Integrated Mosquito and Vector Management Programs

APPENDIX

C

AIR QUALITY AND GHG TECHNICAL REPORT

Air Quality and Greenhouse Gases Technical Report

Project Name: Integrated Mosquito and Vector Management Programs for Nine Districts

Date: June 2013

Prepared for:

Alameda County Mosquito Abatement District
Alameda County Vector Control Services District
Contra Costa Mosquito and Vector Control District
Marin/Sonoma Mosquito Vector Control District
Napa County Mosquito Abatement District
Northern Salinas Valley Mosquito Abatement District
San Mateo County Mosquito and Vector Control District
Santa Clara County Vector Control District
Solano County Mosquito Abatement District

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Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
AB	Assembly Bill
ACMAD	Alameda County Mosquito Abatement District
ACVCSD	Alameda County Vector Control Services District
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
CAA	Clean Air Act of 1970
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCMVCD	Contra Costa Mosquito and Vector Control District
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	greenhouse gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MEI	Maximally Exposed Individual
MSMVCD	Marin/Sonoma Mosquito Vector Control District
MVC	mosquito and vector control
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCMAD	Napa County Mosquito Abatement District
NMFS	National Marine Fisheries Service

NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSCAPCD	Northern Sonoma County Air Pollution Control District
NSVMAD	Northern Salinas Valley Mosquito Abatement District
O_3	ozone
PERP	Portable Equipment Registration Program
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
ppm	part(s) per million
ROCs	reactive organic compounds
ROGs	reactive organic gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCCVCD	Santa Clara County Vector Control District
SCMAD	Solano County Mosquito and Vector Control District
SFBAAB	San Francisco Bay Area Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMCMVCD	San Mateo County Mosquito and Vector Control District
SO_2	sulfur dioxide
SWRCB	State Water Resources Control Board
UNFCCC	United Nations Framework Convention on Climate Change
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOCs	volatile organic compounds
YSAQMD	Yolo-Solano Air Quality Management District

1 Introduction

This report provides a description of the air quality and climate change environmental setting for and impacts of the Integrated Mosquito and Vector Management Programs (Programs) for nine mosquito abatement and/or vector control districts in northern California. The nine districts are: Alameda County Mosquito Abatement District (ACMAD), Alameda County Vector Control Services District (ACVCSD), Contra Costa Mosquito and Vector Control District (CCMVCD), Marin/Sonoma Mosquito Vector Control District (MSMVCD), Napa County Mosquito Abatement District (NCMAD), Northern Salinas Valley Mosquito Abatement District (NSVMAD), San Mateo County Mosquito and Vector Control District (SMCMVCD), Santa Clara County Vector Control District (SCCVCD), and the Solano County Mosquito Abatement District (SCMAD).The Programs provide for mosquito and/or vector control activities within each District's Program Area. The nine District Program Areas include both the areas within the Districts (their individual Service Areas) and the surrounding counties where the Districts may provide mosquito and/or other vector management services when requested.

The immediate nine District Service Areas are located in the following nine counties of the state: Alameda, Contra Costa, Marin, Monterey, Napa, San Mateo, Santa Clara, Solano, and Sonoma. Control activities may also be provided in areas adjacent to the District Service Areas upon request of the adjacent jurisdictions to protect the health and safety of residents in adjacent jurisdictions. Actions that would be taken outside of the nine Districts' Service Areas are the same types of actions undertaken within the Districts' Service Areas and in similar types of habitats or sites. Therefore, the nine District Program Areas addressed in this report also include the ten surrounding counties: Mendocino, Merced, Lake, Sacramento, San Benito, San Francisco, San Joaquin, Santa Cruz, Stanislaus, Yolo, and the portion of Monterey County south of the NSVMAD.

The bulk of criteria pollutant and greenhouse gas emissions resulting from Program activities would occur in the San Francisco Bay Area, and minor amounts would occur in northern Sonoma, Yolo, Solano, and northern Monterey counties. The following chapters characterize and quantify Program emissions on a year-round basis. Chapter 2 addresses air quality, and Chapter 3 covers greenhouse gases.

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2 Air Quality

2.1 Introduction

State and Federal law defines criteria emissions to include the following: reactive or volatile organic compounds (ROCs or VOCs), nitrogen oxides (NO and NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). Elimination of tetraethyl lead in motor gasoline has eliminated emissions of lead (Pb) from vehicles and portable equipment, although tetraethyl lead is still used in some types of aviation gasoline.

During applicable mosquito and/or vector control activities, the Programs would cause criteria emissions from the combustion of fossil fuels (i.e., gasoline, diesel, jet fuel) used to operate portable equipment, vehicles, and aircraft primarily across the nine-county region comprising the MVCAC Nine Districts' Service Areas. Control activities would also cause emissions of greenhouse gases, which is addressed in the next chapter. This report evaluates Program emissions to determine individual and combined effects in relation to established thresholds of significance.

2.2 Environmental Setting

The Service Areas comprise Alameda, Contra Costa, Marin, Sonoma, Napa, Solano, San Mateo, and Santa Clara counties, and the northern portion of Monterey County. These counties are predominantly in the San Francisco Bay Area Air Basin (SFBAAB), under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), along with the Northern Sonoma County Air Pollution Control District (NSCAPCD), the Yolo-Solano Air Quality Management District (YSAQMD), and the Monterey Bay Unified Air Pollution Control District (MBUAPCD) in adjacent areas.

Air districts in California are required to monitor air pollutant levels to assure that National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met and, in the event that they are not, to develop strategies to meet these standards. If the standards are met, the local air basin is classified as being in "attainment"; if the standards are exceeded, it is classified as "nonattainment." Where insufficient data exist to make a determination, an area is deemed "unclassified."

The SFBAAB is designated as nonattainment for the state 1-hour, state 8-hour, and Federal 8-hour ozone ($O_{3)}$ standards, and nonattainment for all state PM_{10} and $PM_{2.5}$ (i.e., respirable particulate matter with an aerodynamic diameter of 10 and 2.5 micrometers or less) standards. The SFBAAB is also designated unclassified for the 24-hour Federal PM_{10} standard, and nonattainment and attainment for the Federal 24-hour and annual $PM_{2.5}$ standards, respectively. For all other pollutants and standards, the SFBAAB is designated as either attainment or unclassified status (BAAQMD 2012a, CARB 2012b, EPA 2012a, see Table 2-2 below).

Northern Sonoma County is designated transitional/uncharacterized for the state 1-hour ozone standard. Monterey County is "Moderate" nonattainment for state 1-hour ozone standard and nonattainment for the state PM_{10} standard. Yolo and Solano counties are "Serious" nonattainment for the state 1-hour O_3 standard, nonattainment for the state and federal 8-hour O_3 standards, nonattainment for the state 24-hour and annual PM_{10} standards, and partial nonattainment for the Federal 24-hour $PM_{2.5}$ standard. For all other pollutants and standards northern Sonoma, Yolo, Solano, and Monterey counties are designated either attainment or unclassified status. (CARB 2012b, EPA 2012a, YSAQMD 2013)

2.2.1 Meteorology and Climate

The Program Area climate is characterized by moderately wet winters and dry summers. About 90 percent of the annual total rainfall is received in the November through April period. Between June and

September, normal rainfall is typically less than 0.6 inch (1.5 centimeters). Temperatures in the Program Area average about 60°F (15°C) annually, with average summer highs in the 70 to 80°F (21 to 27°C) range and average winter lows in the 40 to 50°F (4 to 10°C) range. Precipitation averages about 23 inches (58 centimeters) per year, although annual precipitation can vary significantly from year-to-year. Annual average wind speeds in the Program Area are about 8 miles per hour (3.6 meters per second). The predominant direction of air pollution transport in the Program Area is inland from the coastal areas (BAAQMD 2010a, WC 2012, NOAA 2008).

2.2.2 Criteria Air Pollutants

A criteria or regulated air pollutant is any air pollutant for which ambient air quality standards have been set by the U.S. Environmental Protection Agency (EPA) or the California Air Resources Board (CARB). Primary air quality standards are established to protect human (public) health. Secondary air quality standards are designed to protect public welfare from effects such as diminished production and quality of agricultural crops, reduced visibility, degraded soils, materials and infrastructure damage, and damaged vegetation. Criteria pollutants include O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. The six most prevalent criteria pollutants and their potential health effects are described below.

Ozone

Ground-level O_3 is a secondary pollutant formed in the atmosphere by a series of complex chemical reactions and transformations in the presence of sunlight above urban areas due to the mixing effects of temperature inversions. Nitrogen oxides (NO_X) and reactive organic gases (ROGs)[1] are the principal constituents in these reactions. NO_X and ROG emissions are predominantly attributed to mobile sources (on-road motor vehicles and other mobile sources). Thus, regulation and control of NO_X and ROGs from these sources is essential to reduce the formation of ground-level O_3.

O_3 is a strong irritating gas that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen to the body. A powerful oxidant, O_3 is capable of destroying organic matter, including human lung and airway tissue; it essentially burns through cell walls. O_3 damages cells in the lungs, making the passages inflamed and swollen. O_3 also causes shortness of breath, nasal congestion, coughing, eye irritation, sore throat, headache, chest discomfort, breathing pain, throat dryness, wheezing, fatigue, and nausea. It can damage alveoli, the individual air sacs in the lungs where oxygen and carbon dioxide are exchanged. O_3 has been associated with a decrease in resistance to infections. People most likely to be affected by O_3 include the elderly, the young, and athletes. O_3 may pose its worst health threat to people who already suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis (VCAPCD 2003).

Nitrogen Dioxide

NO_2 is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish brown gas with an odor similar to that of bleach. NO_2 participates in the photochemical reactions that result in O_3. The greatest source of NO, and subsequently NO_2, is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers. NO_2 and NO are referred to collectively as NO_X. NO_2 can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Researchers have identified harmful effects, similar to those caused by O_3, with progressive changes over four hours of exposure causing impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons (VCAPCD 2003).

[1] Also referred to as reactive organic compounds (ROCs) or volatile organic compounds (VOCs).

Carbon Monoxide

CO is a common, colorless, odorless, highly toxic gas. It is produced by natural and anthropogenic (caused by human activity) combustion processes. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels (primarily gasoline, diesel fuel, and natural gas). However, it also results from combustion processes including forest fires and agricultural burning. Ambient CO concentrations are generally higher in the winter, usually on cold, clear days and nights with little or no wind. Low wind speeds inhibit horizontal dispersion, and surface inversions inhibit vertical mixing. Traffic-congested intersections have the potential to result in localized high CO levels.

When inhaled, CO does not directly harm the lungs. The impact from CO is on oxygenation of the entire body. CO combines chemically with hemoglobin, the oxygen-transporting component of blood. This diminishes the ability of blood to carry oxygen to the brain, heart, and other vital organs. Red blood cells have 220 times the attraction for CO as for oxygen. This affinity interferes with movement of oxygen to the body's tissues. Effects from CO exposure include headaches, nausea, and death. People with heart ailments are at risk from low-level exposure to CO. Also sensitive are people with chronic respiratory disease, the elderly, infants and fetuses, and people suffering from anemia and other conditions that affect the oxygen-carrying capacity of blood. High CO levels in a concentrated area can result in asphyxiation. Studies show a synergistic effect when CO and O_3 are combined (VCAPCD 2003).

Sulfur Dioxide

SO_2 is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM_{10}. Most of the SO_2 emitted into the atmosphere is from burning sulfur-containing fossil fuels by mobile sources such as marine vessels and farm equipment and stationary fuel combustion. SO_2 irritates the mucous membranes of the eyes and nose and may also affect the mouth, trachea, and lungs. Healthy people may experience sore throats, coughing, and breathing difficulties when exposed to high concentrations. SO_2 causes constriction of the airways and poses a health hazard to asthmatics, which are very sensitive to SO_2. Children often experience more respiratory tract infections when they are exposed to SO_2 (VCAPCD 2003).

Respirable Particulate Matter, 10 Microns

PM_{10} consists of particulate matter, fine dusts and aerosols, 10 microns or smaller in diameter. When inhaled, particles larger than 10 microns generally are caught in the nose and throat and do not enter the lungs. PM_{10} can enter the large upper branches of the lungs just below the throat, where they are caught and removed (by coughing, spitting, or swallowing).

The primary sources of PM_{10} include dust from paved and unpaved roads and construction and demolition operations. Lesser sources of PM_{10} include wind erosion, agricultural operations, residential wood combustion, smoke, tailpipe emissions, and industrial sources. These sources have different constituents, and, therefore, varying effects on health. Road dust is composed of many particles other than soil dust. It also includes engine exhaust, tire rubber, oil, and truck load spills. Diesel particulate matter (DPM) contains many toxic particle and elemental carbon (soot), and is considered a toxic air contaminant in California. Airborne particles absorb and adsorb toxic substances and can be inhaled and lodge in the lungs. Once in the lungs, the toxic substances can be absorbed into the bloodstream and carried throughout the body. PM_{10} concentrations tend to be lower during the winter months because weather greatly affects PM_{10} concentrations. During rain, concentrations are relatively low, and on windy days, PM_{10} levels can be high. Photochemical aerosols, formed by chemical reactions with manmade emissions, may also influence PM_{10} concentrations.

Elevated ambient particulate levels are associated with premature death, an increased number of asthma attacks, reduced lung function, aggravation of bronchitis, respiratory disease, cancer, and other serious health effects. Short-term exposure to particulates can lead to coughing, minor throat irritation, and a

reduction in lung function. Long-term exposure can be more harmful. EPA estimates that 8 percent of urban nonsmoker-lung-cancer-risk is due to PM_{10} in soot from diesel trucks, buses, and cars. Additional studies by EPA and the Harvard School of Public Health estimate that 50,000 to 60,000 deaths per year in the United States are caused by particulates. PM_{10} particles collect in the upper portion of the respiratory system, affecting the bronchial tubes, nose, and throat. They contribute to aggravation of asthma, premature death, increased number of asthma attacks, bronchitis, reduced lung function, respiratory disease, aggravation of respiratory and cardiovascular disease, alteration of lung tissue and structure, changes in respiratory defense mechanisms, and cancer (VCAPCD 2003).

Fine Particulate Matter, 2.5 Microns

$PM_{2.5}$ is a mixture of particulate matter fine dusts and aerosols 2.5 microns or smaller in aerodynamic diameter. $PM_{2.5}$ can enter the deepest portions of the lungs where gas exchange occurs between the air and the blood stream. These are the most dangerous particles because the lungs have no efficient mechanisms for removing them. If these particles are soluble in water, they pass directly into the blood stream within minutes. If they are not soluble in water, they are retained deep in the lungs and can remain there permanently. This increases the risks of long-term disease including chronic respiratory disease, cancer, and increased and premature death. Other effects include increased respiratory stress and disease, decreased lung function, alterations in lung tissue and structure, and alterations in respiratory tract defense mechanisms.

$PM_{2.5}$ particles are emitted from activities such as industrial and residential combustion processes, wood burning, and from diesel and gasoline-powered vehicles. They are also formed in the atmosphere from gases such as SO_2, NO_X, ammonia, and VOCs that are emitted from combustion activities and then become particles as a result of chemical transformations in the air (secondary particles) (VCAPCD 2003).

2.2.3 Sources of Air Pollutants

The most significant regional sources of O_3, NO_2, and CO in ambient air are automobiles, trucks, and other on-road vehicles, along with trains, vessels, and aircraft. O_3 is not directly emitted; rather, photochemical O_3 is formed by the atmospheric reaction of VOCs and NO_X in sunlight. Gasoline and diesel engines emit VOCs and NO_X as combustion products, as does natural gas fired equipment (stationary sources) such as pump engines, gas turbine generators, process heaters, and steam boilers.

Local emissions of PM_{10} are primarily the result of fugitive dust from travel on unpaved roads, as well as construction and agricultural activities. Coarser particles also may be emitted from activities that disturb the topsoil. Other sources include wind-blown dust, pollen, salts, brake dust, and tire wear. Although $PM_{2.5}$ is a subset of PM_{10}, it differs from the rest of PM_{10}. While most of the ambient PM_{10} results from direct emissions of the pollutant, a significant amount of the ambient $PM_{2.5}$ results from transformation of precursors and condensing of gaseous pollutants in the atmosphere. Other than direct $PM_{2.5}$ emissions, the key pollutants contributing to $PM_{2.5}$ concentrations in the atmosphere are SO_2, NO_X, VOCs, and ammonia (CARB 2005).

Mobile sources used in mosquito and vector control (MVC) activities include onroad fleet vehicles (light- and medium-duty trucks, vans, passenger cars), offroad all-terrain vehicles (ATVs), watercraft (motorboats, airboats), aircraft (helicopters and fixed-wing), portable equipment (pumps, sprayers, generators), and small equipment (hand-held sprayers, foggers, dusters). Except for 2-stroke engines used in small lightweight equipment (spark ignition, 50:1 gas/oil mix), engines are 4-stroke gasoline (spark ignition) or diesel fuel (compression ignition). The dominant fuel used for these mobile sources is motor gasoline along with some diesel fuel (larger trucks) , aviation gasoline (fixed-wing aircraft), and jet fuel (turbine-powered helicopters). Light trucks, vans, and passenger cars are normally used for responding to public service requests and disease surveillance.

2.2.4 Ambient Air Quality

Air quality is affected by a variety of sources in the vicinity of the Program Areas. Large stationary sources such as oil refineries and power plants emit substantial amounts of NO_X and ROCs, along with PM_{10} and $PM_{2.5}$. Light motor vehicles, diesel powered construction equipment, and commercial trucks used in the Program Area are another source of these pollutants. Noncombustion sources of PM_{10} and $PM_{2.5}$ include fugitive dust from roads, construction, demolition, and earthmoving. Finally, commercial and general aviation aircraft generate emissions that affect air quality.

O_3 is a secondary pollutant that is not emitted directly by sources, but rather is formed by a reaction between NO_X and ROCs in the presence of sunlight. Reductions in O_3 concentrations are dependent upon reducing emissions of these precursors. The major sources of O_3 precursors in the Bay Area are motor vehicles and other mobile equipment (including agricultural equipment), solvent use, petroleum industry activities, nonelectric agricultural water pumping, and electric utilities operation.

BAAQMD, NSCAPCD, and SJVAPCD operate extensive regional air monitoring networks comprised of monitoring stations (sites) that collectively measure the ambient concentrations of six criteria air pollutants: ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), respirable particulates (PM_{10}), and fine particulates ($PM_{2.5}$). Not all monitoring stations are fully instrumented for these pollutants, while some sites have not been operating for adequate periods of time to provide representative data for characterization of attainment status.

2.2.5 Sensitive Receptors

Certain population groups are considered more sensitive to air pollution and odors than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio respiratory diseases such as asthma and bronchitis. Sensitive receptors (land uses) indicate locations where such individuals are typically found, namely schools, daycare centers, hospitals, convalescent homes, residences of sensitive persons, and parks with active recreational uses, such as youth sports.

Persons engaged in strenuous work or physical exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses such as parks are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience.

Due to the very wide geographic dispersion of the nine MVCAC Districts' activities and their short-term temporary nature at any particular location, no quantifiable risk to sensitive receptors or the general public would be posed by Program-related engine exhaust.

2.3 Regulatory Setting

The following paragraphs describe the Federal, state, and local agencies and the laws and regulations governing air quality. *It is the practice of the nine MVCAC Districts to work with Service Area jurisdictions and agencies during Program planning to reasonably consider the local environmental protection policies and to conform to the extent required.*

2.3.1 Standards and Attainment Status

The Clean Air Act of 1970 (CAA, amended 1977 and 1990, 42 United States Code 7401 et seq.) established NAAQS, and individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when Federal standards were established, and because of the unique meteorological problems in the state, there is considerable diversity between the Federal and the state standards currently in effect in

California, as shown in Table 2-1 below. CAAQS tend to be at least as protective as national standards and are often more stringent.

Table 2-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	—	—
	8-hour	0.07	137	0.075	147
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	0.100	188
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,309
	24-hour	0.04	105	—	—
Carbon Monoxide (CO)	1-hour	20	22,898	35	40,071
	8-hour	9	10,304	9	10,304
	Lake Tahoe (8-hr)	6	6,869	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Sources: CARB 2012a, EPA 2011a

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 Federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, µg /m^3 calculated from ppmv based on molecular weight and standard conditions

Standard Temperature 25°C

Standard Molar Volume 24.465 liter/g-mole

The ambient air quality standards shown in Table 2-1 are intended to protect the public health and welfare and specify the concentration of pollutants (with an adequate margin of safety) to which the public may be exposed without adverse health effects. The standards are designed to protect those segments of the public most susceptible to respiratory distress (known as sensitive receptors), including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

As previously described, air districts in California are required to monitor air pollutant levels to assure that NAAQS and CAAQS are met and, in the event that they are not, to develop strategies to meet these standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "nonattainment." Where insufficient data exist to make a determination, an area is deemed "unclassified."

In general, the San Francisco Bay Area experiences low concentrations of most pollutants when compared to state and Federal standards, except for O_3 and particulate matter, for which standards are exceeded periodically. Portions of Sonoma and Monterey counties also experience mildly elevated concentrations of ozone, resulting in state-level transitional and moderate nonattainment designations, respectively. Monterey County is also nonattainment for the state PM_{10} standard (MBUAPCD 2009, CARB 2012b). The attainment status of the main Bay Area region is shown in Table 2-2.

Table 2-2 Attainment Status Summary - Bay Area Region

Criteria Pollutant	State Designation	Federal Designation
Ozone (O_3) (1-hour)	Nonattainment	—
Ozone (O_3) (8-hour)	Nonattainment	Nonattainment[(1)]
Nitrogen Dioxide (NO_2) (1-hour)	Attainment	Unclassified[(2)]
Nitrogen Dioxide (NO_2) (annual)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Resp. Particulates (as PM_{10}) (24-hour)	Nonattainment	Unclassified[(2)]
Resp. Particulates (as PM_{10}) (annual)	Nonattainment	—
Fine Particulates (as $PM_{2.5}$) (24-hour)	—	Nonattainment
Fine Particulates (as $PM_{2.5}$) (annual)	Nonattainment	Attainment
Lead (Pb)	Attainment	Attainment
Sulfates (as SO_4)	Attainment	—
Hydrogen Sulfide (H_2S)	Unclassified[(2)]	—
Vinyl Chloride (C_2H_3Cl)	n/d	—
Visibility	Unclassified[(2)]	—

Source: BAAQMD 2012a

Notes:

(1) The 0.08 ppmv Federal 8-hour ozone standard applied until 2008; 0.075 ppmv thereafter

(2) At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified.

n/d = no data/information available

2.3.2 Federal Authority

The 1977 CAA amendments required that regional planning and air pollution control agencies prepare regional air quality plans to outline the measures by which both stationary and mobile sources of pollutants can be controlled to achieve all standards by the deadlines specified in the act.

For the SFBAAB, the Association of Bay Area Governments, the Metropolitan Transportation Commission, and BAAQMD jointly prepared the *2005 Bay Area Ozone Strategy,* which provided inputs to the most recent *2010 Clean Air Plan* issued by BAAQMD (2012a). These plans contain control strategies that demonstrate attainment with NAAQS by the deadlines established in the Federal CAA and become part of the State Implementation Plan (SIP) administered by CARB and submitted to EPA. Similarly, NSCAPCD and MBUAPCD are also required to prepare and submit tailored clean air implementation plans to state and Federal regulators.

Under the 1990 CAA amendments, areas that did not meet the original Federal 1-hour O_3 standard were classified according to the severity of each area's respective O_3 problem. The 1-hour classifications were Marginal, Moderate, Serious, Severe, and Extreme. Marginal areas were closest to meeting the 1-hour O_3 standard. Extreme areas had the worst air quality problems. Areas with severe O_3 problems had progressively more stringent control requirements to meet under the Act. An area's classification determined how long the area had to attain the O_3 standard. Marginal areas had 3 years; Moderate areas had 6 years; Serious areas had 9 years; Severe areas had either 15 or 17 years, depending on the magnitude of their O_3 problem; and Extreme areas had 20 years. Under the Act, the Bay Area Air Basin is a "Serious" Federal nonattainment area for O_3 and a Federal nonattainment area for $PM_{2.5}$.

2.3.3 State Authority

Pursuant to the Federal CAA, states have the right to establish and enforce their own air quality standards; state standards may be equal to or more stringent, but not less stringent than Federal standards. In 1988, the state legislature passed the California CAA (California Health and Safety Code Section 39600 et seq.), which, like its Federal counterpart, called for designations of areas as attainment or nonattainment based on state rather than Federal standards.

Similar to the Federal CAA, the California CAA also classifies areas according to pollution levels. Under the Act, the Bay Area is a "Serious" O_3 nonattainment area and state PM_{10} and $PM_{2.5}$ nonattainment areas. In addition, localized CO concentrations, also known as CO "hotspots," may occur at heavily traveled roadways, particularly at intersections or other locations where the traffic is congested and vehicles idle for prolonged periods. CO concentrations exceeding the existing standard may occur at intersections that operate at a Level of Service D or worse.

CARB is the state agency responsible for regulating air quality, and its responsibilities include establishing state ambient air quality standards, emissions standards, and regulations for mobile emissions sources (e.g., autos, trucks, etc.) as well as overseeing the efforts of countywide and multicounty air pollution control districts, which have primary responsibility over stationary sources. The emission standards most relevant to the Programs are those related to automobiles, light- and medium-duty trucks, and California heavy-duty truck and construction equipment engines. CARB also regulates vehicle fuels with the intent to reduce emissions; to this end, the CARB has set emission reduction performance requirements for gasoline (California reformulated gasoline) and has stringently limited the sulfur and aromatic content of diesel fuel to make it burn cleaner. CARB also sets the standards used to pass or fail vehicles in smog check and heavy-duty truck inspection programs.

2.3.4 Local Authority

BAAQMD is the regional agency responsible for air quality regulation within the San Francisco Bay Area, along with NSCAPCD and MBUAPCD in their respective jurisdictions. These districts regulate air quality through planning, monitoring, rulemaking, permitting, and enforcement activities. Districts have permit

authority over most types of stationary emission sources and can require stationary sources to obtain permits; they can also impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. BAAQMD also regulates new or expanding stationary sources of toxic air contaminants. For state air quality planning purposes, the Bay Area is classified by the California CAA as a nonattainment area for O_3. The "Serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that each district update its air quality attainment plan every three years (triennially) to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. Districts indirectly regulate construction projects that use mobile sources via the statewide Portable Equipment Registration Program discussed below. Since the Programs do not meet the definition of permanent stationary sources, no permits would be required from the BAAQMD, NSCAPCD, or MBUAPCD.

2.4 Source-Specific Regulations

Non-road Engine Standards

CARB regulates mobile sources of air pollution in the State of California. Self-propelled nonroad construction equipment is considered a vehicle, as defined by the California Vehicle Code. A vehicle may have an engine that both propels the vehicle and powers equipment mounted on the vehicle. As such, vehicles are generally exempt from regulation by the air districts. However, not included in exemption provisions is any equipment mounted on a vehicle that would otherwise require a permit under air district rules and regulations.

Federal Tier 1 standards for off-road diesel engines were adopted as part of the California requirements for 1995. Federal Tier 2 and Tier 3 standards were adopted in 2000 and selectively apply to the full range of diesel off-road engine power categories. Both Tier 2 and Tier 3 standards include durability requirements to ensure compliance with the standards throughout the useful life of the engine (40 Code of Federal Regulations [CFR] 89.112, 13 California Code of Regulations [CCR] 2423).

On May 11, 2004, the EPA signed the final rule implementing Tier 4 emission standards which are to be phased-in over the period of 2008-2015 (69 Federal Register [FR] 38957-39273, 29 June 2004). The Tier 4 standards require that emissions of PM and NO_X be further reduced by about 90 percent. Such emission reductions can be achieved through the use of advanced control technologies – including advanced exhaust gas after treatment similar to those required by the 2007-2010 standards for highway diesel engines.

The Code of Federal Regulations (CFR) Title 40 is divided into parts to address specific EPA programs. Regulations initiated by the Office of Air and Radiation (OAR) have historically all been located together in Parts 49 through 99. Within OAR, the Office of Transportation and Air Quality (OTAQ) has adopted emission standards for various types of highway and nonroad engines, which are generally in Parts 85 through 94. To address the need for more regulatory parts for new programs and write them in plain language, EPA has reserved a new set of parts – 1000 through 1299 – for future use. The first 100 of these parts are reserved for engine emission control programs from the OTAQ, with the intended distribution as follows (EPA 2012d):

> Part 1027 specifies certification fees for all engines, vehicles, and equipment.

> Part 1033 is the standard for locomotives.

> Part 1036 is the standard for heavy-duty highway engines.

> Part 1037 is the standard for heavy-duty highway vehicles.

> Part 1039 is the standard for land-based nonroad diesel engines.

- Part 1042 is the standard for marine diesel engines.
- Part 1043 describes the requirements that apply under MARPOL Annex VI for marine diesel engines, including in-use fuel requirements.
- Part 1045 is the standard for marine spark-ignition engines.
- Part 1048 is the standard for nonroad spark-ignition engines over 19 kilowatts that are not used in recreational vehicles.
- Part 1051 is the standard for recreational vehicles, including snowmobiles, all-terrain vehicles, and off-highway motorcycles.
- Part 1054 is the standard for nonroad spark-ignition engines at or below 19 kilowatts.
- Part 1060 specifies emission standards and test procedures for all types of nonroad engines.
- Part 1065 describes general provisions related to procedures for testing engines.
- Part 1066 describes general provisions related to procedures for testing vehicles.
- Part 1068 includes general compliance provisions.
- Part 1074 describes provisions related to preemption of state regulations.

Portable Equipment Registration Program (PERP)

The statewide PERP establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered in PERP, engines and equipment units may operate throughout the State of California without the need to obtain individual permits from local air districts such as BAAQMD, NSCAPCD, and MBUAPCD. Owners or operators of portable engines and certain types of equipment can register their units under the PERP in order to operate their equipment anywhere in the state. (CARB 2012c)

BAAQMD operates stipulated enforcement programs for owners and operators of portable equipment which does not comply with CARB's Portable Diesel Airborne Toxic Control Measure (ATCM) regulation. Under this rule, any portable diesel engine not registered in the PERP prior to January 1, 2006, is illegal, and may not be operated in California unless it meets the ATCM Tier requirements or has an operating permit issued by an air district.

BAAQMD Regulation 2, Sections 2-1-105 and 2-1-114 list types of portable equipment commonly used in construction as exempt from stationary source rule requirements provided that the equipment complies with all applicable requirements of the statewide PERP pursuant to 13 CCR, Division 3, Chapter 3, Article 5. The nine MVCAC District Programs are not subject to BAAQMD permitting requirements because the Programs would not involve any stationary air pollution sources that are subject to BAAQMD review, including engine-driven pumps, generators, and air compressors.

Air Toxics Control Measures

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. Not included in this category are locomotives, commercial marine vessels, marine engines over 50 horsepower, or recreational vehicles. The ATCM regulation supplements existing tiered emission standards for nonroad diesel engines in California (CARB 2012d).

Senate Bill 656

Senate Bill 656 is a planning requirement that calls for a plan and strategy for reducing $PM_{2.5}$ and PM_{10}. This bill requires CARB to identify, develop, and adopt a list of control measures to reduce the emissions of $PM_{2.5}$ and PM_{10} from new and existing stationary, mobile, and area sources. BAAQMD has developed particulate matter control measures and submitted plans to CARB that include lists of measures to reduce particulate matter. Under the plans, air districts are required to continue to assess $PM_{2.5}$ and PM_{10} emissions and their impacts.

For construction emissions of fugitive PM_{10}, California air districts have adopted a number of feasible control measures that can be reasonably implemented to significantly reduce fugitive PM_{10} emissions from construction. In general, most districts' approach to CEQA (California Environmental Quality Act) analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions.

Nuisance (Odors)

BAAQMD and MBUAPCD CEQA Air Quality Guidelines (BAAQMD 1999, MBUAPCD 2008), require an assessment of a project's potential to cause a public nuisance by subjecting surrounding land uses (receptors) to objectionable odors. Due to proximity, NSCAPCD generally follows the BAAQMD guidelines (NSCAPCD 2012).

Nuisance is a fundamental air pollution control rule across the state in all air districts, including NSCAPCD Rule 400 and MBUAPCD Rule 402, and typically contain the same language as BAAQMD Regulation 1, Rule 301 which states that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property."

An objectionable odor problem is defined by BAAQMD Regulation 7, Rule 102 as when the Air Pollution Control Officer "receives odor complaints from ten or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence." The assessment protocol includes projects that have the potential to cause odors or projects that may subject potential sensitive receptors to nearby existing or proposed land uses that emit objectionable odors.

Toxic Air Contaminants

A project with the potential to expose sensitive receptors (including residential areas) or the general public to substantial levels of toxic air contaminants, as designated by CARB under 17 CCR Section 93001, listed in BAAQMD's Toxic Air Contaminants Inventory (BAAQMD 2004), would be deemed to have a significant impact. This includes projects that would locate receptors near existing sources of toxic air contaminants, as well as projects that would place sources of toxic air contaminants near existing receptors.

Projects that have the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact for receptors within 1,000 feet of a source boundary. These thresholds, which are based on the 1999 BAAQMD CEQA Air Quality Guidelines, are as follows:

> Probability of contracting cancer for the Maximally Exposed Individual (MEI) which exceeds 10 in 1 million. The MEI is a hypothetical person exposed for 70 years continuously (24 hours per day, 365 days per year).

> Ground-level concentrations of chronic or acute noncarcinogenic toxic air contaminants which result in a Hazard Index greater than one for the MEI.

DPM is considered a toxic air contaminant in California (BAAQMD 2004). Due to the limited use of diesel-powered vehicles and equipment and wide geographic scope of the Programs, emissions of DPM would not be sufficient to pose a significant risk to sensitive receptors from MVC equipment operations.

General Conformity

A General Conformity determination is required for Federally sponsored, permitted, or funded actions in NAAQS nonattainment areas or in certain maintenance areas when the total direct and indirect net emissions of nonattainment pollutants (or their precursors) exceed specified thresholds (Clean Air Act Amendments of 1990 Section 176[c]). This regulation ensures that Federal actions conform to State Implementation Plans (SIPs) and agency NAAQS attainment plans.

As discussed in Section 2.3.1 and shown in Table 2-2, the Bay Area region is in federal nonattainment $PM_{2.5}$ and ozone. Thus, the emissions of nonattainment pollutants NO_X, VOCs, PM_{10}, and $PM_{2.5}$ would be subject to the Rule if the Programs were Federal actions. However, since the Programs are local actions and not Federally sponsored, permitted, or funded actions, General Conformity does not apply.

2.5 Standards of Significance

The programmatic environmental impact report (PEIR) addresses the following standards of significance as based on CEQA Guidelines Appendix G. Would the project:

> Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan or Congestion Management Plan?

> Violate any stationary source air quality standard or contribute to an existing or projected air quality violation?

> Result in a net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

> Expose sensitive receptors to substantial pollutant concentrations?

> Create objectionable odors affecting a substantial number of people?

For this Program, determinations made with respect to significance criteria are documented in the PEIR.

BAAQMD CEQA Guidelines

On June 2, 2010, the Bay Area Air Quality Management District (BAAQMD) adopted new CEQA Air Quality Guidelines (BAAQMD 2012b) for consideration by lead agencies tasked with evaluating the air quality and climate change impacts of proposed new projects. The proposed guidelines superseded the December 1999 Guidelines. As guidelines, they did not comprise enforceable rules or regulations per se, nevertheless, the guidelines established new quantitative thresholds of significance for criteria and greenhouse gas emissions.

However, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the 2010 thresholds and cease dissemination of them until it had complied with CEQA. The BAAQMD is no longer recommending that the 2010 thresholds be used as a generally applicable measure of a project's significance. Lead agencies may continue to rely on the 1999 CEQA thresholds

and may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project.

For the PEIR, air quality impacts will be quantitatively assessed using significance thresholds established by BAAQMD in its 1999 CEQA Guidelines for nonattainment pollutants and USEPA for attainment pollutants, which are listed in Table 2-3. MBUAPCD thresholds are the same or higher than BAAQMD thresholds (MBUAPCD 2008), and Federal Prevention of Significant Deterioration (PSD) thresholds contained in 40 CFR 51.166(b)(23)(i) applicable to NSCAPCD are also higher than BAAQMD thresholds. Thus, the 1999 BAAQMD thresholds are the most stringent (lowest) quantitative criteria for assessing the potential for all Program impacts under CEQA.

2.6 Methodology

As described in Section 2.2.3, operation of onroad fleet vehicles, offroad all-terrain vehicles, watercraft, aircraft, portable equipment, and small equipment would result in emissions of criteria pollutants (NO_X, VOC, CO, SO_X, PM_{10}, $PM_{2.5}$) in engine exhaust. Detailed lists of equipment, estimated usage, and emission calculations are provided in Attachment A. Equipment lists and annual activity schedules were provided by the nine participating MVC Districts. Emission calculations were performed using the most recent and applicable emission factors published by CARB (2008a) and EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c).

