL	2	8	360	1.66	0.57	1.53	0.00	0.15	0.299	0.103	0.276	0.001	0.026
Double Drum Roller 434C	DIESEL	2	8	360	2.10	0.57	3.46	0.01	0.31	0.377	0.102	0.623	0.001	0.056
Smooth Drum Roller 583C	DIESEL	2	8	360	5.58	1.30	10.03	0.02	0.58	1.004	0.234	1.805	0.003	0.105
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/Compactor Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/Joint Machine Attch.	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Excavator Cat 312	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL	1	8	360	1.54	0.55	5.50	0.01	0.21	0.277	0.100	0.990	0.002	0.037
Various Trucks														
769D Dump Trucks	DIESEL	5	8	360	20.36	5.37	51.83	0.09	2.00	3.665	0.967	9.330	0.017	0.360
Blasting Powder Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	2	8	360	3.25	0.76	5.84	0.01	0.34	0.585	0.136	1.052	0.002	0.061
Concrete pump	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Mixer Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Pressure Washer Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Vacuum Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
RCC Batch Plant	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Var Conveyors type /size	DIESEL	6	8	360	18.99	4.43	34.14	0.05	1.99	3.418	0.797	6.145	0.009	0.357
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
2000KW Generators	DIESEL	3	8	360	2.28	0.79	2.10	0.00	0.20	0.410	0.142	0.378	0.001	0.036
Grout Pump	DIESEL	1	8	360	0.79	0.27	0.73	0.00	0.07	0.143	0.049	0.132	0.000	0.013
Misc Grouting Equipment	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Misc Mixing Equipment	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
Power Jet w/Compressor	DIESEL	3	8	360	2.48	0.86	2.29	0.00	0.22	0.447	0.154	0.412	0.001	0.039
Road Header	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					135.95	35.71	284.96	0.51	14.59	24.47	6.43	51.29	0.09	2.63

Table A-123
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Dam Seepage Control

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Dam Seepage Control

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 120

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Grout Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Vacuum Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	120	1.65	0.57	1.53	0.00	0.15	0.099	0.034	0.092	0.000	0.009
Dewatering Pumps	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	3	8	120	9.49	2.21	17.07	0.03	0.99	0.570	0.133	1.024	0.002	0.060
2000KW Generators	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	120	1.65	0.57	1.53	0.00	0.15	0.099	0.034	0.092	0.000	0.009
Road Header	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	8	120	2.92	0.80	7.73	0.02	0.30	0.175	0.048	0.464	0.001	0.018
Welding Operations	DIESEL		8	120	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					24.48	6.56	51.04	0.10	2.47	1.47	0.39	3.06	0.01	0.15

Table A-124
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Outlet Facilities

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Outlet Facilities

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Days Hrs Per Day	Days in Service (660)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Grove Crane 15T	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Plant Erection Cranes	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Tower Crane	DIESEL	1	8	360	1.24	0.45	4.43	0.01	0.17	0.223	0.080	0.798	0.001	0.030
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL	2	8	360	3.29	1.18	11.76	0.02	0.44	0.592	0.213	2.117	0.003	0.080
988G Wheel Loaders	DIESEL	1	8	360	3.22	0.88	8.51	0.02	0.33	0.579	0.159	1.532	0.003	0.059
D7G Dozers(Track type)	DIESEL	2	8	360	3.51	1.26	12.54	0.02	0.47	0.631	0.227	2.257	0.004	0.085
D4 Dozer	DIESEL	1	8	360	1.71	0.46	2.83	0.01	0.26	0.308	0.084	0.509	0.001	0.046
Compactors														
CS-683E Vib Compactors	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/GEVR Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	2	8	360	2.69	0.73	4.45	0.01	0.40	0.485	0.131	0.800	0.002	0.072
Motor Grader 163H Global	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL	2	8	360	8.15	2.15	20.73	0.04	0.80	1.466	0.387	3.732	0.007	0.144
Blasting Powder Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Cat IT28G w/Broom Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	2	8	360	1.59	0.55	1.46	0.00	0.14	0.285	0.099	0.264	0.001	0.025
End Dump Trucks	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	3	8	360	8.76	2.40	23.18	0.05	0.89	1.576	0.432	4.173	0.009	0.160
Pressure Washer Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL	2	8	360	1.59	0.55	1.46	0.00	0.14	0.285	0.099	0.264	0.001	0.025
Drills Various sizes and types	DIESEL	2	8	360	6.33	1.48	11.38	0.02	0.66	1.139	0.266	2.048	0.003	0.119
2000KW Generators	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Road Header	DIESEL	1	8	360	0.76	0.26	0.70	0.00	0.07	0.137	0.047	0.126	0.000	0.012
Saw Cutting Machines	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL	2	8	360	1.52	0.52	1.40	0.00	0.13	0.273	0.094	0.252	0.001	0.024
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					68.23	19.84	161.15	0.31	7.51	12.28	3.57	29.01	0.06	1.35

Table A-125
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Bypass Pipeline Diversion Structure

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Bypass Pipeline Div. Structure

YEAR: 2010

If Edit needed see "Equipment" Sheet

Days 390

Equipment	FUEL	No of Equipment	Hrs Per Day	Days in Service	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Grove Crane 15T	DIESEL	2	8	360	2.48	0.89	8.86	0.01	0.33	0.446	0.160	1.596	0.003	0.060
Plant Erection Cranes	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	2	8	360	3.51	1.26	12.54	0.02	0.47	0.631	0.227	2.257	0.004	0.085
D4 Dozer	DIESEL	2	8	360	3.42	0.93	5.65	0.01	0.51	0.616	0.167	1.018	0.002	0.092
Compactors														
CS-683E Vib Compactors	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL	2	8	360	2.03	0.55	3.35	0.01	0.30	0.365	0.099	0.603	0.001	0.055
Backhoe w/GEVR Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	3	8	360	4.04	1.09	6.67	0.01	0.60	0.727	0.197	1.200	0.002	0.109
Motor Grader 163H Global	DIESEL	1	8	360	1.54	0.55	5.50	0.01	0.21	0.277	0.100	0.990	0.002	0.037
Various Trucks														
769D Dump Trucks	DIESEL	4	8	360	16.29	4.30	41.46	0.07	1.60	2.932	0.773	7.464	0.013	0.288
Blasting Powder Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Cat IT28G w/Broom Attachment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	1	8	360	0.79	0.27	0.73	0.00	0.07	0.143	0.049	0.132	0.000	0.013
End Dump Trucks	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Grout Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Pressure Washer Truck	DIESEL	1	8	360	2.92	0.80	7.73	0.02	0.30	0.525	0.144	1.391	0.003	0.053
Vacuum Truck	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Ice Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL	1	8	360	3.16	0.74	5.69	0.01	0.33	0.570	0.133	1.024	0.002	0.060
Compressors	DIESEL	2	8	360	1.65	0.57	1.53	0.00	0.15	0.298	0.103	0.275	0.001	0.026
Dewatering Pumps	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL	1	8	360	0.76	0.26	0.70	0.00	0.07	0.137	0.047	0.126	0.000	0.012
Saw Cutting Machines	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	8	360	5.84	1.60	15.46	0.03	0.59	1.051	0.288	2.782	0.006	0.107
Welding Operations	DIESEL	2	8	360	1.52	0.52	1.40	0.00	0.13	0.273	0.094	0.252	0.001	0.024
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					67.27	19.17	162.75	0.31	7.52	12.11	3.45	29.29	0.06	1.35

Table A-126
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Clearing and Grubbing

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED
YEAR: 2010

TABLE 2.10a
Clearing-Grubbing

If Edit needed see "Equipment" Sheet

Equipment	FUEL	HP	Load Factor	Emission Factors CO (lb/bhp-hr)	VOC (lb/bhp-hr)	NOX (lb/bhp-hr)	SOX (lb/bhp hr)	PM10 (lb/bhp-hr)	No of Equipment	Hrs Per Day	Days in Service (Days 150)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes																					
100 T Truck Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL	194	43	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders																					
966G Wheel Loaders	DIESEL	238	46.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04	2	8	150	3.29	1.18	11.76	0.02	0.44	0.247	0.089	0.882	0.001	0.033
988G Wheel Loaders	DIESEL	475	46.5	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL	200	59	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL	105	59	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	2	8	150	3.42	0.93	5.65	0.01	0.51	0.257	0.070	0.424	0.001	0.038
Compactors																					
CS-683E Vib Compactors	DIESEL	173	43	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL	31	57.5	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL	66	57.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL	153	57.5	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators																					
Backhoe w/Breaker Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL	79	46.5	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL	84	58	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	1	8	150	1.35	0.36	2.22	0.00	0.20	0.101	0.027	0.167	0.000	0.015
Motor Grader 163H Global	DIESEL	180	57.5	1.8576E-03	6.6776E-04	6.6417E-03	1.0800E-05	2.4983E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks																					
769D Dump Trucks	DIESEL	518	41	2.3970E-03	6.3208E-04	6.1012E-03	1.0800E-05	2.3544E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL	125	41	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	2	8	150	5.84	1.60	15.46	0.03	0.59	0.438	0.120	1.159	0.003	0.045
Flat Bed	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04	1	8	150	2.92	0.80	7.73	0.02	0.30	0.219	0.060	0.580	0.001	0.022
Grout Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment																					
Aggregate Crushing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment																					
Brush Chipper	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04	2	8	150	6.33	1.48	11.38	0.02	0.66	0.475	0.111	0.854	0.001	0.050
Compressors	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL	23	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL	161	62	3.9633E-03	9.2397E-04	7.1254E-03	1.0800E-05	4.1448E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL	37	48	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL	56	73	3.4537E-03	9.3626E-04	5.7036E-03	1.0800E-05	5.1572E-04	4	8	150	4.52	1.22	7.46	0.01	0.67	0.339	0.092	0.560	0.001	0.051
Water Truck	DIESEL	489	41	1.8199E-03	4.9871E-04	4.8182E-03	1.0800E-05	1.8503E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL	22	74	5.8229E-03	2.0123E-03	5.3764E-03	1.0800E-05	5.1338E-04		8	150	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
												SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
												27.66	7.58	61.66	0.12	3.38	2.07	0.57	4.62	0.01	0.25

Table A-127
San Vicente 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Offsite Trucked Alternative
Demobilization-Reclamation

SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, OFF-SITE TRUCKED

TABLE 2.10a
Demob-Reclamation

YEAR: 2010

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	Days Hrs Per Day	Days in Service (60)	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Cranes														
100 T Truck Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grove Crane 15T	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant Erection Cranes	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Tower Crane	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Bull Dozers/Wheel Loaders														
966G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
988G Wheel Loaders	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D7G Dozers(Track type)	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
D4 Dozer	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compactors														
CS-683E Vib Compactors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 224D	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Double Drum Roller 434C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Smooth Drum Roller 583C	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Graders/Scrapers/Excavators														
Backhoe w/Breaker Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/GEVR Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Compactor Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Backhoe w/Joint Machine Attch.	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Excavator Cat 312	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Motor Grader 163H Global	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Trucks														
769D Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Blasting Powder Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Cat IT28G w/Broom Attachment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Concrete pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
End Dump Trucks	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Flat Bed	DIESEL	1	8	60	2.92	0.80	7.73	0.02	0.30	0.088	0.024	0.232	0.001	0.009
Grout Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Mixer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Pressure Washer Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Vacuum Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Plant/Conveyor Equipment														
Aggregate Crushing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Mixing Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Conventional Concrete Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Ice Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
RCC Batch Plant	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Var Conveyors type /size	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Miscellaneous Equipment														
Brush Chipper	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Compressors	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Dewatering Pumps	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Drills Various sizes and types	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
2000KW Generators	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Grouting Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Misc Mixing Equipment	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Power Jet w/Compressor	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Road Header	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Saw Cutting Machines	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Various Saws	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Water Truck	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Welding Operations	DIESEL		8	60	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
					2.92	0.80	7.73	0.02	0.30	0.09	0.02	0.23	0.00	0.01

Table A-128
San Vicente 50,000 Acre-Feet Alternative
Worker Commute Emissions
Offsite Trucked Alternative

2010 Construction Worker Estimates and Emission Calculations

									VOCs								PM10					Emissions, lbs/day					Days/mont Emissions, tons/year				
		No. of Workers	Speed	VMT	CO		NO_x		Running Exhaust						SOx				Tire Wear	Brake Wear											
Construction Phase	Vehicle Class	Per Construction Phase	(mph)	(mi/vehicle day)	Running Exhaust (g/mi)	Start-Up (g/start)[a]	Running Exhaust (g/mi)	Start-Up (g/start)[a]	(g/mi)	Start-Up (g/start)[a]	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	Running Exhaust (g/mi)	Start-Up (g/start)[a]	Running Exhaust (g/mi)	Start-Up (g/start)[a]	(g/mi)	(g/mi)	CO	NOx	VOCs	SOx	PM10	CO	NOx	VOCs	SOx	PM10
Mobilization	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	60	0.06566	0.00546	0.005371	4.76E-05	0.000427
RCC Test Section	Light-duty truck, catalyst	46	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***8.39***	***0.70***	***0.69***	***0.01***	***0.05***	60	0.251697	0.020932	0.020588	0.000183	0.001637
Foundation Treatment	Light-duty truck, catalyst	29	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***5.29***	***0.44***	***0.43***	***0.00***	***0.03***	210	0.555376	0.046186	0.045428	0.000403	0.003612
Dam Crest Demo Surface Prep	Light-duty truck, catalyst	26	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.74***	***0.39***	***0.39***	***0.00***	***0.03***	210	0.497923	0.041408	0.040728	0.000361	0.003238
Aggregate Supply	Light-duty truck, catalyst	40	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.30***	***0.61***	***0.60***	***0.01***	***0.05***	270	0.984903	0.081907	0.080561	0.000714	0.006405
RCC Placement Craft	Light-duty truck, catalyst	158	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***28.82***	***2.40***	***2.36***	***0.02***	***0.19***	330	4.754891	0.395427	0.388932	0.003448	0.030921
RCC Placement Mechanic	Light-duty truck, catalyst	2	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***0.36***	***0.03***	***0.03***	***0.00***	***0.00***	330	0.060188	0.005005	0.004923	4.37E-05	0.000391
RCC Placement Batch Plant & Setup	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	330	0.361131	0.030032	0.029539	0.000262	0.002348
Spillway and Weir Crew	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	330	0.601885	0.050054	0.049232	0.000437	0.003914
Outlet Facilities Front End	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	330	0.601885	0.050054	0.049232	0.000437	0.003914
Outlet Facilities Craft	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	330	0.631979	0.052557	0.051694	0.000458	0.00411
Outlet Facilities Tunnel Men 60"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	330	0.481508	0.040043	0.039386	0.000349	0.003131
Outlet Facilities Tunnel Men 120"	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	330	0.481508	0.040043	0.039386	0.000349	0.003131
Remove Rock Dam	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	330	0.451414	0.037541	0.036924	0.000327	0.002936
Dam Seepage Control	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	0	0	0	0	0	0
Bypass Pipeline Diversion Structure	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	270	0.837167	0.069621	0.068477	0.000607	0.005444
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization/Reclamation	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	330	0.812545	0.067573	0.066463	0.000589	0.005284

Assuming workers would travel from
El Cajon area to San Vicente Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

CO	NOx	VOCs	SOx	PM10	CO	NOx	VOCs	SOx	PM10
99.22	8.25	8.12	0.07	0.65	12.43	1.03	1.02	0.01	0.08

Table A-129
San Vicente 50,000 Acre-Feet Alternative
Construction Truck Traffic
Offsite Trucked Alternative

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Days/mont	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	60	***0.00***	***0.01***	***0.00***	***0.00***	***0.00***
RCC Test Section	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	60	***0.00***	***0.02***	***0.00***	***0.00***	***0.00***
Foundation Treatment	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	210	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Dam Crest Demo & Surface Prep	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.05***	***0.18***	***0.01***	***0.00***	***0.01***	210	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***
Aggregate Supply Offsite Trucked	Heavy-duty truck	169	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***8.29***	***30.64***	***2.17***	***0.08***	***1.07***	270	***1.12***	***4.14***	***0.29***	***0.01***	***0.14***
RCC Placement	Heavy-duty truck	20	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.98***	***3.63***	***0.26***	***0.01***	***0.13***	330	***0.16***	***0.60***	***0.04***	***0.00***	***0.02***
Dam Seepage Control	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	0	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Outlet Facilities	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	330	***0.02***	***0.09***	***0.01***	***0.00***	***0.00***
Bypass Pipeline Diversion Structure	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.10***	***0.36***	***0.03***	***0.00***	***0.01***	270	***0.01***	***0.05***	***0.00***	***0.00***	***0.00***
Clearing/Grubbing	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.15***	***0.54***	***0.04***	***0.00***	***0.02***	0	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Demobilization/Reclamation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	0	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
												Totals						Totals				
												CO	NOx	VOCs	SOx	PM10		CO	NOx	VOCs	SOx	PM10
												10.06	37.17	2.63	0.09	1.30		1.33	4.93	0.35	0.01	0.17

Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area.
Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)

Unpaved Road Emissions

Emission Factor		Silt content	Mean vehicle weight	Surface moisture content	Exponents for pm-10		
Emission Factor, lb PM10/VMT	k, lb/VMT	s, %	W, tons	Mdry	a	b	c
1.3672	2.6	8.5	13	4.8	0.8	0.4	0.3

Unpaved Road Dust per Phase

		With Watering - assumed 51% effective
Mobilization	0.68	0.33
RCC Test Section	2.05	1.00
Foundation Treatment	0.68	0.33
Dam Crest Demo & Surface Prep	0.68	0.33
Aggregate Supply	115.53	56.61
RCC Placement	13.67	6.70
Dam Seepage Control	1.37	0.67
Outlet Facilities	2.05	1.00
Saddle Dams	1.37	0.67
Bypass Pipeline Diversion Structure	2.05	1.00
Turnout/Bifurcation Structures	0.00	0.00
Clearing/Grubbing	0.00	0.00
Demobilization/Reclamation	0.00	0.00

Table A-130
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Mobilization

If Edit needed see "Equipment" Sheet | 30 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	7.735726	1.66	20.26	0.01	0.98	0.12	0.025	0.304	0.000	0.015
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Fork Loader	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.12	0.026	0.322	0.000	0.016
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.12	0.025	0.301	0.000	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.01	0.003	0.029	0.000	0.001
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			25.60	5.58	67.70	0.08	3.16	0.38	0.08	1.02	0.00	0.05

Table A-131
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Earthwork

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Earthwork

If Edit needed see "Equipment" Sheet | 150 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.24	0.055	0.427	0.001	0.025
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.24	0.055	0.427	0.001	0.025
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.827312	0.29	0.76	0.00	0.07	0.06	0.021	0.057	0.000	0.005
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	23.20718	4.97	60.78	0.03	2.93	1.74	0.373	4.559	0.002	0.220
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	0.78	0.084	2.065	0.004	0.093
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.05	0.013	0.147	0.001	0.005
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.05	0.013	0.147	0.001	0.005
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	16.39592	3.51	42.94	0.02	2.07	1.23	0.264	3.221	0.001	0.155
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.58	0.123	1.506	0.001	0.073
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.05	0.013	0.147	0.001	0.005
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	2.86229	0.67	5.15	0.01	0.30	0.21	0.050	0.386	0.001	0.022
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.10	0.026	0.295	0.003	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			70.95	14.56	178.45	0.22	8.54	5.32	1.09	13.38	0.02	0.64

Table A-132
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Clearing

If Edit needed see "Equipment" Sheet | 480 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	2	6.329855	1.48	11.38	0.02	0.66	1.16	0.269	2.077	0.003	0.121
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	23.20718	4.97	60.78	0.03	2.93	4.24	0.908	11.092	0.005	0.534
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.89	0.205	5.024	0.010	0.226
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.12	0.032	0.359	0.003	0.011
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	24.59388	5.27	64.41	0.03	3.10	4.49	0.962	11.755	0.005	0.566
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			67.80	13.72	173.93	0.21	8.24	12.37	2.50	31.74	0.04	1.50

Table A-133
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Foundation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.1 **MOOSA DAM**

YEAR: 2010

Foundation

If Edit needed see "Equipment" Sheet

675

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			Emissions					Emission, tons (total)				
Air Track Drill Rig	DIESEL	8	25.31942	5.90	45.52	0.07	2.65	4.62	1.077	8.307	0.013	0.483
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	8	6.618498	2.29	6.11	0.01	0.58	1.21	0.417	1.115	0.002	0.106
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL	1	2.431877	0.57	4.37	0.01	0.25	0.44	0.103	0.798	0.001	0.046
Dozer D8 Cat	DIESEL	4	30.9429	6.63	81.04	0.04	3.90	5.65	1.210	14.790	0.007	0.713
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	8	27.56881	3.00	73.42	0.15	3.30	5.03	0.547	13.399	0.027	0.602
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.12	0.032	0.359	0.003	0.011
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Grout Pump	DIESEL	3	2.378523	0.82	2.20	0.00	0.21	0.43	0.150	0.401	0.001	0.038
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	24.59388	5.27	64.41	0.03	3.10	4.49	0.962	11.755	0.005	0.566
Loader 980 Cat	DIESEL	2	0.981324	0.26	2.90	0.03	0.09	0.18	0.047	0.529	0.005	0.016
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	2	15.33367	3.29	40.16	0.02	1.93	2.80	0.600	7.329	0.003	0.353
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	4	2.661062	0.70	7.86	0.07	0.24	0.49	0.128	1.434	0.013	0.045
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	3	1.995796	0.53	5.89	0.05	0.18	0.36	0.096	1.076	0.009	0.033
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			142.82	29.78	339.77	0.52	16.64	26.06	5.43	62.01	0.09	3.04