Table 2-4 shows alternatives applicability by percentage as selected by the nine MVC Districts: surveillance, physical control, vegetation management, biological control, chemical control, or other non-chemical control tapping. Table 2-5 shows land uses associated with selected alternatives: residential, commercial, industrial, agricultural, and open space. As shown in Tables 2-4 and 2-5, not all alternatives or land uses are applicable in all Districts, nor are all options or activities under any applicable alternative.

2.7 Estimated Emissions

Tables 2-6 through 2-11 show estimated ongoing annual criteria emissions by alternative and District. Table 2-12 shows estimated combined annual emissions across all nine Districts. Table 2-13 shows estimated peak daily criteria emissions for applicable alternatives assuming simultaneous operations as a hypothetical and highly unlikely "worst case" scenario. Table 2-14 shows estimated highest quarterly and average daily criteria emissions for applicable alternatives assuming concurrent operations as "typical case", which is a more likely and realistic scenario.

As shown in Table 2-12, no annual thresholds (Table 2-3) would be exceeded by the Programs, either individually or collectively. As shown in Table 2-13, no individual MVC District would exceed "worst case" daily thresholds. As shown in Table 2-14, no "typical case" daily thresholds would likely be exceeded by the Programs, either individually or collectively. Due to the very wide spatial and temporal dispersion of the mobile emissions sources across the nine Service Area counties, no ambient air quality standards for any pollutant would be violated solely by MVC activities. Since the combined annual or average daily emissions of the nine Districts would not be significant, neither would the incremental contribution of each District.

Table 2-3 CEQA Significance Thresholds - BAAQMD (1999)

Applicability	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Operation, tons/year	15	CAAQS[1]	15	40[2]	15	10[2]
Operation, pounds/year	30,000	CAAQS[1]	30,000	80,000	30,000	20,000
Operation, pounds/day	80	CAAQS[1]	80	—	80	—
Construction, pounds/day	80	CAAQS[1]	80	—	80[3]	—

Sources: BAAQMD 1999, 2012b (see note 4), 40 CFR 51.166. On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the District had failed to comply with CEQA when it adopted the thresholds of significance. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the District to set aside the 2010 thresholds and cease dissemination of them until the District had complied with CEQA. The District is no longer recommending that the 2010 thresholds be used as a generally applicable measure of a project's significance. Lead Districts may continue to rely on the District's 1999 thresholds and may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project.

Notes:

[1] No violation of CAAQS for CO (9 ppmv for 1 hour, 20 ppmv for 8 hours)

[2] Prevention of Significant Deterioration (PSD), annual only

[3] For construction projects, applies to exhaust emissions only, not fugitive dusts

Table 2-4 Districts' Selected Alternatives Applicability

Districts	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Non-Chemical Control
Alameda County MAD	12%	7%	—	1%	64%	16%
Alameda County VCSD	100%	—	—	—	—	—
Contra Costa County MVCD	16%	0.07%	0.13%	0.07%	61%	23%
Marin-Sonoma Counties MVCD	20%	5%	13%	21%	25%	15%
Napa County MAD	11%	13%	7%	2%	64%	4%
Northern Salinas Valley MAD	3%	6%	29%	7%	39%	15%
San Mateo County MVCD	11%	0%	30%	21%	13%	24%
Santa Clara County VCD	47%	3%	—	13%	37%	—
Solano County MAD	24%	—	—	0.03%	46%	30%
Nine Districts Composite	**27%**	**4%**	**9%**	**7%**	**39%**	**14%**

Sources: Nine Districts

Table 2-5 Land Uses Associated with Selected Alternatives

Districts	Residential	Commercial	Industrial	Agricultural	Open Space
Alameda County MAD	●	●	●	●	●
Alameda County VCSD	●	●			
Contra Costa County MVCD	●	●	●	●	●
Marin-Sonoma Counties MVCD	●	●	●	●	●
Napa County MAD	●	●	●	●	●
Northern Salinas Valley MAD	●	●	●	●	●
San Mateo County MVCD	●	●	●		●
Santa Clara County VCD	●	●	●	●	●
Solano County MAD	●	●	●	●	●

Sources: Nine Districts

Table 2-6 Estimated Annual Criteria Emissions for Surveillance Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	44	1,051	44	1.4	4.1	2.7
Alameda County VCSD	148	1,392	138	2.3	19.4	12.5
Contra Costa County MVCD	38	521	35	0.7	4.8	3.1
Marin-Sonoma Counties MVCD	132	2,515	298	3.5	19.5	13.9
Napa County MAD	21	718	40	0.8	2.6	1.7
Northern Salinas Valley MAD	3	57	18	0.1	0.8	0.6
San Mateo County MVCD	365	7,550	321	10.2	38.5	24.9
Santa Clara County VCD	240	2,300	226	3.7	31.3	20.3
Solano County MAD	73	1,710	225	2.6	9.0	5.9
Nine Districts Totals	**1,065**	**17,813**	**1,345**	**25.2**	**130.1**	**85.6**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Notes:

SCCVCD = Emissions for equipment use associated with rodent and wildlife trapping are reported under Surveillance

Table 2-7 Estimated Annual Criteria Emissions for Physical Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	25	606	25	0.8	2.4	1.5
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	2	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	36	689	82	1.0	5.3	3.8
Napa County MAD	25	841	47	1.0	3.1	2.0
Northern Salinas Valley MAD	7	120	38	0.2	1.7	1.3
San Mateo County MVCD	8	170	7	0.2	0.9	0.6
Santa Clara County VCD	16	149	15	0.2	2.0	1.3
Solano County MAD	0	0	0	0.0	0.0	0.0
Nine Districts Totals	**117**	**2,577**	**214**	**3.4**	**15.4**	**10.5**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-8 Estimated Annual Criteria Emissions for Vegetation Management Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	0	0	0	0.0	0.0	0.0
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	4	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	89	1,700	201	2.4	13.2	9.4
Napa County MAD	14	456	26	0.5	1.7	1.1
Northern Salinas Valley MAD	30	540	173	0.7	7.4	5.9
San Mateo County MVCD	973	20,105	855	27.0	102.6	66.4
Santa Clara County VCD	0	0	0	0.0	0.0	0.0
Solano County MAD	0	0	0	0.0	0.0	0.0
Nine Districts Totals	**1,106**	**22,805**	**1,255**	**30.7**	**124.9**	**82.9**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-9 Estimated Annual Criteria Emissions for Biological Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	3	67	3	0.1	0.3	0.2
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	2	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	141	2,683	318	3.7	20.8	14.8
Napa County MAD	3	109	6	0.1	0.4	0.3
Northern Salinas Valley MAD	7	130	42	0.2	1.8	1.4
San Mateo County MVCD	669	13,828	588	18.6	70.5	45.7
Santa Clara County VCD	66	636	62	1.0	8.7	5.6
Solano County MAD	0	2	0	0.0	0.0	0.0
Nine Districts Totals	**890**	**17,458**	**1,019**	**23.7**	**102.5**	**68.0**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-10 Estimated Annual Criteria Emissions for Chemical Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	231	5,523	229	7.4	21.6	14.0
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	146	2,013	136	2.9	18.6	12.1
Marin-Sonoma Counties MVCD	167	3,168	375	4.4	24.5	17.5
Napa County MAD	127	4,244	238	4.9	15.6	10.1
Northern Salinas Valley MAD	41	737	236	1.0	10.2	8.1
San Mateo County MVCD	431	8,907	379	12.0	45.4	29.4
Santa Clara County VCD	186	1,786	175	2.9	24.3	15.7
Solano County MAD	138	3,235	426	4.8	17.1	11.1
Nine Districts Totals	**1,467**	**29,613**	**2,194**	**40.2**	**177.4**	**118.0**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-11 Estimated Annual Criteria Emissions for Other Non-Chemical Control/Trapping Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	58	1,374	57	1.8	5.4	3.5
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	56	774	52	1.1	7.2	4.6
Marin-Sonoma Counties MVCD	99	1,873	222	2.6	14.5	10.3
Napa County MAD	7	236	13	0.3	0.9	0.6
Northern Salinas Valley MAD	16	284	91	0.4	3.9	3.1
San Mateo County MVCD	755	15,609	664	21.0	79.6	51.6
Santa Clara County VCD	0	0	0	0.0	0.0	0.0
Solano County MAD	92	2,151	283	3.2	11.4	7.4
Nine Districts Totals	**1,082**	**22,300**	**1,382**	**30.4**	**122.8**	**81.1**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Notes:

ACMAD = Emissions associated with ongoing District office administration and grounds maintenance activities are reported under this alternative.

SCCVCD = Emissions for equipment use associated with rodent and wildlife trapping are reported under Surveillance.

SCMAD = Emissions referenced in the "Other Non-Chemical" category emanate from vehicles and equipment used in connection with district activities not directly related to mosquito control, such as transportation to various meetings and facilities maintenance.

Table 2-12 Estimated Combined Annual Criteria Emissions Across Nine Districts

Alternatives	VOC tons/yr	CO tons/yr	NO_X tons/yr	SO_X tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr
Surveillance	0.53	8.91	0.67	0.01	0.07	0.04
Physical Control	0.06	1.29	0.11	0.00	0.01	0.01
Vegetation Management	0.55	11.40	0.63	0.02	0.06	0.04
Biological Control	0.45	8.73	0.51	0.01	0.05	0.03
Chemical Control	0.73	14.81	1.10	0.02	0.09	0.06
Other Non-Chemical	0.54	11.15	0.69	0.02	0.06	0.04
All Alternatives Totals	**2.86**	**56.28**	**3.70**	**0.08**	**0.34**	**0.22**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-13 Estimated Peak Daily Criteria Emissions for Applicable Alternatives - Simultaneous Operations

Districts	VOC lbs/day	CO lbs/day	NO_X lbs/day	SO_X lbs/day	PM_{10} lbs/day	$PM_{2.5}$ lbs/day
Alameda County MAD	5.8	177.5	39.9	0.3	0.9	0.6
Alameda County VCSD	0.6	5.5	0.6	0.0	0.1	0.0
Contra Costa County MVCD	7.8	152.7	23.7	0.2	1.2	0.8
Marin-Sonoma Counties MVCD	15.3	394.0	44.1	0.5	2.1	1.5
Napa County MAD	6.6	255.0	31.2	0.3	0.9	0.6
Northern Salinas Valley MAD	1.7	31.1	10.0	0.0	0.4	0.3
San Mateo County MVCD	25.3	810.2	31.8	1.0	2.1	1.4
Santa Clara County VCD	2.7	26.9	3.0	0.0	0.4	0.2
Solano County MAD	9.2	283.7	43.8	0.4	1.2	0.8
Peak Total Daily Emissions	**75**	**2,137**	**228**	**3**	**9**	**6**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-14 Estimated Highest Quarterly Criteria Emissions for Applicable Alternatives - Concurrent Operations

Districts	VOC lbs/qtr	CO lbs/qtr	NO_X lbs/qtr	SO_X lbs/qtr	PM_{10} lbs/qtr	$PM_{2.5}$ lbs/qtr
Alameda County MAD	184	5,215	197	7	15	10
Alameda County VCSD	38	355	35	1	5	3
Contra Costa County MVCD	105	1,627	105	2	13	9
Marin-Sonoma Counties MVCD	223	4,369	485	6	33	23
Napa County MAD	79	3,114	168	3	10	6
Northern Salinas Valley MAD	30	493	177	1	8	6
San Mateo County MVCD	1,329	28,290	1,125	38	140	91
Santa Clara County VCD	145	1,383	136	2	19	12
Solano County MAD	136	3,702	413	5	15	10
Nine Districts Totals	**2,268**	**48,549**	**2,841**	**65**	**258**	**170**
Average Total Daily Emissions	**35**	**747**	**44**	**1**	**4**	**3**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

3 Greenhouse Gases and Climate Change

3.1 Introduction

Climate change refers to any significant change in the measures of climate lasting for an extended period of time, and includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer. The average temperature of the Earth has increased about 1.4°F (0.8°C) over the past century, and is projected to rise another 2 degrees to 11.5°F (1.1 to 6.4°C) over the next 100 years. Small changes in the average temperature of the planet can translate to large and potentially hazardous shifts in climate and weather. Climate change is suspected as the cause of changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. Also, oceans are warming and becoming more acidic, polar ice caps are melting, glaciers are receding, and sea levels are rising due to thermal expansion and ice loss. As climate change progresses in the coming decades, it will likely present challenges to society and the environment. (EPA 2012e)

Over the past century, human activities have released large amounts of carbon dioxide and other greenhouse gases (GHGs) into the atmosphere. The majority of greenhouse gases are the byproduct of burning fossil fuels to release energy in the form of heat, although deforestation, industrial processes, and some agricultural practices also emit greenhouse gases into the atmosphere. Greenhouse gases trap solar energy in the atmosphere and cause it to warm. This phenomenon is called the greenhouse effect and is necessary to support life on Earth, however, excessive buildup of greenhouse gases can change Earth's climate and result in undesirable effects on ecosystems, which affects human health and welfare. (EPA 2012e)

3.2 Environmental Setting

3.2.1 The Atmosphere

Air is a mixture of constituent gases and its composition varies slightly with location and altitude. For 20th century scientific and engineering purposes, it became necessary to define a standard composition known as the U.S. Standard Atmosphere. In addition to the common gases (nitrogen, oxygen, carbon dioxide, methane, hydrogen, nitrous oxide), the atmosphere contains noble or inert gases (argon, neon, helium, krypton, xenon). Radon (Rn) is also present in low concentrations near ground level in limited geographic areas where it is naturally emitted from certain types of rock and soil. Table 3-1 shows the typical composition of dry standard air, which is over 99 percent nitrogen and oxygen (UIG 2008; EPA 2012b). The apparent molecular weight of dry standard air is 28.966 grams per mole (Jennings 1970; du Pont 1971).

The atmosphere consists of five basic altitude zones: troposphere (sea level to 8 miles); stratosphere (8 to 32 miles); mesosphere (32 to 50 miles); thermosphere (50 to 350 miles); and exosphere (350 to 500 miles). Within the stratosphere is the ozone layer (9 to 22 miles) which absorbs ultraviolet wavelengths; and within the mesosphere is the ionosphere (62 to 190 miles) which reflects shortwave radio signals and produces auroras. These approximate altitude ranges vary with latitude, season, solar activity, and turbulence. Greenhouse gases persist mainly in the troposphere and stratosphere – some in the mesosphere – for different lengths of time, ranging from less than 5 years to over 50,000 years, long enough to become well-mixed, meaning that atmospheric concentrations are about the same all over the world, regardless of source locations (EPA 2012f). Thus, the homogeneous composition of the lower atmosphere is the global setting for climate change.

Table 3-1 Standard Composition of Dry Air

Principal Gas	Chemical Symbol	Gas MW g/mole	Concentration ppmv	Fraction percent	Fraction MW g/mole
Nitrogen	N_2	28.014	780,805.00	78.080500	21.873471
Oxygen	O_2	31.998	209,440.00	20.944000	6.701661
Argon	Ar	39.948	9,340.00	0.934000	0.373114
Carbon Dioxide	CO_2	44.009	387.69	0.038769	0.017062
Neon	Ne	20.183	18.21	0.001821	0.000368
Helium	He	4.003	5.24	0.000524	0.000021
Methane	CH_4	16.043	1.81	0.000181	0.000029
Krypton	Kr	83.800	1.14	0.000114	0.000096
Hydrogen	H_2	2.016	0.50	0.000050	0.000001
Nitrous Oxide	N_2O	44.013	0.32	0.000032	0.000014
Xenon	Xe	31.300	0.09	0.000009	0.000003
Totals			**1,000,000.00**	**100.000**	**28.966**

Sources: UIG 2008, EPA 2012b, du Pont 1971, Jennings 1970

Notes:

MW = molecular weight, g/mole

ppmv = parts per million by volume (10^{-6})

3.2.2 Area Climate

The Program Areas' climate is characterized by moderately wet winters and dry summers. About 90 percent of the annual total rainfall is received in the November through April period. Between June and September, normal rainfall is typically less than 0.6 inch (1.5 centimeters). Temperatures in the Program Area average about 60°F (15°C) annually, with average summer highs in the 70 to 80°F (21 to 27°C) range and average winter lows in the 40 to 50°F (4 to 10°C) range. Precipitation averages about 23 inches (58 centimeters) per year, although annual precipitation can vary significantly from year-to-year. Annual average wind speeds in the Program Areas are about 8 miles per hour (3.6 meters per second). The predominant direction of air pollution transport in the Program Areas is inland from the coastal areas (BAAQMD 2010a, WC 2012, NOAA 2008).

3.3 Greenhouse Gases

3.3.1 Principal GHGs

Gases that trap heat in the atmosphere are called greenhouse gases or GHGs. Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Greenhouse gases occur naturally because of volcanoes, forest fires, and biological processes such as enteric fermentation and aerobic decomposition. They are also produced by combustion of fuels, industrial processes, agricultural operations, waste management, and land use changes such as loss of farmland to urbanization. The most common GHG from human activity (fuel combustion) is CO_2, followed by CH_4 and N_2O. (EPA 2012f)

Concentration, or abundance, is the amount of a particular gas in the air. Larger emissions of greenhouse gases lead to higher concentrations in the atmosphere. Greenhouse gas concentrations are measured in units of parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt). One part per million is equivalent to one cubic centimeter (cc) of pure gas diluted in one cubic meter of air. Similarly, one part per billion is one cc diluted in 1,000 cubic meters, and one part per trillion is one cc diluted in 1,000,000 cubic meters. (EPA 2012f)

Carbon Dioxide

Carbon dioxide (CO_2) enters the atmosphere through burning fossil fuels (coal, natural gas, and petroleum products), decomposition of solid waste, trees and wood products, fermentation, and also as a result of certain chemical reactions, such as manufacture of cement. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biologic carbon cycle. In the carbon cycle, carbon in various molecular forms is cycled among atmospheric, oceanic, land biotic, marine biotic, and mineral reservoirs. Atmospheric carbon dioxide is part of this global carbon cycle. Carbon dioxide concentrations in the atmosphere have increased from about 280 ppm in pre-industrial times to about 390 ppm today, a 39 percent increase. The Intergovernmental Panel on Climate Change (IPCC), notes that "this concentration has not been exceeded during the past 420,000 years, and likely not during the past 20 million years. The rate of increase over the past century is unprecedented, at least during the past 20,000 years." The IPCC definitively states that "the present atmospheric CO_2 increase is caused by anthropogenic emissions of CO_2". (EPA 2012f, IPCC 2007)

Global Warming Potential (GWP) is a quantified measure of the globally averaged relative radiative forcing impacts of a particular GHG. It is defined as the cumulative radiative forcing both direct and indirect effects integrated over a period of time from the emission of a unit mass of gas relative to a reference gas. Carbon dioxide is the reference gas with a GWP of unity (1). Carbon dioxide equivalents (CO_2e) are calculated by summing the products of mass GHG emissions by species times their respective U.S. Environmental Protection Agency (EPA) official GWP coefficients. The persistence of CO_2 in the atmosphere is estimated to be in the range of 50 to 200 years, depending on variations in the carbon cycle. (EPA 2012b, EPA 2012f)

Methane

Methane (CH_4) is primarily produced through anaerobic decomposition of organic matter in biological systems. Agricultural processes such as wetland rice cultivation, enteric fermentation in ruminant animals (e.g., cows), and the decomposition of animal wastes emit methane, as does the decomposition of municipal solid wastes. Methane is also fugitively emitted during the production and distribution of natural gas and petroleum, and is released as a by-product of coal mining and incomplete fossil fuel combustion. Pipeline-quality natural gas is over 90 percent methane by volume and is considered a "clean fuel" by industry with carbon dioxide and water vapor as its main combustion byproducts. Atmospheric concentrations of methane have increased by about 160 percent since pre-industrial times, although the rate of increase has been declining. The IPCC has estimated that slightly more than half of the current methane flux to the atmosphere is anthropogenic, from human activities such as agriculture, fossil fuel use, and waste disposal. The EPA's official GWP coefficient of CH_4 is 21, and its persistence in the atmosphere is estimated to be about 9 to 15 years. (EPA 2012b, EPA 2012f)

Nitrous Oxide

Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Anthropogenic sources of nitrous oxide emissions include agricultural soils, especially the use of synthetic and manure fertilizers; fossil fuel combustion, especially from mobile combustion; adipic (nylon) and nitric acid production; wastewater treatment and waste combustion; and biomass burning. The atmospheric concentration of N_2O has increased by about 19 percent since 1750, from a pre-industrial value of about 270 ppb to about 320 ppb today, a concentration that has not been

exceeded during the last thousand years. The EPA's official GWP coefficient of N_2O is 310, and its persistence in the atmosphere is estimated to be about 110 to 120 years. (EPA 2012b, EPA 2012f)

Fluorinated gases

Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). In the electric utility industry, sulfur hexafluoride (SF_6) is used as a dielectric gas in high-voltage equipment, such as switchgear and circuit breakers. As man-made gas, SF_6 in the atmosphere has increased from 0 to about 7 ppt in modern times. Due to their expense, all of these fluorinated gases are typically emitted (lost) in small quantities relative to combustion byproducts, but because they are potent greenhouse gases, they are sometimes referred to as "High GWP gases" with estimated persistence in the atmosphere ranging from 1.5 to 50,000 years. Of these, SF_6 is the most potent, with an EPA official GWP of 23,900 and an estimated persistence of about 3,200 years. (EPA 2012b, EPA 2012f)

3.3.2 Emission Sources

The EPA tracks greenhouse gas emissions in the United States and publishes the *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, which is updated annually (EPA 2012d). This detailed report contains estimates of the total national greenhouse gas emissions and removals associated with human activities in all 50 states. From the current report, the main sources of greenhouse gas emissions in the United States are identified below (EPA 2012f):

> Electric power generation accounts for 34 percent of GHG emissions nationwide. Over 70 percent of electric power is generated by burning fossil fuels, mainly coal and natural gas. Greenhouse gas emissions from electric power generation in the United States have increased by about 24 percent since 1990 as demand for electric power has grown and fossil fuels have remained the dominant energy source for generation due to their low cost and high reliability.

> Transportation accounts for 27 percent of GHG emissions nationwide. Greenhouse gas emissions from transportation result from burning fossil fuels in automobiles, trucks, trains, ships, and aircraft. About 90 percent of the fuel used for transportation is petroleum-based, which includes gasoline, diesel, and jet fuel.

> Industry accounts for 21 percent of GHG emissions nationwide. Greenhouse gas emissions from industry are associated mainly with burning fossil fuels (coal, natural gas) for heat energy as well as emissions from certain chemical reactions necessary to produce goods from raw materials.

> Commercial and Residential uses account for 11 percent of GHG emissions nationwide. Greenhouse gas emissions from businesses and homes result primarily from fossil fuels burned for heat, the use of certain products that contain GHGs, and the handling and disposal of domestic wastes.

> Agriculture accounts for 7 percent of GHG emissions nationwide. Greenhouse gas emissions from agriculture are caused by livestock such as cows (enteric fermentation), soil management practices, and rice farming.

> Land Use and Forestry offsets (absorbs or sequesters) about 15 percent of GHG emissions nationwide. Land areas can act as GHG sinks (absorbing CO_2 from the atmosphere) or GHG sources. Since 1990, well-managed forests and other lands have absorbed more CO_2 from the atmosphere than they emit.

3.3.3 Emission Trends

Annual GHG emission inventories provide the basis for establishing historical emission trends. Trends are useful in tracking progress towards a specific goal or target. There are many factors affecting GHG emissions, including the state of the economy, changes in demography, improved efficiency, and changes in environmental conditions such as drought.

From 2000 to 2009, California's gross GHG emissions decreased by 1.5 percent overall from 464 to 457 million metric tonnes (MMT) CO_2e, with a maximum of 489 MMT CO_2 e in 2007. During the same period, California's population grew by 9.7 percent from 33.9 to 37.2 million, therefore, per capita GHG emissions decreased from 13.7 to 12.3 metric tonnes of CO_2 e per person. From 2008 to 2009, overall GHG emissions decreased by about 6 percent. This reflects the effect of the economic recession and higher fuel prices, with marked declines in on-road transportation, cement production, and electric power consumption. As the economy recovers, emissions are likely to rise again until GHG reduction measures begin to take effect. (CARB 2011a)

Since 1990, greenhouse gas emissions in the United States have increased by about 10 percent. however, from year-to-year emissions can increase or decrease due to changes in the economy, the price of fuel, weather, and other factors. In 2010, national GHG emissions increased about 3 percent from 2009 levels. This increase was primarily due to the improving economy which increased energy consumption across all sectors. In addition, a hot summer caused an increase in electric power demand for air conditioning that was generated mainly by burning coal and natural gas in existing power plants. (EPA 2012f)

3.3.4 Mobile Sources

While stationary sources such as power plants and oil refineries emit large quantities of greenhouse gases, mobile sources, due their sheer numbers nationwide, also emit significant amounts. Mobile sources include onroad vehicles (e.g., automobiles, trucks, motorcycles), offroad equipment (e.g., earthmovers, cranes, portable pumps and generators), trains (e.g., freight, passenger, light rail), vessels (e.g., boats, ships, watercraft), and aircraft (e.g., general aviation, commercial, military). Mobile source fuels include gasoline, diesel, heavy fuel oil (large marine vessels), and jet fuel, all of which emit GHGs when combusted.

Mobile sources used in mosquito and vector control (MVC) activities include onroad fleet vehicles (light- and medium-duty trucks, vans, passenger cars), offroad all-terrain vehicles (ATVs), watercraft (motorboats, airboats), aircraft (helicopters and fixed-wing), portable equipment (pumps, sprayers, generators), and small equipment (hand-held sprayers, foggers, dusters). Except for 2-stroke engines used in small lightweight equipment (spark ignition, 50:1 gas/oil mix), engines are 4-stroke gasoline (spark ignition) or diesel fuel (compression ignition). The dominant fuel used for these mobile sources is motor gasoline along with some diesel fuel (larger trucks) , aviation gasoline (fixed-wing aircraft), and jet fuel (turbine-powered helicopters). Light trucks, vans, and passenger cars are normally used for responding to public service requests and disease surveillance. Typical GHG contents of common fuels are presented in Table 3-2.

Table 3-2 Typical GHG Contents of Common Fuels

Fuel	CO_2 kg/mmBTU	CH_4 kg/mmBTU	N_2O kg/mmBTU	CO_2e lb/mmBTU	Energy BTU/gal	CO_2e lb/gal
Diesel Fuel No. 2	73.96	0.0105	0.0006	163.97	138,300	22.68
Kerosene	73.19	0.0105	0.0006	162.27	138,700	22.51
Jet Fuel	72.23	0.0105	0.0006	160.17	135,000	21.62
Motor Gasoline	71.35	0.0105	0.0006	158.23	122,600	19.40
Aviation Gasoline	69.15	0.0105	0.0006	153.38	120,200	18.44
Propane	62.22	0.0053	0.0001	137.49	91,300	12.55
Pipeline Natural Gas	53.02	0.0053	0.0001	117.20	—	—

Sources: EPA 2012b, EPA 2011b

Notes:

kg/mmBTU = kilograms per million British Thermal Units

lb/mmBTU = pounds per million British Thermal Units

BTU = the amount of energy (heat) required to raise 1 pound of liquid water 1 degree Fahrenheit from 39 to 40°F

3.3.5 Sensitive Receptors

Certain population groups are considered more sensitive to air pollution and odors than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio respiratory diseases such as asthma and bronchitis. Sensitive receptors (land uses) indicate locations where such individuals are typically found, namely schools, daycare centers, hospitals, convalescent homes, residences of sensitive persons, and parks with active recreational uses, such as youth sports.

Persons engaged in strenuous work or physical exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses such as parks are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience.

None of the greenhouse gases described in Section 3.3.1 are considered toxic, however, all are classified as asphyxiants. Thus, in high enough concentrations in confined spaces they can displace the oxygen in air and present hazards to industrial workers, however, GHG concentrations in ambient air (see Table 3-1) are far below any danger levels. Therefore, no risk to sensitive receptors or the general public is posed by greenhouse gases emitted to outdoor air, either from stationary or mobile sources.

3.4 Climate Change

3.4.1 National and International Assessments

The American Meteorological Society refers to climate change as any systematic change in the long-term statistics of climate elements (such as temperature, pressure, or winds) sustained over several decades or longer. The Society also indicates that climate change may be due to natural external forcings, such as changes in solar emission or slow changes in the Earth's orbital elements; natural internal processes of the climate system; or anthropogenic forcing (AMS 2012). The climate system can be influenced by changes in the concentration of various GHGs in the atmosphere that affect the Earth's absorption of radiation.

In its *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2011* (EPA 2012b), the EPA provides summary information on the work of the United Nations Framework Convention on Climate Change (UNFCCC, 2009) and the Intergovernmental Panel on Climate Control (IPCC, 1990-2007); key information from that report is summarized below – more details may be found in the cited source documents.

The UNFCCC defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UNFCCC 2009). In its *Second Assessment Report* of the science of climate change, the IPCC concluded "human activities are changing the atmospheric concentrations and distributions of greenhouse gases and aerosols" (IPCC 1995). These changes can produce a radiative forcing by changing either the reflection or absorption of solar radiation, or the emission and absorption of terrestrial radiation." Building on this conclusion, the IPCC *Third Assessment Report* (IPCC 2001) asserted "concentrations of atmospheric greenhouse gases and their radiative forcing have continued to increase as a result of human activities."

The IPCC reports the global average surface temperature of the Earth has increased by 1.1 ±0.4°F (0.6 ±0.2°C) over the 20th century. This value is about 0.27°F (0.15°C) larger than that estimated by the Second Assessment Report, which reported for the period up to 1994, "owing to the relatively high temperatures of the additional years (1995 to 2000) and improved methods of processing the data."

While the *Second Assessment Report* concluded, "the balance of evidence suggests there is a discernible human influence on global climate," the *Third Assessment Report* more directly connects the influence of human activities on climate. IPCC concluded, "In light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations."

In its most recent *Fourth Assessment Report*, IPCC stated warming of Earth's climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases caused by human activities (IPCC 2007). IPCC further stated changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts, are linked to changes in the climate system, and some changes might be irreversible.

The mobile sources used in MVC activities emit greenhouse gases and therefore contribute incrementally to climate change; however, as described in Section 3.8, these emissions comprise a very small fraction of the Bay Area, California, and U.S. GHG inventories. This fact precludes any meaningful analysis of quantitative effects that MVC operations may specifically have on climate, although taken together with regional, national, and worldwide GHG emissions, global effects are as described above.

3.4.2 State Policies

The Global Warming Solutions Act of 2006 (AB 32) (see Section 3.5.2 below) required the California Air Resources Board (CARB) to prepare a Scoping Plan to achieve substantial GHG emissions reductions, both from within the state and from "exported" emissions, such as importing electric power generated at coal-fired power plants located in neighboring western states. The 2008 Scoping Plan outlines a wide range of strategies for reducing statewide GHG emissions to 1990 levels by 2020. This will be achieved by cutting about 30 percent from business-as-usual emission levels projected for 2020, or about 15 percent from 2008 levels. Allowing for population growth, the goal is to reduce annual per capita emissions from 14 metric tonnes (MT) of CO_2e down to about 10 MT CO_2e per capita by 2020. (CARB 2008b)

3.4.3 Emissions Inventories

The bulk of MVC activity emissions would occur in the Bay Area, and only minor amounts would occur in northern Sonoma, Yolo, Solano, and northern Monterey counties. Therefore, the comprehensive 2007 Bay Area GHG inventory is used as the regional benchmark for comparison purposes.

Table 3-3 shows aggregated national, state, and regional GHG emissions for all sources on a gross basis, i.e., CO_2e emissions only, not including CO_2 sinks such as forestry and agriculture. As shown, California accounts for about 7 percent of gross CO_2e emissions in the U.S. annually, and the Bay Area accounts for about 20 percent of gross CO_2e emissions in California.

Tables 3-4, 3-5, 3-6, and 3-7 present progressively focused Bay Area GHG emissions inventory data for 2007 broken down by sectors, counties, and applicable sub-sectors. This information will be used as a basis for comparisons with estimated MVC activity emissions for the nine Districts presented in Section 3.8.

Table 3-3 Greenhouse Gas Emissions Inventories - Gross Basis

Summary Year	National MMT CO_2e	California MMT CO_2e	Bay Area MMT CO_2e
2005	7,204	482.5	—
2006	7,159	481.9	—
2007	7,253	488.8	95.8
2008	7,048	484.7	—
2009	6,608	456.8	—
5-Year Average	**7,054**	**478.9**	—
Average Annual Variation	**2.6%**	**1.8%**	—

Sources: EPA 2012b, CARB 2011b, BAAQMD 2010b

Notes:

MMT - million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

2009 is most recent CARB published data; Bay Area for 2007 only

Table 3-4 Bay Area GHG Emissions by Sector

	District Emissions	
End-Use Sector	**Percent**	**MMT CO_2e**
Industrial / Commercial	36.4%	34.9
Residential Fuel Use	7.1%	6.8
Local Electric Power Generation	8.5%	8.1
Imported Electric Power Generation	7.4%	7.1
Offroad Equipment	3.0%	2.9
Transportation	36.4%	34.9
Agriculture / Farming	1.2%	1.1
Totals	**100.0%**	**95.8**

Source: BAAQMD 2010b

Notes:

MMT - million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Table 3-5 Bay Area GHG Emissions by County

County	District Emissions	
	Percent	**MMT CO_2e**
Alameda	16.4%	15.7
Contra Costa	32.9%	31.5
Marin	2.8%	2.7
Napa	1.8%	1.7
San Francisco	7.4%	7.1
San Mateo	8.9%	8.5
Santa Clara	19.6%	18.8
Solano (within BAAQMD)	5.9%	5.7
Sonoma (within BAAQMD)	4.3%	4.1
Totals	**100.0%**	**95.8**

Source: BAAQMD 2010b

Notes:

MMT = million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Table 3-6 Mobile Sectors GHG Emissions by County

County	Offroad MT CO_2e	Transportation MT CO_2e
Alameda	569,000	8,351,000
Contra Costa	406,000	4,998,000
Marin	99,000	1,286,000
Napa	50,000	917,000
San Francisco	415,000	2,673,000
San Mateo	270,000	4,850,000
Santa Clara	790,000	7,859,000
Solano (within BAAQMD)	147,000	1,834,000
Sonoma (within BAAQMD)	175,000	2,103,000
Totals	**2,921,000**	**34,871,000**

Source: BAAQMD 2010b

Notes:

MT = metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Values rounded to nearest 1,000 tonnes

"Offroad" is offroad equipment category

Table 3-7 Offroad Sub-Sectors GHG Emissions by County

County	Utility MT CO_2e	Commercial MT CO_2e	Combined MT CO_2e
Alameda	29,800	49,900	79,700
Contra Costa	20,300	26,900	47,200
Marin	7,900	12,300	20,200
Napa	2,900	4,300	7,200
San Francisco	14,200	43,900	58,100
San Mateo	14,200	27,200	41,400
Santa Clara	32,900	56,500	89,400
Solano (within BAAQMD)	3,900	6,800	10,700
Sonoma (within BAAQMD)	7,800	13,500	21,300
Totals	**133,900**	**241,300**	**375,200**

Source: BAAQMD 2010b

Notes:

MT= metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Values rounded to nearest 100 tonnes

"Utility" is small landscaping equipment selected for comparisons to Districts' activities

"Commercial" is light commercial equipment selected for comparisons to Districts' activities

3.5 Regulatory Setting

Currently, no local, state, or Federal regulatory standards directly apply to GHG emissions from temporary or intermittent mobile sources such as MVC activities. However, in the context of the Scoping Plan discussed in Section 3.4.2, implementation of Low Carbon Fuel Standard (Executive Order S-1-07, below) would indirectly apply to MVC activities via fuel usage. Summaries of principal Federal, state, and local GHG statutes, regulations, and programs which affect other types of sources are presented below.

3.5.1 Federal

40 CFR Part 98 – Greenhouse Gas Reporting

On October 30, 2009 the EPA issued the Mandatory Reporting of Greenhouse Gases rule (74 FR 56260, 40 CFR 98, effective December 29, 2009) which requires reporting of GHG data and other relevant information from large sources and suppliers in the United States pursuant to Fiscal Year 2008 Consolidated Appropriations Act (HR 2764; Public Law 110-161).

The new rule facilitates collection of accurate and comprehensive emissions data to provide a basis for future EPA policy decisions and regulatory initiatives. The rule requires specified industrial source categories and facilities with an aggregated heat input of 30 mmBTU or more per hour or that emit 25,000 metric tons or more per year of GHG to submit annual reports to the EPA. The gases covered by the rule are CO_2, CH_4, N_2O, and HFCs, PFCs, SF_6, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Since the Programs do not meet the definition of an affected stationary source (i.e., mobile sources only), the GHG reporting rule does not apply.

Notwithstanding the GHG reporting rule, no Federal regulations currently limit or curtail GHG emissions of carbon dioxide and methane, and EPA cap-and-trade programs currently apply only to acid rain

precursors sulfur dioxide (SO_2) and nitrogen oxides (NO_X) (EPA 2012g). However, emissions of N_2O are regulated, albeit indirectly, through limitation of NO_X emissions as a criteria pollutant under New Source Performance Standards (NSPS) and Federal, state, and local operating permits.