Table A-134
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Spillway

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.1 **MOOSA DAM**

YEAR: 2010

Spillway

If Edit needed see "Equipment" Sheet

			150	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL	2	6.329855	1.48	11.38	0.02	0.66	0.47	0.111	0.854	0.001	0.050
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.654625	0.57	1.53	0.00	0.15	0.12	0.043	0.115	0.000	0.011
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	0.520791	0.14	1.54	0.01	0.05	0.04	0.010	0.115	0.001	0.004
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.05	0.013	0.147	0.001	0.005
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.10	0.026	0.295	0.003	0.009
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	5.724581	1.33	10.29	0.02	0.60	0.43	0.100	0.772	0.001	0.045
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.75837	0.26	0.70	0.00	0.07	0.06	0.020	0.053	0.000	0.005
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.98	4.31	31.33	0.10	1.70	1.27	0.32	2.35	0.01	0.13

Table A-135
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Quarry

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Quarry

If Edit needed see "Equipment" Sheet | 789 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	14	44.30899	10.33	79.66	0.12	4.63	8.09	1.885	14.538	0.022	0.846
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	14	11.58237	4.00	10.69	0.02	1.02	2.11	0.730	1.952	0.004	0.186
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	2	15.47145	3.32	40.52	0.02	1.95	2.82	0.605	7.395	0.003	0.356
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	5	3.326327	0.88	9.82	0.09	0.31	0.61	0.160	1.793	0.016	0.056
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			74.69	18.53	140.70	0.25	7.91	13.63	3.38	25.68	0.05	1.44

Table A-136
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Outlet

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Outlet

If Edit needed see "Equipment" Sheet | 210 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.654625	0.57	1.53	0.00	0.15	0.17	0.060	0.160	0.000	0.015
Concrete Pump	DIESEL	1	0.792841	0.27	0.73	0.00	0.07	0.08	0.029	0.077	0.000	0.007
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	1.041582	0.27	3.08	0.03	0.10	0.11	0.029	0.323	0.003	0.010
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL	1	2.762979	0.75	4.56	0.01	0.41	0.29	0.079	0.479	0.001	0.043
Loader 966 Cat	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.86	0.184	2.254	0.001	0.109
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.33	0.077	0.597	0.001	0.035
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.07	0.018	0.206	0.002	0.006
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.47026	0.13	0.78	0.00	0.07	0.05	0.013	0.082	0.000	0.007
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	2.86229	0.67	5.15	0.01	0.30	0.30	0.070	0.540	0.001	0.031
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	2	1.516739	0.52	1.40	0.00	0.13	0.16	0.055	0.147	0.000	0.014
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			33.85	7.52	72.36	0.15	3.87	3.55	0.79	7.60	0.02	0.41

Table A-137
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Embankment

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.1 **MOOSA DAM**

YEAR: 2010

Embankment

If Edit needed see "Equipment" Sheet

			720	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	4	9.434541	2.20	16.96	0.03	0.99	1.72	0.401	3.096	0.005	0.180
Compressor	DIESEL	1	0.827312	0.29	0.76	0.00	0.07	0.15	0.052	0.139	0.000	0.013
Concrete Pump	DIESEL	2	1.585682	0.55	1.46	0.00	0.14	0.29	0.100	0.267	0.001	0.026
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	1.041582	0.27	3.08	0.03	0.10	0.19	0.050	0.561	0.005	0.017
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	4	30.9429	6.63	81.04	0.04	3.90	5.65	1.210	14.790	0.007	0.713
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL	10	34.46101	3.75	91.77	0.18	4.12	6.29	0.684	16.748	0.033	0.752
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	1.330531	0.35	3.93	0.03	0.12	0.24	0.064	0.717	0.006	0.022
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL	3	1.471986	0.39	4.35	0.04	0.14	0.27	0.071	0.793	0.007	0.025
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	3	1.995796	0.53	5.89	0.05	0.18	0.36	0.096	1.076	0.009	0.033
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			83.09	14.95	209.25	0.40	9.76	15.16	2.73	38.19	0.07	1.78

Table A-138
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Moosa Dam - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment | TABLE 2.1 | MOOSA DAM

YEAR: 2010 | Demobilization

If Edit needed see "Equipment" Sheet | 60 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	0.520791	0.14	1.54	0.01	0.05	0.02	0.004	0.046	0.000	0.001
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	7.735726	1.66	20.26	0.01	0.98	0.23	0.050	0.608	0.000	0.029
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.02	0.005	0.059	0.001	0.002
Fork Loader	DIESEL	1	8.197959	1.76	21.47	0.01	1.03	0.25	0.053	0.644	0.000	0.031
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	7.666836	1.64	20.08	0.01	0.97	0.23	0.049	0.602	0.000	0.029
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	3.164928	0.74	5.69	0.01	0.33	0.09	0.022	0.171	0.000	0.010
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	0.665265	0.18	1.96	0.02	0.06	0.02	0.005	0.059	0.001	0.002
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			28.62	6.28	72.97	0.08	3.48	0.86	0.19	2.19	0.00	0.10

Table A-139
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			45	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.04	0.004	0.102	0.000	0.005
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.04	0.004	0.108	0.000	0.005
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.03	0.003	0.081	0.000	0.004
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.37	0.04	0.98	0.00	0.04

Table A-140
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

			75	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.18	0.011	0.293	0.000	0.011
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.06	0.007	0.169	0.000	0.008
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	0.65	0.070	1.721	0.003	0.077
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.13	0.015	0.359	0.001	0.016
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.06	0.007	0.168	0.000	0.008
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.16	0.010	0.265	0.000	0.010
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			39.75	3.87	96.65	0.18	4.21	1.49	0.15	3.62	0.01	0.16

Table A-141
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			480	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	1.74	0.103	2.853	0.003	0.103
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.33	0.027	0.558	0.001	0.040
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	1.26	0.137	3.350	0.007	0.150
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.31	0.033	0.816	0.002	0.037
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.34	0.021	0.549	0.001	0.026
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	1.57	0.093	2.580	0.003	0.093
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			45.37	3.90	98.73	0.16	4.26	8.28	0.71	18.02	0.03	0.78

Table A-142
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Pipeline Installation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

PipeInstall

If Edit needed see "Equipment" Sheet

			570	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	1	3.542459	0.21	5.83	0.01	0.21	0.65	0.038	1.063	0.001	0.038
Compressor	DIESEL	3	2.687551	0.23	4.59	0.00	0.33	0.49	0.041	0.837	0.001	0.060
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	4	10.18675	1.11	27.13	0.05	1.22	1.86	0.202	4.951	0.010	0.222
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	1.26	0.137	3.350	0.007	0.150
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	1.19	0.129	3.162	0.006	0.142
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.78	0.046	1.290	0.001	0.046
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	2	2.015663	0.17	3.44	0.00	0.25	0.37	0.031	0.628	0.001	0.045
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	2	0.221945	0.02	0.38	0.00	0.03	0.04	0.003	0.069	0.000	0.005
Water Truck	DIESEL	4	13.01269	1.41	34.65	0.07	1.56	2.37	0.258	6.324	0.013	0.284
Welder & Gen Set	DIESEL	2	1.642392	0.14	2.80	0.00	0.20	0.30	0.025	0.511	0.001	0.037
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			67.51	6.46	158.73	0.28	7.25	12.32	1.18	28.97	0.05	1.32

Table A-143
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Access Roads

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

AccessRoads

If Edit needed see "Equipment" Sheet

			15	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.00	0.000	0.007	0.000	0.001
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			7.21	0.77	18.64	0.04	0.86	0.05	0.01	0.14	0.00	0.01

Table A-144
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Drain/Fill Pipeline from Moosa Dam to Second Aqueduct - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.2 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			75	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.04	0.003	0.066	0.000	0.005
Asphalt Mix Truck	DIESEL	3	9.759517	1.06	25.99	0.05	1.17	0.37	0.040	0.975	0.002	0.044
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL	1	2.381587	0.15	3.86	0.00	0.18	0.09	0.005	0.145	0.000	0.007
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.26	0.028	0.688	0.001	0.031
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.07	0.007	0.179	0.000	0.008
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	2	3.358804	0.37	8.94	0.02	0.40	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.11	0.007	0.174	0.000	0.008
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.18	0.011	0.293	0.000	0.011
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			42.59	4.12	102.14	0.19	4.59	1.60	0.15	3.83	0.01	0.17

Table A-145
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.3 **PUMP STATION AT MOOSA CREEK**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			15	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.11	0.01	0.30	0.00	0.01

Table A-146
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.3** | **PUMP STATION AT MOOSA CREEK**

YEAR: 2010 | **Excavation**

If Edit needed see "Equipment" Sheet | 210 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.24	0.026	0.626	0.001	0.028
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.09	0.008	0.161	0.000	0.012
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.18	0.019	0.474	0.001	0.021
Dump Truck 10 CY	DIESEL	1	3.446101	0.37	9.18	0.02	0.41	0.36	0.039	0.964	0.002	0.043
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.38	0.041	1.004	0.002	0.045
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.18	0.019	0.470	0.001	0.021
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.19	0.012	0.316	0.000	0.015
Pump Submersible	DIESEL	4	3.710262	0.23	6.02	0.01	0.29	0.39	0.024	0.632	0.001	0.030
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.45	0.027	0.742	0.001	0.027
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			49.57	4.42	111.29	0.19	4.86	5.20	0.46	11.69	0.02	0.51

Table A-147
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Building

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.3** | **PUMP STATION AT MOOSA CREEK**

YEAR: 2010 | **Building**

If Edit needed see "Equipment" Sheet | 450 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.46	0.051	1.238	0.002	0.056
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	2.72	0.29	7.11	0.01	0.33

Table A-148
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Pumps

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.3** | **PUMP STATION AT MOOSA CREEK**

YEAR: 2010 | **Pumps**

If Edit needed see "Equipment" Sheet | 270 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.36	0.039	0.948	0.002	0.043
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.44	0.048	1.170	0.002	0.053
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.24	0.026	0.646	0.001	0.029
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.11	0.009	0.189	0.000	0.014
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			8.51	0.90	21.87	0.04	1.02	1.15	0.12	2.95	0.01	0.14

Table A-149
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Electrical Systems

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.3** | **PUMP STATION AT MOOSA CREEK**

YEAR: 2010 | **ElectricSystems**

If Edit needed see "Equipment" Sheet | 240 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.31	0.033	0.814	0.002	0.037
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			2.55	0.28	6.78	0.01	0.30	0.31	0.03	0.81	0.00	0.04

Table A-150
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Electric Power

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.3 **PUMP STATION AT MOOSA CREEK**