General Conformity

A General Conformity determination is required for Federally sponsored, permitted, or funded actions in NAAQS nonattainment areas or in certain maintenance areas when the total direct and indirect net emissions of nonattainment pollutants (or their precursors) exceed specified thresholds (Clean Air Act Amendments of 1990 Section 176[c]). This regulation ensures that Federal actions conform to State Implementation Plans (SIPs) and agency NAAQS attainment plans. Since greenhouse gases are not regulated criteria air pollutants and the Programs are not Federally sponsored, permitted, or funded actions, General Conformity does not apply.

3.5.2 State

Global Warming Solutions Act

The Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) codifies California's goal of reducing statewide emissions of GHGs to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012 to achieve maximum technologically feasible and cost-effective GHG emission reductions. In order to effectively implement the cap, AB 32 directs the California Air Resources Board (CARB) to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels.

On September 25, 2009, CARB adopted the AB 32 Cost of Implementation Fee Regulation (Health and Safety Code 38597). The regulation was approved by the Office of Administrative Law on June 17, 2010, and became effective on July 19, 2010. For the first year of the fee program, CARB will administratively provide compliance flexibility and will not enforce reporting and fee requirements until after the passage of the state budget for fiscal year 2010-11. Until the budget is enacted and CARB provides detailed compliance criteria, facilities subject to the regulation do not need to pay fees or report information required by the regulation. However, since the Programs are not affected stationary sources, the AB 32 fee regulation does not apply.

Cap and Trade

The California Air Resources Board's new "Cap and Trade" regulation (Subchapter 10, Article 5, Sections 95800 to 96023, Title 17, California Code of Regulations) is a set of rules (effective September 1, 2012) that establishes a limit on GHG emissions from the largest sources of GHGs in the state. The purpose of *California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms* is to reduce emissions of GHGs from affected stationary sources through the establishment, administration, and enforcement of an aggregate GHG allowance budget and to provide a trading mechanism for compliance instruments (i.e., "GHG allowances" or "carbon credits"). Since the Programs are not affected stationary sources under the rule, Cap and Trade does not apply. No other statewide quantitative standards of significance for GHG impacts have been established for nonaffected sources under CEQA.

Assembly Bill 939

California AB 939, known as the Integrated Waste Management Act of 1989, was enacted due to increasing waste stream volumes and decreasing landfill capacities in the state. As a result of AB 939, the California Integrated Waste Management Board was created. A disposal reporting system with its oversight was established, and facility and program planning was required. AB 939 mandated that sanitation districts (jurisdictions) meet diversion goals of 25 percent by 1995 and 50 percent by 2000, primarily through recyclables collection and green waste compositing. AB 939 also established an

integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance.

Senate Bill 1368

California Senate Bill (SB) 1368 adds sections 8340 and 8341 to the Public Utilities Code (effective January 1, 2007) with the intent "to prevent long-term investments in power plants with GHG emissions in excess of those produced by a combined-cycle natural gas power plant" with the aim of "reducing emissions of GHGs from the state's electricity consumption, not just the state's electricity production." SB 1368 provides a mechanism for reducing the GHG emissions of electricity providers, both in-state and out-of-state, thereby assisting CARB in meeting its mandate under AB 32, the Global Warming Solutions Act of 2006.

Senate Bill 97

California SB 97 directs the Office of Planning and Research to prepare, develop, and transmit to the Resources Agency CEQA guidelines for the feasible mitigation of GHG emissions or their effects by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. SB 97 also protects, for a short time, certain projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E) from claims of inadequate analysis of GHG as a legitimate cause of action. This latter provision was repealed on January 1, 2010.

Senate Bill 375

California SB 375 aims to reduce GHG emissions by curbing sprawl, because the largest sources of GHG emissions in California are passenger vehicles and light trucks. SB 375 provides emission reduction goals for which regions can plan, integrates disjointed planning activities, and provides incentives for local governments and developers to follow new conscientiously-planned growth patterns. SB 375 enhances CARB's ability to reach AB 32 goals by requiring metropolitan planning organizations to include defined sustainable community strategies in their regional transportation plans for the purpose of reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

Senate Bills 1078 and 10

California SB 1078 was signed into legislation in 2002 and required California load serving entities (electric utilities) to procure 20 percent of their retail customer load with renewable energy by the year 2017. Four years later (2006), SB 10 accelerated the 20 percent renewable deadline to 2010.

Executive Order S-20-04

On July 27, 2004, Executive Order S-20-04 was issued committing the state to aggressive action to reduce state-owned building electricity usage by retrofitting, building and operating the most energy and resource efficient buildings by taking all cost-effective measures described in the Green Building Action Plan with the goal of reducing grid-based energy purchases by 20 percent by 2015. This order also directed the California Public Utilities Commission to support a campaign to improve commercial building energy efficiency in order to help achieve the 20 percent goal and to develop a benchmarking methodology.

Executive Order S-3-05

On June 1, 2005, Executive Order S-3-05 was issued establishing GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-1-07

On January 18, 2007, the Low Carbon Fuel Standard (LCFS) was issued mandating a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. It instructed the California Environmental Protection Agency to coordinate activities among the University of California, the California Energy Commission, and other state agencies to develop and propose a draft compliance schedule to meet the 2020 target. Furthermore, it directed CARB to consider initiating regulatory proceedings to establish and implement the LCFS. In response, CARB identified the LCFS as an early action item with a regulation to be adopted and implemented by 2010.

Executive Order S-13-08

On November 14, 2008, Executive Order S-20-04 was issued directing the California Resources Agency, in cooperation with the Department of Water Resources, the California Energy Commission, California's coastal management agencies, and the Ocean Protection Council to request that the National Academy of Sciences convene an independent panel to complete the first California Sea Level Rise Assessment Report by December 1, 2010. As part of this effort, the Resources Agency is to create an independent sea level rise science and policy committee made up of state, national, and international experts and to hold public workshops to gather policy-relevant information.

3.5.3 Local

BAAQMD CEQA Guidelines

On June 2, 2010, the Bay Area Air Quality Management District (BAAQMD) adopted new CEQA Air Quality Guidelines (BAAQMD 2012b) for consideration by lead agencies tasked with evaluating the air quality and climate change impacts of proposed new projects. The proposed Guidelines superseded the December 1999 Guidelines. As guidelines, they did not comprise enforceable rules or regulations per se, nevertheless, the guidelines established the following quantitative thresholds of significance for GHG emissions (MT = metric tonne, 1,000 kilograms or 2,204.6 pounds; SP = Service Population, residents + employees):

> Stationary Sources: 10,000 MT CO_2e per year

> Other than Stationary Sources: 1,100 MT CO_2e per year or 4.6 MT CO_2e per SP per year

> Plans: 6.6 MT CO_2e per SP per year

However, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the 2010 thresholds and cease dissemination of them until it had complied with CEQA. The BAAQMD is no longer recommending that the 2010 thresholds be used as a generally applicable measure of a project's significance. Lead agencies may continue to rely on the 1999 CEQA thresholds and may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project.

Neither Northern Sonoma County APCD nor Monterey Bay Unified APCD have applicable CEQA thresholds for greenhouse gases. Since the 1999 BAAQMD thresholds apply only to criteria pollutants, not greenhouse gases, no GHG thresholds currently apply (BAAQMD 1999, 2012b). Notwithstanding the writ of mandate, Program status would have been as follows under the 2010 Bay Area CEQA Guidelines:

> MVC activities do not meet the regulatory definition of a stationary source of air contaminants; therefore, the 10,000 metric tonne CO_2e per year stationary source GHG threshold would not apply.

> For nonstationary source land use development projects, BAAQMD's adopted "bright-line" threshold of significance differs from other proposed GHG thresholds currently under consideration in California. Under this threshold, in order to conclude that a project's GHG impacts are less than significant, a project would need to be in compliance with a "Qualified Greenhouse Gas Reduction Strategy," emit less than 1,100 metric tonnes CO_2e per year, or emit less than 4.6 metric tonnes CO_2e per year per capita service population (residents + employees). However, the Programs do not qualify as land use development projects; therefore, these GHG thresholds would not apply.

> There are no GHG thresholds for temporary construction emissions from mobile and portable sources, neither daily nor annual, whether for stationary or nonstationary source projects. Since MVC activities comprise mobile and portable sources similar to construction, no quantitative GHG significance thresholds would apply to the Programs since activities such as MVC are not specified, defined, or addressed in the guidelines.

3.6 Standards of Significance

The programmatic environmental impact report (PEIR) addresses the following qualitative standards of significance as based on CEQA Guidelines Appendix G. Would the project:

> Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

> Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

For the nine Programs, determinations made with respect to significance criteria are documented in the PEIR.

3.7 Quantification Methodology

As described in Section 3.3.4, operation of onroad fleet vehicles, offroad all-terrain vehicles, watercraft, aircraft, portable equipment, and small equipment would result in emissions of GHGs in engine exhaust. Detailed lists of equipment, estimated usage, and emission calculations are provided in Attachment A. Equipment lists and annual activity schedules were provided by the nine participating Districts. Emission calculations were performed using the most recent and applicable emission factors published by CARB (2008a) and EPA (2011b, 2012b).

Table 3-8 shows alternatives applicability by percentage as selected by the nine MVC Districts: surveillance, physical control, vegetation management, biological control, chemical control, or other non-chemical control. Table 3-9 shows land uses associated with selected alternatives: residential, commercial, industrial, agricultural, and open space. As shown in Tables 3-8 and 3-9, not all alternatives or land uses are applicable in all Districts, nor are all options or activities under any applicable alternative.

3.8 Estimated Emissions

Tables 3-10 through 3-15 show estimated ongoing annual GHG emissions as CO_2e by alternative and district. Table 3-16 shows estimated combined annual emissions across all nine Districts. On the local level, the combined "grand total" of 2,600 metric tonnes CO_2e per year comprises only 0.7 percent of the 375,200 metric tonnes CO_2e per year in the utility and commercial offroad sub-sectors (see Table 3-7); this is within EPA limits of precision of -2 to +5 percent for fossil fuel combustion (EPA 2012b). On the regional level, this is less than 0.003 percent of aggregate GHG emissions from the Bay Area (see Table 3-4). At the state and national levels, these emissions are negligible: 0.0005 and 0.00004 percent, respectively (see Table 3-3). Since the combined emissions of the nine Districts would not be substantial, neither would the incremental contribution of each District.

Table 3-8 Districts' Selected Alternatives Applicability

Districts	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Non-Chemical
Alameda County MAD	12%	7%	—	1%	64%	16%
Alameda County VCSD	100%	—	—	—	—	—
Contra Costa County MVCD	16%	0.07%	0.13%	0.07%	61%	23%
Marin-Sonoma Counties MVCD	20%	5%	13%	21%	25%	15%
Napa County MAD	11%	13%	7%	2%	64%	4%
Northern Salinas Valley MAD	3%	6%	29%	7%	39%	15%
San Mateo County MVCD	11%	0%	30%	21%	13%	24%
Santa Clara County VCD	47%	3%	—	13%	37%	—
Solano County MAD	24%	—	—	0.03%	46%	30%
Nine Districts Composite	**27%**	**4%**	**9%**	**7%**	**39%**	**14%**

Sources: Nine Districts

Table 3-9 Land Uses Associated with Selected Alternatives

Districts	Residential	Commercial	Industrial	Agricultural	Open Space
Alameda County MAD	●	●	●	●	●
Alameda County VCSD	●	●			
Contra Costa County MVCD	●	●	●	●	●
Marin-Sonoma Counties MVCD	●	●	●	●	●
Napa County MAD	●	●	●	●	●
Northern Salinas Valley MAD	●	●	●	●	●
San Mateo County MVCD	●	●	●		●
Santa Clara County VCD	●	●	●	●	●
Solano County MAD	●	●	●	●	●

Sources: Nine Districts

Table 3-10 Estimated Annual GHG Emissions for Surveillance Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	16.3	0.0009	0.0004	16.4
Alameda County VCSD	105.4	0.0060	0.0024	106.3
Contra Costa County MVCD	21.1	0.0012	0.0005	21.3
Marin-Sonoma Counties MVCD	51.0	0.0024	0.0016	51.6
Napa County MAD	8.9	0.0004	0.0002	8.9
Northern Salinas Valley MAD	1.6	0.0001	0.0001	1.6
San Mateo County MVCD	147.6	0.0084	0.0034	148.9
Santa Clara County VCD	169.7	0.0097	0.0039	171.2
Solano County MAD	35.5	0.0016	0.0009	35.8
Nine Districts Totals	**557.2**	**0.0309**	**0.0135**	**562.0**

Sources: CARB 2008a, EPA (2011b, 2012b)

SCCVCD = Emissions for equipment use associated with rodent and wildlife trapping are reported under Surveillance.

Table 3-11 Estimated Annual GHG Emissions for Physical Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	9.4	0.0005	0.0002	9.5
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.1	0.0000	0.0000	0.1
Marin-Sonoma Counties MVCD	14.0	0.0007	0.0004	14.1
Napa County MAD	10.4	0.0005	0.0003	10.5
Northern Salinas Valley MAD	3.4	0.0002	0.0001	3.4
San Mateo County MVCD	3.3	0.0002	0.0001	3.3
Santa Clara County VCD	11.0	0.0006	0.0003	11.1
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**51.5**	**0.0027**	**0.0014**	**52.0**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-12 Estimated Annual GHG Emissions for Vegetation Management Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	0.0	0.0000	0.0000	0.0
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.2	0.0000	0.0000	0.2
Marin-Sonoma Counties MVCD	34.5	0.0016	0.0011	34.8
Napa County MAD	5.6	0.0003	0.0001	5.7
Northern Salinas Valley MAD	15.3	0.0007	0.0005	15.5
San Mateo County MVCD	393.2	0.0224	0.0092	396.5
Santa Clara County VCD	0.0	0.0000	0.0000	0.0
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**448.8**	**0.0251**	**0.0109**	**452.7**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-13 Estimated Annual GHG Emissions for Biological Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	1.0	0.0001	0.0000	1.1
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.1	0.0000	0.0000	0.1
Marin-Sonoma Counties MVCD	54.4	0.0026	0.0017	55.0
Napa County MAD	1.3	0.0001	0.0000	1.4
Northern Salinas Valley MAD	3.7	0.0002	0.0001	3.7
San Mateo County MVCD	270.4	0.0154	0.0063	272.7
Santa Clara County VCD	46.9	0.0027	0.0011	47.3
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**378.0**	**0.0210**	**0.0093**	**381.3**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-14 Estimated Annual GHG Emissions for Chemical Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	85.4	0.0048	0.0020	86.2
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	81.8	0.0046	0.0019	82.4
Marin-Sonoma Counties MVCD	64.2	0.0030	0.0020	64.9
Napa County MAD	52.3	0.0027	0.0013	52.8
Northern Salinas Valley MAD	20.9	0.0009	0.0007	21.1
San Mateo County MVCD	174.2	0.0099	0.0041	175.7
Santa Clara County VCD	131.8	0.0075	0.0031	132.9
Solano County MAD	67.1	0.0031	0.0018	67.7
Nine Districts Totals	**677.7**	**0.0367**	**0.0168**	**683.7**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-15 Estimated Annual GHG Emissions for Other Non-Chemical Control/Trapping Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	21.3	0.0012	0.0005	21.4
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	31.4	0.0018	0.0007	31.7
Marin-Sonoma Counties MVCD	38.0	0.0018	0.0012	38.4
Napa County MAD	2.9	0.0001	0.0001	2.9
Northern Salinas Valley MAD	8.0	0.0004	0.0003	8.1
San Mateo County MVCD	305.3	0.0174	0.0071	307.8
Santa Clara County VCD	0.0	0.0000	0.0000	0.0
Solano County MAD	44.6	0.0020	0.0012	45.0
Nine Districts Totals	**451.5**	**0.0248**	**0.0111**	**455.4**

Sources: CARB 2008a, EPA (2011b, 2012b)

Notes:

ACMAD = Emissions associated with ongoing District office administration and grounds maintenance activities are reported under this alternative.

SCCVCD = Emissions for equipment use associated with rodent and wildlife trapping are reported under Surveillance.

SCMAD = Emissions referenced in the "Other Non-Chemical" category emanate from vehicles and equipment used in connection with district activities not directly related to mosquito control, such as transportation to various meetings and facilities maintenance.

Table 3-16 Estimated Combined Annual GHG Emissions Across Nine Districts

Alternatives	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Surveillance	557	0.0309	0.0135	562
Physical Control	52	0.0027	0.0014	52
Vegetation Management	449	0.0251	0.0109	453
Biological Control	378	0.0210	0.0093	381
Chemical Control	678	0.0367	0.0168	684
Other Non-Chemical	451	0.0248	0.0111	455
All Alternatives Totals	**2,565**	**0.1410**	**0.0630**	**2,587**

Sources: CARB 2008a, EPA (2011b, 2012b)

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Integrated Mosquito and Vector Management Programs

ATTACHMENT A

CRITERIA POLLUTANT AND GREENHOUSE GAS EMISSIONS CALCULATIONS

A-1 Ambient Air Standards

Table 2-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	—	—
	8-hour	0.07	137	0.075	147
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	0.100	188
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,309
	24-hour	0.04	105	—	—
Carbon Monoxide (CO)	1-hour	20	22,898	35	40,071
	8-hour	9	10,304	9	10,304
	Lake Tahoe (8-hr)	6	6,869	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Sources: CARB 2012a, EPA 2011a

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, ug/m^3 calculated from ppmv based on molecular weight and standard conditions

Standard Temperature	25	deg C
Standard Molar Volume	24.465	liter/g-mole

A-2 Attainment Status

Table 2-2 Attainment Status Summary - Bay Area Region

Criteria Pollutant	State Designation	Federal Designation
Ozone (O_3) (1-hour)	Nonattainment	—
Ozone (O_3) (8-hour)	Nonattainment	Nonattainment[(1)]
Nitrogen Dioxide (NO_2) (1-hour)	Attainment	Unclassified[(2)]
Nitrogen Dioxide (NO_2) (annual)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Resp. Particulates (as PM_{10}) (24-hour)	Nonattainment	Unclassified[(2)]
Resp. Particulates (as PM_{10}) (annual)	Nonattainment	—
Fine Particulates (as $PM_{2.5}$) (24-hour)	—	Nonattainment
Fine Particulates (as $PM_{2.5}$) (annual)	Nonattainment	Attainment
Lead (Pb)	Attainment	Attainment
Sulfates (as SO_4)	Attainment	—
Hydrogen Sulfide (H_2S)	Unclassified[(2)]	—
Vinyl Chloride (C_2H_3Cl)	n/d	—
Visibility	Unclassified[(2)]	—

Source: BAAQMD 2012a

Notes:

[(1)] The 0.08 ppmv federal 8-hour ozone standard applied until 2008; 0.075 ppmv thereafter

[(2)] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified.

n/d - no data/information available

Table 2-3 CEQA Significance Thresholds - BAAQMD (1999)

Applicability	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Operation, tons/year	15	CAAQS	15	40[(2)]	15	10[(2)]
Operation, pounds/year	30,000	CAAQS	30,000	80,000	30,000	20,000
Operation, pounds/day	80	CAAQS	80	—	80	—
Construction, pounds/day	80	CAAQS	80	—	80[(3)]	—

Sources: BAAQMD 1999, 2012b (see note 4), 40 CFR 51.166

Notes:

(1) No violation of CAAQS for CO (9 ppmv for 1 hour, 20 ppmv for 8 hours)

(2) Prevention of Significant Deterioration (PSD), annual only

(3) For construction projects, applies to exhaust emissions only, not fugitive dusts

(4) On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the District had failed to comply with CEQA when it adopted the thresholds of significance. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the District to set aside the 2010 thresholds and cease dissemination of them until the District had complied with CEQA. The District is no longer recommending that the 2010 thresholds be used as a generally applicable measure of a project's significance. Lead Districts may continue to rely on the District's 1999 thresholds and may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project.

Table 2-4, 3-8 Districts' Selected Alternatives Applicability

Districts	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Non-Chemical
Alameda County MAD	12%	7%	—	1%	64%	16%
Alameda County VCSD	100%	—	—	—	—	—
Contra Costa County MVCD	16%	0.07%	0.13%	0.07%	61%	23%
Marin-Sonoma Counties MVCD	20%	5%	13%	21%	25%	15%
Napa County MAD	11%	13%	7%	2%	64%	4%
Northern Salinas Valley MAD	3%	6%	29%	7%	39%	15%
San Mateo County MVCD	11%	0%	30%	21%	13%	24%
Santa Clara County VCD	47%	3%	—	13%	37%	—
Solano County MAD	24%	—	—	0.03%	46%	30%
Nine Districts Composite	**27%**	**4%**	**9%**	**7%**	**39%**	**14%**

Sources: Nine Districts

Table 2-5, 3-9 Land Uses Associated with Selected Alternatives

Districts	Residential	Commercial	Industrial	Agricultural	Open Space
Alameda County MAD	■	■	■	■	■
Alameda County VCSD	■	■			
Contra Costa County MVCD	■	■	■	■	■
Marin-Sonoma Counties MVCD	■	■	■	■	■
Napa County MAD	■	■	■	■	■
Northern Salinas Valley MAD	■	■	■	■	■
San Mateo County MVCD	■	■	■		■
Santa Clara County VCD	■	■	■	■	■
Solano County MAD	■	■	■	■	■

Sources: Nine Districts

Table 2-6 Estimated Annual Criteria Emissions for Surveillance Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	44	1,051	44	1.4	4.1	2.7
Alameda County VCSD	148	1,392	138	2.3	19.4	12.5
Contra Costa County MVCD	38	521	35	0.7	4.8	3.1
Marin-Sonoma Counties MVCD	132	2,515	298	3.5	19.5	13.9
Napa County MAD	21	718	40	0.8	2.6	1.7
Northern Salinas Valley MAD	3	57	18	0.1	0.8	0.6
San Mateo County MVCD	365	7,550	321	10.2	38.5	24.9
Santa Clara County VCD	240	2,300	226	3.7	31.3	20.3
Solano County MAD	73	1,710	225	2.6	9.0	5.9
Nine Districts Totals	**1,065**	**17,813**	**1,345**	**25.2**	**130.1**	**85.6**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-7 Estimated Annual Criteria Emissions for Physical Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	25	606	25	0.8	2.4	1.5
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	2	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	36	689	82	1.0	5.3	3.8
Napa County MAD	25	841	47	1.0	3.1	2.0
Northern Salinas Valley MAD	7	120	38	0.2	1.7	1.3
San Mateo County MVCD	8	170	7	0.2	0.9	0.6
Santa Clara County VCD	16	149	15	0.2	2.0	1.3
Solano County MAD	0	0	0	0.0	0.0	0.0
Nine Districts Totals	**117**	**2,577**	**214**	**3.4**	**15.4**	**10.5**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-8 Estimated Annual Criteria Emissions for Vegetation Management Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	0	0	0	0.0	0.0	0.0
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	4	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	89	1,700	201	2.4	13.2	9.4
Napa County MAD	14	456	26	0.5	1.7	1.1
Northern Salinas Valley MAD	30	540	173	0.7	7.4	5.9
San Mateo County MVCD	973	20,105	855	27.0	102.6	66.4
Santa Clara County VCD	0	0	0	0.0	0.0	0.0
Solano County MAD	0	0	0	0.0	0.0	0.0
Nine Districts Totals	**1,106**	**22,805**	**1,255**	**30.7**	**124.9**	**82.9**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-9 Estimated Annual Criteria Emissions for Biological Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	3	67	3	0.1	0.3	0.2
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	0	2	0	0.0	0.0	0.0
Marin-Sonoma Counties MVCD	141	2,683	318	3.7	20.8	14.8
Napa County MAD	3	109	6	0.1	0.4	0.3
Northern Salinas Valley MAD	7	130	42	0.2	1.8	1.4
San Mateo County MVCD	669	13,828	588	18.6	70.5	45.7
Santa Clara County VCD	66	636	62	1.0	8.7	5.6
Solano County MAD	0	2	0	0.0	0.0	0.0
Nine Districts Totals	**890**	**17,458**	**1,019**	**23.7**	**102.5**	**68.0**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-10 Estimated Annual Criteria Emissions for Chemical Control Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	231	5,523	229	7.4	21.6	14.0
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	146	2,013	136	2.9	18.6	12.1
Marin-Sonoma Counties MVCD	167	3,168	375	4.4	24.5	17.5
Napa County MAD	127	4,244	238	4.9	15.6	10.1
Northern Salinas Valley MAD	41	737	236	1.0	10.2	8.1
San Mateo County MVCD	431	8,907	379	12.0	45.4	29.4
Santa Clara County VCD	186	1,786	175	2.9	24.3	15.7
Solano County MAD	138	3,235	426	4.8	17.1	11.1
Nine Districts Totals	**1,467**	**29,613**	**2,194**	**40.2**	**177.4**	**118.0**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-11 Estimated Annual Criteria Emissions for Other Non-Chemical Alternative

Districts	VOC lbs/year	CO lbs/year	NO_X lbs/year	SO_X lbs/year	PM_{10} lbs/year	$PM_{2.5}$ lbs/year
Alameda County MAD	58	1,374	57	1.8	5.4	3.5
Alameda County VCSD	0	0	0	0.0	0.0	0.0
Contra Costa County MVCD	56	774	52	1.1	7.2	4.6
Marin-Sonoma Counties MVCD	99	1,873	222	2.6	14.5	10.3
Napa County MAD	7	236	13	0.3	0.9	0.6
Northern Salinas Valley MAD	16	284	91	0.4	3.9	3.1
San Mateo County MVCD	755	15,609	664	21.0	79.6	51.6
Santa Clara County VCD	0	0	0	0.0	0.0	0.0
Solano County MAD	92	2,151	283	3.2	11.4	7.4
Nine Districts Totals	**1,082**	**22,300**	**1,382**	**30.4**	**122.8**	**81.1**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-12 Estimated Combined Annual Criteria Emissions Across Nine Districts

Alternatives	VOC tons/yr	CO tons/yr	NO_X tons/yr	SO_X tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr
Surveillance	0.53	8.91	0.67	0.01	0.07	0.04
Physical Control	0.06	1.29	0.11	0.00	0.01	0.01
Vegetation Management	0.55	11.40	0.63	0.02	0.06	0.04
Biological Control	0.45	8.73	0.51	0.01	0.05	0.03
Chemical Control	0.73	14.81	1.10	0.02	0.09	0.06
Other Non-Chemical	0.54	11.15	0.69	0.02	0.06	0.04
All Alternatives Totals	**2.86**	**56.28**	**3.70**	**0.08**	**0.34**	**0.22**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-13 Estimated Peak Daily Criteria Emissions for Applicable Alternatives - Simultaneous Operations

Districts	VOC lbs/day	CO lbs/day	NO_X lbs/day	SO_X lbs/day	PM_{10} lbs/day	$PM_{2.5}$ lbs/day
Alameda County MAD	5.8	177.5	39.9	0.3	0.9	0.6
Alameda County VCSD	0.6	5.5	0.6	0.0	0.1	0.0
Contra Costa County MVCD	7.8	152.7	23.7	0.2	1.2	0.8
Marin-Sonoma Counties MVCD	15.3	394.0	44.1	0.5	2.1	1.5
Napa County MAD	6.6	255.0	31.2	0.3	0.9	0.6
Northern Salinas Valley MAD	1.7	31.1	10.0	0.0	0.4	0.3
San Mateo County MVCD	25.3	810.2	31.8	1.0	2.1	1.4
Santa Clara County VCD	2.7	26.9	3.0	0.0	0.4	0.2
Solano County MAD	9.2	283.7	43.8	0.4	1.2	0.8
Peak Total Daily Emissions	**75**	**2,137**	**228**	**3**	**9**	**6**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 2-14 Estimated Highest Quarterly Criteria Emissions for Applicable Alternatives - Concurrent Operations

Districts	VOC lbs/qtr	CO lbs/qtr	NO_X lbs/qtr	SO_X lbs/qtr	PM_{10} lbs/qtr	$PM_{2.5}$ lbs/qtr
Alameda County MAD	184	5,215	197	7	15	10
Alameda County VCSD	38	355	35	1	5	3
Contra Costa County MVCD	105	1,627	105	2	13	9
Marin-Sonoma Counties MVCD	223	4,369	485	6	33	23
Napa County MAD	79	3,114	168	3	10	6
Northern Salinas Valley MAD	30	493	177	1	8	6
San Mateo County MVCD	1,329	28,290	1,125	38	140	91
Santa Clara County VCD	145	1,383	136	2	19	12
Solano County MAD	136	3,702	413	5	15	10
Nine Districts Totals	**2,268**	**48,549**	**2,841**	**65**	**258**	**170**
Average Total Daily Emissions	**35**	**747**	**44**	**1**	**4**	**3**

Sources: CARB 2008a, EPA (1973, 1991a, 1991b, 2011b, 2011c, 2012c)

Table 3-10 Estimated Annual GHG Emissions for Surveillance Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	16.3	0.0009	0.0004	16.4
Alameda County VCSD	105.4	0.0060	0.0024	106.3
Contra Costa County MVCD	21.1	0.0012	0.0005	21.3
Marin-Sonoma Counties MVCD	51.0	0.0024	0.0016	51.6
Napa County MAD	8.9	0.0004	0.0002	8.9
Northern Salinas Valley MAD	1.6	0.0001	0.0001	1.6
San Mateo County MVCD	147.6	0.0084	0.0034	148.9
Santa Clara County VCD	169.7	0.0097	0.0039	171.2
Solano County MAD	35.5	0.0016	0.0009	35.8
Nine Districts Totals	**557.2**	**0.0309**	**0.0135**	**562.0**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-11 Estimated Annual GHG Emissions for Physical Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	9.4	0.0005	0.0002	9.5
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.1	0.0000	0.0000	0.1
Marin-Sonoma Counties MVCD	14.0	0.0007	0.0004	14.1
Napa County MAD	10.4	0.0005	0.0003	10.5
Northern Salinas Valley MAD	3.4	0.0002	0.0001	3.4
San Mateo County MVCD	3.3	0.0002	0.0001	3.3
Santa Clara County VCD	11.0	0.0006	0.0003	11.1
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**51.5**	**0.0027**	**0.0014**	**52.0**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-12 Estimated Annual GHG Emissions for Vegetation Management Alternativ

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	0.0	0.0000	0.0000	0.0
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.2	0.0000	0.0000	0.2
Marin-Sonoma Counties MVCD	34.5	0.0016	0.0011	34.8
Napa County MAD	5.6	0.0003	0.0001	5.7
Northern Salinas Valley MAD	15.3	0.0007	0.0005	15.5
San Mateo County MVCD	393.2	0.0224	0.0092	396.5
Santa Clara County VCD	0.0	0.0000	0.0000	0.0
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**448.8**	**0.0251**	**0.0109**	**452.7**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-13 Estimated Annual GHG Emissions for Biological Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	1.0	0.0001	0.0000	1.1
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	0.1	0.0000	0.0000	0.1
Marin-Sonoma Counties MVCD	54.4	0.0026	0.0017	55.0
Napa County MAD	1.3	0.0001	0.0000	1.4
Northern Salinas Valley MAD	3.7	0.0002	0.0001	3.7
San Mateo County MVCD	270.4	0.0154	0.0063	272.7
Santa Clara County VCD	46.9	0.0027	0.0011	47.3
Solano County MAD	0.0	0.0000	0.0000	0.0
Nine Districts Totals	**378.0**	**0.0210**	**0.0093**	**381.3**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-14 Estimated Annual GHG Emissions for Chemical Control Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	85.4	0.0048	0.0020	86.2
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	81.8	0.0046	0.0019	82.4
Marin-Sonoma Counties MVCD	64.2	0.0030	0.0020	64.9
Napa County MAD	52.3	0.0027	0.0013	52.8
Northern Salinas Valley MAD	20.9	0.0009	0.0007	21.1
San Mateo County MVCD	174.2	0.0099	0.0041	175.7
Santa Clara County VCD	131.8	0.0075	0.0031	132.9
Solano County MAD	67.1	0.0031	0.0018	67.7
Nine Districts Totals	**677.7**	**0.0367**	**0.0168**	**683.7**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-15 Estimated Annual GHG Emissions for Other Non-Chemical Alternative

Districts	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Alameda County MAD	21.3	0.0012	0.0005	21.4
Alameda County VCSD	0.0	0.0000	0.0000	0.0
Contra Costa County MVCD	31.4	0.0018	0.0007	31.7
Marin-Sonoma Counties MVCD	38.0	0.0018	0.0012	38.4
Napa County MAD	2.9	0.0001	0.0001	2.9
Northern Salinas Valley MAD	8.0	0.0004	0.0003	8.1
San Mateo County MVCD	305.3	0.0174	0.0071	307.8
Santa Clara County VCD	0.0	0.0000	0.0000	0.0
Solano County MAD	44.6	0.0020	0.0012	45.0
Nine Districts Totals	**451.5**	**0.0248**	**0.0111**	**455.4**

Sources: CARB 2008a, EPA (2011b, 2012b)

Table 3-16 Estimated Combined Annual GHG Emissions Across Nine Districts

Alternatives	CO_2 MT/yr	CH_4 MT/yr	N_2O MT/yr	CO_2e MT/yr
Surveillance	557	0.0309	0.0135	562
Physical Control	52	0.0027	0.0014	52
Vegetation Management	449	0.0251	0.0109	453
Biological Control	378	0.0210	0.0093	381
Chemical Control	678	0.0367	0.0168	684
Other Non-Chemical	451	0.0248	0.0111	455
All Alternatives Totals	**2,565**	**0.1410**	**0.0630**	**2,587**

Sources: CARB 2008a, EPA (2011b, 2012b)

A-4 Dry Air Composition

Table 3-1 Standard Composition of Dry Air

Principal Gas	Chemical Symbol	Gas MW g/mole	Concentration ppmv	Fraction percent	Fraction MW g/mole
Nitrogen	N_2	28.014	780,805.00	78.080500	21.873471
Oxygen	O_2	31.998	209,440.00	20.944000	6.701661
Argon	Ar	39.948	9,340.00	0.934000	0.373114
Carbon Dioxide	CO_2	44.009	387.69	0.038769	0.017062
Neon	Ne	20.183	18.21	0.001821	0.000368
Helium	He	4.003	5.24	0.000524	0.000021
Methane	CH_4	16.043	1.81	0.000181	0.000029
Krypton	Kr	83.800	1.14	0.000114	0.000096
Hydrogen	H_2	2.016	0.50	0.000050	0.000001
Nitrous Oxide	N_2O	44.013	0.32	0.000032	0.000014
Xenon	Xe	31.300	0.09	0.000009	0.000003
Totals			**1,000,000.00**	**100.000**	**28.966**

Sources: UIG 2008, EPA 2012b, du Pont 1971, Jennings 1970

Notes:

MW = molecular weight, g/mole

ppmv = parts per million by volume (10^{-6})

Table 3-2 Typical GHG Contents of Common Fuels

Fuel	CO_2	CH_4	N_2O	CO_2 e	Energy	CO_2 e
	kg/mmBTU	kg/mmBTU	kg/mmBTU	lb/mmBTU	BTU/gal	lb/gal
Diesel Fuel No. 2	73.96	0.0105	0.0006	163.97	138,300	22.68
Kerosene	73.19	0.0105	0.0006	162.27	138,700	22.51
Jet Fuel	72.23	0.0105	0.0006	160.17	135,000	21.62
Motor Gasoline	71.35	0.0105	0.0006	158.23	122,600	19.40
Aviation Gasoline	69.15	0.0105	0.0006	153.38	120,200	18.44
Propane	62.22	0.0053	0.0001	137.49	91,300	12.55
Pipeline Natural Gas	53.02	0.0053	0.0001	117.20	—	—

Sources: EPA 2012b, EPA 2011b

Notes:

kg/mmBTU - kilograms per million British Thermal Units

lb/mmBTU - pounds per million British Thermal Units

BTU - the amount of energy (heat) required to raise 1 pound of liquid water 1 degree Fahrenheit from 39 to 40 °F

Table 3-3 Greenhouse Gas Emissions Inventories - Gross Basis

Summary Year	National	California	Bay Area
	MMT CO_2 e	MMT CO_2 e	MMT CO_2 e
2005	7,204	482.5	—
2006	7,159	481.9	—
2007	7,253	488.8	95.8
2008	7,048	484.7	—
2009	6,608	456.8	—
5-Year Average	**7,054**	**478.9**	—
Average Annual Variation	**2.6%**	**1.8%**	—

Sources: EPA 2012b, CARB 2011b, BAAQMD 2010b

Notes:

MMT - million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

2009 is most recent CARB published data; Bay Area for 2007 only

Table 3-4 Bay Area GHG Emissions by Sector

End-Use Sector	District Emissions	
	Percent	MMT CO_2 e
Industrial / Commercial	36.4%	34.9
Residential Fuel Use	7.1%	6.8
Local Electric Power Generation	8.5%	8.1
Imported Electric Power Generation	7.4%	7.1
Offroad Equipment	3.0%	2.9
Transportation	36.4%	34.9
Agriculture / Farming	1.2%	1.1
Totals	**100.0%**	**95.8**

Source: BAAQMD 2010b

Notes:

MMT - million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Table 3-5 Bay Area GHG Emissions by County

County	District Emissions	
	Percent	MMT CO_2 e
Alameda	16.4%	15.7
Contra Costa	32.9%	31.5
Marin	2.8%	2.7
Napa	1.8%	1.7
San Francisco	7.4%	7.1
San Mateo	8.9%	8.5
Santa Clara	19.6%	18.8
Solano (within BAAQMD)	5.9%	5.7
Sonoma (within BAAQMD)	4.3%	4.1
Totals	**100.0%**	**95.8**

Source: BAAQMD 2010b

Notes:

MMT - million metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Table 3-6 Mobile Sectors GHG Emissions by County

County	Offroad	Transportation
	MT CO_2 e	MT CO_2 e
Alameda	569,000	8,351,000
Contra Costa	406,000	4,998,000
Marin	99,000	1,286,000
Napa	50,000	917,000
San Francisco	415,000	2,673,000
San Mateo	270,000	4,850,000
Santa Clara	790,000	7,859,000
Solano (within BAAQMD)	147,000	1,834,000
Sonoma (within BAAQMD)	175,000	2,103,000
Totals	**2,921,000**	**34,871,000**

Source: BAAQMD 2010b

Notes:

MT - metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Values rounded to nearest 1,000 tonnes

"Offroad" is offroad equipment category

Table 3-7 Offroad Sub-Sectors GHG Emissions by County

County	Utility MT CO_2 e	Commercial MT CO_2 e	Combined MT CO_2 e
Alameda	29,800	49,900	79,700
Contra Costa	20,300	26,900	47,200
Marin	7,900	12,300	20,200
Napa	2,900	4,300	7,200
San Francisco	14,200	43,900	58,100
San Mateo	14,200	27,200	41,400
Santa Clara	32,900	56,500	89,400
Solano (within BAAQMD)	3,900	6,800	10,700
Sonoma (within BAAQMD)	7,800	13,500	21,300
Totals	**133,900**	**241,300**	**375,200**

Source: BAAQMD 2010b

Notes:

MT - metric tonnes (annual)

1 metric tonne = 1,000 kilograms or 2,204.6 pounds

Values rounded to nearest 100 tonnes

"Utility" is small landscaping equipment selected for comparisons to Districts' activities

"Commercial" is light commercial equipment selected for comparisons to Districts' activities

Alameda County Mosquito Abatement District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
2001 6x6 Polaris ATV	500cc, liquid cooled, 4 stroke	20%				80%		100%	Gasoline
Birchmeier Flox 2.5 gal backpack sprayer	N/A					100%		100%	Zero
Birchmeier Flox 5 gal backpack sprayer	N/A					100%		100%	Zero
Brush Cutter	Kawasaki 33.33cc, 2cycle		100%					100%	50:1 gas/oil mix
Cargo Van	4.2L V6						100%	100%	Gasoline
Chainsaw	59cc, 2cycle		100%					100%	50:1 gas/oil mix
Chapin Premier Pro+ 2 gal sprayer Model 21220	N/A					100%		100%	Zero
Chapin Premier Series 3 gal polyethylene sprayer Model 2123	N/A					100%		100%	Zero
Electric Spray Rig	SHURflow electric pumps					100%		100%	Zero
Gas Spray Rig	Honda HX120, 4 stroke					100%		100%	Gasoline
Hudson X-Pert Stainless Steel 3 gal. sprayer	N/A					100%		100%	Zero
Jeep	4.0L Inline V6	10%				80%	10%	100%	Gasoline
Leaf Blower	Type #135R, 2cycle						100%	100%	50:1 gas/oil mix
Maruyama Mist Duster MD155DX	Kawasaki 40.2cc, 2cycle					100%		100%	50:1 gas/oil mix
Pickup Truck	5.4L V8	100%						100%	Gasoline
Pickup Truck	5.0L V8	40%	5%		5%	10%	40%	100%	Gasoline
Pickup Truck	4.6L V8	40%	5%		5%	10%	40%	100%	Gasoline
Pickup Truck	4.3L V6	40%	5%		5%	10%	40%	100%	Gasoline
Pickup Truck	4.0L V6	40%	5%		5%	10%	40%	100%	Gasoline
Pickup Truck	3.0L V6	40%	5%		5%	10%	40%	100%	Gasoline
SUV	4.0L V6						100%	100%	Gasoline

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
2005 Hydro Traxx 6/wheel	1100cc, liquid cooled, 4cycle, 4 stroke	20%				80%		100%	Gasoline
2008 ARGO 8/Wheel Avenger	674cc, liquid cooled, 4 stroke carburetor	20%				80%		100%	Gasoline
2010/2012 ARGO 8/Wheel 750 HDI EFI	747cc, liquid cooled, 4 stroke EFI	20%				80%		100%	Gasoline
Gas Spray Rig	Honda HX120, 4 stroke					100%		100%	Gasoline
Hydro centrifugal hydraulic spray pump	N/A					100%		100%	Zero

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1960 Hiller Soloy helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1968 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1989 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
Isolair 4400 bucket system (helicopter-mounted)	N/A					100%		100%	Zero
Isolair 4500 broadcaster (helicopter-mounted)	N/A					100%		100%	Zero
Isolair Air spray system model 3900 (helicopter-mounted)	N/A					100%		100%	Zero

100.00%	12%	7%	0%	1%	64%	16%	3200%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport	500	30.5	0.86	26.0	1	1	2	0	0	2	
None				0	1	0	0	0	0		
None				0	1	0	0	0	0		
2-stroke	33	2.0	0.92	1.9	1	0	0	0	1	0.5	
Onroad LD				LD	1	8	15	6	5		60
2-stroke	59	3.6	0.92	3.3	1	0	0	0	1	0.5	
None				0	1	0	0	0	0		
None				0	1	0	0	0	0		
Electric				0	6	0	10	20	1	0.15	
Utility	120	7.3	0.56	4.1	2	30	15	0	0	0.25	
None				0	1	0	0	0	0		
Onroad LD				LD	2	0	33	62	22		180
2-stroke	17	1.0	0.92	1.0	1	1	0	0	0	0.25	
2-stroke	40	2.4	0.92	2.2	1	8	5	7	0	0.75	
Onroad LD				LD	1	0	43	62	22		180
Onroad LD				LD	4	55	60	55	40		90
Onroad LD				LD	1	0	0	1	0		120
Onroad LD				LD	2	58	60	58	55		75
Onroad LD				LD	2	53	60	55	50		90
Onroad LD				LD	1	50	57	55	45		120
Onroad LD				LD	1	20	15	20	15		60

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport	1100	67.1	0.86	58.0	1	30	15	0	0	4	
Sport	674	41.1	0.86	35.0	1	30	15	0	0	4	
Sport	747	45.6	0.86	39.0	2	30	15	0	0	4	
Utility	120	7.3	0.56	4.1	3	30	15	0	0	4	
None				0	1	30	15	0	0	4	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	0	1	0	0	4	
Turbine				420	1	0	1	0	0	4	
Turbine				420	1	0	1	0	0	4	
None				0	1	0	1	0	0	4	
None				0	1	0	1	0	0	4	
None				0	1	0	1	0	0	4	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
2		4		6	
0.5		0.5		0.5	
	60		900		2040
0.5		0.5		0.5	
0.9		18		27.9	
0.5		15		22.5	
	360		22320		42120
0.25		0.25		0.25	
0.75		6		15	
	180		11160		22860
	360		21600		75600
	120		120		120
	150		9000		34650
	180		10800		39240
	120		6840		24840
	60		1200		4200

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
4		120		180	
4		120		180	
8		240		360	
12		360		540	
4		120		180	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
4		4		4	
4		4		4	
4		4		4	
4		4		4	
4		4		4	
4		4		4	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.07028	1.25727	0.00781	0.00113	0.01487	0.00967	1.94266	0.00011	0.00005	1.95989
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.17578	1.63572	0.01953	0.00196	0.02583	0.01679	3.11454	0.00018	0.00008	3.14218
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.03699	0.66172	0.00411	0.00060	0.00783	0.00509	1.02245	0.00006	0.00003	1.03152
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.32886	10.90980	0.28362	0.01462	0.01740	0.01131	27.37020	0.00155	0.00068	27.61309
0.19845	6.58350	0.17115	0.00882	0.01050	0.00683	16.51650	0.00093	0.00041	16.66307
0.22113	7.33590	0.19071	0.00983	0.01170	0.00761	18.40410	0.00104	0.00046	18.56742
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Surveillance	12%
Physical Control	7%
Vegetation Management	0%
Biological Control	1%
Chemical Control	64%
Other Non-Chemical	16%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.29	9.78	0.25	0.01	0.02	0.01	24.54	0.00	0.00	24.76
0.04	0.63	0.00	0.00	0.01	0.00	0.97	0.00	0.00	0.98
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.09	0.82	0.01	0.00	0.01	0.01	1.56	0.00	0.00	1.57
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	1.03	0.01	0.00	0.00	0.00	1.77	0.00	0.00	1.79
0.25	2.38	0.24	0.00	0.03	0.02	396.93	0.02	0.01	400.26
0.01	0.17	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.26
0.06	1.09	0.01	0.00	0.01	0.01	1.69	0.00	0.00	1.70
0.13	1.19	0.12	0.00	0.02	0.01	198.46	0.01	0.00	200.13
0.25	2.38	0.24	0.00	0.03	0.02	396.93	0.02	0.01	400.26
0.08	0.79	0.08	0.00	0.01	0.01	132.31	0.01	0.00	133.42
0.11	0.99	0.10	0.00	0.01	0.01	165.39	0.01	0.00	166.77
0.13	1.19	0.12	0.00	0.02	0.01	198.46	0.01	0.00	200.13
0.08	0.79	0.08	0.00	0.01	0.01	132.31	0.01	0.00	133.42
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
1.62	**24.01**	**1.33**	**0.03**	**0.20**	**0.13**	**1783.87**	**0.10**	**0.04**	**1798.85**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1.32	43.64	1.13	0.06	0.07	0.05	109.48	0.01	0.00	110.45
0.79	26.33	0.68	0.04	0.04	0.03	66.07	0.00	0.00	66.65
1.77	58.69	1.53	0.08	0.09	0.06	147.23	0.01	0.00	148.54
0.25	24.67	0.21	0.02	0.02	0.02	42.57	0.00	0.00	42.94
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.13	**153.33**	**3.55**	**0.19**	**0.23**	**0.15**	**365.34**	**0.02**	**0.01**	**368.59**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	**0.13**	**35.02**	**0.06**	**0.48**	**0.31**	**6499.18**	**0.18**	**0.21**	**6567.50**
5.76	**177.47**	**39.90**	**0.29**	**0.90**	**0.59**	**8648.40**	**0.30**	**0.26**	**8734.93**

0.70	21.63	4.86	0.04	0.11	0.07	1054.02	0.04	0.03	1064.57
0.40	12.48	2.81	0.02	0.06	0.04	608.09	0.02	0.02	614.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	1.39	0.31	0.00	0.01	0.00	67.57	0.00	0.00	68.24
3.69	113.69	25.56	0.19	0.58	0.38	5540.38	0.19	0.17	5595.82
0.92	28.28	6.36	0.05	0.14	0.09	1378.34	0.05	0.04	1392.13
5.76	**177.47**	**39.90**	**0.29**	**0.90**	**0.59**	**8648.40**	**0.30**	**0.26**	**8734.93**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.6	19.6	0.5	0.0	0.0	0.0	49.1	0.0	0.0	49.5
0.0	0.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
0.1	0.8	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.3	30.8	0.3	0.0	0.0	0.0	53.2	0.0	0.0	53.7
15.7	147.4	14.6	0.2	2.1	1.3	24609.4	1.4	0.6	24815.8
0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
0.5	8.7	0.1	0.0	0.1	0.1	13.5	0.0	0.0	13.6
7.8	73.7	7.3	0.1	1.0	0.7	12304.7	0.7	0.3	12407.9
15.2	142.6	14.1	0.2	2.0	1.3	23815.6	1.4	0.6	24015.3
0.1	0.8	0.1	0.0	0.0	0.0	132.3	0.0	0.0	133.4
6.3	59.4	5.9	0.1	0.8	0.5	9923.1	0.6	0.2	10006.4
7.6	71.3	7.1	0.1	1.0	0.6	11907.8	0.7	0.3	12007.7
4.8	45.2	4.5	0.1	0.6	0.4	7541.6	0.4	0.2	7604.8
0.8	7.9	0.8	0.0	0.1	0.1	1323.1	0.1	0.0	1334.2
60.47	**615.05**	**55.81**	**0.96**	**7.90**	**5.11**	**92668.46**	**5.30**	**2.15**	**93445.77**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
39.46	1309.18	34.03	1.75	2.09	1.36	3284.42	0.19	0.08	3313.57
23.81	790.02	20.54	1.06	1.26	0.82	1981.98	0.11	0.05	1999.57
53.07	1760.62	45.77	2.36	2.81	1.83	4416.98	0.25	0.11	4456.18
7.40	740.11	6.31	0.63	0.72	0.47	1276.96	0.07	0.03	1288.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123.75	**4599.92**	**106.65**	**5.81**	**6.87**	**4.47**	**10960.35**	**0.62**	**0.27**	**11057.61**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	**0.13**	**35.02**	**0.06**	**0.48**	**0.31**	**6499.18**	**0.18**	**0.21**	**6567.50**

184.24	**5215.10**	**197.48**	**6.83**	**15.25**	**9.88**	**110127.99**	**6.10**	**2.63**	**111070.88**

22.45	635.59	24.07	0.83	1.86	1.20	13421.85	0.74	0.32	13536.76
12.95	366.69	13.88	0.48	1.07	0.69	7743.37	0.43	0.18	7809.67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.44	40.74	1.54	0.05	0.12	0.08	860.37	0.05	0.02	867.74
118.03	3340.92	126.51	4.37	9.77	6.33	70550.75	3.91	1.68	71154.78
29.36	831.16	31.47	1.09	2.43	1.58	17551.65	0.97	0.42	17701.92
184.24	**5215.10**	**197.48**	**6.83**	**15.25**	**9.88**	**110127.99**	**6.10**	**2.63**	**111070.88**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.9	29.3	0.8	0.0	0.0	0.0	73.6	0.0	0.0	74.3
0.0	0.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
1.4	13.5	1.3	0.0	0.2	0.1	2249.2	0.1	0.1	2268.1
0.1	0.8	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	46.3	0.4	0.0	0.0	0.0	79.8	0.0	0.0	80.5
29.6	278.1	27.6	0.5	3.9	2.5	46440.3	2.7	1.1	46829.9
0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
1.2	21.8	0.1	0.0	0.3	0.2	33.7	0.0	0.0	34.0
16.1	151.0	15.0	0.2	2.1	1.4	25204.8	1.4	0.6	25416.2
53.1	499.2	49.5	0.8	6.9	4.5	83354.4	4.8	1.9	84053.6
0.1	0.8	0.1	0.0	0.0	0.0	132.3	0.0	0.0	133.4
24.3	228.8	22.7	0.4	3.2	2.1	38204.1	2.2	0.9	38524.6
27.6	259.1	25.7	0.4	3.6	2.3	43264.9	2.5	1.0	43627.8
17.4	164.0	16.3	0.3	2.3	1.5	27387.9	1.6	0.6	27617.6
2.9	27.7	2.8	0.0	0.4	0.2	4630.8	0.3	0.1	4669.6
175.23	**1721.34**	**162.18**	**2.73**	**22.94**	**14.83**	**271058.83**	**15.52**	**6.28**	**273332.41**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
59.19	1963.76	51.05	2.63	3.13	2.04	4926.64	0.28	0.12	4970.36
35.72	1185.03	30.81	1.59	1.89	1.23	2972.97	0.17	0.07	2999.35
79.61	2640.92	68.66	3.54	4.21	2.74	6625.48	0.37	0.16	6684.27
11.11	1110.16	9.46	0.95	1.07	0.70	1915.44	0.11	0.05	1932.44
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185.63	**6899.88**	**159.97**	**8.71**	**10.31**	**6.70**	**16440.52**	**0.93**	**0.41**	**16586.42**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	**0.13**	**35.02**	**0.06**	**0.48**	**0.31**	**6499.18**	**0.18**	**0.21**	**6567.50**

360.87	**8621.35**	**357.17**	**11.50**	**33.72**	**21.84**	**293998.53**	**16.63**	**6.90**	**296486.32**

43.98	1050.73	43.53	1.40	4.11	2.66	35831.07	2.03	0.84	36134.27
25.37	606.19	25.11	0.81	2.37	1.54	20671.77	1.17	0.49	20846.69
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.82	67.35	2.79	0.09	0.26	0.17	2296.86	0.13	0.05	2316.30
231.18	5523.05	228.81	7.37	21.60	13.99	188342.81	10.65	4.42	189936.55
57.51	1374.03	56.92	1.83	5.37	3.48	46856.02	2.65	1.10	47252.51
360.87	**8621.35**	**357.17**	**11.50**	**33.72**	**21.84**	**293998.53**	**16.63**	**6.90**	**296486.32**

Alameda County Vector Control Services District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
GMC Pickup Truck (3)	V-8	100%						100%	Gasoline
Ford Pickup Truck (1)	V-8	100%						100%	Gasoline
Dodge Pickup Truck (8)	V-8	100%						100%	Gasoline
Nissan Pickup Truck (2)	V-8	100%						100%	Gasoline

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel

100.00%	100%	0%	0%	0%	0%	0%	400%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Onroad LD				LD	3	62	64	63	62		60
Onroad LD				LD	1	62	64	63	62		60
Onroad LD				LD	8	62	64	63	62		60
Onroad LD				LD	2	62	64	63	62		60

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
	180		11520		45180
	60		3840		15060
	480		30720		120480
	120		7680		30120

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit

Surveillance	100%
Physical Control	0%
Vegetation Management	0%
Biological Control	0%
Chemical Control	0%
Other Non-Chemical	0%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.13	1.19	0.12	0.00	0.02	0.01	198.46	0.01	0.00	200.13
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.34	3.17	0.31	0.01	0.04	0.03	529.23	0.03	0.01	533.67
0.08	0.79	0.08	0.00	0.01	0.01	132.31	0.01	0.00	133.42
0.59	**5.55**	**0.55**	**0.01**	**0.08**	**0.05**	**926.16**	**0.05**	**0.02**	**933.93**
VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.59	**5.55**	**0.55**	**0.01**	**0.08**	**0.05**	**926.16**	**0.05**	**0.02**	**933.93**

0.59	5.55	0.55	0.01	0.08	0.05	926.16	0.05	0.02	933.93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.59	**5.55**	**0.55**	**0.01**	**0.08**	**0.05**	**926.16**	**0.05**	**0.02**	**933.93**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
8.1	76.1	7.5	0.1	1.1	0.7	12701.6	0.7	0.3	12808.2
2.7	25.4	2.5	0.0	0.4	0.2	4233.9	0.2	0.1	4269.4
21.6	202.9	20.1	0.3	2.8	1.8	33871.0	1.9	0.8	34155.1
5.4	50.7	5.0	0.1	0.7	0.5	8467.8	0.5	0.2	8538.8
37.75	**355.01**	**35.20**	**0.57**	**4.94**	**3.19**	**59274.27**	**3.39**	**1.37**	**59771.43**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr

37.75	**355.01**	**35.20**	**0.57**	**4.94**	**3.19**	**59274.27**	**3.39**	**1.37**	**59771.43**

37.75	355.01	35.20	0.57	4.94	3.19	59274.27	3.39	1.37	59771.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37.75	**355.01**	**35.20**	**0.57**	**4.94**	**3.19**	**59274.27**	**3.39**	**1.37**	**59771.43**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
31.7	298.3	29.6	0.5	4.1	2.7	49814.2	2.9	1.2	50232.0
10.6	99.4	9.9	0.2	1.4	0.9	16604.7	1.0	0.4	16744.0
84.6	795.6	78.9	1.3	11.1	7.2	132837.9	7.6	3.1	133952.0
21.2	198.9	19.7	0.3	2.8	1.8	33209.5	1.9	0.8	33488.0
148.07	**1392.29**	**138.07**	**2.25**	**19.37**	**12.52**	**232466.29**	**13.31**	**5.39**	**234416.09**
VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
148.07	**1392.29**	**138.07**	**2.25**	**19.37**	**12.52**	**232466.29**	**13.31**	**5.39**	**234416.09**

148.07	1392.29	138.07	2.25	19.37	12.52	232466.29	13.31	5.39	234416.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
148.07	**1392.29**	**138.07**	**2.25**	**19.37**	**12.52**	**232466.29**	**13.31**	**5.39**	**234416.09**

Contra Costa County Mosquito and Vector Control District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
A-1 Mist Blower	Honda GX160					100%		100%	Gasoline
Chevy Pickup Truck	4.8 L	68%	1%	2%	1%	28%		100%	Gasoline
Chevy Pickup Truck	5.3 L	68%	1%	2%	1%	28%		100%	Gasoline
Chevy Pickup Truck	5.7 L						100%	100%	Gasoline
Chevy Pickup Truck	6.0 L						100%	100%	Gasoline
Chevy Pickup Truck	7.4 L						100%	100%	Gasoline
Chevy Sedan	4.3 L						100%	100%	Gasoline
Chevy Van	4.3 L						100%	100%	Gasoline
Clarke-Cougar ULV	Briggs and Stratton					100%		100%	Gasoline
Colt-T ULV	Tecumseh TCII					100%		100%	50:1 gas/oil mix
Hand Sprayer – LECO ULV Model 800	Briggs and Stratton					100%		100%	Gasoline
Hand Sprayer – Mozzie ULV Model 250	Electric					100%		100%	Zero
LECO P-1 ULV	Robin Eco25					100%		100%	50:1 gas/oil mix
Maruyama Mist Duster MD155DX	Kawasaki					100%		100%	50:1 gas/oil mix
MicroGen ED2-20	Briggs and Stratton					100%		100%	Gasoline
Stihl SR420	Stihl					100%		100%	50:1 gas/oil mix
Storm Mister	Honda GX390					100%		100%	Gasoline
Toyota SUV	2.4 L						100%	100%	Gasoline
Transfer Tank Rears 200SS	Honda GX160						100%	100%	Gasoline

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo ATV	Kawasaki 26 hp	25%				75%		100%	Gasoline
Gregor Boat	Johnson 15 hp 4 stroke	100%						100%	Gasoline
Honda ATV	Honda 475cc 4 stroke	80%				20%		100%	Gasoline
Kvichak Conquest Boat	Johnson 115 hp 2 stroke	50%				50%		100%	50:1 gas/oil mix
Polaris ATV	Polaris 300cc 4 stroke	80%				20%		100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1960 Hiller Soloy helicopter	Allison 250-C20J turboshaft 420 shp					100%		100%	Jet A
1968 Bell 206 Jet Ranger helicopter	Allison 250-C20J turboshaft 420 shp					100%		100%	Jet A
1982 Eagle DW-1	Lycoming 300hp (IO-540-M1B5D)					100%		100%	Jet A
1987 Air Tractor AT-501	Pratt & Whitney 600 shp					100%		100%	Jet A
1989 Bell 206 Jet Ranger helicopter	Allison 250-C20J turboshaft 420 shp					100%		100%	Jet A
1992 Air Tractor AT-502 Turbine (PT6A series turboprop)	507 kW (680shp) Pratt & Whitney Canada					100%		100%	Jet A
	100.00%	16%	0%	0%	0%	61%	23%	3000%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Utility	160	9.8	0.56	5.5	1		1	8		1.2	
Onroad LD				LD	15	30	65	65	30		60
Onroad LD				LD	3	15	30	30	15		45
Onroad LD				LD	6	0	5	5	0		15
Onroad LD				LD	6	0	5	5	0		15
Onroad LD				LD	7	0	65	65	0		83
Onroad LD				LD	1	12	12	12	12		15
Onroad LD				LD	1	2	0	0	2		30
Utility	146	8.9	0.56	5.0	1			9		2.5	
2-stroke	49	3.0	0.92	2.8	1		6	8		0.75	
Utility	146	8.9	0.56	5.0	1		1	7		2	
Electric				0	2		1	7		2	
2-stroke	25	1.5	0.92	1.4	2		1			1	
2-stroke	40	2.4	0.92	2.2	3	4	22	15		1.75	
Utility	146	8.9	0.56	5.0	1		1			0.5	
2-stroke	59	3.6	0.92	3.3	1		1			0.5	
Utility	390	23.8	0.56	13.0	1		1			0.5	
Onroad LD				LD	2	8	8	8	8		30
Utility	160	9.8	0.56	5.5	1		1	1		0.5	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport	495	30.2	0.86	26.0	7	2	7.5	3.5		2	
Sport	285	17.4	0.86	15.0	1		1			0.5	
Sport	475	29.0	0.86	25.0	1		8	10		1	
2-stroke	2049	125.0	0.92	115.0	1		1			0.5	
Sport	300	18.3	0.86	16.0	2		8	10		1	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1		1			1	
Turbine				420	1		1			1	
Turbine				300	1		1			1	
Turbine				600	1		1			1	
Turbine				420	1		1			1	
Turbine				680	1		1			1	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
1.2		9.6		10.8	
	900		58500		171000
	135		4050		12150
	90		450		900
	90		450		900
	577.5		37537.5		75075
	15		180		720
	30		60		120
2.5		22.5		22.5	
0.75		6		10.5	
2		14		16	
4		28		32	
2		2		2	
5.25		115.5		215.25	
0.5		0.5		0.5	
0.5		0.5		0.5	
0.5		0.5		0.5	
	60		480		1920
0.5		0.5		1	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
14		105		182	
0.5		0.5		0.5	
1		10		18	
0.5		0.5		0.5	
2		20		36	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
1		1		1	
1		1		1	
1		1		1	
1		1		1	
1		1		1	
1		1		1	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.17578	1.63572	0.01953	0.00196	0.02583	0.01679	3.11454	0.00018	0.00008	3.14218
0.12285	4.07550	0.10595	0.00546	0.00650	0.00423	10.22450	0.00058	0.00025	10.31523
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.08505	2.82150	0.07335	0.00378	0.00450	0.00293	7.07850	0.00040	0.00018	7.14132
0.14175	4.70250	0.12225	0.00630	0.00750	0.00488	11.79750	0.00067	0.00029	11.90219
6.12563	57.00237	0.68063	0.06845	0.90004	0.58503	90.44750	0.00512	0.00224	91.25014
0.09072	3.00960	0.07824	0.00403	0.00480	0.00312	7.55040	0.00043	0.00019	7.61740

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00097	0.00782	2.08440	0.00368	0.02842	0.01848	386.85600	0.01069	0.01239	390.92236
0.00194	0.01563	4.16880	0.00736	0.05685	0.03695	773.71200	0.02138	0.02479	781.84472
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00220	0.01772	4.72464	0.00835	0.06443	0.04188	876.87360	0.02424	0.02809	886.09069

Surveillance	16%
Physical Control	0%
Vegetation Management	0%
Biological Control	0%
Chemical Control	61%
Other Non-Chemical	23%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.03	3.31	0.03	0.00	0.00	0.00	5.71	0.00	0.00	5.76
0.63	5.94	0.59	0.01	0.08	0.05	992.31	0.06	0.02	1000.64
0.09	0.89	0.09	0.00	0.01	0.01	148.85	0.01	0.00	150.10
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.41	3.81	0.38	0.01	0.05	0.03	636.74	0.04	0.01	642.08
0.01	0.10	0.01	0.00	0.00	0.00	16.54	0.00	0.00	16.68
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.06	6.27	0.05	0.01	0.01	0.00	10.81	0.00	0.00	10.91
0.08	1.39	0.01	0.00	0.02	0.01	2.15	0.00	0.00	2.17
0.05	5.01	0.04	0.00	0.00	0.00	8.65	0.00	0.00	8.73
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	1.85	0.01	0.00	0.02	0.01	2.86	0.00	0.00	2.89
0.43	7.64	0.05	0.01	0.09	0.06	11.81	0.00	0.00	11.91
0.01	1.25	0.01	0.00	0.00	0.00	2.16	0.00	0.00	2.18
0.09	0.82	0.01	0.00	0.01	0.01	1.56	0.00	0.00	1.57
0.06	2.04	0.05	0.00	0.00	0.00	5.11	0.00	0.00	5.16
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.01	1.38	0.01	0.00	0.00	0.00	2.38	0.00	0.00	2.40
2.26	**43.50**	**1.52**	**0.05**	**0.34**	**0.22**	**2145.34**	**0.12**	**0.05**	**2163.36**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2.06	68.47	1.78	0.09	0.11	0.07	171.77	0.01	0.00	173.30
0.04	1.41	0.04	0.00	0.00	0.00	3.54	0.00	0.00	3.57
0.14	4.70	0.12	0.01	0.01	0.00	11.80	0.00	0.00	11.90
3.06	28.50	0.34	0.03	0.45	0.29	45.22	0.00	0.00	45.63
0.18	6.02	0.16	0.01	0.01	0.01	15.10	0.00	0.00	15.23
5.49	**109.10**	**2.44**	**0.14**	**0.58**	**0.38**	**247.43**	**0.01**	**0.01**	**249.63**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.01	2.92	0.01	0.04	0.03	541.60	0.01	0.02	547.29
0.00	0.01	2.92	0.01	0.04	0.03	541.60	0.01	0.02	547.29
0.00	0.01	2.08	0.00	0.03	0.02	386.86	0.01	0.01	390.92
0.00	0.02	4.17	0.01	0.06	0.04	773.71	0.02	0.02	781.84
0.00	0.01	2.92	0.01	0.04	0.03	541.60	0.01	0.02	547.29
0.00	0.02	4.72	0.01	0.06	0.04	876.87	0.02	0.03	886.09
0.01	**0.07**	**19.73**	**0.03**	**0.27**	**0.17**	**3662.24**	**0.10**	**0.12**	**3700.73**

7.76	**152.67**	**23.69**	**0.23**	**1.18**	**0.77**	**6055.01**	**0.24**	**0.17**	**6113.72**

1.22	23.97	3.72	0.04	0.19	0.12	950.64	0.04	0.03	959.85
0.01	0.10	0.02	0.00	0.00	0.00	4.04	0.00	0.00	4.08
0.01	0.20	0.03	0.00	0.00	0.00	8.07	0.00	0.00	8.15
0.01	0.10	0.02	0.00	0.00	0.00	4.04	0.00	0.00	4.08
4.71	92.67	14.38	0.14	0.72	0.47	3675.39	0.14	0.11	3711.03
1.81	35.62	5.53	0.05	0.28	0.18	1412.83	0.06	0.04	1426.53
7.76	**152.67**	**23.69**	**0.23**	**1.18**	**0.77**	**6055.01**	**0.24**	**0.17**	**6113.72**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.3	26.5	0.2	0.0	0.0	0.0	45.7	0.0	0.0	46.1
41.1	386.3	38.3	0.6	5.4	3.5	64500.5	3.7	1.5	65041.5
2.8	26.7	2.7	0.0	0.4	0.2	4465.4	0.3	0.1	4502.9
0.3	3.0	0.3	0.0	0.0	0.0	496.2	0.0	0.0	500.3
0.3	3.0	0.3	0.0	0.0	0.0	496.2	0.0	0.0	500.3
26.4	247.9	24.6	0.4	3.4	2.2	41387.8	2.4	1.0	41734.9
0.1	1.2	0.1	0.0	0.0	0.0	198.5	0.0	0.0	200.1
0.0	0.4	0.0	0.0	0.0	0.0	66.2	0.0	0.0	66.7
0.6	56.4	0.5	0.0	0.1	0.0	97.3	0.0	0.0	98.2
0.6	11.1	0.1	0.0	0.1	0.1	17.2	0.0	0.0	17.3
0.4	35.1	0.3	0.0	0.0	0.0	60.6	0.0	0.0	61.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1.9	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9
9.4	168.1	1.0	0.2	2.0	1.3	259.8	0.0	0.0	262.1
0.0	1.3	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.2
0.1	0.8	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6
0.1	2.0	0.1	0.0	0.0	0.0	5.1	0.0	0.0	5.2
0.3	3.2	0.3	0.0	0.0	0.0	529.2	0.0	0.0	533.7
0.0	1.4	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4
82.91	**976.22**	**68.82**	**1.36**	**11.62**	**7.52**	**112634.47**	**6.45**	**2.61**	**113579.43**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
15.5	513.5	13.3	0.7	0.8	0.5	1288.3	0.1	0.0	1299.7
0.0	1.4	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.6
1.4	47.0	1.2	0.1	0.1	0.0	118.0	0.0	0.0	119.0
3.1	28.5	0.3	0.0	0.5	0.3	45.2	0.0	0.0	45.6
1.8	60.2	1.6	0.1	0.1	0.1	151.0	0.0	0.0	152.3
21.82	**650.64**	**16.51**	**0.87**	**1.44**	**0.94**	**1606.03**	**0.09**	**0.04**	**1620.29**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	2.1	0.0	0.0	0.0	386.9	0.0	0.0	390.9
0.0	0.0	4.2	0.0	0.1	0.0	773.7	0.0	0.0	781.8
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	4.7	0.0	0.1	0.0	876.9	0.0	0.0	886.1
0.01	**0.07**	**19.73**	**0.03**	**0.27**	**0.17**	**3662.24**	**0.10**	**0.12**	**3700.73**

104.73	**1626.93**	**105.06**	**2.26**	**13.33**	**8.63**	**117902.74**	**6.64**	**2.77**	**118900.44**

16.44	255.43	16.50	0.35	2.09	1.36	18510.73	1.04	0.43	18667.37
0.07	1.08	0.07	0.00	0.01	0.01	78.60	0.00	0.00	79.27
0.14	2.17	0.14	0.00	0.02	0.01	157.20	0.01	0.00	158.53
0.07	1.08	0.07	0.00	0.01	0.01	78.60	0.00	0.00	79.27
63.57	987.55	63.77	1.37	8.09	5.24	71566.96	4.03	1.68	72172.57
24.44	379.62	24.51	0.53	3.11	2.01	27510.64	1.55	0.65	27743.44
104.73	**1626.93**	**105.06**	**2.26**	**13.33**	**8.63**	**117902.74**	**6.64**	**2.77**	**118900.44**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.3	29.8	0.3	0.0	0.0	0.0	51.4	0.0	0.0	51.8
120.1	1129.2	112.0	1.8	15.7	10.2	188539.8	10.8	4.4	190121.2
8.5	80.2	8.0	0.1	1.1	0.7	13396.3	0.8	0.3	13508.6
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
52.7	495.8	49.2	0.8	6.9	4.5	82775.6	4.7	1.9	83469.9
0.5	4.8	0.5	0.0	0.1	0.0	793.9	0.0	0.0	800.5
0.1	0.8	0.1	0.0	0.0	0.0	132.3	0.0	0.0	133.4
0.6	56.4	0.5	0.0	0.1	0.0	97.3	0.0	0.0	98.2
1.1	19.5	0.1	0.0	0.2	0.1	30.1	0.0	0.0	30.3
0.4	40.1	0.3	0.0	0.0	0.0	69.2	0.0	0.0	69.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1.9	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9
17.5	313.4	1.9	0.3	3.7	2.4	484.2	0.0	0.0	488.5
0.0	1.3	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.2
0.1	0.8	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6
0.1	2.0	0.1	0.0	0.0	0.0	5.1	0.0	0.0	5.2
1.3	12.7	1.3	0.0	0.2	0.1	2116.9	0.1	0.0	2134.7
0.0	2.8	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.8
204.71	**2203.15**	**175.33**	**3.23**	**28.24**	**18.27**	**290488.02**	**16.63**	**6.73**	**292924.84**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
26.8	890.1	23.1	1.2	1.4	0.9	2233.0	0.1	0.1	2252.8
0.0	1.4	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.6
2.6	84.6	2.2	0.1	0.1	0.1	212.4	0.0	0.0	214.2
3.1	28.5	0.3	0.0	0.5	0.3	45.2	0.0	0.0	45.6
3.3	108.3	2.8	0.1	0.2	0.1	271.8	0.0	0.0	274.2
35.75	**1112.99**	**28.53**	**1.49**	**2.18**	**1.42**	**2765.96**	**0.16**	**0.07**	**2790.51**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	2.1	0.0	0.0	0.0	386.9	0.0	0.0	390.9
0.0	0.0	4.2	0.0	0.1	0.0	773.7	0.0	0.0	781.8
0.0	0.0	2.9	0.0	0.0	0.0	541.6	0.0	0.0	547.3
0.0	0.0	4.7	0.0	0.1	0.0	876.9	0.0	0.0	886.1
0.01	**0.07**	**19.73**	**0.03**	**0.27**	**0.17**	**3662.24**	**0.10**	**0.12**	**3700.73**

240.47	**3316.22**	**223.60**	**4.75**	**30.69**	**19.86**	**296916.22**	**16.89**	**6.92**	**299416.08**