YEAR: 2010

ElectricPower

If Edit needed see "Equipment" Sheet

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			60	Emissions				Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			7.30	0.56	14.60	0.02	0.59	0.22	0.02	0.44	0.00	0.02

Table A-151
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station at Moosa Creek - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.3 **PUMP STATION AT MOOSA CREEK**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			210	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.24	0.026	0.626	0.001	0.028
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.18	0.019	0.474	0.001	0.021
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.72	0.079	1.927	0.004	0.087
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.19	0.020	0.502	0.001	0.023
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.19	0.020	0.502	0.001	0.023
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.18	0.019	0.470	0.001	0.021
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.50	0.030	0.821	0.001	0.030
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.34	0.037	0.910	0.002	0.041
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			30.61	3.09	76.67	0.15	3.37	3.21	0.32	8.05	0.02	0.35

Table A-152
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.4 **INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			15	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			11.68	1.27	31.09	0.06	1.40	0.09	0.01	0.23	0.00	0.01

Table A-153
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.4 **INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT**

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

			30	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.07	0.004	0.117	0.000	0.004
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.01	0.001	0.015	0.000	0.001
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.10	0.011	0.275	0.001	0.012
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.03	0.003	0.067	0.000	0.003
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.06	0.004	0.106	0.000	0.004
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			26.74	2.44	61.44	0.11	2.65	0.40	0.04	0.92	0.00	0.04

Table A-153
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Vault Construction

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.4 **INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT**

YEAR: 2010

VaultConstruction

If Edit needed see "Equipment" Sheet

			60	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.08	0.008	0.203	0.000	0.009
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.02	0.002	0.042	0.000	0.003
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			11.67	1.25	30.29	0.06	1.40	0.35	0.04	0.91	0.00	0.04

Table A-154
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Installation of Valves and Pipes

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.4 **INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT**

YEAR: 2010

InstallValvesPipes

If Edit needed see "Equipment" Sheet

			90	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.11	0.012	0.305	0.001	0.014
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.15	0.016	0.390	0.001	0.018
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.08	0.009	0.215	0.000	0.010
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.04	0.003	0.063	0.000	0.005
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			8.42	0.89	21.63	0.04	1.01	0.38	0.04	0.97	0.00	0.05

Table A-155
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Interconnection between Moosa Pipeline and Second Aqueduct - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.4 **INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			60	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.02	0.001	0.030	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.03	0.002	0.046	0.000	0.003
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.21	0.022	0.551	0.001	0.025
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			20.16	2.15	52.28	0.10	2.41	0.60	0.06	1.57	0.00	0.07

Table A-156
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment **TABLE 2.5** **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 **Mobilization**

If Edit needed see "Equipment" Sheet 0 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00

Table A-157
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **Clearing**

If Edit needed see "Equipment" Sheet | 480 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	3.14	0.342	8.374	0.017	0.376
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.31	0.033	0.816	0.002	0.037
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.78	0.046	1.290	0.001	0.046
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			39.75	3.87	96.65	0.18	4.21	7.26	0.71	17.64	0.03	0.77

Table A-158
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **Excavation**

If Edit needed see "Equipment" Sheet | 135 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.64	0.038	1.055	0.001	0.038
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.12	0.010	0.206	0.000	0.015
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.11	0.012	0.305	0.001	0.014
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	4	13.7844	1.50	36.71	0.07	1.65	0.93	0.101	2.478	0.005	0.111
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.24	0.026	0.646	0.001	0.029
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.11	0.012	0.302	0.001	0.014
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.22	0.024	0.585	0.001	0.026
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.13	0.008	0.203	0.000	0.010
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.29	0.017	0.477	0.001	0.017
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			47.96	4.40	110.02	0.19	4.83	3.24	0.30	7.43	0.01	0.33

Table A-159
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Pipeline Construction (Trenching)

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **TrenchPipe**

If Edit needed see "Equipment" Sheet | 120 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.29	0.017	0.469	0.001	0.017
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL	1	3.542459	0.21	5.83	0.01	0.21	0.21	0.013	0.350	0.000	0.013
Compressor	DIESEL	3	2.687551	0.23	4.59	0.00	0.33	0.16	0.014	0.275	0.000	0.020
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	3	7.640063	0.83	20.35	0.04	0.91	0.46	0.050	1.221	0.002	0.055
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.10	0.011	0.271	0.001	0.012
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	1	3.446101	0.37	9.18	0.02	0.41	0.21	0.022	0.551	0.001	0.025
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.20	0.021	0.520	0.001	0.023
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.39	0.042	1.040	0.002	0.047
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.22	0.023	0.574	0.001	0.026
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.08	0.009	0.216	0.000	0.010
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.06	0.003	0.090	0.000	0.004
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.06	0.003	0.090	0.000	0.004
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.26	0.015	0.424	0.000	0.015
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	2	2.015663	0.17	3.44	0.00	0.25	0.12	0.010	0.206	0.000	0.015
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	2	0.221945	0.02	0.38	0.00	0.03	0.01	0.001	0.023	0.000	0.002
Water Truck	DIESEL	4	13.01269	1.41	34.65	0.07	1.56	0.78	0.085	2.079	0.004	0.093
Welder & Gen Set	DIESEL	3	2.463589	0.21	4.20	0.00	0.30	0.15	0.012	0.252	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			62.34	5.88	144.17	0.25	6.64	3.74	0.35	8.65	0.02	0.40

Table A-160
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Pipeline Construction (Tunneling)

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.5 **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010

TunnelPipe

If Edit needed see "Equipment" Sheet

			3.5*30	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.93	0.101	2.475	0.005	0.111
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL	1	1.007832	0.08	1.72	0.00	0.12	0.18	0.015	0.314	0.000	0.023
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	2	1.642392	0.14	2.80	0.00	0.20	0.30	0.025	0.511	0.001	0.037
Winch	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	1.74	0.103	2.853	0.003	0.103
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			22.93	1.68	43.04	0.06	1.85	4.18	0.31	7.85	0.01	0.34

Table A-161
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Tunneling

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **Tunneling**

If Edit needed see "Equipment" Sheet | 105 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.03	0.003	0.052	0.000	0.004
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.09	0.010	0.237	0.000	0.011
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.36	0.039	0.964	0.002	0.043
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL	3	16.34955	1.01	26.51	0.03	1.27	0.86	0.053	1.392	0.001	0.067
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.17	0.019	0.455	0.001	0.020
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.19	0.020	0.502	0.001	0.023
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL	6	28.52063	1.69	46.90	0.05	1.69	1.50	0.089	2.462	0.003	0.089
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.04	0.004	0.074	0.000	0.005
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL	3	9.725929	1.06	25.90	0.05	1.16	0.51	0.056	1.360	0.003	0.061
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.17	0.019	0.455	0.001	0.020
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			74.68	5.90	151.46	0.23	6.53	3.92	0.31	7.95	0.01	0.34

Table A-162
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Access Roads

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **AccessRoads**

If Edit needed see "Equipment" Sheet | 45 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.21	0.013	0.352	0.000	0.013
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.11	0.006	0.176	0.000	0.006
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.01	0.001	0.022	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.04	0.003	0.069	0.000	0.005
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	3	5.083477	0.55	13.54	0.03	0.61	0.11	0.012	0.305	0.001	0.014
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	0.23	0.025	0.619	0.001	0.028
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	3	5.38723	0.59	14.35	0.03	0.64	0.12	0.013	0.323	0.001	0.014
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			52.13	4.90	122.04	0.22	5.38	1.17	0.11	2.75	0.00	0.12

Table A-163
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of First Aqueduct - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.5** | **RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM**

YEAR: 2010 | **Demobilization**

If Edit needed see "Equipment" Sheet | 15 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.01	0.001	0.013	0.000	0.001
Asphalt Mix Truck	DIESEL	3	9.759517	1.06	25.99	0.05	1.17	0.07	0.008	0.195	0.000	0.009
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.05	0.006	0.138	0.000	0.006
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.02	0.001	0.035	0.000	0.002
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.04	0.002	0.059	0.000	0.002
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			38.53	3.79	93.80	0.17	4.20	0.29	0.03	0.70	0.00	0.03

Table A-164
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			30	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.03	0.003	0.072	0.000	0.003
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.02	0.002	0.054	0.000	0.002
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.03	0.003	0.067	0.000	0.003
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			16.28	1.77	43.36	0.09	1.95	0.24	0.03	0.65	0.00	0.03

Table A-165
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

			480	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	3.14	0.342	8.374	0.017	0.376
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.31	0.033	0.816	0.002	0.037
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			35.46	3.62	89.58	0.17	3.95	6.47	0.66	16.35	0.03	0.72

Table A-166
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

			150	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.36	0.021	0.586	0.001	0.021
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.04	0.004	0.074	0.000	0.005
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.07	0.006	0.115	0.000	0.008
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.13	0.014	0.338	0.001	0.015
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.52	0.056	1.377	0.003	0.062
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	0.64	0.038	1.060	0.001	0.038
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			38.56	3.32	83.82	0.14	3.65	2.89	0.25	6.29	0.01	0.27

Table A-167
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Building

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Building

If Edit needed see "Equipment" Sheet

675

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			Emissions					Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.46	0.051	1.238	0.002	0.056
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	2.72	0.29	7.11	0.01	0.33

Table A-168
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Tanks

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Tanks

If Edit needed see "Equipment" Sheet

			150	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.19	0.021	0.509	0.001	0.023
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.06	0.005	0.105	0.000	0.008
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			9.87	1.05	25.51	0.05	1.18	0.74	0.08	1.91	0.00	0.09

Table A-169
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Pumps

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 PUMP STATION AND WATER LINE FOR VCMWD (NORTH)

YEAR: 2010

Pumps

If Edit needed see "Equipment" Sheet

			789	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.48	0.052	1.282	0.003	0.058
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			5.25	0.55	13.21	0.03	0.63	0.96	0.10	2.41	0.00	0.12

Table A-170
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Electrical Systems

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

ElectricSystems

If Edit needed see "Equipment" Sheet

			210	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.27	0.029	0.712	0.001	0.032
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.09	0.007	0.147	0.000	0.011
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			3.37	0.35	8.18	0.01	0.40	0.35	0.04	0.86	0.00	0.04

Table A-171
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Pipeline Installation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

InstallPipeline

If Edit needed see "Equipment" Sheet

			720	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.11	0.009	0.181	0.000	0.013
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.33	0.027	0.558	0.001	0.040
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.93	0.101	2.475	0.005	0.111
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.89	0.205	5.024	0.010	0.226
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.78	0.046	1.290	0.001	0.046
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	1	0.110972	0.01	0.19	0.00	0.01	0.02	0.002	0.035	0.000	0.002
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			31.24	3.08	75.47	0.14	3.44	5.70	0.56	13.77	0.03	0.63

Table A-172
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (North) - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.6 **PUMP STATION AND WATER LINE FOR VCMWD (NORTH)**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			60	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.03	0.003	0.053	0.000	0.004
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.02	0.001	0.030	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.05	0.005	0.134	0.000	0.006
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.09	0.005	0.139	0.000	0.007
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.20	0.021	0.520	0.001	0.023
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			32.46	3.12	77.07	0.14	3.48	0.97	0.09	2.31	0.00	0.10

Table A-173
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			30	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.03	0.003	0.068	0.000	0.003
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.03	0.003	0.072	0.000	0.003
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.03	0.003	0.067	0.000	0.003
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.05	0.005	0.130	0.000	0.006
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.22	0.02	0.60	0.00	0.03

Table A-174
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

			480	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL	5	17.2305	1.87	45.89	0.09	2.06	3.14	0.342	8.374	0.017	0.376
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.66	0.071	1.745	0.003	0.078
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.31	0.033	0.816	0.002	0.037
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			35.46	3.62	89.58	0.17	3.95	6.47	0.66	16.35	0.03	0.72

Table A-175
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

			150	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.36	0.021	0.586	0.001	0.021
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.04	0.004	0.074	0.000	0.005
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.07	0.006	0.115	0.000	0.008
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.13	0.014	0.338	0.001	0.015
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.52	0.056	1.377	0.003	0.062
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.13	0.014	0.335	0.001	0.015
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Pump Submersible	DIESEL	2	1.855131	0.11	3.01	0.00	0.14	0.14	0.009	0.226	0.000	0.011
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	2	8.597809	0.51	14.14	0.02	0.51	0.64	0.038	1.060	0.001	0.038
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			38.56	3.32	83.82	0.14	3.65	2.89	0.25	6.29	0.01	0.27

Table A-176
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Building

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Building

If Edit needed see "Equipment" Sheet

675

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
			Emissions					Emission, tons (total)				
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.46	0.051	1.238	0.002	0.056
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.92	1.60	38.96	0.08	1.79	2.72	0.29	7.11	0.01	0.33

Table A-177
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Tanks

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Tanks

If Edit needed see "Equipment" Sheet

			150	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.19	0.021	0.509	0.001	0.023
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.24	0.027	0.650	0.001	0.029
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.06	0.005	0.105	0.000	0.008
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			9.87	1.05	25.51	0.05	1.18	0.74	0.08	1.91	0.00	0.09

Table A-178
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Pumps

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)

YEAR: 2010

Pumps

If Edit needed see "Equipment" Sheet

			789	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL	1	2.637391	0.29	7.02	0.01	0.32	0.48	0.052	1.282	0.003	0.058
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.15	0.013	0.256	0.000	0.018
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			5.25	0.55	13.21	0.03	0.63	0.96	0.10	2.41	0.00	0.12

Table A-179
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Electrical Systems

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

ElectricSystems

If Edit needed see "Equipment" Sheet

			210	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	1	2.546688	0.28	6.78	0.01	0.30	0.27	0.029	0.712	0.001	0.032
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL	1	0.821196	0.07	1.40	0.00	0.10	0.09	0.007	0.147	0.000	0.011
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			3.37	0.35	8.18	0.01	0.40	0.35	0.04	0.86	0.00	0.04

Table A-180
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Pipeline Installation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

InstallPipeline

If Edit needed see "Equipment" Sheet

			720	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.11	0.009	0.181	0.000	0.013
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	2	1.791701	0.15	3.06	0.00	0.22	0.33	0.027	0.558	0.001	0.040
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL	2	5.093375	0.55	13.56	0.03	0.61	0.93	0.101	2.475	0.005	0.111
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL	3	10.3383	1.12	27.53	0.06	1.24	1.89	0.205	5.024	0.010	0.226
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.33	0.036	0.873	0.002	0.039
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL	1	0.927565	0.06	1.50	0.00	0.07	0.17	0.010	0.274	0.000	0.013
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL	1	4.298904	0.25	7.07	0.01	0.25	0.78	0.046	1.290	0.001	0.046
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL	1	0.110972	0.01	0.19	0.00	0.01	0.02	0.002	0.035	0.000	0.002
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			31.24	3.08	75.47	0.14	3.44	5.70	0.56	13.77	0.03	0.63

Table A-181
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Pump Station and Water Line for VCMWD (South) - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.7 **PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			60	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.03	0.003	0.053	0.000	0.004
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL	1	0.580083	0.05	0.99	0.00	0.07	0.02	0.001	0.030	0.000	0.002
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.05	0.006	0.135	0.000	0.006
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.10	0.011	0.260	0.001	0.012
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.05	0.006	0.143	0.000	0.006
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.05	0.005	0.134	0.000	0.006
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.09	0.005	0.139	0.000	0.007
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.14	0.008	0.235	0.000	0.008
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	0.20	0.021	0.520	0.001	0.023
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			32.46	3.12	77.07	0.14	3.48	0.97	0.09	2.31	0.00	0.10

Table A-182
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Mobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.8 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Mobilization

If Edit needed see "Equipment" Sheet

			45	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.04	0.004	0.102	0.000	0.005
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Fork Loader	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.04	0.004	0.108	0.000	0.005
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.04	0.004	0.101	0.000	0.005
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.07	0.008	0.195	0.000	0.009
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.93	1.62	39.76	0.08	1.79	0.34	0.04	0.89	0.00	0.04

Table A-183
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Clearing

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.8 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Clearing

If Edit needed see "Equipment" Sheet

			75	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	0.36	0.021	0.586	0.001	0.021
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	2	3.388985	0.37	9.03	0.02	0.41	0.13	0.014	0.338	0.001	0.015
Dump Truck 10 CY	DIESEL	2	6.892201	0.75	18.35	0.04	0.82	0.26	0.028	0.688	0.001	0.031
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	2	3.591487	0.39	9.56	0.02	0.43	0.13	0.015	0.359	0.001	0.016
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			23.38	2.07	52.58	0.09	2.22	0.88	0.08	1.97	0.00	0.08

Table A-184
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Remove Old Electric Lines

CECOR Construction Emissions Calculation: Off-Road equipment **TABLE 2.8** **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010 **RemoveOldElecLines**

If Edit needed see "Equipment" Sheet 480 Emissions Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.59	0.065	1.581	0.003	0.071
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL	2	9.506876	0.56	15.63	0.02	0.56	1.74	0.103	2.853	0.003	0.103
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			15.81	1.25	32.41	0.05	1.32	2.88	0.23	5.92	0.01	0.24

Table A-185
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Installation of Electric Lines

CECOR Construction Emissions Calculation: Off-Road equipment | **TABLE 2.8** | **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010 | **InstallElecLines**

If Edit needed see "Equipment" Sheet | 570 | Emissions | Emission, tons (total)

Equipment	FUEL	No of Equipment	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.87	0.051	1.427	0.002	0.051
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.31	0.034	0.824	0.002	0.037
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL	1	1.353582	0.15	3.60	0.01	0.16	0.25	0.027	0.658	0.001	0.030
Motor Grader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	2	6.506344	0.71	17.33	0.03	0.78	1.19	0.129	3.162	0.006	0.142
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			14.31	1.32	33.26	0.06	1.42	2.61	0.24	6.07	0.01	0.26

Table A-186
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Excavation

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.8 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Excavation

If Edit needed see "Equipment" Sheet

			15	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL	1	4.753438	0.28	7.82	0.01	0.28	0.04	0.002	0.059	0.000	0.002
Asphalt Broom	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Mix Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Prime Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.02	0.002	0.045	0.000	0.002
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL	1	0.89585	0.08	1.53	0.00	0.11	0.01	0.001	0.011	0.000	0.001
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL	4	13.7844	1.50	36.71	0.07	1.65	0.10	0.011	0.275	0.001	0.012
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL	1	1.795743	0.20	4.78	0.01	0.21	0.01	0.001	0.036	0.000	0.002
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.01	0.001	0.034	0.000	0.002
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Powder Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.02	0.003	0.065	0.000	0.003
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			36.60	3.72	91.77	0.17	4.09	0.27	0.03	0.69	0.00	0.03

Table A-187
Moosa 50,000 Acre-Feet Alternative
Construction Heavy Equipment Emissions
Relocation of Public Roads and Electrical Systems - Demobilization

CECOR Construction Emissions Calculation: Off-Road equipment

TABLE 2.8 **DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT**

YEAR: 2010

Demobilization

If Edit needed see "Equipment" Sheet

			75	Emissions				Emission, tons (total)				
Equipment	**FUEL**	**No of Equipment**	**CO lbs/day**	**VOC lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**CO tons (total)**	**VOC tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**
Air Track Drill Rig	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Asphalt Broom	DIESEL	1	1.032044	0.09	1.76	0.00	0.13	0.04	0.003	0.066	0.000	0.005
Asphalt Mix Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Asphalt Prime Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Auger Drill	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Barge	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Cement Grout Mixer	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Chipper	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor 815 Cat	DIESEL	1	2.239203	0.24	5.96	0.01	0.27	0.08	0.009	0.224	0.000	0.010
Compactor Pneumatic	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Sheepsfoot	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Smooth Drum	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compactor Vibratory	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Compressor	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Concrete Pump Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 35 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Crane 75 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D5 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dozer D8 Cat	DIESEL	1	1.694492	0.18	4.51	0.01	0.20	0.06	0.007	0.169	0.000	0.008
Dump Truck 10 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 12 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 20 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 25 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 35 CY	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Dump Truck 50 ton	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Electric Locomotive	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Flatbed Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fork Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Fuel Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Grout Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Jumbo	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 966 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 980 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Loader 988 Cat	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Mobile Crane	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Motor Grader	DIESEL	1	1.679402	0.18	4.47	0.01	0.20	0.06	0.007	0.168	0.000	0.008
Mucker	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Paver	DIESEL	1	2.859539	0.18	4.64	0.00	0.22	0.11	0.007	0.174	0.000	0.008
Powder Truck	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pressure Testing Pump	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Portable & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Pump Submersible	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Seeder	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Track Backhoe	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tractor Logger	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Tunnel Boring Machine	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 20 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Ventilation Fan 200 HP	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Vibratory Pneumatic Tamp	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Water Truck	DIESEL	1	3.253172	0.35	8.66	0.02	0.39	0.12	0.013	0.325	0.001	0.015
Welder & Gen Set	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
Winch	DIESEL		0	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
			SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
			19.26	1.93	47.34	0.09	2.19	0.72	0.07	1.78	0.00	0.08