37.75	520.65	35.11	0.75	4.82	3.12	46615.85	2.65	1.09	47008.32
0.16	2.21	0.15	0.00	0.02	0.01	197.94	0.01	0.00	199.61
0.32	4.42	0.30	0.01	0.04	0.03	395.89	0.02	0.01	399.22
0.16	2.21	0.15	0.00	0.02	0.01	197.94	0.01	0.00	199.61
145.97	2012.94	135.73	2.88	18.63	12.06	180228.15	10.25	4.20	181745.56
56.11	773.78	52.17	1.11	7.16	4.63	69280.45	3.94	1.61	69863.75
240.47	**3316.22**	**223.60**	**4.75**	**30.69**	**19.86**	**296916.22**	**16.89**	**6.92**	**299416.08**

Marin-Sonoma Counties Mosquito and Vector Control District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
05 Dodge 2500 4X4 truck	5.9 liter				50%	50%		100%	Diesel
1 gal back can sprayer	N/A							0%	Zero
12v Argo tank	Electric 12v							0%	Zero
12v Spray tank for bike	Electric 12v							0%	Zero
2000 Gal Water truck 97 Ford Louisville (Alpine) GW 33,000lbs	7.9 liter				50%	50%		100%	Diesel
2000 Gal Water truck 99 Int 4700 (Alpine) GW 33,000lbs	7.6 liter				50%	50%		100%	Diesel
2500 Gal Water Truck 01 Int 8000 (Alpine) GW 52,000lbs	10.3 liter				50%	50%		100%	Diesel
3 gal back can sprayer	N/A							0%	Zero
30-gallon sprayer	Electric 12v							0%	Zero
40 foot portable lift (Ameriquip)	Electric (battery operated)							0%	Zero
5 x 8 trailer	N/A							0%	Zero
50-gallon sprayer	Electric 12v							0%	Zero
6 x 10 trailer	N/A							0%	Zero
6 x 12 GO-4 trailer	N/A							0%	Zero
7 x 14 Flatbed trailer	N/A							0%	Zero
99 Ford F550 Flat Bed 4X4 truck	7.3 liter				50%	50%		100%	Diesel
Agnique spray bottle	N/A							0%	Zero
Arctic Cat 500 TBX (off road)	30.5 cubic inches 31hp	50%			40%	10%		100%	Gasoline
Argo Avenger (off road)	41.1 cubic inches 26 hp	60%	5%	5%	15%	15%		100%	Gasoline
Argo Conquest (off road)	37.8 cubic inches 21 hp	60%	5%	5%	15%	15%		100%	Gasoline
Argo seeder	Electric 12v							0%	Zero
Backpack fogger (Curtis Dynaflow)	40 cc					100%		100%	50:1 gas/oil mix
Ball Mix Trailer 1000 Gal Tank	N/A							0%	Zero
Becomist Fogger	Electric 12v					100%		100%	Zero
Big Mix Trailer 800 Gal Tank	N/A							0%	Zero
Bike seeder	Electric 12v							0%	Zero
Bike Sprayer	Electric 12v							0%	Zero
Boat trailer	N/A							0%	Zero
Chevy 1500 truck	3.6 liter	60%	5%	10%	15%	10%		100%	Gasoline
Chevy 3500 truck	454 cu in						100%	100%	Diesel
Chevy HD 2500 truck	6.0 liter	50%	5%	10%	20%	15%		100%	Diesel
Chevy Traverse	3.6 liter						100%	100%	Gasoline
Chevy W4500	6.0 liter						100%	100%	Diesel
Dondi Rotary Ditcher DMR 35-B	N/A		100%					100%	Zero
Dump Truck 5 ton	390 cu in						100%	100%	Diesel
Echo backpack blower	40.2 cc							0%	50:1 gas/oil mix
Echo Chainsaw	30.1 cc			100%				100%	50:1 gas/oil mix
Echo hand held blower	17 cc							0%	50:1 gas/oil mix
Echo hedge trimmer	21.2 cc			100%				100%	50:1 gas/oil mix
Electramist fogger	Electric 12v					100%		100%	Zero
EVS Mosquito Trap	Electric 6v							0%	Zero
Faye Mosquito Trap	N/A							0%	Zero
Ford E-150 Van	4.2 liter						100%	100%	Gasoline
Ford Explorer	4.0 liter						100%	100%	Gasoline
Ford Explorer 4x4	4.0 liter						100%	100%	Gasoline
Ford F-150 truck 4x4	4.6 liter	65%	5%	10%	10%	10%		100%	Gasoline
Ford F-250 truck	Varied 5.4 liter to 6.2 liter	50%	5%	10%	20%	15%		100%	Gasoline
Ford F-250 truck 4x4	Varied 5.4 liter to 6.2 liter	50%	5%	10%	20%	15%		100%	Gasoline
Ford F-350 truck	460 cu in	50%	5%	10%	25%	10%		100%	Diesel
Ford F-550 4x4	6.0 liter		25%	25%	25%	25%		100%	Diesel
Ford Ranger truck 2x4	3.0 liter	70%			15%	15%		100%	Gasoline
Ford Ranger truck 4x4	3.0 liter	80%					20%	100%	Gasoline
Gator (off road)	37.7 cubic inches 18hp	70%	10%	10%	5%	5%		100%	Gasoline
GO-4 Catch Basin Rig	60.9 cubic inches 55hp	50%			20%	30%		100%	Gasoline
GO-4 Spray tank	Electric 12v							0%	Zero
Hand fogger	3.0 cu in					100%		100%	50:1 gas/oil mix
High Pressure sprayer	41.9 cu in 21 hp				60%	40%		100%	Gasoline
Horn seeder	N/A							0%	Zero
Husqavarna Chainsaw	55.5 cc			100%				100%	50:1 gas/oil mix
Husqavarna Weedeater	21.7 cc			100%				100%	50:1 gas/oil mix
Intelli sprayer 150	14.8 cu in 9 hp				60%	40%		100%	Gasoline
Intelli sprayer 50	14.8 cu in 9 hp				60%	40%		100%	Gasoline
Intelli Truck 3500	5.7 liter				50%	50%		100%	Diesel
John Deere Tractor	41.5 cubic inches: output 43.7hp			100%				100%	Diesel
Kawasaki 400 (off road)	23.8 cubic inches 26.5hp	50%			40%	10%		100%	Gasoline
Kawasaki 650 (off road)	36.8 cubic inches 42hp	50%	3%	3%	35%	10%		100%	Gasoline
Kelly seeder	N/A							0%	Zero
Komatsu (off road)	Komatsu 3D94-2 35hp		50%	50%				100%	Gasoline
Lite Foot Sprayer	hydraulic							0%	Zero
Lite Foot trailer	N/A							0%	Zero
Mozzie Fog Fogger	10.1 cu in 5.5 hp					100%		100%	Gasoline
Mozzie granular applicator	Electric 12v				50%	50%		100%	Zero
New Jersey Light Mosquito Trap	Electric 110v							0%	Zero
Nifty-Fifty	5.5 cu in 3 hp							0%	Gasoline
Nifty-Fifty with Intelli reel	5.5 cu in 3 hp	10%		50%	40%			100%	Gasoline
Old Suzuki tank	Electric 12v							0%	Zero
Pistenbully Mower 72F-H (off road)	N/A			100%				100%	Zero
Pistenbully PB100 (off road)	242.3 cubic inches: 170hp		100%					100%	Diesel
Solo MD 150 DX	40.2 cc				70%	30%		100%	50:1 gas/oil mix
Solo MD 155DX	40.2 cc				70%	30%		100%	50:1 gas/oil mix
Spryte (off road)	300 cubic inches 132 hp							0%	Gasoline
Spryte seeder	19.4 cu in							0%	Gasoline

Spryte tank	N/A		0%	Zero
Spryte/Komatsu trailer	N/A		0%	Zero
Suzuki trailer	N/A		0%	Zero
Tilt trailer	N/A		0%	Zero
Toyota Prius HB Three	1.8 liter hybrid	100%	100%	Gasoline
Trailer for Airboat	N/A		0%	Zero
Yellowjacket Duster	N/A		0%	Zero

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Airboat	502 cubic inches: output 500hp	50%			40%	10%		100%	Gasoline
Airboat spray tank	7.4 cu in				50%	50%		100%	Gasoline
Boat trailer	N/A							0%	Zero
Flat bottom boat	123 cc 4 hp	100%						100%	Gasoline
Grizzly 17 ft. Boat	60.8 cu in	100%						100%	Gasoline
Klamath Boat	100 cc 9.9 hp	70%			15%	15%		100%	50:1 gas/oil mix

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1960 Hiller Soloy helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					70%	30%	100%	Jet A
1968 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp				70%	30%		100%	Jet A
1989 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp				70%	30%		100%	Jet A
800 gallon mix trailer	Transfer pump					60%	40%	100%	Gasoline
Isolair 4400 bucket system (helicopter-mounted)	N/A							0%	Zero
Isolair 4500 broadcaster (helicopter-mounted)	N/A							0%	Zero
Isolair Air spray system model 3900 (helicopter-mounted)	N/A							0%	Zero
		100.00%	20%	5%	13%	21%	25%	15%	6000%

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Onroad MD				MD	1	3	3	3	2		30
None				0	1						
Electric				0	1						
Electric				0	1						
Onroad HD				HD	1	1	1	1	1		30
Onroad HD				HD	1	1	2	2	1		30
Onroad HD				HD	1	2	2	2	1		60
None				0	1						
Electric				0	1						
Electric				0	1						
None				0	1						
Electric				0	1						
None				0	1						
None				0	1						
None				0	1						
Onroad MD				MD	1	1	2	2	1		30
None				0	1						
Sport				31	2	5	5	5	1	1	
Sport				26	5	20	20	20	10	1	
Sport				21	4	20	20	20	10	1	
Electric				0	1						
2-stroke	40	2.4	0.92	2.2	5	2	20	10	1	0.5	
None				0	1						
Electric				0	3	2	15	10	2		
None				0	1						
Electric				0	1						
Electric				0	1						
None				0	1						
Onroad LD				LD	2	35	50	50	30		45
Onroad MD				MD	1	4	15	15	2		30
Onroad MD				MD	3	50	66	66	45		60
Onroad LD				LD	1	6	6	6	3		45
Onroad MD				MD	1	0	1	3	0		30
None				0	1	1	0	0	1		
Onroad HD				HD	1	0	0	0	2		30
2-stroke	40	2.4	0.92	2.2	1					0.5	
2-stroke	30	1.8	0.92	1.7	1	10	0	0	10	0.5	
2-stroke	17	1.0	0.92	1.0	1					1	
2-stroke	21	1.3	0.92	1.2	1	5	0	0	5	1	
Electric				0	1	1	3	3	2		
Electric				0	1						
None				0	1						
Onroad LD				LD	1	0	7	7	1		30
Onroad LD				LD	3	32	48	48	32		30
Onroad LD				LD	1	0	2	2	1		30
Onroad LD				LD	5	10	15	15	5		15
Onroad LD				LD	12	50	60	60	40		45
Onroad LD				LD	9	45	60	60	40		60
Onroad MD				MD	3	10	15	15	5		90
Onroad MD				MD	2	5	15	15	2		90
Onroad LD				LD	3	15	40	40	5		90
Onroad LD				LD	1	3	5	5	1		45
Sport				18	1	0	1	1	0	0.5	
Sport				55	1	1	5	5	5	1	
Electric				0	1						
2-stroke	49	3.0	0.92	2.8	21	2	15	10	5	0.5	
Utility	615	37.5	0.56	21.0	1	1	10	10	1	0.5	
None				0	1						
2-stroke	56	3.4	0.92	3.1	2	5	0	0	5	0.5	
2-stroke	22	1.3	0.92	1.2	2	10	0	0	10	0.5	
Utility	264	16.1	0.56	9.0	1	5	10	10	1	1	
Utility	264	16.1	0.56	9.0	1	5	10	10	1	1	
Onroad MD				MD	1	3	4	1	0		30
Offroad				44	1	0	2	1	0	1	
Sport				27	1	5	5	5	1	2	
Sport				42	3	10	20	30	15	1	
None				0	1						
Sport				35	1	0	2	2	0	2	
None				0	1						
None				0	1						
Utility	160	9.8	0.56	5.5	1	0	3	3	0	1	
Electric				0	1	3	3	3	2		
Electric				0	1						
Utility	88	5.4	0.56	3.0	1					1	
Utility	88	5.4	0.56	3.0	1	10	15	15	1	1	
Electric				0	1						
None				0	1	0	1	1	0		
Offroad				170	1	1	0	0	1	2	
2-stroke	40	2.4	0.92	2.2	5	10	30	30	15	1	
2-stroke	40	2.4	0.92	2.2	2	10	30	30	15	1	
Utility				132	1					2	
Utility	318	19.4	0.56	11.0	1					2	

None				0	1							
None				0	1							
None				0	1							
None				0	1							
Onroad LD				LD	1	63	63	63	63			60
None				0	1							
None				0	1							

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport				500	1	2	10	10	5	1	
Utility	122	7.4	0.56	4.2	1	2	4	4	1	1	
None				0	1						
Utility	118	7.2	0.56	4.0	1	1	1	1	1	1	
Sport	996	60.8	0.86	52.0	1	1	1	1	1	1	
2-stroke	177	10.8	0.92	9.9	1	1	1	1	1	0.5	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	1		1	1	2	
Turbine				420	1	2	5	5	2	2	
Turbine				420	1	2	5	5	2	2	
Utility				5	1		2	2	2	0.5	
None				0	1						
None				0	1						
None				0	1						

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
	30		90		330
	30		30		120
	30		60		180
	60		120		420
	30		60		180
2		10		32	
5		100		350	
4		80		280	
2.5		50		82.5	
	90		4500		14850
	30		450		1080
	180		11880		40860
	45		270		945
	30		90		120
	30		60		60
0.5		0		0	
0.5		5		10	
1		0		0	
1		5		10	
	30		210		450
	90		4320		14400
	30		60		150
	75		1125		3375
	540		32400		113400
	540		32400		110700
	270		4050		12150
	180		2700		6660
	270		10800		27000
	45		225		630
0.5		0.5		1	
1		5		16	
10.5		157.5		336	
0.5		5		11	
1		5		10	
1		10		20	
1		10		26	
1		10		26	
	30		120		240
1		2		3	
2		10		32	
3		90		225	
2		4		8	
1		3		6	
1		0		0	
1		15		41	
2		2		4	
5		150		425	
2		60		170	
2		0		0	
2		0		0	

60	3780	15120

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
1		10		27	
1		4		11	
1		1		4	
1		1		4	
0.5		0.5		2	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
2		2		6	
2		10		28	
2		10		28	
0.5		1		3	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176
0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176
0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.17577	5.83110	0.15159	0.00781	0.00930	0.00605	14.62890	0.00083	0.00036	14.75872
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.11907	3.95010	0.10269	0.00529	0.00630	0.00410	9.90990	0.00056	0.00025	9.99784
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.06288	1.12492	0.00699	0.00101	0.01330	0.00865	1.73817	0.00010	0.00004	1.75359
0.03699	0.66172	0.00411	0.00060	0.00783	0.00509	1.02245	0.00006	0.00003	1.03152
0.04439	0.79406	0.00493	0.00071	0.00939	0.00610	1.22694	0.00007	0.00003	1.23783
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.10206	3.38580	0.08802	0.00454	0.00540	0.00351	8.49420	0.00048	0.00021	8.56958
0.31185	10.34550	0.26895	0.01386	0.01650	0.01073	25.95450	0.00147	0.00064	26.18482
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
0.19845	6.58350	0.17115	0.00882	0.01050	0.00683	16.51650	0.00093	0.00041	16.66307
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.16513	1.53659	0.01835	0.00185	0.02426	0.01577	2.92578	0.00017	0.00007	2.95174
0.04439	0.79406	0.00493	0.00071	0.00939	0.00610	1.22694	0.00007	0.00003	1.23783
0.04514	4.51284	0.03846	0.00387	0.00437	0.00284	7.78635	0.00044	0.00019	7.85545
0.04514	4.51284	0.03846	0.00387	0.00437	0.00284	7.78635	0.00044	0.00019	7.85545
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.03906	0.23871	0.28645	0.00029	0.02604	0.02214	30.12240	0.00172	0.00076	30.39337
0.15309	5.07870	0.13203	0.00680	0.00810	0.00527	12.74130	0.00072	0.00032	12.85437
0.23814	7.90020	0.20538	0.01058	0.01260	0.00819	19.81980	0.00112	0.00049	19.99568
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.19845	6.58350	0.17115	0.00882	0.01050	0.00683	16.51650	0.00093	0.00041	16.66307
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01505	1.50428	0.01282	0.00129	0.00146	0.00095	2.59545	0.00015	0.00006	2.61848
0.01505	1.50428	0.01282	0.00129	0.00146	0.00095	2.59545	0.00015	0.00006	2.61848
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.13281	0.83845	0.97395	0.00111	0.05031	0.04276	116.38200	0.00664	0.00293	117.42894
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
1.24740	41.38200	1.07580	0.05544	0.06600	0.04290	103.81800	0.00587	0.00257	104.73929
0.10395	3.44850	0.08965	0.00462	0.00550	0.00358	8.65150	0.00049	0.00021	8.72827

0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
2.83500	94.05000	2.44500	0.12600	0.15000	0.09750	235.95000	0.01335	0.00585	238.04385
0.02107	2.10599	0.01795	0.00181	0.00204	0.00132	3.63363	0.00021	0.00009	3.66588
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.02006	2.00571	0.01709	0.00172	0.00194	0.00126	3.46060	0.00020	0.00009	3.49131
0.29484	9.78120	0.25428	0.01310	0.01560	0.01014	24.53880	0.00139	0.00061	24.75656
0.52734	4.90716	0.05859	0.00589	0.07748	0.05036	9.34362	0.00053	0.00023	9.42654

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Surveillance	20%
Physical Control	5%
Vegetation Management	13%
Biological Control	21%
Chemical Control	25%
Other Non-Chemical	15%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.06	0.25	0.73	0.00	0.04	0.03	126.38	0.00	0.00	127.25
0.06	0.25	0.73	0.00	0.04	0.03	126.38	0.00	0.00	127.25
0.12	0.51	1.45	0.00	0.07	0.06	252.77	0.01	0.01	254.51
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.35	11.66	0.30	0.02	0.02	0.01	29.26	0.00	0.00	29.52
0.74	24.45	0.64	0.03	0.04	0.03	61.35	0.00	0.00	61.89
0.48	15.80	0.41	0.02	0.03	0.02	39.64	0.00	0.00	39.99
0.20	3.64	0.02	0.00	0.04	0.03	5.62	0.00	0.00	5.67
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.34	2.31	2.57	0.00	0.10	0.08	503.72	0.02	0.02	511.69
0.03	0.30	0.03	0.00	0.00	0.00	49.62	0.00	0.00	50.03
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.06	0.25	0.73	0.00	0.04	0.03	126.38	0.00	0.00	127.25
0.04	0.73	0.00	0.00	0.01	0.01	1.12	0.00	0.00	1.13
0.03	0.56	0.00	0.00	0.01	0.00	0.87	0.00	0.00	0.88
0.04	0.66	0.00	0.00	0.01	0.01	1.02	0.00	0.00	1.03
0.04	0.79	0.00	0.00	0.01	0.01	1.23	0.00	0.00	1.24
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.05	0.50	0.05	0.00	0.01	0.00	82.69	0.00	0.00	83.39
0.38	3.57	0.35	0.01	0.05	0.03	595.39	0.03	0.01	600.38
0.38	3.57	0.35	0.01	0.05	0.03	595.39	0.03	0.01	600.38
0.51	3.47	3.85	0.01	0.15	0.12	755.58	0.02	0.04	767.54
0.34	2.31	2.57	0.00	0.10	0.08	503.72	0.02	0.02	511.69
0.19	1.78	0.18	0.00	0.02	0.02	297.69	0.02	0.01	300.19
0.03	0.30	0.03	0.00	0.00	0.00	49.62	0.00	0.00	50.03
0.05	1.69	0.04	0.00	0.00	0.00	4.25	0.00	0.00	4.28
0.31	10.35	0.27	0.01	0.02	0.01	25.95	0.00	0.00	26.18
1.09	19.45	0.12	0.02	0.23	0.15	30.06	0.00	0.00	30.33
0.10	3.29	0.09	0.00	0.01	0.00	8.26	0.00	0.00	8.33
0.17	1.54	0.02	0.00	0.02	0.02	2.93	0.00	0.00	2.95
0.04	0.79	0.00	0.00	0.01	0.01	1.23	0.00	0.00	1.24
0.05	4.51	0.04	0.00	0.00	0.00	7.79	0.00	0.00	7.86
0.05	4.51	0.04	0.00	0.00	0.00	7.79	0.00	0.00	7.86
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.04	0.24	0.29	0.00	0.03	0.02	30.12	0.00	0.00	30.39
0.31	10.16	0.26	0.01	0.02	0.01	25.48	0.00	0.00	25.71
0.71	23.70	0.62	0.03	0.04	0.02	59.46	0.00	0.00	59.99
0.40	13.17	0.34	0.02	0.02	0.01	33.03	0.00	0.00	33.33
0.03	2.76	0.02	0.00	0.00	0.00	4.76	0.00	0.00	4.80
0.02	1.50	0.01	0.00	0.00	0.00	2.60	0.00	0.00	2.62
0.02	1.50	0.01	0.00	0.00	0.00	2.60	0.00	0.00	2.62
0.27	1.68	1.95	0.00	0.10	0.09	232.76	0.01	0.01	234.86
0.41	7.28	0.05	0.01	0.09	0.06	11.25	0.00	0.00	11.35
0.16	2.91	0.02	0.00	0.03	0.02	4.50	0.00	0.00	4.54
2.49	82.76	2.15	0.11	0.13	0.09	207.64	0.01	0.01	209.48
0.21	6.90	0.18	0.01	0.01	0.01	17.30	0.00	0.00	17.46

0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
11.88	**282.27**	**23.84**	**0.37**	**1.70**	**1.24**	**5675.73**	**0.25**	**0.19**	**5739.06**
VOC	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_20**	**CO_2 eqv**
lbs/day	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**
2.84	94.05	2.45	0.13	0.15	0.10	235.95	0.01	0.01	238.04
0.02	2.11	0.02	0.00	0.00	0.00	3.63	0.00	0.00	3.67
0.02	2.01	0.02	0.00	0.00	0.00	3.46	0.00	0.00	3.49
0.29	9.78	0.25	0.01	0.02	0.01	24.54	0.00	0.00	24.76
0.26	2.45	0.03	0.00	0.04	0.03	4.67	0.00	0.00	4.71
3.43	**110.40**	**2.76**	**0.15**	**0.21**	**0.14**	**272.25**	**0.02**	**0.01**	**274.67**
VOC	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_20**	**CO_2 eqv**
lbs/day	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.01	1.25	0.01	0.00	0.00	0.00	2.16	0.00	0.00	2.18
0.02	**1.32**	**17.52**	**0.03**	**0.24**	**0.16**	**3251.75**	**0.09**	**0.10**	**3285.93**
15.34	**393.99**	**44.12**	**0.55**	**2.15**	**1.53**	**9199.74**	**0.35**	**0.30**	**9299.66**
3.05	78.47	8.79	0.11	0.43	0.31	1832.28	0.07	0.06	1852.18
0.84	21.51	2.41	0.03	0.12	0.08	502.15	0.02	0.02	507.61
2.06	53.02	5.94	0.07	0.29	0.21	1238.13	0.05	0.04	1251.58
3.26	83.72	9.38	0.12	0.46	0.33	1954.95	0.07	0.06	1976.18
3.85	98.83	11.07	0.14	0.54	0.38	2307.60	0.09	0.07	2332.66
2.27	58.44	6.55	0.08	0.32	0.23	1364.63	0.05	0.04	1379.45
15.34	**393.99**	**44.12**	**0.55**	**2.15**	**1.53**	**9199.74**	**0.35**	**0.30**	**9299.66**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.2	1.2	1.3	0.0	0.0	0.0	251.9	0.0	0.0	255.8
0.1	0.3	0.7	0.0	0.0	0.0	126.4	0.0	0.0	127.3
0.1	0.5	1.5	0.0	0.1	0.1	252.8	0.0	0.0	254.5
0.2	1.0	2.9	0.0	0.1	0.1	505.5	0.0	0.0	509.0
0.1	0.8	0.9	0.0	0.0	0.0	167.9	0.0	0.0	170.6
1.8	58.3	1.5	0.1	0.1	0.1	146.3	0.0	0.0	147.6
14.7	489.1	12.7	0.7	0.8	0.5	1226.9	0.1	0.0	1237.8
9.5	316.0	8.2	0.4	0.5	0.3	792.8	0.0	0.0	799.8
4.1	72.8	0.5	0.1	0.9	0.6	112.5	0.0	0.0	113.5
3.2	29.7	2.9	0.0	0.4	0.3	4961.6	0.3	0.1	5003.2
0.9	5.8	6.4	0.0	0.2	0.2	1259.3	0.0	0.1	1279.2
22.5	152.6	169.3	0.3	6.5	5.4	33245.6	1.0	1.6	33771.6
0.2	1.8	0.2	0.0	0.0	0.0	297.7	0.0	0.0	300.2
0.2	1.2	1.3	0.0	0.0	0.0	251.9	0.0	0.0	255.8
0.1	0.5	1.5	0.0	0.1	0.1	252.8	0.0	0.0	254.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	5.6	0.0	0.0	0.1	0.0	8.7	0.0	0.0	8.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	4.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	6.2
0.1	1.4	0.1	0.0	0.0	0.0	231.5	0.0	0.0	233.5
3.0	28.5	2.8	0.0	0.4	0.3	4763.1	0.3	0.1	4803.1
0.0	0.4	0.0	0.0	0.0	0.0	66.2	0.0	0.0	66.7
0.8	7.4	0.7	0.0	0.1	0.1	1240.4	0.1	0.0	1250.8
22.8	214.0	21.2	0.3	3.0	1.9	35723.3	2.0	0.8	36023.0
22.8	214.0	21.2	0.3	3.0	1.9	35723.3	2.0	0.8	36023.0
7.7	52.0	57.7	0.1	2.2	1.8	11333.7	0.4	0.6	11513.0
5.1	34.7	38.5	0.1	1.5	1.2	7555.8	0.2	0.4	7675.4
7.6	71.3	7.1	0.1	1.0	0.6	11907.8	0.7	0.3	12007.7
0.2	1.5	0.1	0.0	0.0	0.0	248.1	0.0	0.0	250.2
0.1	1.7	0.0	0.0	0.0	0.0	4.2	0.0	0.0	4.3
1.6	51.7	1.3	0.1	0.1	0.1	129.8	0.0	0.0	130.9
16.3	291.8	1.8	0.3	3.5	2.2	450.9	0.0	0.0	454.9
1.0	32.9	0.9	0.0	0.1	0.0	82.6	0.0	0.0	83.3
0.8	7.7	0.1	0.0	0.1	0.1	14.6	0.0	0.0	14.8
0.4	7.9	0.0	0.0	0.1	0.1	12.3	0.0	0.0	12.4
0.5	45.1	0.4	0.0	0.0	0.0	77.9	0.0	0.0	78.6
0.5	45.1	0.4	0.0	0.0	0.0	77.9	0.0	0.0	78.6
0.2	1.5	1.7	0.0	0.1	0.1	335.8	0.0	0.0	341.1
0.1	0.5	0.6	0.0	0.1	0.0	60.2	0.0	0.0	60.8
1.5	50.8	1.3	0.1	0.1	0.1	127.4	0.0	0.0	128.5
21.4	711.0	18.5	1.0	1.1	0.7	1783.8	0.1	0.0	1799.6
0.8	26.3	0.7	0.0	0.0	0.0	66.1	0.0	0.0	66.7
0.1	8.3	0.1	0.0	0.0	0.0	14.3	0.0	0.0	14.4
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	22.6	0.2	0.0	0.0	0.0	38.9	0.0	0.0	39.3
0.3	1.7	1.9	0.0	0.1	0.1	232.8	0.0	0.0	234.9
12.2	218.4	1.4	0.2	2.6	1.7	337.4	0.0	0.0	340.4
4.9	87.3	0.5	0.1	1.0	0.7	135.0	0.0	0.0	136.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2.7	25.0	2.5	0.0	0.3	0.2	4167.7	0.2	0.1	4202.7
193.90	**3403.51**	**395.67**	**4.57**	**30.57**	**21.85**	**160809.42**	**7.76**	**5.13**	**162563.77**
VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
28.4	940.5	24.5	1.3	1.5	1.0	2359.5	0.1	0.1	2380.4
0.1	8.4	0.1	0.0	0.0	0.0	14.5	0.0	0.0	14.7
0.0	2.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.5
0.3	9.8	0.3	0.0	0.0	0.0	24.5	0.0	0.0	24.8
0.3	2.5	0.0	0.0	0.0	0.0	4.7	0.0	0.0	4.7
29.01	**963.16**	**24.82**	**1.28**	**1.56**	**1.02**	**2406.71**	**0.14**	**0.06**	**2428.06**
VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.0	5.8	0.0	0.1	0.1	1083.2	0.0	0.0	1094.6
0.0	0.1	29.2	0.1	0.4	0.3	5416.0	0.1	0.2	5472.9
0.0	0.1	29.2	0.1	0.4	0.3	5416.0	0.1	0.2	5472.9
0.0	2.5	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.4
0.05	**2.75**	**64.22**	**0.12**	**0.88**	**0.57**	**11919.49**	**0.33**	**0.38**	**12044.77**
222.97	**4369.43**	**484.71**	**5.97**	**33.01**	**23.43**	**175135.62**	**8.22**	**5.58**	**177036.60**
44.41	870.24	96.54	1.19	6.58	4.67	34881.18	1.64	1.11	35259.79
12.17	238.50	26.46	0.33	1.80	1.28	9559.49	0.45	0.30	9663.25
30.01	588.05	65.23	0.80	4.44	3.15	23570.34	1.11	0.75	23826.18
47.38	928.50	103.00	1.27	7.02	4.98	37216.32	1.75	1.18	37620.28
55.93	1096.00	121.58	1.50	8.28	5.88	43929.85	2.06	1.40	44406.68
33.07	648.13	71.90	0.89	4.90	3.48	25978.45	1.22	0.83	26260.43
222.97	**4369.43**	**484.71**	**5.97**	**33.01**	**23.43**	**175135.62**	**8.22**	**5.58**	**177036.60**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.6	4.2	4.7	0.0	0.2	0.2	923.5	0.0	0.0	938.1
0.2	1.0	2.9	0.0	0.1	0.1	505.5	0.0	0.0	509.0
0.4	1.5	4.4	0.0	0.2	0.2	758.3	0.0	0.0	763.5
0.8	3.6	10.2	0.0	0.5	0.4	1769.4	0.0	0.0	1781.5
0.3	2.3	2.6	0.0	0.1	0.1	503.7	0.0	0.0	511.7
5.6	186.6	4.9	0.2	0.3	0.2	468.1	0.0	0.0	472.3
51.6	1711.7	44.5	2.3	2.7	1.8	4294.3	0.2	0.1	4332.4
33.3	1106.0	28.8	1.5	1.8	1.1	2774.8	0.2	0.1	2799.4
6.7	120.1	0.7	0.1	1.4	0.9	185.6	0.0	0.0	187.2
10.4	98.1	9.7	0.2	1.4	0.9	16373.2	0.9	0.4	16510.5
2.0	13.9	15.4	0.0	0.6	0.5	3022.3	0.1	0.1	3070.1
77.5	524.8	582.3	1.1	22.4	18.6	114344.9	3.6	5.6	116153.8
0.7	6.2	0.6	0.0	0.1	0.1	1041.9	0.1	0.0	1050.7
0.2	1.5	1.7	0.0	0.1	0.1	335.8	0.0	0.0	341.1
0.1	0.5	1.5	0.0	0.1	0.1	252.8	0.0	0.0	254.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.6	11.2	0.1	0.0	0.1	0.1	17.4	0.0	0.0	17.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.4	7.9	0.0	0.0	0.1	0.1	12.3	0.0	0.0	12.4
0.3	3.0	0.3	0.0	0.0	0.0	496.2	0.0	0.0	500.3
10.1	95.1	9.4	0.2	1.3	0.9	15877.0	0.9	0.4	16010.2
0.1	1.0	0.1	0.0	0.0	0.0	165.4	0.0	0.0	166.8
2.4	22.3	2.2	0.0	0.3	0.2	3721.2	0.2	0.1	3752.4
79.6	748.8	74.3	1.2	10.4	6.7	125031.7	7.2	2.9	126080.4
77.7	731.0	72.5	1.2	10.2	6.6	122054.7	7.0	2.8	123078.5
23.0	156.0	173.2	0.3	6.7	5.5	34001.2	1.1	1.7	34539.1
12.6	85.5	94.9	0.2	3.7	3.0	18637.7	0.6	0.9	18932.6
19.0	178.3	17.7	0.3	2.5	1.6	29769.4	1.7	0.7	30019.1
0.4	4.2	0.4	0.0	0.1	0.0	694.6	0.0	0.0	700.4
0.1	3.4	0.1	0.0	0.0	0.0	8.5	0.0	0.0	8.6
5.0	165.5	4.3	0.2	0.3	0.2	415.3	0.0	0.0	419.0
34.8	622.5	3.9	0.6	7.4	4.8	961.9	0.1	0.0	970.5
2.2	72.4	1.9	0.1	0.1	0.1	181.7	0.0	0.0	183.3
1.7	15.4	0.2	0.0	0.2	0.2	29.3	0.0	0.0	29.5
0.9	15.9	0.1	0.0	0.2	0.1	24.5	0.0	0.0	24.8
1.2	117.3	1.0	0.1	0.1	0.1	202.4	0.0	0.0	204.2
1.2	117.3	1.0	0.1	0.1	0.1	202.4	0.0	0.0	204.2
0.5	3.1	3.4	0.0	0.1	0.1	671.6	0.0	0.0	682.3
0.1	0.7	0.9	0.0	0.1	0.1	90.4	0.0	0.0	91.2
4.9	162.5	4.2	0.2	0.3	0.2	407.7	0.0	0.0	411.3
53.6	1777.5	46.2	2.4	2.8	1.8	4459.5	0.3	0.1	4499.0
1.6	52.7	1.4	0.1	0.1	0.1	132.1	0.0	0.0	133.3
0.2	16.5	0.1	0.0	0.0	0.0	28.5	0.0	0.0	28.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.6	61.7	0.5	0.1	0.1	0.0	106.4	0.0	0.0	107.4
0.5	3.4	3.9	0.0	0.2	0.2	465.5	0.0	0.0	469.7
34.6	618.7	3.8	0.6	7.3	4.8	956.0	0.1	0.0	964.5
13.8	247.5	1.5	0.2	2.9	1.9	382.4	0.0	0.0	385.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

10.6	99.8	9.9	0.2	1.4	0.9	16670.9	1.0	0.4	16810.7
585.06	**10000.43**	**1248.16**	**13.74**	**91.04**	**65.37**	**524430.01**	**25.44**	**16.61**	**530113.64**
VOC	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_20**	**CO_2 eqv**
lbs/yr	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**
76.5	2539.4	66.0	3.4	4.1	2.6	6370.7	0.4	0.2	6427.2
0.2	23.2	0.2	0.0	0.0	0.0	40.0	0.0	0.0	40.3
0.1	8.0	0.1	0.0	0.0	0.0	13.8	0.0	0.0	14.0
1.2	39.1	1.0	0.1	0.1	0.0	98.2	0.0	0.0	99.0
1.1	9.8	0.1	0.0	0.2	0.1	18.7	0.0	0.0	18.9
79.09	**2619.48**	**67.42**	**3.49**	**4.30**	**2.79**	**6541.30**	**0.37**	**0.16**	**6599.35**
VOC	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_20**	**CO_2 eqv**
lbs/yr	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**	**lbs/yr**
0.0	0.1	17.5	0.0	0.2	0.2	3249.6	0.1	0.1	3283.7
0.0	0.3	81.7	0.1	1.1	0.7	15164.8	0.4	0.5	15324.2
0.0	0.3	81.7	0.1	1.1	0.7	15164.8	0.4	0.5	15324.2
0.1	7.5	0.1	0.0	0.0	0.0	13.0	0.0	0.0	13.1
0.16	**8.20**	**180.99**	**0.33**	**2.47**	**1.61**	**33592.08**	**0.93**	**1.08**	**33945.15**
664.31	**12628.11**	**1496.57**	**17.56**	**97.81**	**69.77**	**564563.40**	**26.74**	**17.85**	**570658.15**
132.31	2515.10	298.07	3.50	19.48	13.90	112442.21	5.33	3.55	113656.08
36.26	689.28	81.69	0.96	5.34	3.81	30815.75	1.46	0.97	31148.42
89.41	1699.53	201.41	2.36	13.16	9.39	75980.82	3.60	2.40	76801.08
141.17	2683.47	318.02	3.73	20.79	14.83	119969.72	5.68	3.79	121264.86
166.63	3167.55	375.39	4.40	24.54	17.50	141611.32	6.71	4.48	143140.09
98.54	1873.17	221.99	2.60	14.51	10.35	83743.57	3.97	2.65	84647.63
664.31	**12628.11**	**1496.57**	**17.56**	**97.81**	**69.77**	**564563.40**	**26.74**	**17.85**	**570658.15**