Table A-188
Moosa 50,000 Acre-Feet Alternative
Construction Truck Emissions

Construction Phase	Vehicle Class	No. of Trucks Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	VOCs Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Days/month	Emissions, tons/year CO	NOx	VOCs	SOx	PM10
2.1 Moosa Dam																						
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Earthwork	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	60	0.00	0.00	0.00	0.00	0.00
Clearing/Grubbing	Heavy-duty truck	9	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.44	1.63	0.12	0.00	0.06	365	0.08	0.30	0.02	0.00	0.01
Foundation Treatment	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.10	0.36	0.03	0.00	0.01	365	0.02	0.07	0.00	0.00	0.00
Outlet Works	Heavy-duty truck	3.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.17	0.63	0.04	0.00	0.02	210	0.02	0.07	0.00	0.00	0.00
Spillway	Heavy-duty truck	2.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.12	0.45	0.03	0.00	0.02	0	0.00	0.00	0.00	0.00	0.00
Quarry	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	210	0.00	0.01	0.00	0.00	0.00
Embankment	Heavy-duty truck	103	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	5.05	18.67	1.32	0.05	0.65	240	0.61	2.24	0.16	0.01	0.08
Demobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	365	0.00	0.00	0.00	0.00	0.00
2.2 Drain/Fill Pipeline from Moosa Dam to 2nd Aqueduct																						
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Clearing	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	365	0.00	0.00	0.00	0.00	0.00
Pipe Install (trench)	Heavy-duty truck	10	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.49	1.81	0.13	0.00	0.06	365	0.09	0.33	0.02	0.00	0.01
Access Roads	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	365	0.00	0.00	0.00	0.00	0.00
2.3 Pump Station at Moosa Creek																						
Mobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	210	0.01	0.02	0.00	0.00	0.00
Building	Heavy-duty truck	3	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.15	0.54	0.04	0.00	0.02	240	0.02	0.07	0.00	0.00	0.00
Pumps	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Electric Systems	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Electric Power	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	60	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	365	0.00	0.00	0.00	0.00	0.00
2.4 Interconnection between Moosa Pipeline and Second Aqueduct																						
Mobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Vault Construction	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Install Valves/Pipes	Heavy-duty truck	0.25	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.01	0.05	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2.5 Relocate 1st Aqueduct																						
Mobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Clearing	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	45	0.00	0.00	0.00	0.00	0.00
Pipe Install (trench)	Heavy-duty truck	10	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.49	1.81	0.13	0.00	0.06	60	0.01	0.05	0.00	0.00	0.00
Pipe Install (tunnel)	Heavy-duty truck	10	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.49	1.81	0.13	0.00	0.06	105	0.03	0.10	0.01	0.00	0.00
Tunneling	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	75	0.00	0.00	0.00	0.00	0.00
Access Roads	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	180	0.00	0.00	0.00	0.00	0.00
2.6 Pump Station and Water Line VCMD (North)																						
Mobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Clearing	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Building	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.10	0.36	0.03	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Tanks	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Pumps	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	90	0.00	0.01	0.00	0.00	0.00
Electric Systems	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	120	0.00	0.01	0.00	0.00	0.00
Install Pipeline	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	210	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	180	0.00	0.02	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	365	0.00	0.00	0.00	0.00	0.00
2.7 Pump Station and Water Line VCMD (South)																						
Mobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
Clearing	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	30	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	120	0.00	0.00	0.00	0.00	0.00
Building	Heavy-duty truck	2	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.10	0.36	0.03	0.00	0.01	120	0.01	0.02	0.00	0.00	0.00
Tanks	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	60	0.00	0.01	0.00	0.00	0.00
Pumps	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Electric Systems	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Install Pipeline	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	240	0.00	0.00	0.00	0.00	0.00
2.8 Relocated Public Rds and Electrical Systems																						
Mobilization	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Clearing	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Remove Existing Electric Lines	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Install Electric Lines	Heavy-duty truck	0.5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.02	0.09	0.01	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Excavation	Heavy-duty truck	1	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.05	0.18	0.01	0.00	0.01	0	0.00	0.00	0.00	0.00	0.00
Demobilization	Heavy-duty truck	5	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.25	0.91	0.06	0.00	0.03	0	0.00	0.00	0.00	0.00	0.00
Supervision/Inspection	Heavy-duty truck	0	27	10	2.225	8.224	0.582	0.021	0.238	0.036	0.013	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
												Totals						Totals				
												CO	NOx	VOCs	SOx	PM10		CO	NOx	VOCs	SOx	PM10
												9.23	34.13	2.42	0.09	1.19		0.90	3.31	0.23	0.01	0.12

Assuming trucks would travel up to 5 miles one way for aggregate and RCC materials, assuming materials provided from Santee area.
Emission factors from 2010 EMFAC2002, 27 mph, Heavy Duty Diesel truck (HHD)

Table A-189
Moosa 50,000 Acre-Feet Alternative
Worker Commute Emissions

2010 Construction Worker Estimates and Emission Calculations

Construction Phase	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)[a]	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evaporative (g/mi)	VOCs Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	PM10 Running Exhaust (g/mi)	PM10 Start-Up (g/start)[a]	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	Emissions, lbs/day CO	NOx	VOCs	SOx	PM10	Days in Co Emissions, tons/year CO	NOx	VOCs	SOx	PM10
2.1 Moosa Dam																														
Mobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0
Earthwork	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	60	0.071132	0.005915	0.005818	5.16E-05	0.000463
Clearing/Grubbing	Light-duty truck, catalyst	21	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.83***	***0.32***	***0.31***	***0.00***	***0.02***	365	0.699007	0.058131	0.057176	0.000507	0.004546
Foundation Treatment	Light-duty truck, catalyst	70	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***12.77***	***1.06***	***1.04***	***0.01***	***0.08***	365	2.330024	0.19377	0.190587	0.00169	0.015152
Outlet Works	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	210	0.344716	0.028667	0.028196	0.00025	0.002242
Spillway	Light-duty truck, catalyst	19	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.47***	***0.29***	***0.28***	***0.00***	***0.02***	0	0	0	0	0	0
Quarry	Light-duty truck, catalyst	53	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***9.67***	***0.80***	***0.79***	***0.01***	***0.06***	210	1.014997	0.084409	0.083023	0.000736	0.006601
Embankment	Light-duty truck, catalyst	29	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***5.29***	***0.44***	***0.43***	***0.00***	***0.03***	240	0.634715	0.052784	0.051917	0.00046	0.004128
Demobilization	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	365	0.499291	0.041522	0.04084	0.000362	0.003247
2.2 Drain/Fill Pipeline from Moosa Dam to 2nd Aqueduct			27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013										
																					0.00	***0.00***	***0.00***	***0.00***	***0.00***					
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	365	0.466005	0.038754	0.038117	0.000338	0.00303
Pipe Install (trench)	Light-duty truck, catalyst	50	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***9.12***	***0.76***	***0.75***	***0.01***	***0.06***	365	1.664303	0.138407	0.136134	0.001207	0.010823
Access Roads	Light-duty truck, catalyst	5	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***0.91***	***0.08***	***0.07***	***0.00***	***0.01***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	365	0.466005	0.038754	0.038117	0.000338	0.00303
2.3 Pump Station at Moosa Creek																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	15	0.013679	0.001138	0.001119	9.92E-06	8.9E-05
Excavation	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	210	0.344716	0.028667	0.028196	0.00025	0.002242
Building	Light-duty truck, catalyst	18	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.28***	***0.27***	***0.27***	***0.00***	***0.02***	240	0.393961	0.032763	0.032225	0.000286	0.002562
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	0	0	0	0	0	0
Electric Systems	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	0	0	0	0	0	0
Electric Power	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	60	0.054717	0.00455	0.004476	3.97E-05	0.000356
Demobilization	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	365	0.299575	0.024913	0.024504	0.000217	0.001948
2.4 Interconnection between Moosa Pipeline and Second Aqueduct																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Vault Construction	Light-duty truck, catalyst	12	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.19***	***0.18***	***0.18***	***0.00***	***0.01***	0	0	0	0	0	0
Install Valves/Pipes	Light-duty truck, catalyst	11	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.01***	***0.17***	***0.16***	***0.00***	***0.01***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	4	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***0.73***	***0.06***	***0.06***	***0.00***	***0.00***	0	0	0	0	0	0
2.5 Relocate 1st Aqueduct																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	27	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.92***	***0.41***	***0.40***	***0.00***	***0.03***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	45	0.053349	0.004437	0.004364	3.87E-05	0.000347
Pipe Install (trench)	Light-duty truck, catalyst	49	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***8.94***	***0.74***	***0.73***	***0.01***	***0.06***	60	0.268112	0.022297	0.021931	0.000194	0.001744
Pipe Install (tunnel)	Light-duty truck, catalyst	22	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***4.01***	***0.33***	***0.33***	***0.00***	***0.03***	105	0.21066	0.017519	0.017231	0.000153	0.00137
Tunneling	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	75	0.136792	0.011376	0.011189	9.92E-05	0.00089
Access Roads	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	15	0.009575	0.000796	0.000783	6.94E-06	6.23E-05
Supervision/Inspection	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	180	0.229811	0.019112	0.018798	0.000167	0.001494
2.6 Pump Station and Water Line VCMD (North)																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Building	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	0	0	0	0	0	0
Tanks	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	0	0	0	0	0	0
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	90	0.336508	0.027985	0.027525	0.000244	0.002188
Electric Systems	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	120	0.087547	0.007281	0.007161	6.35E-05	0.000569
Install Pipeline	Light-duty truck, catalyst	34	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***6.20***	***0.52***	***0.51***	***0.00***	***0.04***	210	0.65113	0.054149	0.05326	0.000472	0.004234
Demobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	180	0.147735	0.012286	0.012084	0.000107	0.000961
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	365	0.332861	0.027681	0.027227	0.000241	0.002165
2.7 Pump Station and Water Line VCMD (South)																														
Mobilization	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	15	0.013679	0.001138	0.001119	9.92E-06	8.9E-05
Clearing	Light-duty truck, catalyst	17	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.10***	***0.26***	***0.25***	***0.00***	***0.02***	30	0.046509	0.003868	0.003804	3.37E-05	0.000302
Excavation	Light-duty truck, catalyst	14	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.55***	***0.21***	***0.21***	***0.00***	***0.02***	120	0.153207	0.012741	0.012532	0.000111	0.000996
Building	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	120	0.16415	0.013651	0.013427	0.000119	0.001067
Tanks	Light-duty truck, catalyst	6	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.09***	***0.09***	***0.09***	***0.00***	***0.01***	60	0.03283	0.00273	0.002685	2.38E-05	0.000213
Pumps	Light-duty truck, catalyst	41	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***7.48***	***0.62***	***0.61***	***0.01***	***0.05***	0	0	0	0	0	0
Electric Systems	Light-duty truck, catalyst	8	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.46***	***0.12***	***0.12***	***0.00***	***0.01***	0	0	0	0	0	0
Install Pipeline	Light-duty truck, catalyst	15	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.74***	***0.23***	***0.22***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	7	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.28***	***0.11***	***0.10***	***0.00***	***0.01***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	240	0.218867	0.018201	0.017903	0.000159	0.001423
2.8 Relocated Public Rds and Electrical Systems																														
Mobilization	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0	0
Clearing	Light-duty truck, catalyst	11	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.01***	***0.17***	***0.16***	***0.00***	***0.01***	0	0	0	0	0	0
Remove Existing Electric Lines	Light-duty truck, catalyst	9	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.64***	***0.14***	***0.13***	***0.00***	***0.01***	0	0	0	0	0	0
Install Electric Lines	Light-duty truck, catalyst	16	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.92***	***0.24***	***0.24***	***0.00***	***0.02***	0	0	0	0	0	0
Excavation	Light-duty truck, catalyst	20	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***3.65***	***0.30***	***0.30***	***0.00***	***0.02***	0	0	0	0	0	0
Demobilization	Light-duty truck, catalyst	13	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***2.37***	***0.20***	***0.19***	***0.00***	***0.02***	0	0	0	0	0	0
Supervision/Inspection	Light-duty truck, catalyst	10	27	14	3.973	13.554	0.4	0.64	0.101	1.027	0.095	0.018	0.068	0	0.004	0.002	0.015	0.017	0.008	0.013	***1.82***	***0.15***	***0.15***	***0.00***	***0.01***	0	0	0	0	0	0

Assuming workers would travel from
Escondido area to Moosa Dam,
average mileage is 7 miles each way.

Assume startup after 8 hours
Assume 45 minutes run time total
2010 Emission Factors from
EMFAC2002, average temp 55F

CO	NOx	VOCs	SOx	PM10	CO	NOx	VOCs	SOx	PM10
207.38	17.25	16.96	0.15	1.35	12.39	1.03	1.01	0.01	0.08

Table A-190
Moosa 50,000 Acre-Feet Alternative
Fugitive Dust Emissions

Rock Crushing

Calculation - EPA AP-42, Section 11.19.2

Emission Factor	0.00054	lbs PM10/Ton Rock Crushed		
		Total Rock for Crushing	**Total lbs PM10**	**lbs/day**
Earthwork:				
Main Dam		205000	55.35	0.15375
				0.15375

Table A-191
Boating Emissions

Marine Vessel Emissions

No of Boats	Daily Hours of Operation	Emission Factors, g/kw-hr			Emissions, lbs/day			Emissions, tons/year		
		NOx	CO	PM	NOx	CO	PM	NOx	CO	PM
291	4	7.5	0.4	5	19.25	1.03	12.83	3.51	0.19	2.34

Table A-192
Operational Vehicle Emissions

Vehicle Trips	Vehicle Class	No. of Workers Per Construction Phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	CO Start-Up (g/start)[a]	NO_x Running Exhaust (g/mi)	NO_x Start-Up (g/start)[a]	Running Exhaust (g/mi)	Start-Up (g/start)[a]	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	SOx Start-Up (g/start)[a]	Running Exhaust (g/mi)	Start-Up (g/start)[a]	Tire Wear (g/mi)	Brake Wear (g/mi)	CO	NOx	VOCs	SOx	PM10	Days/year	CO	NOx	VOCs	SOx	PM10
Recreational Use	Light-duty truck, catalyst	360	27	14	2.332	9.867	0.455	0.661	0.09	0.826	0.087	0.025	0.037	0.001	0.005	0.002	0.025	0.02	0.009	0.013	***41.57***	***6.10***	***3.87***	***0.06***	***0.55***	***365***	***7.59***	***1.11***	***0.71***	***0.01***	***0.10***

TABLE 2.1
DRAFT ESTIMATED CONSTRUCTION EQUIPMENT
ALTERNATIVE NO. 2 - 100,000 AF MOOSA
MOOSA DAM
Construction Equipment Year:
2010

Months 12-24

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Days in Max Yr	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	30	25.60	5.58	67.70	0.08	3.16	0.00	0.00	0.00	0.00	0.00	0.00
Earthwork	210	70.95	14.56	178.45	0.22	8.54	120.00	4.26	0.87	10.71	0.01	0.51
Clearing	365	67.80	13.72	173.93	0.21	8.24	365.00	12.37	2.50	31.74	0.04	1.50
Foundation	365	142.82	29.78	339.77	0.52	16.64	365.00	26.06	5.43	62.01	0.09	3.04
Spillway	190	16.98	4.31	31.33	0.10	1.70	0.00	0.00	0.00	0.00	0.00	0.00
Quarry	365	74.69	18.53	140.70	0.25	7.91	240.00	8.96	2.22	16.88	0.03	0.95
Outlet	210	33.85	7.52	72.36	0.15	3.87	210.00	3.55	0.79	7.60	0.02	0.41
Embankment	365	83.09	14.95	209.25	0.40	9.76	240.00	9.97	1.79	25.11	0.05	1.17
Demobilization	60	28.62	6.28	72.97	0.08	3.48	0.00	0.00	0.00	0.00	0.00	0.00
								65.18	**13.62**	**154.05**	**0.24**	**7.58**

DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	45	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	75	39.75	3.87	96.65	0.18	4.21	45.00	0.89	0.09	2.17	0.00	0.09
Excavation	365	45.37	3.90	98.73	0.16	4.26	365.00	8.28	0.71	18.02	0.03	0.78
PipeInstall	365	67.51	6.46	158.73	0.28	7.25	330.00	11.14	1.07	26.19	0.05	1.20
AccessRoads	15	7.21	0.77	18.64	0.04	0.86	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	75	42.59	4.12	102.14	0.19	4.59	0.00	0.00	0.00	0.00	0.00	0.00
								20.31	**1.87**	**46.38**	**0.08**	**2.07**

PUMP STATION AT MOOSA CREEK
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	14.93	1.62	39.76	0.08	1.79	15.00	0.11	0.01	0.30	0.00	0.01
Excavation	210	49.57	4.42	111.29	0.19	4.86	210.00	5.20	0.46	11.69	0.02	0.51
Building	365	14.92	1.60	38.96	0.08	1.79	240.00	1.79	0.19	4.67	0.01	0.21
Pumps	270	8.51	0.90	21.87	0.04	1.02	0.00	0.00	0.00	0.00	0.00	0.00
ElectricSystems	240	2.55	0.28	6.78	0.01	0.30	0.00	0.00	0.00	0.00	0.00	0.00
ElectricPower	60	7.30	0.56	14.60	0.02	0.59	60.00	0.22	0.02	0.44	0.00	0.02
Demobilization	210	30.61	3.09	76.67	0.15	3.37	0.00	0.00	0.00	0.00	0.00	0.00
								7.33	**0.69**	**17.10**	**0.03**	**0.76**

INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	11.68	1.27	31.09	0.06	1.40	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	30	26.74	2.44	61.44	0.11	2.65	0.00	0.00	0.00	0.00	0.00	0.00
VaultConstruction	60	11.67	1.25	30.29	0.06	1.40	0.00	0.00	0.00	0.00	0.00	0.00
InstallValvesPipes	90	8.42	0.89	21.63	0.04	1.01	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	60	20.16	2.15	52.28	0.10	2.41	0.00	0.00	0.00	0.00	0.00	0.00
								0.00	**0.00**	**0.00**	**0.00**	**0.00**

RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	45	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	15	39.75	3.87	96.65	0.18	4.21	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	135	47.96	4.40	110.02	0.19	4.83	45.00	1.08	0.10	2.48	0.00	0.11
TrenchPipe	120	62.34	5.88	144.17	0.25	6.64	60.00	1.87	0.18	4.33	0.01	0.20
TunnelPipe	365	22.93	1.68	43.04	0.06	1.85	105.00	1.20	0.09	2.26	0.00	0.10
Tunneling	365	74.68	5.90	151.46	0.23	6.53	75.00	2.80	0.22	5.68	0.01	0.24
AccessRoads	45	52.13	4.90	122.04	0.22	5.38	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	15	38.53	3.79	93.80	0.17	4.20	15.00	0.29	0.03	0.70	0.00	0.03
								7.24	**0.61**	**15.44**	**0.03**	**0.68**

PUMP STATION AND WATER LINE FOR VCMWD (NORTH)
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	60	35.46	3.62	89.58	0.17	3.95	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	150	40.36	3.52	88.60	0.15	3.87	0.00	0.00	0.00	0.00	0.00	0.00
Building	240	14.92	1.60	38.96	0.08	1.79	0.00	0.00	0.00	0.00	0.00	0.00
Tanks	60	9.87	1.05	25.51	0.05	1.18	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	150	5.25	0.55	13.21	0.03	0.63	90.00	0.24	0.02	0.59	0.00	0.03
ElectricSystems	120	3.37	0.35	8.18	0.01	0.40	120.00	0.20	0.02	0.49	0.00	0.02
InstallPipeline	240	31.24	3.08	75.47	0.14	3.44	210.00	3.28	0.32	7.92	0.01	0.36
Demobilization	180	32.46	3.12	77.07	0.14	3.48	180.00	2.92	0.28	6.94	0.01	0.31
								6.64	**0.65**	**15.95**	**0.03**	**0.73**

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	14.93	1.62	39.76	0.08	1.79	15.00	0.11	0.01	0.30	0.00	0.01
Clearing	60	35.46	3.62	89.58	0.17	3.95	60.00	1.06	0.11	2.69	0.01	0.12
Excavation	120	40.36	3.52	88.60	0.15	3.87	120.00	2.42	0.21	5.32	0.01	0.23
Building	150	14.92	1.60	38.96	0.08	1.79	120.00	0.90	0.10	2.34	0.00	0.11
Tanks	60	9.87	1.05	25.51	0.05	1.18	60.00	0.30	0.03	0.77	0.00	0.04
Pumps	90	5.25	0.55	13.21	0.03	0.63	0.00	0.00	0.00	0.00	0.00	0.00
ElectricSystems	90	3.37	0.35	8.18	0.01	0.40	0.00	0.00	0.00	0.00	0.00	0.00
InstallPipeline	60	31.24	3.08	75.47	0.14	3.44	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	150	32.46	3.12	77.07	0.14	3.48	0.00	0.00	0.00	0.00	0.00	0.00
								4.79	**0.46**	**11.40**	**0.02**	**0.51**

RELOCATED PUBLIC ROADS AND ELECTRICAL SYSTEMS
Construction Equipment Year:
2010

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	30	14.93	1.62	39.76	0.08	1.79	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	30	23.38	2.07	52.58	0.09	2.22	0.00	0.00	0.00	0.00	0.00	0.00
RemoveOldElecLine	30	15.81	1.25	32.41	0.05	1.32	0.00	0.00	0.00	0.00	0.00	0.00
InstallElecLines	240	14.31	1.32	33.26	0.06	1.42	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	75	36.60	3.72	91.77	0.17	4.09	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	60	19.26	1.93	47.34	0.09	2.19	0.00	0.00	0.00	0.00	0.00	0.00
								0.00	**0.00**	**0.00**	**0.00**	**0.00**

Total Construction Equipment, tons/year	111.49	17.89	260.32	0.43	12.32
Worker Trips	12.91	1.06	1.07	0.01	0.08
Construction Truck Trips	0.89	0.23	3.29	0.01	0.11
Total Emissions, Maximum tons/year	**125.29**	**19.18**	**264.68**	**0.45**	**12.52**