Napa County Mosquito Abatement District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
2003 Toyota	3.4L	20%				70%	10%	100%	Gasoline
2005 Toyota	3.4L	20%				70%	10%	100%	Gasoline
2007 Chevy	6.0L	40%			30%		30%	100%	Gasoline
2008 Chevy A	6.0L	20%	5%	20%	15%	35%	5%	100%	Gasoline
2008 Chevy B	6.0L	36%	5%	20%	5%	29%	5%	100%	Gasoline
2008 Jeep Wrangler	5.0L	50%					50%	100%	Gasoline
2009 Chevy A	6.0L	36%	5%	20%	5%	29%	5%	100%	Gasoline
2009 Chevy B	6.0L	25%	4%	18%	21%	27%	5%	100%	Gasoline
2010 Chevy	6.0L	36%	5%	20%	5%	29%	5%	100%	Gasoline
2011 Toyota	4.0L	50%					50%	100%	Gasoline
Daewoo Forklift	2.7L		100%					100%	LPG
Echo Chainsaw CS330T	Echo 32.5cc		100%					100%	50:1 gas/oil mix
FloTech Trash Pump	ProPower 5.5hp		100%					100%	Gasoline
Hand Sprayer – London Fog Colt	Techumseh 49cc					100%		100%	50:1 gas/oil mix
Hand Sprayer – London Fog Colt	Techumseh 49cc					100%		100%	50:1 gas/oil mix
Intellispray 5SDE	Honda GX120 9.2			40%		60%		100%	Gasoline
Intellispray 5SDE	Honda GX120 9.2			40%		60%		100%	Gasoline
Intellispray 5SDE	Honda GX120 9.2			40%		60%		100%	Gasoline
Intellispray 5SDE	Honda GX120 9.2			40%		60%		100%	Gasoline
Intellispray 5SDE	Honda GX120 9.2			40%		60%		100%	Gasoline
Intellispray 9TBE	Honda GX270			40%		60%		100%	Gasoline
JD9 ULV	Honda GX240 242cc					100%		100%	Gasoline
London Fog 18-20 ULV	Honda GX120 7.0					100%		100%	Gasoline
London Fog 18-20 ULV	Honda GX120 7.0					100%		100%	Gasoline
London Fog XKE	Honda GX120 7.0					100%		100%	Gasoline
Maruyama Back Sprayer	Kawasaki 40.2cc					100%		100%	50:1 gas/oil mix
Maruyama Back Sprayer	Kawasaki 40.2cc					100%		100%	50:1 gas/oil mix
Maruyama Back Sprayer	Kawasaki 40.2cc					100%		100%	50:1 gas/oil mix
Northstar Pressure Washer	Honda GX390		100%					100%	Gasoline
Pioneer Backpack Fogger	Electric					100%		100%	Zero
Stihl Blower BR420	Stihl 40.2cc		100%					100%	50:1 gas/oil mix
Stihl Weed Wacker	Stihl 40.2cc		100%					100%	50:1 gas/oil mix
Wisconsin Robin ULV	Wisconsin 252cc					100%		100%	Gasoline

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo ATV 1	725cc	30%				70%		100%	Gasoline
Argo ATV 2	725cc	30%				70%		100%	Gasoline
Argo ATV 3	725cc	30%				70%		100%	Gasoline
Argo Sprayer 1	Honda GX120 7.0					100%		100%	Gasoline
Argo Sprayer 2	Honda GX120 7.0					100%		100%	Gasoline
Argo Sprayer 3	Honda GX120 7.0					100%		100%	Gasoline
Polaris ATV 1	499cc	35%				65%		100%	Gasoline
Polaris ATV 2	499cc	35%				65%		100%	Gasoline
Polaris Spot Sprayer	ShurFlo					100%		100%	Zero
Polaris Sprayer - 50 gal Stainless Steel Tank	Honda GX120 7.0					100%		100%	Gasoline
Tracker Boat	Mercury 4 stroke (15 hp)	40%				60%		100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1960 Hiller Soloy helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1968 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1989 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
Isolair 4400 bucket system (helicopter-mounted)	N/A					100%		100%	Zero
Isolair Air spray system model 3900 (helicopter-mounted)	N/A					100%		100%	Zero

100.00%	11%	13%	7%	2%	64%	4%	4900%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Onroad LD				LD	1	4	26	18	3		45
Onroad LD				LD	1	4	28	20	11		39
Onroad LD				LD	1	32	22	22	10		27
Onroad LD				LD	1	44	45	47	36		63
Onroad LD				LD	1	53	59	54	48		93
Onroad LD				LD	1	5	5	12	0		60
Onroad LD				LD	1	55	53	56	40		117
Onroad LD				LD	1	50	57	54	46		75
Onroad LD				LD	1	55	54	57	51		135
Onroad LD				LD	1	29	37	50	20		66
Propane	2700	164.8	0.56	92.0	1	0	0	0	1	0.5	
2-stroke	33	2.0	0.92	1.9	1	0	0	0	1	0.5	
Utility	160	9.8	0.56	5.5	1	0	0	0	1	0.5	
2-stroke	49	3.0	0.92	2.8	1	0	6	2	0	0.5	
2-stroke	49	3.0	0.92	2.8	1	0	6	2	0	0.5	
Utility	120	7.3	0.56	4.1	1	9	21	22	26	4.9	
Utility	120	7.3	0.56	4.1	1	6	21	4	27	3.8	
Utility	120	7.3	0.56	4.1	1	4	7	0	25	3.7	
Utility	120	7.3	0.56	4.1	1	0	5	0	22	2.4	
Utility	120	7.3	0.56	4.1	1	0	5	0	22	2.4	
Utility	270	16.5	0.56	9.2	1	4	15	1	28	4.8	
Utility	240	14.6	0.56	8.2	1	0	3	2	0	1.8	
Utility	120	7.3	0.56	4.1	1	0	13	6	0	1.1	
Utility	120	7.3	0.56	4.1	1	0	8	1	0	0.7	
Utility	120	7.3	0.56	4.1	1	0	5	0	0	0.4	
2-stroke	40	2.4	0.92	2.2	1	12	17	9	6	3.9	
2-stroke	40	2.4	0.92	2.2	1	3	6	2	0	2.5	
2-stroke	40	2.4	0.92	2.2	1	3	6	2	0	2.5	
Utility	390	23.8	0.56	13.0	1	0	0	0	1	0.5	
Electric				0	1	0	12	10	0	0.8	
2-stroke	40	2.4	0.92	2.2	1	0	0	0	1	0.5	
2-stroke	40	2.4	0.92	2.2	1	0	0	0	1	0.5	
Utility	252	15.4	0.56	8.6	1	1	3	4	0	1.9	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport	725	44.2	0.86	38.0	1	5	6	2	2	5	
Sport	725	44.2	0.86	38.0	1	6	15	2	0	2.9	
Sport	725	44.2	0.86	38.0	1	6	6	1	1	3.9	
Utility	120	7.3	0.56	4.1	1	5	6	2	2	4.8	
Utility	120	7.3	0.56	4.1	1	6	15	2	0	2.8	
Utility	120	7.3	0.56	4.1	1	6	6	1	1	3.8	
Sport	499	30.5	0.86	26.0	1	4	7	6	3	3.4	
Sport	499	30.5	0.86	26.0	1	2	3	4	0	2.2	
Electric				0	1	3	4	3	1	3.4	
Utility	120	7.3	0.56	4.1	1	3	4	3	1	3.4	
Sport	286	17.5	0.86	15.0	1	3	6	6	3	3.5	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	4	2	2	0	3	
Turbine				420	1	4	2	2	0	3	
Turbine				420	1	4	2	2	0	3	
None				0	1	2	0	0	0	1	
None				0	1	6	0	0	0	2	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
	45		1170		2295
	39		1092		2457
	27		864		2322
	63		2961		10836
	93		5487		19902
	60		720		1320
	117		6552		23868
	75		4275		15525
	135		7695		29295
	66		3300		8976
0.5		0.5		0.5	
0.5		0.5		0.5	
0.5		0.5		0.5	
0.5		3		4	
0.5		3		4	
4.9		127.4		382.2	
3.8		102.6		220.4	
3.7		92.5		133.2	
2.4		52.8		64.8	
2.4		52.8		64.8	
4.8		134.4		230.4	
1.8		5.4		9	
1.1		14.3		20.9	
0.7		5.6		6.3	
0.4		2		2	
3.9		66.3		171.6	
2.5		15		27.5	
2.5		15		27.5	
0.5		0.5		0.5	
0.8		9.6		17.6	
0.5		0.5		0.5	
0.5		0.5		0.5	
1.9		7.6		15.2	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
5		30		75	
2.9		43.5		66.7	
3.9		23.4		54.6	
4.8		28.8		72	
2.8		42		64.4	
3.8		22.8		53.2	
3.4		23.8		68	
2.2		8.8		19.8	
3.4		13.6		37.4	
3.4		13.6		37.4	
3.5		21		63	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
3		12		24	
3		12		24	
3		12		24	
1		2		2	
2		12		12	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.73030	0.30746	0.46754	0.00033	0.00552	0.00359	75.73440	0.00006	0.00017	75.78690
0.07028	1.25727	0.00781	0.00113	0.01487	0.00967	1.94266	0.00011	0.00005	1.95989
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.04615	4.61313	0.03931	0.00396	0.00446	0.00290	7.95938	0.00045	0.00020	8.03001
0.04113	4.11170	0.03504	0.00353	0.00398	0.00259	7.09423	0.00040	0.00018	7.15719
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.12285	4.07550	0.10595	0.00546	0.00650	0.00423	10.22450	0.00058	0.00025	10.31523
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.04314	4.31227	0.03675	0.00370	0.00417	0.00271	7.44029	0.00042	0.00018	7.50632

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.21546	7.14780	0.18582	0.00958	0.01140	0.00741	17.93220	0.00101	0.00044	18.09133
0.21546	7.14780	0.18582	0.00958	0.01140	0.00741	17.93220	0.00101	0.00044	18.09133
0.21546	7.14780	0.18582	0.00958	0.01140	0.00741	17.93220	0.00101	0.00044	18.09133
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
0.08505	2.82150	0.07335	0.00378	0.00450	0.00293	7.07850	0.00040	0.00018	7.14132

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Surveillance	11%
Physical Control	13%
Vegetation Management	7%
Biological Control	2%
Chemical Control	64%
Other Non-Chemical	4%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.03	0.30	0.03	0.00	0.00	0.00	49.62	0.00	0.00	50.03
0.03	0.26	0.03	0.00	0.00	0.00	43.00	0.00	0.00	43.36
0.02	0.18	0.02	0.00	0.00	0.00	29.77	0.00	0.00	30.02
0.04	0.42	0.04	0.00	0.01	0.00	69.46	0.00	0.00	70.04
0.07	0.61	0.06	0.00	0.01	0.01	102.54	0.01	0.00	103.40
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.08	0.77	0.08	0.00	0.01	0.01	129.00	0.01	0.00	130.08
0.05	0.50	0.05	0.00	0.01	0.00	82.69	0.00	0.00	83.39
0.09	0.89	0.09	0.00	0.01	0.01	148.85	0.01	0.00	150.10
0.05	0.44	0.04	0.00	0.01	0.00	72.77	0.00	0.00	73.38
0.37	0.15	0.23	0.00	0.00	0.00	37.87	0.00	0.00	37.89
0.04	0.63	0.00	0.00	0.01	0.00	0.97	0.00	0.00	0.98
0.01	1.38	0.01	0.00	0.00	0.00	2.38	0.00	0.00	2.40
0.05	0.93	0.01	0.00	0.01	0.01	1.43	0.00	0.00	1.44
0.05	0.93	0.01	0.00	0.01	0.01	1.43	0.00	0.00	1.44
0.10	10.07	0.09	0.01	0.01	0.01	17.38	0.00	0.00	17.54
0.08	7.81	0.07	0.01	0.01	0.00	13.48	0.00	0.00	13.60
0.08	7.61	0.06	0.01	0.01	0.00	13.12	0.00	0.00	13.24
0.05	4.93	0.04	0.00	0.00	0.00	8.51	0.00	0.00	8.59
0.05	4.93	0.04	0.00	0.00	0.00	8.51	0.00	0.00	8.59
0.22	22.14	0.19	0.02	0.02	0.01	38.21	0.00	0.00	38.54
0.07	7.40	0.06	0.01	0.01	0.00	12.77	0.00	0.00	12.88
0.02	2.26	0.02	0.00	0.00	0.00	3.90	0.00	0.00	3.94
0.01	1.44	0.01	0.00	0.00	0.00	2.48	0.00	0.00	2.51
0.01	0.82	0.01	0.00	0.00	0.00	1.42	0.00	0.00	1.43
0.32	5.68	0.04	0.01	0.07	0.04	8.77	0.00	0.00	8.85
0.20	3.64	0.02	0.00	0.04	0.03	5.62	0.00	0.00	5.67
0.20	3.64	0.02	0.00	0.04	0.03	5.62	0.00	0.00	5.67
0.06	2.04	0.05	0.00	0.00	0.00	5.11	0.00	0.00	5.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.73	0.00	0.00	0.01	0.01	1.12	0.00	0.00	1.13
0.04	0.73	0.00	0.00	0.01	0.01	1.12	0.00	0.00	1.13
0.08	8.19	0.07	0.01	0.01	0.01	14.14	0.00	0.00	14.26
2.67	**102.84**	**1.54**	**0.09**	**0.35**	**0.23**	**999.24**	**0.05**	**0.02**	**1007.41**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1.08	35.74	0.93	0.05	0.06	0.04	89.66	0.01	0.00	90.46
0.62	20.73	0.54	0.03	0.03	0.02	52.00	0.00	0.00	52.46
0.84	27.88	0.72	0.04	0.04	0.03	69.94	0.00	0.00	70.56
0.10	9.87	0.08	0.01	0.01	0.01	17.03	0.00	0.00	17.18
0.06	5.76	0.05	0.00	0.01	0.00	9.93	0.00	0.00	10.02
0.08	7.81	0.07	0.01	0.01	0.00	13.48	0.00	0.00	13.60
0.50	16.63	0.43	0.02	0.03	0.02	41.72	0.00	0.00	42.09
0.32	10.76	0.28	0.01	0.02	0.01	26.99	0.00	0.00	27.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.07	6.99	0.06	0.01	0.01	0.00	12.06	0.00	0.00	12.17
0.30	9.88	0.26	0.01	0.02	0.01	24.77	0.00	0.00	24.99
3.97	**152.03**	**3.42**	**0.19**	**0.22**	**0.15**	**357.58**	**0.02**	**0.01**	**360.75**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.03	8.75	0.02	0.12	0.08	1624.80	0.04	0.05	1641.87
0.00	0.03	8.75	0.02	0.12	0.08	1624.80	0.04	0.05	1641.87
0.00	0.03	8.75	0.02	0.12	0.08	1624.80	0.04	0.05	1641.87
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	**0.10**	**26.26**	**0.05**	**0.36**	**0.23**	**4874.39**	**0.13**	**0.16**	**4925.62**

6.65	**254.97**	**31.22**	**0.33**	**0.93**	**0.60**	**6231.21**	**0.21**	**0.19**	**6293.79**

0.72	27.73	3.40	0.04	0.10	0.07	677.80	0.02	0.02	684.61
0.85	32.47	3.98	0.04	0.12	0.08	793.52	0.03	0.02	801.49
0.46	17.59	2.15	0.02	0.06	0.04	429.83	0.01	0.01	434.14
0.11	4.21	0.52	0.01	0.02	0.01	103.01	0.00	0.00	104.04
4.27	163.86	20.06	0.21	0.60	0.39	4004.50	0.13	0.12	4044.72
0.24	9.11	1.12	0.01	0.03	0.02	222.54	0.01	0.01	224.78
6.65	**254.97**	**31.22**	**0.33**	**0.93**	**0.60**	**6231.21**	**0.21**	**0.19**	**6293.79**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.8	7.7	0.8	0.0	0.1	0.1	1290.0	0.1	0.0	1300.8
0.8	7.2	0.7	0.0	0.1	0.1	1204.0	0.1	0.0	1214.1
0.6	5.7	0.6	0.0	0.1	0.1	952.6	0.1	0.0	960.6
2.1	19.6	1.9	0.0	0.3	0.2	3264.7	0.2	0.1	3292.1
3.9	36.2	3.6	0.1	0.5	0.3	6049.8	0.3	0.1	6100.6
0.5	4.8	0.5	0.0	0.1	0.0	793.9	0.0	0.0	800.5
4.6	43.3	4.3	0.1	0.6	0.4	7224.1	0.4	0.2	7284.6
3.0	28.2	2.8	0.0	0.4	0.3	4713.5	0.3	0.1	4753.0
5.4	50.8	5.0	0.1	0.7	0.5	8484.3	0.5	0.2	8555.5
2.3	21.8	2.2	0.0	0.3	0.2	3638.5	0.2	0.1	3669.0
0.4	0.2	0.2	0.0	0.0	0.0	37.9	0.0	0.0	37.9
0.0	0.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
0.0	1.4	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4
0.3	5.6	0.0	0.0	0.1	0.0	8.6	0.0	0.0	8.7
0.3	5.6	0.0	0.0	0.1	0.0	8.6	0.0	0.0	8.7
2.6	261.9	2.2	0.2	0.3	0.2	451.9	0.0	0.0	455.9
2.1	210.9	1.8	0.2	0.2	0.1	363.9	0.0	0.0	367.2
1.9	190.2	1.6	0.2	0.2	0.1	328.1	0.0	0.0	331.0
1.1	108.5	0.9	0.1	0.1	0.1	187.3	0.0	0.0	188.9
1.1	108.5	0.9	0.1	0.1	0.1	187.3	0.0	0.0	188.9
6.2	620.0	5.3	0.5	0.6	0.4	1069.7	0.1	0.0	1079.2
0.2	22.2	0.2	0.0	0.0	0.0	38.3	0.0	0.0	38.6
0.3	29.4	0.3	0.0	0.0	0.0	50.7	0.0	0.0	51.2
0.1	11.5	0.1	0.0	0.0	0.0	19.9	0.0	0.0	20.0
0.0	4.1	0.0	0.0	0.0	0.0	7.1	0.0	0.0	7.2
5.4	96.5	0.6	0.1	1.1	0.7	149.1	0.0	0.0	150.5
1.2	21.8	0.1	0.0	0.3	0.2	33.7	0.0	0.0	34.0
1.2	21.8	0.1	0.0	0.3	0.2	33.7	0.0	0.0	34.0
0.1	2.0	0.1	0.0	0.0	0.0	5.1	0.0	0.0	5.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.7	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
0.0	0.7	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
0.3	32.8	0.3	0.0	0.0	0.0	56.5	0.0	0.0	57.0
48.98	**1982.36**	**37.23**	**1.88**	**6.50**	**4.22**	**40658.52**	**2.32**	**0.95**	**41000.71**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
6.5	214.4	5.6	0.3	0.3	0.2	538.0	0.0	0.0	542.7
9.4	310.9	8.1	0.4	0.5	0.3	780.1	0.0	0.0	787.0
5.0	167.3	4.3	0.2	0.3	0.2	419.6	0.0	0.0	423.3
0.6	59.2	0.5	0.1	0.1	0.0	102.2	0.0	0.0	103.1
0.9	86.3	0.7	0.1	0.1	0.1	149.0	0.0	0.0	150.3
0.5	46.9	0.4	0.0	0.0	0.0	80.9	0.0	0.0	81.6
3.5	116.4	3.0	0.2	0.2	0.1	292.0	0.0	0.0	294.6
1.3	43.0	1.1	0.1	0.1	0.0	108.0	0.0	0.0	108.9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	28.0	0.2	0.0	0.0	0.0	48.2	0.0	0.0	48.7
1.8	59.3	1.5	0.1	0.1	0.1	148.6	0.0	0.0	150.0
29.67	**1131.69**	**25.57**	**1.41**	**1.67**	**1.08**	**2666.51**	**0.15**	**0.07**	**2690.17**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.1	35.0	0.1	0.5	0.3	6499.2	0.2	0.2	6567.5
0.0	0.1	35.0	0.1	0.5	0.3	6499.2	0.2	0.2	6567.5
0.0	0.1	35.0	0.1	0.5	0.3	6499.2	0.2	0.2	6567.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.05	**0.39**	**105.05**	**0.19**	**1.43**	**0.93**	**19497.54**	**0.54**	**0.62**	**19702.49**

78.70	**3114.45**	**167.85**	**3.47**	**9.60**	**6.23**	**62822.57**	**3.01**	**1.64**	**63393.37**

8.56	338.78	18.26	0.38	1.04	0.68	6833.56	0.33	0.18	6895.65
10.02	396.62	21.38	0.44	1.22	0.79	8000.26	0.38	0.21	8072.95
5.43	214.83	11.58	0.24	0.66	0.43	4333.48	0.21	0.11	4372.85
1.30	51.48	2.77	0.06	0.16	0.10	1038.50	0.05	0.03	1047.93
50.58	2001.51	107.87	2.23	6.17	4.00	40373.12	1.94	1.05	40739.94
2.81	111.23	5.99	0.12	0.34	0.22	2243.66	0.11	0.06	2264.05
78.70	**3114.45**	**167.85**	**3.47**	**9.60**	**6.23**	**62822.57**	**3.01**	**1.64**	**63393.37**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
1.6	15.2	1.5	0.0	0.2	0.1	2530.4	0.1	0.1	2551.6
1.7	16.2	1.6	0.0	0.2	0.1	2709.0	0.2	0.1	2731.7
1.6	15.3	1.5	0.0	0.2	0.1	2560.2	0.1	0.1	2581.6
7.6	71.6	7.1	0.1	1.0	0.6	11947.5	0.7	0.3	12047.7
14.0	131.4	13.0	0.2	1.8	1.2	21943.4	1.3	0.5	22127.4
0.9	8.7	0.9	0.0	0.1	0.1	1455.4	0.1	0.0	1467.6
16.8	157.6	15.6	0.3	2.2	1.4	26316.2	1.5	0.6	26536.9
10.9	102.5	10.2	0.2	1.4	0.9	17117.4	1.0	0.4	17261.0
20.6	193.5	19.2	0.3	2.7	1.7	32299.8	1.8	0.7	32570.8
6.3	59.3	5.9	0.1	0.8	0.5	9896.7	0.6	0.2	9979.7
0.4	0.2	0.2	0.0	0.0	0.0	37.9	0.0	0.0	37.9
0.0	0.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
0.0	1.4	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4
0.4	7.4	0.0	0.0	0.1	0.1	11.5	0.0	0.0	11.6
0.4	7.4	0.0	0.0	0.1	0.1	11.5	0.0	0.0	11.6
7.9	785.7	6.7	0.7	0.8	0.5	1355.7	0.1	0.0	1367.7
4.5	453.1	3.9	0.4	0.4	0.3	781.8	0.0	0.0	788.7
2.7	273.8	2.3	0.2	0.3	0.2	472.5	0.0	0.0	476.7
1.3	133.2	1.1	0.1	0.1	0.1	229.9	0.0	0.0	231.9
1.3	133.2	1.1	0.1	0.1	0.1	229.9	0.0	0.0	231.9
10.6	1062.9	9.1	0.9	1.0	0.7	1833.8	0.1	0.0	1850.1
0.4	37.0	0.3	0.0	0.0	0.0	63.8	0.0	0.0	64.4
0.4	43.0	0.4	0.0	0.0	0.0	74.1	0.0	0.0	74.8
0.1	13.0	0.1	0.0	0.0	0.0	22.3	0.0	0.0	22.5
0.0	4.1	0.0	0.0	0.0	0.0	7.1	0.0	0.0	7.2
14.0	249.8	1.6	0.2	3.0	1.9	386.0	0.0	0.0	389.4
2.2	40.0	0.2	0.0	0.5	0.3	61.9	0.0	0.0	62.4
2.2	40.0	0.2	0.0	0.5	0.3	61.9	0.0	0.0	62.4
0.1	2.0	0.1	0.0	0.0	0.0	5.1	0.0	0.0	5.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.7	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
0.0	0.7	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
0.7	65.5	0.6	0.1	0.1	0.0	113.1	0.0	0.0	114.1
131.90	**4126.20**	**104.54**	**4.14**	**17.74**	**11.50**	**134541.23**	**7.70**	**3.13**	**135672.18**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
16.2	536.1	13.9	0.7	0.9	0.6	1344.9	0.1	0.0	1356.8
14.4	476.8	12.4	0.6	0.8	0.5	1196.1	0.1	0.0	1206.7
11.8	390.3	10.1	0.5	0.6	0.4	979.1	0.1	0.0	987.8
1.5	148.0	1.3	0.1	0.1	0.1	255.4	0.0	0.0	257.7
1.3	132.4	1.1	0.1	0.1	0.1	228.4	0.0	0.0	230.5
1.1	109.4	0.9	0.1	0.1	0.1	188.7	0.0	0.0	190.4
10.0	332.6	8.6	0.4	0.5	0.3	834.3	0.0	0.0	841.7
2.9	96.8	2.5	0.1	0.2	0.1	242.9	0.0	0.0	245.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.8	76.9	0.7	0.1	0.1	0.0	132.7	0.0	0.0	133.8
5.4	177.8	4.6	0.2	0.3	0.2	445.9	0.0	0.0	449.9
65.26	**2476.94**	**56.24**	**3.09**	**3.66**	**2.38**	**5848.48**	**0.33**	**0.15**	**5900.38**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.3	70.0	0.1	1.0	0.6	12998.4	0.4	0.4	13135.0
0.0	0.3	70.0	0.1	1.0	0.6	12998.4	0.4	0.4	13135.0
0.0	0.3	70.0	0.1	1.0	0.6	12998.4	0.4	0.4	13135.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.10	**0.79**	**210.11**	**0.37**	**2.87**	**1.86**	**38995.08**	**1.08**	**1.25**	**39404.97**

197.27	**6603.93**	**370.88**	**7.61**	**24.27**	**15.74**	**179384.80**	**9.10**	**4.52**	**180977.54**

21.46	718.35	40.34	0.83	2.64	1.71	19512.67	0.99	0.49	19685.92
25.12	840.99	47.23	0.97	3.09	2.00	22844.11	1.16	0.58	23046.94
13.61	455.54	25.58	0.52	1.67	1.09	12373.89	0.63	0.31	12483.76
3.26	109.17	6.13	0.13	0.40	0.26	2965.34	0.15	0.07	2991.67
126.77	4244.04	238.35	4.89	15.59	10.11	115282.19	5.85	2.91	116305.77
7.05	235.85	13.25	0.27	0.87	0.56	6406.60	0.33	0.16	6463.48
197.27	**6603.93**	**370.88**	**7.61**	**24.27**	**15.74**	**179384.80**	**9.10**	**4.52**	**180977.54**

Northern Salinas Valley Mosquito Abatement District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Bean Pump	Honda Gx 160 5.5 HP			100%				100%	Gasoline
Birchmeier Sprayer (backpacks 4)	N/A			50%		50%		100%	Zero
Blow Mite Granule Spreader (backpack)	20 cc					100%		100%	50:1 gas/oil mix
Cat 320 Excavator	138 HP		50%	50%				100%	Diesel
Cat D3 Dozer	5.2 Liter		50%	50%				100%	Diesel
Chevy Silverado 4X4	6.6 Liter			90%			10%	100%	Diesel
Dodge Ram 50 Right hand drive	2.0 Liter				100%			100%	Gasoline
Ford F-150 4X4 (3)	5.4 Liter	25%			25%	40%	10%	100%	Gasoline
Ford F-150 4X4 Flare Side	5.8 Liter					90%	10%	100%	Gasoline
Ford F-150 Xl	5.4 Liter	25%			25%	40%	10%	100%	Gasoline
Ford F-350 4X4	6.0 Liter		50%	50%				100%	Diesel
Ford Windstar Sport SE	3.8 Liter						100%	100%	Gasoline
GPI Model 1505 Fuel Transfer	½ HP						100%	100%	Zero
Jeep Liberty 4X4	3.7 Liter						100%	100%	Gasoline
Jeep Wrangler 4X4	4.0 Liter	25%					75%	100%	Gasoline
John Deere 6420 with Flail Mulch Mower S900 (PTO)	90 hp		30%	70%				100%	Diesel
Maruyama Backpack Blower (Mister/Duster)	40.2 CC					90%	10%	100%	50:1 gas/oil mix
Mozzie Fogger – Arro-Gun System with electric shur flow pump	Honda GX 160 5.5 HP					100%		100%	Gasoline
Mozzie Granular Applicator – Arro-Gun System	Honda GX 160 5.5 HP					100%		100%	Gasoline
Robin Micro Gen Fogger	20 cc					100%		100%	50:1 gas/oil mix
Spyker Hand Granular Spreader (2)	N/A					100%		100%	Zero
Stihl Chainsaw 011AV	2.5 CI			100%				100%	50:1 gas/oil mix
Stihl Chainsaw 028 AV Super	47 CC			100%				100%	50:1 gas/oil mix
Stihl Leaf Blower BG 65	1.66 CI			100%				100%	50:1 gas/oil mix

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo ATV	570 CC	10%			45%	45%		100%	Gasoline
Argo Sprayer System	ShurFlo Electric					100%		100%	Zero
Valco Flat Bottom Boat (go devil engine/prop)	Briggs & Stratton 9 HP			50%		50%		100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Jet Ranger (Helicopter)	Rolls Royce					100%		100%	Jet A
	100.00%	3%	6%	29%	7%	39%	15%	2800%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Utility	160	9.8	0.56	5.5	1	15	15	15	15	1.60	
None				0	4	15	15	15	15	1.60	
2-stroke	20	1.2	0.92	1.1	1	15	15	15	15	0.13	
Offroad	4039	246.5	0.56	138.0	1	9	21	21	9	2.50	
Offroad	5200	317.3	0.56	178.0	1	9	21	21	9	1.67	
Onroad MD				MD	1	15	15	15	15		96
Onroad LD				LD	1	15	15	15	15		5
Onroad LD				LD	3	15	15	15	15		53
Onroad LD				LD	1	15	15	15	15		8
Onroad LD				LD	1	15	15	15	15		160
Onroad MD				MD	1	15	15	15	15		96
Onroad LD				LD	1	15	15	15	15		48
Electric				0	1	15	15	15	15	0.13	
Onroad LD				LD	1	15	15	15	15		12
Onroad LD				LD	1	15	15	15	15		24
Offroad	2635	160.8	0.56	90.0	1	9	21	21	9	1.67	
2-stroke	40	2.4	0.92	2.2	1	15	15	15	15	0.20	
Utility	160	9.8	0.56	5.5	1	15	15	15	15	0.13	
Utility	160	9.8	0.56	5.5	1	15	15	15	15	0.13	
2-stroke	20	1.2	0.92	1.1	1	15	15	15	15	0.13	
None				0	2	15	15	15	15	0.07	
2-stroke	41	2.5	0.92	2.3	1	0	30	30	0	0.13	
2-stroke	47	2.9	0.92	2.6	1	15	15	15	15	0.13	
2-stroke	27	1.6	0.92	1.5	1	0	30	30	0	0.13	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport	570	34.8	0.86	30.0	1	15	15	15	15	1.60	
Electric				0	1	15	15	15	15	1.60	
Utility	264	16.1	0.56	9.0	1	15	15	15	15	1.60	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	15	15	15	15	0.67	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
1.60		24		96	
6.40		96		384	
0.13		2		8	
2.50		52.5		150	
1.67		35		100	
	96		1440		5760
	5		75		300
	160		2400		9600
	8		120		480
	160		2400		9600
	96		1440		5760
	48		720		2880
0.13		2		8	
	12		180		720
	24		360		1440
1.67		35		100	
0.20		3		12	
0.13		2		8	
0.13		2		8	
0.13		2		8	
0.13		2		8	
0.13		4		8	
0.13		2		8	
0.13		4		8	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
1.6		24		96	
1.6		24		96	
1.6		24		96	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
0.67		10		40	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.04069	0.72789	0.00452	0.00065	0.00861	0.00560	1.12470	0.00006	0.00003	1.13468
0.10781	0.68063	0.79061	0.00090	0.04084	0.03471	94.47480	0.00539	0.00238	95.32467
0.13906	0.61454	1.01978	0.00116	0.03512	0.02985	121.85880	0.00695	0.00307	122.95501
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.07990	0.44389	0.58593	0.00059	0.03551	0.03018	61.61400	0.00352	0.00155	62.16826
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.04069	0.72789	0.00452	0.00065	0.00861	0.00560	1.12470	0.00006	0.00003	1.13468
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.08508	1.52195	0.00945	0.00137	0.01800	0.01170	2.35164	0.00013	0.00006	2.37250
0.09618	1.72047	0.01069	0.00155	0.02035	0.01323	2.65837	0.00015	0.00007	2.68196
0.05549	0.99258	0.00617	0.00089	0.01174	0.00763	1.53368	0.00009	0.00004	1.54729

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.17010	5.64300	0.14670	0.00756	0.00900	0.00585	14.15700	0.00080	0.00035	14.28263
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.04514	4.51284	0.03846	0.00387	0.00437	0.00284	7.78635	0.00044	0.00019	7.85545

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131

Surveillance	3%
Physical Control	6%
Vegetation Management	29%
Biological Control	7%
Chemical Control	39%
Other Non-Chemical	15%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.04	4.41	0.04	0.00	0.00	0.00	7.61	0.00	0.00	7.68
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.10	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.15
0.27	1.70	1.98	0.00	0.10	0.09	236.19	0.01	0.01	238.31
0.23	1.02	1.70	0.00	0.06	0.05	203.10	0.01	0.01	204.93
0.18	1.23	1.37	0.00	0.05	0.04	268.65	0.01	0.01	272.90
0.00	0.03	0.00	0.00	0.00	0.00	5.51	0.00	0.00	5.56
0.11	1.06	0.10	0.00	0.01	0.01	176.41	0.01	0.00	177.89
0.01	0.05	0.01	0.00	0.00	0.00	8.82	0.00	0.00	8.89
0.11	1.06	0.10	0.00	0.01	0.01	176.41	0.01	0.00	177.89
0.18	1.23	1.37	0.00	0.05	0.04	268.65	0.01	0.01	272.90
0.03	0.32	0.03	0.00	0.00	0.00	52.92	0.00	0.00	53.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.08	0.01	0.00	0.00	0.00	13.23	0.00	0.00	13.34
0.02	0.16	0.02	0.00	0.00	0.00	26.46	0.00	0.00	26.68
0.13	0.74	0.98	0.00	0.06	0.05	102.69	0.01	0.00	103.61
0.02	0.29	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45
0.00	0.37	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.64
0.00	0.37	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.64
0.01	0.10	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.20	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.32
0.01	0.23	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.36
0.01	0.13	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.21
1.40	**14.88**	**7.71**	**0.02**	**0.38**	**0.31**	**1549.56**	**0.07**	**0.05**	**1566.88**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.27	9.03	0.23	0.01	0.01	0.01	22.65	0.00	0.00	22.85
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.07	7.22	0.06	0.01	0.01	0.00	12.46	0.00	0.00	12.57
0.34	**16.25**	**0.30**	**0.02**	**0.02**	**0.01**	**35.11**	**0.00**	**0.00**	**35.42**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.01	1.95	0.00	0.03	0.02	361.07	0.01	0.01	364.86
0.00	**0.01**	**1.95**	**0.00**	**0.03**	**0.02**	**361.07**	**0.01**	**0.01**	**364.86**

1.75	**31.14**	**9.95**	**0.04**	**0.43**	**0.34**	**1945.73**	**0.09**	**0.06**	**1967.16**

0.05	0.95	0.30	0.00	0.01	0.01	59.07	0.00	0.00	59.72
0.11	2.00	0.64	0.00	0.03	0.02	125.08	0.01	0.00	126.46
0.51	9.01	2.88	0.01	0.12	0.10	562.87	0.03	0.02	569.07
0.12	2.17	0.69	0.00	0.03	0.02	135.51	0.01	0.00	137.00
0.69	12.29	3.93	0.02	0.17	0.13	767.87	0.03	0.02	776.33
0.27	4.73	1.51	0.01	0.07	0.05	295.33	0.01	0.01	298.59
1.75	**31.14**	**9.95**	**0.04**	**0.43**	**0.34**	**1945.73**	**0.09**	**0.06**	**1967.16**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.7	66.2	0.6	0.1	0.1	0.0	114.2	0.0	0.0	115.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.3
5.7	35.7	41.5	0.0	2.1	1.8	4959.9	0.3	0.1	5004.5
4.9	21.5	35.7	0.0	1.2	1.0	4265.1	0.2	0.1	4303.4
2.7	18.5	20.5	0.0	0.8	0.7	4029.8	0.1	0.2	4093.5
0.1	0.5	0.0	0.0	0.0	0.0	82.7	0.0	0.0	83.4
1.7	15.8	1.6	0.0	0.2	0.1	2646.2	0.2	0.1	2668.4
0.1	0.8	0.1	0.0	0.0	0.0	132.3	0.0	0.0	133.4
1.7	15.8	1.6	0.0	0.2	0.1	2646.2	0.2	0.1	2668.4
2.7	18.5	20.5	0.0	0.8	0.7	4029.8	0.1	0.2	4093.5
0.5	4.8	0.5	0.0	0.1	0.0	793.9	0.0	0.0	800.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1.2	0.1	0.0	0.0	0.0	198.5	0.0	0.0	200.1
0.3	2.4	0.2	0.0	0.0	0.0	396.9	0.0	0.0	400.3
2.8	15.5	20.5	0.0	1.2	1.1	2156.5	0.1	0.1	2175.9
0.2	4.4	0.0	0.0	0.1	0.0	6.7	0.0	0.0	6.8
0.1	5.5	0.0	0.0	0.0	0.0	9.5	0.0	0.0	9.6
0.1	5.5	0.0	0.0	0.0	0.0	9.5	0.0	0.0	9.6
0.1	1.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	6.1	0.0	0.0	0.1	0.0	9.4	0.0	0.0	9.5
0.2	3.4	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.4
0.2	4.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	6.2
25.11	**249.07**	**143.63**	**0.34**	**7.09**	**5.81**	**26502.95**	**1.31**	**0.84**	**26792.15**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
4.1	135.4	3.5	0.2	0.2	0.1	339.8	0.0	0.0	342.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.1	108.3	0.9	0.1	0.1	0.1	186.9	0.0	0.0	188.5
5.17	**243.74**	**4.44**	**0.27**	**0.32**	**0.21**	**526.64**	**0.03**	**0.01**	**531.31**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.1	29.2	0.1	0.4	0.3	5416.0	0.1	0.2	5472.9
0.01	**0.11**	**29.18**	**0.05**	**0.40**	**0.26**	**5415.98**	**0.15**	**0.17**	**5472.91**

30.29	**492.92**	**177.26**	**0.67**	**7.81**	**6.28**	**32445.57**	**1.49**	**1.03**	**32796.38**

0.92	14.96	5.38	0.02	0.24	0.19	984.95	0.05	0.03	995.60
1.95	31.69	11.40	0.04	0.50	0.40	2085.79	0.10	0.07	2108.34
8.76	142.59	51.28	0.19	2.26	1.82	9386.04	0.43	0.30	9487.52
2.11	34.33	12.34	0.05	0.54	0.44	2259.60	0.10	0.07	2284.03
11.95	194.53	69.95	0.26	3.08	2.48	12804.41	0.59	0.41	12942.86
4.60	74.82	26.91	0.10	1.19	0.95	4924.77	0.23	0.16	4978.02
30.29	**492.92**	**177.26**	**0.67**	**7.81**	**6.28**	**32445.57**	**1.49**	**1.03**	**32796.38**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
2.6	264.8	2.3	0.2	0.3	0.2	456.8	0.0	0.0	460.9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	5.8	0.0	0.0	0.1	0.0	9.0	0.0	0.0	9.1
16.2	102.1	118.6	0.1	6.1	5.2	14171.2	0.8	0.4	14298.7
13.9	61.5	102.0	0.1	3.5	3.0	12185.9	0.7	0.3	12295.5
10.9	74.0	82.1	0.2	3.2	2.6	16119.1	0.5	0.8	16374.1
0.2	2.0	0.2	0.0	0.0	0.0	330.8	0.0	0.0	333.5
6.7	63.4	6.3	0.1	0.9	0.6	10584.7	0.6	0.2	10673.5
0.3	3.2	0.3	0.0	0.0	0.0	529.2	0.0	0.0	533.7
6.7	63.4	6.3	0.1	0.9	0.6	10584.7	0.6	0.2	10673.5
10.9	74.0	82.1	0.2	3.2	2.6	16119.1	0.5	0.8	16374.1
2.0	19.0	1.9	0.0	0.3	0.2	3175.4	0.2	0.1	3202.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	4.8	0.5	0.0	0.1	0.0	793.9	0.0	0.0	800.5
1.0	9.5	0.9	0.0	0.1	0.1	1587.7	0.1	0.0	1601.0
8.0	44.4	58.6	0.1	3.6	3.0	6161.4	0.4	0.2	6216.8
1.0	17.5	0.1	0.0	0.2	0.1	27.0	0.0	0.0	27.2
0.2	22.1	0.2	0.0	0.0	0.0	38.1	0.0	0.0	38.4
0.2	22.1	0.2	0.0	0.0	0.0	38.1	0.0	0.0	38.4
0.3	5.8	0.0	0.0	0.1	0.0	9.0	0.0	0.0	9.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.7	12.2	0.1	0.0	0.1	0.1	18.8	0.0	0.0	19.0
0.8	13.8	0.1	0.0	0.2	0.1	21.3	0.0	0.0	21.5
0.4	7.9	0.0	0.0	0.1	0.1	12.3	0.0	0.0	12.4
84.10	**892.98**	**462.75**	**1.22**	**22.86**	**18.62**	**92973.32**	**4.48**	**3.05**	**94012.84**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
16.3	541.7	14.1	0.7	0.9	0.6	1359.1	0.1	0.0	1371.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.3	433.2	3.7	0.4	0.4	0.3	747.5	0.0	0.0	754.1
20.66	**974.96**	**17.77**	**1.10**	**1.28**	**0.83**	**2106.56**	**0.12**	**0.05**	**2125.26**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.1	0.4	116.7	0.2	1.6	1.0	21663.9	0.6	0.7	21891.7
0.05	**0.44**	**116.73**	**0.21**	**1.59**	**1.03**	**21663.94**	**0.60**	**0.69**	**21891.65**

104.82	**1868.38**	**597.25**	**2.52**	**25.73**	**20.49**	**116743.82**	**5.20**	**3.80**	**118029.74**

3.18	56.72	18.13	0.08	0.78	0.62	3544.01	0.16	0.12	3583.05
6.74	120.11	38.39	0.16	1.65	1.32	7504.96	0.33	0.24	7587.63
30.32	540.50	172.78	0.73	7.44	5.93	33772.32	1.50	1.10	34144.32
7.30	130.12	41.59	0.18	1.79	1.43	8130.37	0.36	0.26	8219.93
41.36	737.34	235.70	0.99	10.16	8.08	46072.11	2.05	1.50	46579.60
15.91	283.59	90.65	0.38	3.91	3.11	17720.04	0.79	0.58	17915.23
104.82	**1868.38**	**597.25**	**2.52**	**25.73**	**20.49**	**116743.82**	**5.20**	**3.80**	**118029.74**

San Mateo County Mosquito and Vector Control District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo Avenger (off road)	Kawasaki 41.1 cubic inches 26 hp	10%			90%			100%	Gasoline
Atlas Tire Balancer	Electric						100%	100%	Zero
Atlas Tire Changer	Electric						100%	100%	Zero
Chevy 2500 pickup truck 4x4	Onroad	25%		25%			50%	100%	Gasoline
Clark Grizzly ULV Truck Mounted Sprayer (2 units)	Briggs & Stratton					100%		100%	Gasoline
Curtis Dyna-Fog Twister XL ULV Backpack Sprayer	40.2 cc					100%		100%	Gasoline
Dewalt 10" Compound Miter Saw DW703	Electric						100%	100%	Zero
Dewalt 14" Multicutter Metal Saw	Electric						100%	100%	Zero
Dodge 2500 4X4 truck 2005	Onroad				100%			100%	Gasoline
Dodge Power Wagon 1948	Onroad						100%	100%	Diesel
ECHO Chainsaw CS 301 (2 units)	30.1 cc			100%				100%	50:1 gas/oil mix
ECHO Weedeater SRM 225	22.5 cc			100%				100%	50:1 gas/oil mix
Ford Escape Hybrid 4x4	Onroad	25%					75%	100%	Gasoline
Ford F-150 pickup truck 4x4 (3 vehicles)	Onroad	60%			25%	15%		100%	Gasoline
Ford Ranger pickup truck 4x4 (8 vehicles)	Onroad	60%	5%	5%	20%	10%		100%	Gasoline
Fork Lift - hydraulic	Offroad (49 hp)						100%	100%	Gasoline
Hotsy High Pressure Washer	Briggs & Stratton						100%	100%	Gasoline
Jeep Wrangler (Right Hand Drive) (8 vehicles)	Onroad				10%	90%		100%	Gasoline
Maruyama Power Mister/Duster Backpack Sprayer	Kawasaki 40.2cc				100%			100%	50:1 gas/oil mix
Nissan Frontier Pro4X pickup truck 4x4 (2 vehicles)	Onroad	60%	5%	5%	20%	10%		100%	Gasoline
Nurse Rig 200 gal tank and sprayer	Briggs & Stratton			80%	20%			100%	Gasoline
Porta-Pak ULV Backpack Sprayer	Kawasaki 40.2cc					100%		100%	50:1 gas/oil mix
Stihl Chainsaw 021	44 cc			100%				100%	50:1 gas/oil mix
Stihl Chainsaw 026	44 cc			100%				100%	50:1 gas/oil mix
Stihl Chainsaw 039	44 cc			100%				100%	50:1 gas/oil mix
Stihl Chainsaw 260	47 cc			100%				100%	50:1 gas/oil mix
Stihl Chainsaw 290	47 cc			100%				100%	50:1 gas/oil mix
Stihl Trimmer HS 85 (6 units)	25.4 cc			100%				100%	50:1 gas/oil mix
Stihl Weedeater FS 250	25.4 cc			100%				100%	50:1 gas/oil mix
Toyota Sienna Van	Onroad	25%					75%	100%	Gasoline
Univar Dynajet ULV Electric Truck Mounted Sprayer (2 units)	Electric					100%		100%	Zero

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo Avenger ATV	Kawasaki 41.1 cubic inches 26 hp	10%			90%			100%	Gasoline
GTO Airboat	502 cubic inches: output 500hp	20%		70%	10%			100%	Gasoline
GTO Airboat 50 gallon spray tank	7.4 cu in			100%				100%	Gasoline
Klamath Boat 14'	Johnson or Mercury 15 hp 4 stroke	80%					20%	100%	Gasoline
Klamath Boat 18'	Johnson or Mercury 15 hp 4 stroke	70%			30%			100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1989 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp				100%			100%	Jet A
Isolair 4500 broadcaster (helicopter-mounted)	N/A				100%			100%	Zero
Isolair Air spray system model 3900 (helicopter-mounted)	N/A				100%			100%	Zero

100.00%	11%	0%	30%	21%	13%	24%	3900%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport				49	1	5	5	0	5	4	
Electric				0	1	5	5	5	5	2	
Electric				0	1	5	5	5	5	2	
Onroad LD				LD	1	20	20	20	20		90
Utility	146	8.9	0.56	5.0	2	20	20	20	20	12	
Onroad LD				LD	1	5	10	10	5		30
Electric				0	1	1	1	1	1	1	
Electric				0	1	1	1	1	1	1	
Onroad LD				LD	1	1	1	3	1		150
Onroad MD				MD	1	1	1	1	1		30
2-stroke	30	1.8	0.92	1.7	2	4	10	6	6	2	
2-stroke	23	1.4	0.92	1.3	1		5	5		2	
Onroad LD				LD	1	50	50	50	50		90
Onroad LD				LD	3	180	180	180	180		30
Onroad LD				LD	8	520	520	520	520		90
Utility				49	1	5	5	5	5	1	
Utility	146	8.9	0.56	5.0	1	50	50	50	50	1	
Onroad LD				LD	8	0	240	520	120		120
2-stroke	40	2.4	0.92	2.2	1	5	10	10	5	1	
Onroad LD				LD	2	130	130	130	130		30
Utility	146	8.9	0.56	5.0	1	5	3	30	15	3	
2-stroke	40	2.4	0.92	2.2	1	2	10	10	2	1	
2-stroke	44	2.7	0.92	2.5	1	2	5	3	3	1	
2-stroke	44	2.7	0.92	2.5	1	2	5	3	3	1	
2-stroke	44	2.7	0.92	2.5	1	1	1	1	1	1	
2-stroke	47	2.9	0.92	2.6	1	2	5	3	3	1	
2-stroke	47	2.9	0.92	2.6	1	2	5	3	3	1	
2-stroke	25	1.5	0.92	1.4	6		60	30		6	
2-stroke	25	1.5	0.92	1.4	1		5	5		2	
Onroad LD				LD	1	15	15	15	15		60
Electric				0	2	20	20	20	20	12	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport				26	4	40	20	0	12	16	
Sport				500	1	10	10	20	20	3	
Utility	122	7.4	0.56	4.2	1	0	0	15	15	5	
Sport				15	1	2	2	2	2	3	
Sport				15	1	5	5	5	5	2	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	2	2	2	0	4	
None				0	1	0	2	2	0	2	
None				0	1	2	0	0	0	8	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
4		20		60	
2		10		40	
2		10		40	
	90		1800		7200
24		480		1920	
	30		300		900
1		1		4	
1		1		4	
	150		450		900
	30		30		120
4		40		104	
2		10		20	
	90		4500		18000
	90		16200		64800
	720		374400		1497600
1		5		20	
1		50		200	
	960		499200		844800
1		10		30	
	60		7800		31200
3		90		159	
1		10		24	
1		5		13	
1		5		13	
1		1		4	
1		5		13	
1		5		13	
36		2160		3240	
2		10		20	
	60		900		3600
24		480		1920	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
64		2560		4608	
3		60		180	
5		75		150	
3		6		24	
2		10		40	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
4		8		24	
2		4		8	
8		16		16	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.27783	9.21690	0.23961	0.01235	0.01470	0.00956	23.12310	0.00131	0.00057	23.32830
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
0.06288	1.12492	0.00699	0.00101	0.01330	0.00865	1.73817	0.00010	0.00004	1.75359
0.04809	0.86023	0.00534	0.00077	0.01017	0.00661	1.32919	0.00008	0.00003	1.34098
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.46305	15.36150	0.39935	0.02058	0.02450	0.01593	38.53850	0.00218	0.00096	38.88050
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.09248	1.65430	0.01028	0.00149	0.01957	0.01272	2.55613	0.00014	0.00006	2.57881
0.09248	1.65430	0.01028	0.00149	0.01957	0.01272	2.55613	0.00014	0.00006	2.57881
0.09248	1.65430	0.01028	0.00149	0.01957	0.01272	2.55613	0.00014	0.00006	2.57881
0.09618	1.72047	0.01069	0.00155	0.02035	0.01323	2.65837	0.00015	0.00007	2.68196
0.09618	1.72047	0.01069	0.00155	0.02035	0.01323	2.65837	0.00015	0.00007	2.68196
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
2.83500	94.05000	2.44500	0.12600	0.15000	0.09750	235.95000	0.01335	0.00585	238.04385
0.02107	2.10599	0.01795	0.00181	0.00204	0.00132	3.63363	0.00021	0.00009	3.66588
0.08505	2.82150	0.07335	0.00378	0.00450	0.00293	7.07850	0.00040	0.00018	7.14132
0.08505	2.82150	0.07335	0.00378	0.00450	0.00293	7.07850	0.00040	0.00018	7.14132

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Surveillance	11%
Physical Control	0%
Vegetation Management	30%
Biological Control	21%
Chemical Control	13%
Other Non-Chemical	24%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1.11	36.87	0.96	0.05	0.06	0.04	92.49	0.01	0.00	93.31
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.60	60.17	0.51	0.05	0.06	0.04	103.82	0.01	0.00	104.74
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.11	0.99	0.10	0.00	0.01	0.01	165.39	0.01	0.00	166.77
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
0.25	4.50	0.03	0.00	0.05	0.03	6.95	0.00	0.00	7.01
0.10	1.72	0.01	0.00	0.02	0.01	2.66	0.00	0.00	2.68
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.06	0.59	0.06	0.00	0.01	0.01	99.23	0.01	0.00	100.06
0.51	4.75	0.47	0.01	0.07	0.04	793.85	0.05	0.02	800.51
0.46	15.36	0.40	0.02	0.02	0.02	38.54	0.00	0.00	38.88
0.03	2.51	0.02	0.00	0.00	0.00	4.33	0.00	0.00	4.36
0.67	6.34	0.63	0.01	0.09	0.06	1058.47	0.06	0.02	1067.35
0.08	1.46	0.01	0.00	0.02	0.01	2.25	0.00	0.00	2.27
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.08	7.52	0.06	0.01	0.01	0.00	12.98	0.00	0.00	13.09
0.08	1.46	0.01	0.00	0.02	0.01	2.25	0.00	0.00	2.27
0.09	1.65	0.01	0.00	0.02	0.01	2.56	0.00	0.00	2.58
0.09	1.65	0.01	0.00	0.02	0.01	2.56	0.00	0.00	2.58
0.09	1.65	0.01	0.00	0.02	0.01	2.56	0.00	0.00	2.58
0.10	1.72	0.01	0.00	0.02	0.01	2.66	0.00	0.00	2.68
0.10	1.72	0.01	0.00	0.02	0.01	2.66	0.00	0.00	2.68
1.86	33.35	0.21	0.03	0.39	0.26	51.53	0.00	0.00	51.99
0.10	1.85	0.01	0.00	0.02	0.01	2.86	0.00	0.00	2.89
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.86	**190.41**	**4.18**	**0.20**	**1.00**	**0.65**	**2898.38**	**0.16**	**0.07**	**2923.48**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
9.43	313.00	8.14	0.42	0.50	0.32	785.24	0.04	0.02	792.21
8.51	282.15	7.34	0.38	0.45	0.29	707.85	0.04	0.02	714.13
0.11	10.53	0.09	0.01	0.01	0.01	18.17	0.00	0.00	18.33
0.26	8.46	0.22	0.01	0.01	0.01	21.24	0.00	0.00	21.42
0.17	5.64	0.15	0.01	0.01	0.01	14.16	0.00	0.00	14.28
18.47	**619.79**	**15.93**	**0.83**	**0.98**	**0.64**	**1546.65**	**0.09**	**0.04**	**1560.38**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.01	0.04	11.67	0.02	0.16	0.10	2166.39	0.06	0.07	2189.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	**0.04**	**11.67**	**0.02**	**0.16**	**0.10**	**2166.39**	**0.06**	**0.07**	**2189.17**

25.34	**810.24**	**31.79**	**1.05**	**2.14**	**1.39**	**6611.43**	**0.31**	**0.18**	**6673.02**

2.89	92.45	3.63	0.12	0.24	0.16	754.38	0.04	0.02	761.41
0.06	2.08	0.08	0.00	0.01	0.00	16.95	0.00	0.00	17.11
7.70	246.19	9.66	0.32	0.65	0.42	2008.86	0.09	0.05	2027.57
5.29	169.32	6.64	0.22	0.45	0.29	1381.62	0.06	0.04	1394.49
3.41	109.07	4.28	0.14	0.29	0.19	890.00	0.04	0.02	898.29
5.98	191.13	7.50	0.25	0.50	0.33	1559.62	0.07	0.04	1574.15
25.34	**810.24**	**31.79**	**1.05**	**2.14**	**1.39**	**6611.43**	**0.31**	**0.18**	**6673.02**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
5.6	184.3	4.8	0.2	0.3	0.2	462.5	0.0	0.0	466.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3	11.9	1.2	0.0	0.2	0.1	1984.6	0.1	0.0	2001.3
12.0	1203.4	10.3	1.0	1.2	0.8	2076.4	0.1	0.1	2094.8
0.2	2.0	0.2	0.0	0.0	0.0	330.8	0.0	0.0	333.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	3.0	0.3	0.0	0.0	0.0	496.2	0.0	0.0	500.3
0.1	0.4	0.4	0.0	0.0	0.0	84.0	0.0	0.0	85.3
2.5	45.0	0.3	0.0	0.5	0.3	69.5	0.0	0.0	70.1
0.5	8.6	0.1	0.0	0.1	0.1	13.3	0.0	0.0	13.4
3.2	29.7	2.9	0.0	0.4	0.3	4961.6	0.3	0.1	5003.2
11.4	107.0	10.6	0.2	1.5	1.0	17861.7	1.0	0.4	18011.5
262.9	2472.4	245.2	4.0	34.4	22.2	412803.0	23.6	9.6	416265.3
2.3	76.8	2.0	0.1	0.1	0.1	192.7	0.0	0.0	194.4
1.3	125.4	1.1	0.1	0.1	0.1	216.3	0.0	0.0	218.2
350.6	3296.5	326.9	5.3	45.9	29.6	550404.0	31.5	12.8	555020.4
0.8	14.6	0.1	0.0	0.2	0.1	22.5	0.0	0.0	22.7
5.5	51.5	5.1	0.1	0.7	0.5	8600.1	0.5	0.2	8672.2
2.3	225.6	1.9	0.2	0.2	0.1	389.3	0.0	0.0	392.8
0.8	14.6	0.1	0.0	0.2	0.1	22.5	0.0	0.0	22.7
0.5	8.3	0.1	0.0	0.1	0.1	12.8	0.0	0.0	12.9
0.5	8.3	0.1	0.0	0.1	0.1	12.8	0.0	0.0	12.9
0.1	1.7	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6
0.5	8.6	0.1	0.0	0.1	0.1	13.3	0.0	0.0	13.4
0.5	8.6	0.1	0.0	0.1	0.1	13.3	0.0	0.0	13.4
111.9	2001.0	12.4	1.8	23.7	15.4	3091.9	0.2	0.1	3119.3
0.5	9.3	0.1	0.0	0.1	0.1	14.3	0.0	0.0	14.4
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
778.40	**9924.20**	**626.67**	**13.28**	**110.28**	**71.40**	**1005143.90**	**57.53**	**23.31**	**1013578.33**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
377.4	12519.9	325.5	16.8	20.0	13.0	31409.7	1.8	0.8	31688.4
170.1	5643.0	146.7	7.6	9.0	5.9	14157.0	0.8	0.4	14282.6
1.6	157.9	1.3	0.1	0.2	0.1	272.5	0.0	0.0	274.9
0.5	16.9	0.4	0.0	0.0	0.0	42.5	0.0	0.0	42.8
0.9	28.2	0.7	0.0	0.0	0.0	70.8	0.0	0.0	71.4
550.44	**18366.03**	**474.70**	**24.53**	**29.19**	**18.98**	**45952.44**	**2.60**	**1.14**	**46360.23**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.1	23.3	0.0	0.3	0.2	4332.8	0.1	0.1	4378.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.01	**0.09**	**23.35**	**0.04**	**0.32**	**0.21**	**4332.79**	**0.12**	**0.14**	**4378.33**

1328.85	**28290.32**	**1124.72**	**37.85**	**139.80**	**90.58**	**1055429.13**	**60.25**	**24.59**	**1064316.89**

151.63	3228.00	128.33	4.32	15.95	10.34	120427.17	6.87	2.81	121441.29
3.41	72.54	2.88	0.10	0.36	0.23	2706.23	0.15	0.06	2729.02
403.77	8595.90	341.74	11.50	42.48	27.52	320688.08	18.31	7.47	323388.59
277.70	5911.95	235.04	7.91	29.21	18.93	220557.63	12.59	5.14	222414.94
178.88	3808.31	151.40	5.10	18.82	12.19	142077.00	8.11	3.31	143273.43
313.47	6673.61	265.32	8.93	32.98	21.37	248973.03	14.21	5.80	251069.63
1328.85	**28290.32**	**1124.72**	**37.85**	**139.80**	**90.58**	**1055429.13**	**60.25**	**24.59**	**1064316.89**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
16.7	553.0	14.4	0.7	0.9	0.6	1387.4	0.1	0.0	1399.7
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.1	47.5	4.7	0.1	0.7	0.4	7938.5	0.5	0.2	8005.1
48.2	4813.7	41.0	4.1	4.7	3.0	8305.4	0.5	0.2	8379.1
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
0.2	1.5	1.7	0.0	0.1	0.1	335.8	0.0	0.0	341.1
6.5	117.0	0.7	0.1	1.4	0.9	180.8	0.0	0.0	182.4
1.0	17.2	0.1	0.0	0.2	0.1	26.6	0.0	0.0	26.8
12.6	118.9	11.8	0.2	1.7	1.1	19846.3	1.1	0.5	20012.8
45.5	427.9	42.4	0.7	6.0	3.8	71446.7	4.1	1.7	72045.9
1051.7	9889.5	980.7	16.0	137.6	88.9	1651211.9	94.5	38.3	1665061.3
9.3	307.2	8.0	0.4	0.5	0.3	770.8	0.0	0.0	777.6
5.0	501.4	4.3	0.4	0.5	0.3	865.2	0.0	0.0	872.8
593.3	5578.7	553.2	9.0	77.6	50.2	931452.9	53.3	21.6	939265.4
2.4	43.7	0.3	0.0	0.5	0.3	67.5	0.0	0.0	68.1
21.9	206.0	20.4	0.3	2.9	1.9	34400.2	2.0	0.8	34688.8
4.0	398.6	3.4	0.3	0.4	0.3	687.8	0.0	0.0	693.9
2.0	34.9	0.2	0.0	0.4	0.3	54.0	0.0	0.0	54.5
1.2	21.5	0.1	0.0	0.3	0.2	33.2	0.0	0.0	33.5
1.2	21.5	0.1	0.0	0.3	0.2	33.2	0.0	0.0	33.5
0.4	6.6	0.0	0.0	0.1	0.1	10.2	0.0	0.0	10.3
1.3	22.4	0.1	0.0	0.3	0.2	34.6	0.0	0.0	34.9
1.3	22.4	0.1	0.0	0.3	0.2	34.6	0.0	0.0	34.9
167.8	3001.6	18.6	2.7	35.5	23.1	4637.8	0.3	0.1	4679.0
1.0	18.5	0.1	0.0	0.2	0.1	28.6	0.0	0.0	28.9
2.5	23.8	2.4	0.0	0.3	0.2	3969.3	0.2	0.1	4002.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2003.23	**26206.92**	**1710.23**	**35.45**	**273.09**	**176.74**	**2739743.82**	**156.81**	**63.54**	**2762734.10**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
679.3	22535.9	585.9	30.2	35.9	23.4	56537.4	3.2	1.4	57039.1
510.3	16929.0	440.1	22.7	27.0	17.6	42471.0	2.4	1.1	42847.9
3.2	315.9	2.7	0.3	0.3	0.2	545.0	0.0	0.0	549.9
2.0	67.7	1.8	0.1	0.1	0.1	169.9	0.0	0.0	171.4
3.4	112.9	2.9	0.2	0.2	0.1	283.1	0.0	0.0	285.7
1198.21	**39961.36**	**1033.35**	**53.38**	**63.54**	**41.30**	**100006.46**	**5.66**	**2.48**	**100893.93**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.3	70.0	0.1	1.0	0.6	12998.4	0.4	0.4	13135.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.03	**0.26**	**70.04**	**0.12**	**0.96**	**0.62**	**12998.36**	**0.36**	**0.42**	**13134.99**

3201.47	**66168.55**	**2813.62**	**88.96**	**337.58**	**218.66**	**2852748.65**	**162.83**	**66.44**	**2876763.02**

365.30	7550.00	321.04	10.15	38.52	24.95	325505.94	18.58	7.58	328246.04
8.21	169.66	7.21	0.23	0.87	0.56	7314.74	0.42	0.17	7376.32
972.76	20105.06	854.91	27.03	102.57	66.44	866796.70	49.48	20.19	874093.38
669.03	13827.53	587.97	18.59	70.55	45.69	596151.32	34.03	13.88	601169.71
430.97	8907.30	378.76	11.97	45.44	29.44	384023.86	21.92	8.94	387256.56
755.22	15608.99	663.73	20.98	79.64	51.58	672956.09	38.41	15.67	678621.02
3201.47	**66168.55**	**2813.62**	**88.96**	**337.58**	**218.66**	**2852748.65**	**162.83**	**66.44**	**2876763.02**

Santa Clara County Vector Control District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Dodge ¾ ton (1)	5.9 L V8	50%	5%		20%	25%		100%	Gasoline
Dodge Dakota Pickup truck(1)	3.7 L V6	50%	5%		20%	25%		100%	Gasoline
Ford Escape (1)	2.4 L Hybrid	50%	5%		20%	25%		100%	Gasoline
Ford Expedition	4.6 L	50%	5%		20%	25%		100%	Gasoline
Ford F150 (14)	4.6 L V8	50%	5%		20%	25%		100%	Gasoline
Ford F250 (10)	5.4 L V8	50%	5%		20%	25%		100%	Gasoline
Ford Personnel Van(1)	2.4 L 4cyl	50%	5%		20%	25%		100%	Gasoline
Ford Ranger (5)	4.0 L V6	50%	5%		20%	25%		100%	Gasoline
Fork Lift (1)	Battery	50%	5%		20%	25%		100%	Zero
GMC ½ ton (5)	5.3 L V8	50%	5%		20%	25%		100%	Gasoline
International flatbed truck	5.6 L	50%	5%		20%	25%		100%	Diesel

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Argo Avenger ATV(2)	26 HP Kohler engine	50%				50%		100%	Gasoline
Argo Conquest	20 HP Kawasaki	50%				50%		100%	Gasoline
Boat	Battery	50%				50%		100%	Zero
Kabota	3 cyl 21HP	50%			15%	35%		100%	Diesel
Maruyama Spreader	25 cc 2 stroke	50%				50%		100%	50:1 gas/oil mix
Yamaha Quads (2)	400cc 4 stroke	50%				50%		100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Alpine Helicopter Services	Alison C20 Gas Turbine					100%		100%	Jet A

	100.00%	47%	3%	0%	13%	37%	0%	1800%

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Onroad LD				LD	1		60	60	10		120
Onroad LD				LD	1	30	30	30	30		60
Onroad LD				LD	1	20	20	20	20		30
Onroad LD				LD	1	45	45	45	45		30
Onroad LD				LD	14	60	60	60	60		90
Onroad LD				LD	10	60	60	60	60		90
Onroad LD				LD	1	30	30	30	30		30
Onroad LD				LD	5	25	60	60	15		180
Electric				0	1	10	10	10	10	1	
Onroad LD				LD	5	5	30	30	5		60
Onroad MD				MD	1	3	2	2	3		30

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Sport				26	2	13.20	13.20	13.20	13.20	0.12	
Sport	382	23.3	0.86	20.0	1	8.25	8.25	8.25	8.25	0.13	
Electric				0	1	0.51	0.51	0.51	0.51	0.01	
Offroad				21	1	3.64	3.64	3.64	3.64	0.06	
2-stroke	25	1.5	0.92	1.4	1	0.33	0.33	0.33	0.33	0.01	
Sport	400	24.4	0.86	21.0	2	14.80	14.80	14.80	14.80	0.11	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	1				0.031	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
	120		7200		15600
	60		1800		7200
	30		600		2400
	30		1350		5400
	1260		75600		302400
	900		54000		216000
	30		900		3600
	900		54000		144000
1		10		40	
	300		9000		21000
	30		90		300

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
0.23		3.04		12.14	
0.13		1.07		4.29	
0.01		0.00		0.02	
0.06		0.22		0.87	
0.01		0.00		0.01	
0.22		3.26		13.02	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
0.031		0.031		0.031	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.11340	3.76200	0.09780	0.00504	0.00600	0.00390	9.43800	0.00053	0.00023	9.52175
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01864	0.13672	0.13672	0.00016	0.01657	0.01409	16.43040	0.00094	0.00041	16.57820
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.11907	3.95010	0.10269	0.00529	0.00630	0.00410	9.90990	0.00056	0.00025	9.99784

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131

Surveillance	47%
Physical Control	3%
Vegetation Management	0%
Biological Control	13%
Chemical Control	37%
Other Non-Chemical	0%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.08	0.79	0.08	0.00	0.01	0.01	132.31	0.01	0.00	133.42
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.88	8.32	0.83	0.01	0.12	0.07	1389.24	0.08	0.03	1400.89
0.63	5.94	0.59	0.01	0.08	0.05	992.31	0.06	0.02	1000.64
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.63	5.94	0.59	0.01	0.08	0.05	992.31	0.06	0.02	1000.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.21	1.98	0.20	0.00	0.03	0.02	330.77	0.02	0.01	333.55
0.06	0.39	0.43	0.00	0.02	0.01	83.95	0.00	0.00	85.28
2.61	**24.36**	**2.80**	**0.04**	**0.35**	**0.23**	**4086.29**	**0.23**	**0.10**	**4121.19**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.03	1.12	0.03	0.00	0.00	0.00	2.82	0.00	0.00	2.85
0.01	0.49	0.01	0.00	0.00	0.00	1.23	0.00	0.00	1.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.01	0.00	0.00	0.00	0.99	0.00	0.00	0.99
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
0.03	0.87	0.02	0.00	0.00	0.00	2.18	0.00	0.00	2.20
0.08	**2.50**	**0.07**	**0.00**	**0.01**	**0.00**	**7.22**	**0.00**	**0.00**	**7.29**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.00	0.09	0.00	0.00	0.00	16.79	0.00	0.00	16.97
0.00	**0.00**	**0.09**	**0.00**	**0.00**	**0.00**	**16.79**	**0.00**	**0.00**	**16.97**

2.68	**26.85**	**2.97**	**0.04**	**0.36**	**0.23**	**4110.30**	**0.23**	**0.10**	**4145.44**

1.27	12.68	1.40	0.02	0.17	0.11	1940.98	0.11	0.05	1957.57
0.08	0.82	0.09	0.00	0.01	0.01	125.59	0.01	0.00	126.67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.35	3.51	0.39	0.01	0.05	0.03	536.62	0.03	0.01	541.21
0.98	9.85	1.09	0.02	0.13	0.09	1507.11	0.09	0.04	1519.99
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.68	**26.85**	**2.97**	**0.04**	**0.36**	**0.23**	**4110.30**	**0.23**	**0.10**	**4145.44**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
5.1	47.5	4.7	0.1	0.7	0.4	7938.5	0.5	0.2	8005.1
1.3	11.9	1.2	0.0	0.2	0.1	1984.6	0.1	0.0	2001.3
0.4	4.0	0.4	0.0	0.1	0.0	661.5	0.0	0.0	667.1
0.9	8.9	0.9	0.0	0.1	0.1	1488.5	0.1	0.0	1501.0
53.1	499.2	49.5	0.8	6.9	4.5	83354.4	4.8	1.9	84053.6
37.9	356.6	35.4	0.6	5.0	3.2	59538.9	3.4	1.4	60038.3
0.6	5.9	0.6	0.0	0.1	0.1	992.3	0.1	0.0	1000.6
37.9	356.6	35.4	0.6	5.0	3.2	59538.9	3.4	1.4	60038.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.3	59.4	5.9	0.1	0.8	0.5	9923.1	0.6	0.2	10006.4
0.2	1.2	1.3	0.0	0.0	0.0	251.9	0.0	0.0	255.8
143.75	**1351.25**	**135.17**	**2.19**	**18.83**	**12.18**	**225672.72**	**12.91**	**5.24**	**227567.40**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.4	14.8	0.4	0.0	0.0	0.0	37.2	0.0	0.0	37.6
0.1	4.0	0.1	0.0	0.0	0.0	10.1	0.0	0.0	10.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.4	12.9	0.3	0.0	0.0	0.0	32.3	0.0	0.0	32.6
0.96	**31.78**	**0.86**	**0.04**	**0.05**	**0.04**	**83.23**	**0.00**	**0.00**	**83.97**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.0	0.1	0.0	0.0	0.0	16.8	0.0	0.0	17.0
0.00	**0.00**	**0.09**	**0.00**	**0.00**	**0.00**	**16.79**	**0.00**	**0.00**	**16.97**

144.71	**1383.02**	**136.11**	**2.23**	**18.88**	**12.22**	**225772.73**	**12.92**	**5.24**	**227668.34**

68.34	653.09	64.27	1.05	8.92	5.77	106614.90	6.10	2.47	107510.05
4.42	42.26	4.16	0.07	0.58	0.37	6898.61	0.39	0.16	6956.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18.89	180.56	17.77	0.29	2.47	1.60	29475.88	1.69	0.68	29723.37
53.06	507.11	49.91	0.82	6.92	4.48	82783.34	4.74	1.92	83478.39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144.71	**1383.02**	**136.11**	**2.23**	**18.88**	**12.22**	**225772.73**	**12.92**	**5.24**	**227668.34**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
11.0	103.0	10.2	0.2	1.4	0.9	17200.1	1.0	0.4	17344.4
5.1	47.5	4.7	0.1	0.7	0.4	7938.5	0.5	0.2	8005.1
1.7	15.8	1.6	0.0	0.2	0.1	2646.2	0.2	0.1	2668.4
3.8	35.7	3.5	0.1	0.5	0.3	5953.9	0.3	0.1	6003.8
212.4	1996.9	198.0	3.2	27.8	18.0	333417.8	19.1	7.7	336214.3
151.7	1426.4	141.4	2.3	19.8	12.8	238155.6	13.6	5.5	240153.1
2.5	23.8	2.4	0.0	0.3	0.2	3969.3	0.2	0.1	4002.6
101.1	950.9	94.3	1.5	13.2	8.6	158770.4	9.1	3.7	160102.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.7	138.7	13.8	0.2	1.9	1.2	23154.0	1.3	0.5	23348.2
0.6	3.9	4.3	0.0	0.2	0.1	839.5	0.0	0.0	852.8
504.52	**4742.55**	**474.19**	**7.68**	**66.08**	**42.75**	**792045.24**	**45.32**	**18.38**	**798694.71**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
1.8	59.4	1.5	0.1	0.1	0.1	149.0	0.0	0.0	150.3
0.5	16.1	0.4	0.0	0.0	0.0	40.5	0.0	0.0	40.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.1	0.1	0.0	0.0	0.0	14.4	0.0	0.0	14.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.6	51.4	1.3	0.1	0.1	0.1	129.1	0.0	0.0	130.2
3.84	**127.10**	**3.42**	**0.17**	**0.22**	**0.14**	**332.92**	**0.02**	**0.01**	**335.87**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.0	0.1	0.0	0.0	0.0	16.8	0.0	0.0	17.0
0.00	**0.00**	**0.09**	**0.00**	**0.00**	**0.00**	**16.79**	**0.00**	**0.00**	**16.97**