Table A-194
Air Conformity Calculations
San Vicente 50,000 Acre-Feet Alternative

ESTIMATED CONSTRUCTION EQUIPMENT **2010**
ALTERNATIVE NO. 9 - 50,000 AF MOOSA + 50,000 AF SAN VICENTE
SAN VICIENTE DAM - CONSTRUCTION PACKAGE 2, ON-SITE QUARRY

	Max Days Used/ Year	CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Maximum Construction Scenario, Days, Months 13-24	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	60	16.34	4.01	31.19	0.05	1.69	60	0.49	0.12	0.94	0.00	0.05
RCC Test Section	60	44.00	11.47	91.55	0.17	4.75	60	1.32	0.34	2.75	0.01	0.14
Foundation Treatment	210	58.33	15.76	126.59	0.26	6.00	210	6.12	1.65	13.29	0.03	0.63
Dam Crest Demo Surface Prep	210	86.92	22.05	176.66	0.31	9.52	210	9.13	2.32	18.55	0.03	1.00
Agg. Supply	360	50.61	13.94	119.90	0.35	5.44	270	6.83	1.88	16.19	0.05	0.73
RCC Placement	360	153.43	40.14	341.20	1.02	16.21	330	25.32	6.62	56.30	0.17	2.67
Dam Seepage Control	120	24.48	6.56	51.04	0.10	2.47	0	0.00	0.00	0.00	0.00	0.00
Outlet Facilities	360	68.23	19.84	161.15	0.31	7.51	330	11.26	3.27	26.59	0.05	1.24
Bypass Pipeline Div. Structure	360	67.27	19.17	162.75	0.31	7.52	270	9.08	2.59	21.97	0.04	1.02
Clearing-Grubbing	150	27.66	7.58	61.66	0.12	3.38	0.00	0.00	0.00	0.00	0.00	0.00
Demob-Reclamation	60	2.92	0.80	7.73	0.02	0.30	0	0.00	0.00	0.00	0.00	0.00
Subtotal Construction Equipment		600.18	161.32	1331.43	3.02	64.78		69.55	18.80	156.57	0.37	7.49
Worker Trips		99.22	8.12	8.25	0.07	0.65		12.43	1.02	1.03	0.01	0.08
Construction Truck Trips		1.77	0.46	6.53	0.02	0.23		0.24	0.06	0.88	0.00	0.03
Total Construction Emissions - Max Ye		**701.17**	**169.90**	**1346.20**	**3.11**	**65.66**		**82.22**	**19.88**	**158.49**	**0.39**	**7.60**

Sum Total
ESTIMATED CONSTRUCTION EQUIPMENT
DRAFT ESTIMATED CONSTRUCTION EQUIPMENT
ALTERNATIVE NO. 9 - 50,000 AF MOOSA + 50,000 AF SAN VICENTE
MOOSA DAM
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	Months 12-24 Days in Max Yr	Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	30	25.60	5.58	67.70	0.08	3.16	0.00	0.00	0.00	0.00	0.00	0.00
Earthwork	150	70.95	14.56	178.45	0.22	8.54	60.00	2.13	0.44	5.35	0.01	0.26
Clearing	365	67.80	13.72	173.93	0.21	8.24	365.00	12.37	2.50	31.74	0.04	1.50
Foundation	365	142.82	29.78	339.77	0.52	16.64	365.00	26.06	5.43	62.01	0.09	3.04
Spillway	150	16.98	4.31	31.33	0.10	1.70	0.00	0.00	0.00	0.00	0.00	0.00
Quarry	365	74.69	18.53	140.70	0.25	7.91	210.00	7.84	1.95	14.77	0.03	0.83
Outlet	210	33.85	7.52	72.36	0.15	3.87	210.00	3.55	0.79	7.60	0.02	0.41
Embankment	365	83.09	14.95	209.25	0.40	9.76	240.00	9.97	1.79	25.11	0.05	1.17
Demobilization	60	28.62	6.28	72.97	0.08	3.48	0.00	0.00	0.00	0.00	0.00	0.00
								61.93	12.90	146.58	0.23	7.20

DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	45	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	75	39.75	3.87	96.65	0.18	4.21	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	365	45.37	3.90	98.73	0.16	4.26	365.00	8.28	0.71	18.02	0.03	0.78
PipeInstall	365	67.51	6.46	158.73	0.28	7.25	365.00	12.32	1.18	28.97	0.05	1.32
AccessRoads	15	7.21	0.77	18.64	0.04	0.86	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	75	42.59	4.12	102.14	0.19	4.59	0.00	0.00	0.00	0.00	0.00	0.00
								20.60	1.89	46.99	0.08	2.10

PUMP STATION AT MOOSA CREEK
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	14.93	1.62	39.76	0.08	1.79	15.00	0.11	0.01	0.30	0.00	0.01
Excavation	210	49.57	4.42	111.29	0.19	4.86	210.00	5.20	0.46	11.69	0.02	0.51
Building	365	14.92	1.60	38.96	0.08	1.79	240.00	1.79	0.19	4.67	0.01	0.21
Pumps	270	8.51	0.90	21.87	0.04	1.02	0.00	0.00	0.00	0.00	0.00	0.00
ElectricSystems	240	2.55	0.28	6.78	0.01	0.30	0.00	0.00	0.00	0.00	0.00	0.00
ElectricPower	60	7.30	0.56	14.60	0.02	0.59	60.00	0.22	0.02	0.44	0.00	0.02
Demobilization	210	30.61	3.09	76.67	0.15	3.37	0.00	0.00	0.00	0.00	0.00	0.00
								7.33	0.69	17.10	0.03	0.76

INTERCONNECTION BETWEEN MOOSA PIPELINE AND SECOND AQUEDUCT
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	15	11.68	1.27	31.09	0.06	1.40	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	30	26.74	2.44	61.44	0.11	2.65	0.00	0.00	0.00	0.00	0.00	0.00
VaultConstruction	60	11.67	1.25	30.29	0.06	1.40	0.00	0.00	0.00	0.00	0.00	0.00
InstallValvesPipes	90	8.42	0.89	21.63	0.04	1.01	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	60	20.16	2.15	52.28	0.10	2.41	0.00	0.00	0.00	0.00	0.00	0.00
								0.00	0.00	0.00	0.00	0.00

RELOCATE FIRST AQUEDUCT WEST OF MOOSA DAM
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	0	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	365	39.75	3.87	96.65	0.18	4.21	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	135	47.96	4.40	110.02	0.19	4.83	45.00	1.08	0.10	2.48	0.00	0.11
TrenchPipe	120	62.34	5.88	144.17	0.25	6.64	60.00	1.87	0.18	4.33	0.01	0.20
TunnelPipe	365	22.93	1.68	43.04	0.06	1.85	105.00	1.20	0.09	2.26	0.00	0.10
Tunneling	105	74.68	5.90	151.46	0.23	6.53	75.00	2.80	0.22	5.68	0.01	0.24
AccessRoads	45	52.13	4.90	122.04	0.22	5.38	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	15	38.53	3.79	93.80	0.17	4.20	15.00	0.29	0.03	0.70	0.00	0.03
								7.24	0.61	15.44	0.03	0.68

PUMP STATION AND WATER LINE FOR VCMWD (NORTH)
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	30	16.28	1.77	43.36	0.09	1.95	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	365	35.46	3.62	89.58	0.17	3.95	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	150	38.56	3.32	83.82	0.14	3.65	0.00	0.00	0.00	0.00	0.00	0.00
Building	365	14.92	1.60	38.96	0.08	1.79	0.00	0.00	0.00	0.00	0.00	0.00
Tanks	150	9.87	1.05	25.51	0.05	1.18	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	365	5.25	0.55	13.21	0.03	0.63	90.00	0.24	0.02	0.59	0.00	0.03
ElectricSystems	210	3.37	0.35	8.18	0.01	0.40	120.00	0.20	0.02	0.49	0.00	0.02
InstallPipeline	365	31.24	3.08	75.47	0.14	3.44	210.00	3.28	0.32	7.92	0.01	0.36
Demobilization	60	32.46	3.12	77.07	0.14	3.48	180.00	2.92	0.28	6.94	0.01	0.31
								6.64	0.65	15.95	0.03	0.73

PUMP STATION AND WATER LINE FOR VCMWD (SOUTH)
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	30	14.93	1.62	39.76	0.08	1.79	15.00	0.22	0.02	0.60	0.00	0.03
Clearing	365	35.46	3.62	89.58	0.17	3.95	30.00	6.47	0.66	16.35	0.03	0.72
Excavation	150	38.56	3.32	83.82	0.14	3.65	120.00	2.89	0.25	6.29	0.01	0.27
Building	365	14.92	1.60	38.96	0.08	1.79	120.00	2.72	0.29	7.11	0.01	0.33
Tanks	150	9.87	1.05	25.51	0.05	1.18	60.00	0.74	0.08	1.91	0.00	0.09
Pumps	365	5.25	0.55	13.21	0.03	0.63	0.00	0.96	0.10	2.41	0.00	0.12
ElectricSystems	210	3.37	0.35	8.18	0.01	0.40	0.00	0.35	0.04	0.86	0.00	0.04
InstallPipeline	365	31.24	3.08	75.47	0.14	3.44	0.00	5.70	0.56	13.77	0.03	0.63
Demobilization	60	32.46	3.12	77.07	0.14	3.48	0.00	0.97	0.09	2.31	0.00	0.10
								21.04	2.10	51.61	0.10	2.33

DRAIN/FILL PIPELINE FROM MOOSA DAM TO SECOND AQUEDUCT
Construction Equipment Year:
2006

	Max Days Used /Year	Emissions CO lbs/day	VOC lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day		Emission, tons (total) CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)
Mobilization	45	14.93	1.62	39.76	0.08	1.79	0.00	0.00	0.00	0.00	0.00	0.00
Clearing	75	23.38	2.07	52.58	0.09	2.22	0.00	0.00	0.00	0.00	0.00	0.00
RemoveOldElecLine	365	15.81	1.25	32.41	0.05	1.32	0.00	0.00	0.00	0.00	0.00	0.00
InstallElecLines	365	14.31	1.32	33.26	0.06	1.42	0.00	0.00	0.00	0.00	0.00	0.00
Excavation	15	36.60	3.72	91.77	0.17	4.09	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	75	19.26	1.93	47.34	0.09	2.19	0.00	0.00	0.00	0.00	0.00	0.00
								0.00	0.00	0.00	0.00	0.00

Total Construction Equipment, tons/year	124.78	18.84	293.66	0.49	13.80
Worker Trips	12.39	1.01	1.03	0.01	0.08
Construction Truck Trips	0.90	0.23	3.31	0.01	0.12
Total Emissions, Maximum tons/year	138.07	20.09	298.01	0.51	13.99