508.37	**4869.65**	**477.70**	**7.85**	**66.29**	**42.90**	**792394.94**	**45.34**	**18.39**	**799047.55**

240.06	2299.56	225.58	3.71	31.31	20.26	374186.50	21.41	8.68	377328.01
15.53	148.79	14.60	0.24	2.03	1.31	24212.07	1.39	0.56	24415.34
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66.37	635.76	62.37	1.03	8.66	5.60	103451.56	5.92	2.40	104320.10
186.40	1785.54	175.16	2.88	24.31	15.73	290544.81	16.62	6.74	292984.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
508.37	**4869.65**	**477.70**	**7.85**	**66.29**	**42.90**	**792394.94**	**45.34**	**18.39**	**799047.55**

Solano County Mosquito Abatement District Vehicles and Equipments

Land Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Chevrolet Astro Van	4.3L						100%	100%	Gasoline
Clark Forklift	Nissan 4 cylinder						100%	100%	LPG
Colt handheld ULV Fogger x 6	Tecumseh TCII					100%		100%	50:1 gas/oil mix
Craftsman 24" Leaf Vac	Briggs 190cc						100%	100%	Gasoline
Ford Pickup Truck	6.8L					100%		100%	Gasoline
Ford Pickup Truck x6	4.6L & 6.2L	80%			1%	19%		100%	Gasoline
Kubota Tractor	27hp						100%	100%	Diesel
Leco 500 ULV Fogger x2	Briggs 5.5hp					100%		100%	Gasoline
London Fog M.A.G. ULV Fogger x3	Briggs 3hp					100%		100%	Gasoline
Maruyama MD155DX Backpack Sprayer x 5	Kawasaki 40.2cc					100%		100%	50:1 gas/oil mix
Pro-Mist 25HD	Electric					100%		100%	Zero
Snapper Rear Engine Riding Mower	Briggs 12.5hp						100%	100%	Gasoline
Stihl 025 Chainsaw	44cc						100%	100%	50:1 gas/oil mix
Stihl BG55 Leaf Blower	27cc						100%	100%	50:1 gas/oil mix
Stihl FS83 Weedeater	25.4 cc						100%	100%	50:1 gas/oil mix
Stihl HS Hedge trimmer	25.4 cc						100%	100%	50:1 gas/oil mix
Toro Push Mower	Kawasaki 6.5hp						100%	100%	Gasoline

Water Surveillance and Applications/Management	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
Achilles Inflatable boat	Electric	100%						100%	Zero
Argo ATV Avenger	Koehler Aegis 25	90%				10%		100%	Gasoline
Argo ATV Avenger x2	Koehler Aegis 26	90%				10%		100%	Gasoline
Argo ATV Conquest x4	Kawasaki FD620	90%				10%		100%	Gasoline
Argo ATV Mangnum	Koehler 18hp	100%						100%	Gasoline
Honda ATV TRX300FW x2	300cc	100%						100%	Gasoline
Honda ATV TRX350FM	350cc	15%				85%		100%	Gasoline
Honda ATV TRX400FE	400cc	15%				85%		100%	Gasoline
Honda ATV TRX500FM	500cc	15%				85%		100%	Gasoline
Invader boat 19'	Mercury 90hp	100%						100%	Gasoline

Aerial Applications	Engine/Motor	Sur-veil	Phys Cntl	Veg Mgt	Bio Cntl	Chem Cntl	Non Chem	ALL ALTS	Petro Fuel
1960 Hiller Soloy helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1968 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1989 Bell 206 Jet Ranger helicopter (Alpine) 120 gal material tank	Allison 250-C20J turboshaft, 420 shp					100%		100%	Jet A
1992 Air Tractor AT-502 Turbine (PT6A series turboprop)	507 kW (680shp) Pratt & Whitney Canada					100%		100%	Jet A
Isolair 4400 bucket system (helicopter-mounted)	N/A					100%		100%	Zero
Isolair Air spray system model 3900 (helicopter-mounted)	N/A					100%		100%	Zero

100.00%	24%	0%	0%	0%	46%	30%	3300%	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Onroad LD				LD	1	60	60	60	50		30
Propane	2700	164.8	0.56	92.0	1	5	5	5	5	0.5	
2-stroke	49	3.0	0.92	2.8	6	0	10	4	0	0.5	
Utility	190	11.6	0.56	6.5	1	1	0	0	1	1	
Onroad LD				LD	1	0	10	2	8		60
Onroad LD				LD	6	50	60	60	50		120
Offroad	790	48.2	0.56	27.0	1	5	5	5	5	1	
Utility	160	9.8	0.56	5.5	2	0	5	2	8	2	
Utility	88	5.4	0.56	3.0	3	0	15	15	5	2	
2-stroke	40	2.4	0.92	2.2	5	5	10	10	0	1	
Electric				0	1	0	10	2	8	1	
Utility	366	22.3	0.56	13.0	1	10	10	10	10	1	
2-stroke	44	2.7	0.92	2.5	1	1	1	0	0	0.1	
2-stroke	27	1.6	0.92	1.5	1	10	15	15	10	1	
2-stroke	25	1.5	0.92	1.4	1	10	15	15	10	0.5	
2-stroke	25	1.5	0.92	1.4	1	0	2	2	0	1	
Utility	190	11.6	0.56	6.5	1	5	5	5	5	1	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Electric				0	1	0	0	2	0	2	
Sport	476	29.0	0.86	25.0	1	15	10	6	10	3	
Sport	495	30.2	0.86	26.0	2	4	8	8	20	4	
Sport	620	37.8	0.86	33.0	4	0	0	5	15	4	
Sport	343	20.9	0.86	18.0	1	0	0	0	2	2	
Sport	300	18.3	0.86	16.0	2	0	2	2	0	1	
Sport	350	21.4	0.86	18.0	1	0	15	15	0	3	
Sport	400	24.4	0.86	21.0	1	0	6	6	0	2	
Sport	500	30.5	0.86	26.0	1	0	8	8	0	3	
Sport	1715	104.7	0.86	90.0	1	0	0	4	0	2	

Engine/Motor Type			Power Output		Quantity	Winter	Spring	Summer	Fall	Activity Schedule	
category	ccd	cid	BHP/cid	BHP		days	days	days	days	hrs/day	mi/day
Turbine				420	1	2	0	0	0	2	
Turbine				420	1	2	0	0	0	2	
Turbine				420	1	2	0	0	0	2	
Turbine				680	1	4	6	10	14	4	
None				0	1	2	0	0	0	1	
None				0	1	6	0	0	0	2	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
	30		1800		6900
0.5		2.5		10	
3		30		42	
1		1		2	
	60		600		1200
	720		43200		158400
1		5		20	
4		32		60	
6		90		210	
5		50		125	
1		10		20	
1		10		40	
0.1		0.1		0.2	
1		15		50	
0.5		7.5		25	
1		2		4	
1		5		20	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
2		4		4	
3		45		123	
8		160		320	
16		240		320	
2		4		4	
2		4		8	
3		45		90	
2		12		24	
3		24		48	
2		8		8	

Peak Daily		Highest Quarter		Annual Total	
hours	miles	hours	miles	hours	miles
2		4		4	
2		4		4	
2		4		4	
4		56		136	
1		2		2	
2		12		12	

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.73030	0.30746	0.46754	0.00033	0.00552	0.00359	75.73440	0.00006	0.00017	75.78690
0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
0.03260	3.25927	0.02777	0.00279	0.00315	0.00205	5.62348	0.00032	0.00014	5.67338
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
0.02397	0.14648	0.17578	0.00018	0.01598	0.01358	18.48420	0.00105	0.00046	18.65048
0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
0.01505	1.50428	0.01282	0.00129	0.00146	0.00095	2.59545	0.00015	0.00006	2.61848
0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.12285	4.07550	0.10595	0.00546	0.00650	0.00423	10.22450	0.00058	0.00025	10.31523
0.09248	1.65430	0.01028	0.00149	0.01957	0.01272	2.55613	0.00014	0.00006	2.57881
0.05549	0.99258	0.00617	0.00089	0.01174	0.00763	1.53368	0.00009	0.00004	1.54729
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
0.03260	3.25927	0.02777	0.00279	0.00315	0.00205	5.62348	0.00032	0.00014	5.67338

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.14175	4.70250	0.12225	0.00630	0.00750	0.00488	11.79750	0.00067	0.00029	11.90219
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.18711	6.20730	0.16137	0.00832	0.00990	0.00644	15.57270	0.00088	0.00039	15.71089
0.10206	3.38580	0.08802	0.00454	0.00540	0.00351	8.49420	0.00048	0.00021	8.56958
0.09072	3.00960	0.07824	0.00403	0.00480	0.00312	7.55040	0.00043	0.00019	7.61740
0.10206	3.38580	0.08802	0.00454	0.00540	0.00351	8.49420	0.00048	0.00021	8.56958
0.11907	3.95010	0.10269	0.00529	0.00630	0.00410	9.90990	0.00056	0.00025	9.99784
0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
0.51030	16.92900	0.44010	0.02268	0.02700	0.01755	42.47100	0.00240	0.00105	42.84789

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
0.00220	0.01772	4.72464	0.00835	0.06443	0.04188	876.87360	0.02424	0.02809	886.09069
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Surveillance	24%
Physical Control	0%
Vegetation Management	0%
Biological Control	0%
Chemical Control	46%
Other Non-Chemical	30%
CHECKSUM	**100%**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.02	0.20	0.02	0.00	0.00	0.00	33.08	0.00	0.00	33.35
0.37	0.15	0.23	0.00	0.00	0.00	37.87	0.00	0.00	37.89
0.31	5.56	0.03	0.01	0.07	0.04	8.59	0.00	0.00	8.66
0.03	3.26	0.03	0.00	0.00	0.00	5.62	0.00	0.00	5.67
0.04	0.40	0.04	0.00	0.01	0.00	66.15	0.00	0.00	66.71
0.51	4.75	0.47	0.01	0.07	0.04	793.85	0.05	0.02	800.51
0.02	0.15	0.18	0.00	0.02	0.01	18.48	0.00	0.00	18.65
0.11	11.03	0.09	0.01	0.01	0.01	19.03	0.00	0.00	19.20
0.09	9.03	0.08	0.01	0.01	0.01	15.57	0.00	0.00	15.71
0.41	7.28	0.05	0.01	0.09	0.06	11.25	0.00	0.00	11.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.12	4.08	0.11	0.01	0.01	0.00	10.22	0.00	0.00	10.32
0.01	0.17	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.26
0.06	0.99	0.01	0.00	0.01	0.01	1.53	0.00	0.00	1.55
0.03	0.46	0.00	0.00	0.01	0.00	0.72	0.00	0.00	0.72
0.05	0.93	0.01	0.00	0.01	0.01	1.43	0.00	0.00	1.44
0.03	3.26	0.03	0.00	0.00	0.00	5.62	0.00	0.00	5.67
2.21	**51.69**	**1.37**	**0.05**	**0.31**	**0.20**	**1029.28**	**0.06**	**0.02**	**1037.68**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.43	14.11	0.37	0.02	0.02	0.01	35.39	0.00	0.00	35.71
1.18	39.12	1.02	0.05	0.06	0.04	98.16	0.01	0.00	99.03
2.99	99.32	2.58	0.13	0.16	0.10	249.16	0.01	0.01	251.37
0.20	6.77	0.18	0.01	0.01	0.01	16.99	0.00	0.00	17.14
0.18	6.02	0.16	0.01	0.01	0.01	15.10	0.00	0.00	15.23
0.31	10.16	0.26	0.01	0.02	0.01	25.48	0.00	0.00	25.71
0.24	7.90	0.21	0.01	0.01	0.01	19.82	0.00	0.00	20.00
0.44	14.67	0.38	0.02	0.02	0.02	36.81	0.00	0.00	37.13
1.02	33.86	0.88	0.05	0.05	0.04	84.94	0.00	0.00	85.70
6.99	**231.93**	**6.03**	**0.31**	**0.37**	**0.24**	**581.85**	**0.03**	**0.01**	**587.02**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.00	0.02	5.84	0.01	0.08	0.05	1083.20	0.03	0.03	1094.58
0.01	0.07	18.90	0.03	0.26	0.17	3507.49	0.10	0.11	3544.36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	**0.14**	**36.41**	**0.06**	**0.50**	**0.32**	**6757.08**	**0.19**	**0.22**	**6828.11**

9.21	**283.75**	**43.80**	**0.43**	**1.17**	**0.77**	**8368.22**	**0.28**	**0.25**	**8452.80**

2.22	68.36	10.55	0.10	0.28	0.18	2015.98	0.07	0.06	2036.36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.09	0.01	0.00	0.00	0.00	2.54	0.00	0.00	2.56
4.20	129.32	19.96	0.19	0.53	0.35	3813.88	0.13	0.12	3852.43
2.79	85.98	13.27	0.13	0.36	0.23	2535.82	0.08	0.08	2561.46
9.21	**283.75**	**43.80**	**0.43**	**1.17**	**0.77**	**8368.22**	**0.28**	**0.25**	**8452.80**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
1.3	11.9	1.2	0.0	0.2	0.1	1984.6	0.1	0.0	2001.3
1.8	0.8	1.2	0.0	0.0	0.0	189.3	0.0	0.0	189.5
3.1	55.6	0.3	0.1	0.7	0.4	85.9	0.0	0.0	86.6
0.0	3.3	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.7
0.4	4.0	0.4	0.0	0.1	0.0	661.5	0.0	0.0	667.1
30.3	285.3	28.3	0.5	4.0	2.6	47631.1	2.7	1.1	48030.6
0.1	0.7	0.9	0.0	0.1	0.1	92.4	0.0	0.0	93.3
0.9	88.3	0.8	0.1	0.1	0.1	152.3	0.0	0.0	153.6
1.4	135.4	1.2	0.1	0.1	0.1	233.6	0.0	0.0	235.7
4.1	72.8	0.5	0.1	0.9	0.6	112.5	0.0	0.0	113.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.2	40.8	1.1	0.1	0.1	0.0	102.2	0.0	0.0	103.2
0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
0.8	14.9	0.1	0.0	0.2	0.1	23.0	0.0	0.0	23.2
0.4	6.9	0.0	0.0	0.1	0.1	10.7	0.0	0.0	10.8
0.1	1.9	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9
0.2	16.3	0.1	0.0	0.0	0.0	28.1	0.0	0.0	28.4
46.14	**738.80**	**35.99**	**0.89**	**6.38**	**4.15**	**51316.10**	**2.93**	**1.19**	**51745.48**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.4	211.6	5.5	0.3	0.3	0.2	530.9	0.0	0.0	535.6
23.6	782.5	20.3	1.0	1.2	0.8	1963.1	0.1	0.0	1980.5
44.9	1489.8	38.7	2.0	2.4	1.5	3737.4	0.2	0.1	3770.6
0.4	13.5	0.4	0.0	0.0	0.0	34.0	0.0	0.0	34.3
0.4	12.0	0.3	0.0	0.0	0.0	30.2	0.0	0.0	30.5
4.6	152.4	4.0	0.2	0.2	0.2	382.2	0.0	0.0	385.6
1.4	47.4	1.2	0.1	0.1	0.0	118.9	0.0	0.0	120.0
3.5	117.4	3.1	0.2	0.2	0.1	294.5	0.0	0.0	297.1
4.1	135.4	3.5	0.2	0.2	0.1	339.8	0.0	0.0	342.8
89.29	**2962.01**	**77.00**	**3.97**	**4.72**	**3.07**	**7431.01**	**0.42**	**0.18**	**7496.95**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr	lbs/qtr
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.1	1.0	264.6	0.5	3.6	2.3	49104.9	1.4	1.6	49621.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.14	**1.12**	**299.60**	**0.53**	**4.09**	**2.66**	**55604.10**	**1.54**	**1.78**	**56188.57**

135.57	**3701.93**	**412.59**	**5.39**	**15.19**	**9.88**	**114351.21**	**4.88**	**3.15**	**115431.01**

32.66	891.83	99.40	1.30	3.66	2.38	27548.25	1.18	0.76	27808.38
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	1.12	0.13	0.00	0.00	0.00	34.65	0.00	0.00	34.98
61.78	1687.18	188.04	2.46	6.92	4.50	52116.43	2.23	1.44	52608.56
41.08	1121.80	125.03	1.63	4.60	2.99	34651.88	1.48	0.96	34979.09
135.57	**3701.93**	**412.59**	**5.39**	**15.19**	**9.88**	**114351.21**	**4.88**	**3.15**	**115431.01**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
4.8	45.6	4.5	0.1	0.6	0.4	7607.7	0.4	0.2	7671.6
7.3	3.1	4.7	0.0	0.1	0.0	757.3	0.0	0.0	757.9
4.4	77.8	0.5	0.1	0.9	0.6	120.2	0.0	0.0	121.3
0.1	6.5	0.1	0.0	0.0	0.0	11.2	0.0	0.0	11.3
0.8	7.9	0.8	0.0	0.1	0.1	1323.1	0.1	0.0	1334.2
111.2	1046.0	103.7	1.7	14.5	9.4	174647.4	10.0	4.0	176112.3
0.5	2.9	3.5	0.0	0.3	0.3	369.7	0.0	0.0	373.0
1.7	165.5	1.4	0.1	0.2	0.1	285.5	0.0	0.0	288.0
3.2	315.9	2.7	0.3	0.3	0.2	545.0	0.0	0.0	549.9
10.2	182.0	1.1	0.2	2.2	1.4	281.2	0.0	0.0	283.7
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9	163.0	4.2	0.2	0.3	0.2	409.0	0.0	0.0	412.6
0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5
2.8	49.6	0.3	0.0	0.6	0.4	76.7	0.0	0.0	77.4
1.3	23.2	0.1	0.0	0.3	0.2	35.8	0.0	0.0	36.1
0.2	3.7	0.0	0.0	0.0	0.0	5.7	0.0	0.0	5.8
0.7	65.2	0.6	0.1	0.1	0.0	112.5	0.0	0.0	113.5
153.97	**2158.20**	**128.26**	**2.78**	**20.44**	**13.30**	**186588.63**	**10.64**	**4.31**	**188148.95**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.4	578.4	15.0	0.8	0.9	0.6	1451.1	0.1	0.0	1464.0
47.2	1565.0	40.7	2.1	2.5	1.6	3926.2	0.2	0.1	3961.0
59.9	1986.3	51.6	2.7	3.2	2.1	4983.3	0.3	0.1	5027.5
0.4	13.5	0.4	0.0	0.0	0.0	34.0	0.0	0.0	34.3
0.7	24.1	0.6	0.0	0.0	0.0	60.4	0.0	0.0	60.9
9.2	304.7	7.9	0.4	0.5	0.3	764.5	0.0	0.0	771.3
2.9	94.8	2.5	0.1	0.2	0.1	237.8	0.0	0.0	239.9
7.1	234.7	6.1	0.3	0.4	0.2	588.9	0.0	0.0	594.2
4.1	135.4	3.5	0.2	0.2	0.1	339.8	0.0	0.0	342.8
148.82	**4937.06**	**128.35**	**6.61**	**7.87**	**5.12**	**12385.96**	**0.70**	**0.31**	**12495.87**

VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr	lbs/yr
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.0	0.0	11.7	0.0	0.2	0.1	2166.4	0.1	0.1	2189.2
0.3	2.4	642.6	1.1	8.8	5.7	119254.8	3.3	3.8	120508.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.32	**2.54**	**677.57**	**1.20**	**9.24**	**6.01**	**125753.99**	**3.48**	**4.03**	**127075.83**

303.11	**7097.80**	**934.18**	**10.59**	**37.56**	**24.42**	**324728.58**	**14.81**	**8.65**	**327720.65**

73.02	1709.93	225.05	2.55	9.05	5.88	78230.07	3.57	2.08	78950.88
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	2.15	0.28	0.00	0.01	0.01	98.40	0.00	0.00	99.31
138.15	3234.88	425.76	4.83	17.12	11.13	147997.51	6.75	3.94	149361.17
91.85	2150.85	283.09	3.21	11.38	7.40	98402.60	4.49	2.62	99309.29
303.11	**7097.80**	**934.18**	**10.59**	**37.56**	**24.42**	**324728.58**	**14.81**	**8.65**	**327720.65**

Emission Factors for Onroad Vehicles, Offroad Equipments, Vessels, Aircrafts												
Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
50:1 gas/oil mix	2-stroke	0.1	0.00370	0.06617	0.00041	0.00006	0.00078	0.00051	0.11011	0.00001	0.00000	0.11109
50:1 gas/oil mix	2-stroke	0.2	0.00740	0.13234	0.00082	0.00012	0.00157	0.00102	0.22022	0.00001	0.00001	0.22217
50:1 gas/oil mix	2-stroke	0.3	0.01110	0.19852	0.00123	0.00018	0.00235	0.00153	0.33033	0.00002	0.00001	0.33326
50:1 gas/oil mix	2-stroke	0.4	0.01480	0.26469	0.00164	0.00024	0.00313	0.00203	0.44044	0.00002	0.00001	0.44435
50:1 gas/oil mix	2-stroke	0.5	0.01850	0.33086	0.00206	0.00030	0.00391	0.00254	0.55055	0.00003	0.00001	0.55544
50:1 gas/oil mix	2-stroke	0.6	0.02219	0.39703	0.00247	0.00036	0.00470	0.00305	0.66066	0.00004	0.00002	0.66652
50:1 gas/oil mix	2-stroke	0.7	0.02589	0.46320	0.00288	0.00042	0.00548	0.00356	0.77077	0.00004	0.00002	0.77761
50:1 gas/oil mix	2-stroke	0.8	0.02959	0.52938	0.00329	0.00048	0.00626	0.00407	0.88088	0.00005	0.00002	0.88870
50:1 gas/oil mix	2-stroke	0.9	0.03329	0.59555	0.00370	0.00054	0.00704	0.00458	0.99099	0.00006	0.00002	0.99978
50:1 gas/oil mix	2-stroke	1.0	0.03699	0.66172	0.00411	0.00060	0.00783	0.00509	1.02245	0.00006	0.00003	1.03152
50:1 gas/oil mix	2-stroke	1.1	0.04069	0.72789	0.00452	0.00065	0.00861	0.00560	1.12470	0.00006	0.00003	1.13468
50:1 gas/oil mix	2-stroke	1.2	0.04439	0.79406	0.00493	0.00071	0.00939	0.00610	1.22694	0.00007	0.00003	1.23783
50:1 gas/oil mix	2-stroke	1.3	0.04809	0.86023	0.00534	0.00077	0.01017	0.00661	1.32919	0.00008	0.00003	1.34098
50:1 gas/oil mix	2-stroke	1.4	0.05179	0.92641	0.00575	0.00083	0.01096	0.00712	1.43143	0.00008	0.00004	1.44413
50:1 gas/oil mix	2-stroke	1.5	0.05549	0.99258	0.00617	0.00089	0.01174	0.00763	1.53368	0.00009	0.00004	1.54729
50:1 gas/oil mix	2-stroke	1.6	0.05918	1.05875	0.00658	0.00095	0.01252	0.00814	1.63592	0.00009	0.00004	1.65044
50:1 gas/oil mix	2-stroke	1.7	0.06288	1.12492	0.00699	0.00101	0.01330	0.00865	1.73817	0.00010	0.00004	1.75359
50:1 gas/oil mix	2-stroke	1.8	0.06658	1.19109	0.00740	0.00107	0.01409	0.00916	1.84041	0.00010	0.00005	1.85674
50:1 gas/oil mix	2-stroke	1.9	0.07028	1.25727	0.00781	0.00113	0.01487	0.00967	1.94266	0.00011	0.00005	1.95989
50:1 gas/oil mix	2-stroke	2.0	0.07398	1.32344	0.00822	0.00119	0.01565	0.01017	2.04490	0.00012	0.00005	2.06305
50:1 gas/oil mix	2-stroke	2.1	0.07768	1.38961	0.00863	0.00125	0.01644	0.01068	2.14715	0.00012	0.00005	2.16620
50:1 gas/oil mix	2-stroke	2.2	0.08138	1.45578	0.00904	0.00131	0.01722	0.01119	2.24939	0.00013	0.00006	2.26935
50:1 gas/oil mix	2-stroke	2.3	0.08508	1.52195	0.00945	0.00137	0.01800	0.01170	2.35164	0.00013	0.00006	2.37250
50:1 gas/oil mix	2-stroke	2.4	0.08878	1.58813	0.00986	0.00143	0.01878	0.01221	2.45388	0.00014	0.00006	2.47566
50:1 gas/oil mix	2-stroke	2.5	0.09248	1.65430	0.01028	0.00149	0.01957	0.01272	2.55613	0.00014	0.00006	2.57881
50:1 gas/oil mix	2-stroke	2.6	0.09618	1.72047	0.01069	0.00155	0.02035	0.01323	2.65837	0.00015	0.00007	2.68196
50:1 gas/oil mix	2-stroke	2.7	0.09987	1.78664	0.01110	0.00161	0.02113	0.01374	2.76062	0.00016	0.00007	2.78511
50:1 gas/oil mix	2-stroke	2.8	0.10357	1.85281	0.01151	0.00167	0.02191	0.01424	2.86286	0.00016	0.00007	2.88827
50:1 gas/oil mix	2-stroke	2.9	0.10727	1.91899	0.01192	0.00173	0.02270	0.01475	2.96511	0.00017	0.00007	2.99142
50:1 gas/oil mix	2-stroke	3.0	0.15980	1.48702	0.01776	0.00179	0.02348	0.01526	2.83140	0.00016	0.00007	2.85653
50:1 gas/oil mix	2-stroke	3.1	0.16513	1.53659	0.01835	0.00185	0.02426	0.01577	2.92578	0.00017	0.00007	2.95174
50:1 gas/oil mix	2-stroke	3.2	0.17045	1.58615	0.01894	0.00190	0.02504	0.01628	3.02016	0.00017	0.00007	3.04696
50:1 gas/oil mix	2-stroke	3.3	0.17578	1.63572	0.01953	0.00196	0.02583	0.01679	3.11454	0.00018	0.00008	3.14218
50:1 gas/oil mix	2-stroke	3.4	0.18111	1.68529	0.02012	0.00202	0.02661	0.01730	3.20892	0.00018	0.00008	3.23740
50:1 gas/oil mix	2-stroke	3.5	0.18643	1.73485	0.02071	0.00208	0.02739	0.01781	3.30330	0.00019	0.00008	3.33261
50:1 gas/oil mix	2-stroke	3.6	0.19176	1.78442	0.02131	0.00214	0.02818	0.01831	3.39768	0.00019	0.00008	3.42783
50:1 gas/oil mix	2-stroke	3.7	0.19709	1.83399	0.02190	0.00220	0.02896	0.01882	3.49206	0.00020	0.00009	3.52305
50:1 gas/oil mix	2-stroke	3.8	0.20241	1.88356	0.02249	0.00226	0.02974	0.01933	3.58644	0.00020	0.00009	3.61827
50:1 gas/oil mix	2-stroke	3.9	0.20774	1.93312	0.02308	0.00232	0.03052	0.01984	3.68082	0.00021	0.00009	3.71348
50:1 gas/oil mix	2-stroke	4.0	0.21307	1.98269	0.02367	0.00238	0.03131	0.02035	3.77520	0.00021	0.00009	3.80870
50:1 gas/oil mix	2-stroke	4.1	0.21839	2.03226	0.02427	0.00244	0.03209	0.02086	3.86958	0.00022	0.00010	3.90392
50:1 gas/oil mix	2-stroke	4.2	0.22372	2.08183	0.02486	0.00250	0.03287	0.02137	3.96396	0.00022	0.00010	3.99914
50:1 gas/oil mix	2-stroke	4.3	0.22905	2.13139	0.02545	0.00256	0.03365	0.02187	4.05834	0.00023	0.00010	4.09435
50:1 gas/oil mix	2-stroke	4.4	0.23437	2.18096	0.02604	0.00262	0.03444	0.02238	4.15272	0.00023	0.00010	4.18957
50:1 gas/oil mix	2-stroke	4.5	0.23970	2.23053	0.02663	0.00268	0.03522	0.02289	4.24710	0.00024	0.00011	4.28479
50:1 gas/oil mix	2-stroke	4.6	0.24503	2.28009	0.02723	0.00274	0.03600	0.02340	4.34148	0.00025	0.00011	4.38001
50:1 gas/oil mix	2-stroke	4.7	0.25035	2.32966	0.02782	0.00280	0.03678	0.02391	4.43586	0.00025	0.00011	4.47522
50:1 gas/oil mix	2-stroke	4.8	0.25568	2.37923	0.02841	0.00286	0.03757	0.02442	4.53024	0.00026	0.00011	4.57044
50:1 gas/oil mix	2-stroke	4.9	0.26101	2.42880	0.02900	0.00292	0.03835	0.02493	4.62462	0.00026	0.00011	4.66566
50:1 gas/oil mix	2-stroke	5.0	0.26633	2.47836	0.02959	0.00298	0.03913	0.02544	4.71900	0.00027	0.00012	4.76088
50:1 gas/oil mix	2-stroke	5.1	0.27166	2.52793	0.03018	0.00304	0.03991	0.02594	4.81338	0.00027	0.00012	4.85609
50:1 gas/oil mix	2-stroke	5.2	0.27698	2.57750	0.03078	0.00310	0.04070	0.02645	4.90776	0.00028	0.00012	4.95131
50:1 gas/oil mix	2-stroke	5.3	0.28231	2.62707	0.03137	0.00315	0.04148	0.02696	5.00214	0.00028	0.00012	5.04653
50:1 gas/oil mix	2-stroke	5.4	0.28764	2.67663	0.03196	0.00321	0.04226	0.02747	5.09652	0.00029	0.00013	5.14175
50:1 gas/oil mix	2-stroke	5.5	0.29296	2.72620	0.03255	0.00327	0.04305	0.02798	5.19090	0.00029	0.00013	5.23696
50:1 gas/oil mix	2-stroke	5.6	0.29829	2.77577	0.03314	0.00333	0.04383	0.02849	5.28528	0.00030	0.00013	5.33218
50:1 gas/oil mix	2-stroke	5.7	0.30362	2.82533	0.03374	0.00339	0.04461	0.02900	5.37966	0.00030	0.00013	5.42740
50:1 gas/oil mix	2-stroke	5.8	0.30894	2.87490	0.03433	0.00345	0.04539	0.02951	5.47404	0.00031	0.00014	5.52262
50:1 gas/oil mix	2-stroke	5.9	0.31427	2.92447	0.03492	0.00351	0.04618	0.03001	5.56842	0.00032	0.00014	5.61783
50:1 gas/oil mix	2-stroke	6.0	0.31960	2.97404	0.03551	0.00357	0.04696	0.03052	5.66280	0.00032	0.00014	5.71305
50:1 gas/oil mix	2-stroke	6.1	0.32492	3.02360	0.03610	0.00363	0.04774	0.03103	5.75718	0.00033	0.00014	5.80827
50:1 gas/oil mix	2-stroke	6.2	0.33025	3.07317	0.03669	0.00369	0.04852	0.03154	5.85156	0.00033	0.00015	5.90349
50:1 gas/oil mix	2-stroke	6.3	0.33558	3.12274	0.03729	0.00375	0.04931	0.03205	5.94594	0.00034	0.00015	5.99871
50:1 gas/oil mix	2-stroke	6.4	0.34090	3.17231	0.03788	0.00381	0.05009	0.03256	6.04032	0.00034	0.00015	6.09392
50:1 gas/oil mix	2-stroke	6.5	0.34623	3.22187	0.03847	0.00387	0.05087	0.03307	6.13470	0.00035	0.00015	6.18914
50:1 gas/oil mix	2-stroke	6.6	0.35156	3.27144	0.03906	0.00393	0.05165	0.03358	6.22908	0.00035	0.00015	6.28436
50:1 gas/oil mix	2-stroke	6.7	0.35688	3.32101	0.03965	0.00399	0.05244	0.03408	6.32346	0.00036	0.00016	6.37958
50:1 gas/oil mix	2-stroke	6.8	0.36221	3.37057	0.04025	0.00405	0.05322	0.03459	6.41784	0.00036	0.00016	6.47479
50:1 gas/oil mix	2-stroke	6.9	0.36754	3.42014	0.04084	0.00411	0.05400	0.03510	6.51222	0.00037	0.00016	6.57001
50:1 gas/oil mix	2-stroke	7.0	0.37286	3.46971	0.04143	0.00417	0.05479	0.03561	6.60660	0.00037	0.00016	6.66523
50:1 gas/oil mix	2-stroke	7.1	0.37819	3.51928	0.04202	0.00423	0.05557	0.03612	6.70098	0.00038	0.00017	6.76045
50:1 gas/oil mix	2-stroke	7.2	0.38352	3.56884	0.04261	0.00429	0.05635	0.03663	6.79536	0.00038	0.00017	6.85566
50:1 gas/oil mix	2-stroke	7.3	0.38884	3.61841	0.04320	0.00435	0.05713	0.03714	6.88974	0.00039	0.00017	6.95088
50:1 gas/oil mix	2-stroke	7.4	0.39417	3.66798	0.04380	0.00440	0.05792	0.03765	6.98412	0.00040	0.00017	7.04610
50:1 gas/oil mix	2-stroke	7.5	0.39950	3.71755	0.04439	0.00446	0.05870	0.03815	7.07850	0.00040	0.00018	7.14132
50:1 gas/oil mix	2-stroke	7.6	0.40482	3.76711	0.04498	0.00452	0.05948	0.03866	7.17288	0.00041	0.00018	7.23653

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
50:1 gas/oil mix	2-stroke	7.7	0.41015	3.81668	0.04557	0.00458	0.06026	0.03917	7.26726	0.00041	0.00018	7.33175
50:1 gas/oil mix	2-stroke	7.8	0.41548	3.86625	0.04616	0.00464	0.06105	0.03968	7.36164	0.00042	0.00018	7.42697
50:1 gas/oil mix	2-stroke	7.9	0.42080	3.91581	0.04676	0.00470	0.06183	0.04019	7.45602	0.00042	0.00018	7.52219
50:1 gas/oil mix	2-stroke	8.0	0.42613	3.96538	0.04735	0.00476	0.06261	0.04070	7.55040	0.00043	0.00019	7.61740
50:1 gas/oil mix	2-stroke	8.1	0.43146	4.01495	0.04794	0.00482	0.06339	0.04121	7.64478	0.00043	0.00019	7.71262
50:1 gas/oil mix	2-stroke	8.2	0.43678	4.06452	0.04853	0.00488	0.06418	0.04171	7.73916	0.00044	0.00019	7.80784
50:1 gas/oil mix	2-stroke	8.3	0.44211	4.11408	0.04912	0.00494	0.06496	0.04222	7.83354	0.00044	0.00019	7.90306
50:1 gas/oil mix	2-stroke	8.4	0.44744	4.16365	0.04972	0.00500	0.06574	0.04273	7.92792	0.00045	0.00020	7.99827
50:1 gas/oil mix	2-stroke	8.5	0.45276	4.21322	0.05031	0.00506	0.06652	0.04324	8.02230	0.00045	0.00020	8.09349
50:1 gas/oil mix	2-stroke	8.6	0.45809	4.26279	0.05090	0.00512	0.06731	0.04375	8.11668	0.00046	0.00020	8.18871
50:1 gas/oil mix	2-stroke	8.7	0.46342	4.31235	0.05149	0.00518	0.06809	0.04426	8.21106	0.00046	0.00020	8.28393
50:1 gas/oil mix	2-stroke	8.8	0.46874	4.36192	0.05208	0.00524	0.06887	0.04477	8.30544	0.00047	0.00021	8.37914
50:1 gas/oil mix	2-stroke	8.9	0.47407	4.41149	0.05267	0.00530	0.06966	0.04528	8.39982	0.00048	0.00021	8.47436
50:1 gas/oil mix	2-stroke	9.0	0.47940	4.46105	0.05327	0.00536	0.07044	0.04578	8.49420	0.00048	0.00021	8.56958
50:1 gas/oil mix	2-stroke	9.1	0.48472	4.51062	0.05386	0.00542	0.07122	0.04629	8.58858	0.00049	0.00021	8.66480
50:1 gas/oil mix	2-stroke	9.2	0.49005	4.56019	0.05445	0.00548	0.07200	0.04680	8.68296	0.00049	0.00022	8.76001
50:1 gas/oil mix	2-stroke	9.3	0.49538	4.60976	0.05504	0.00554	0.07279	0.04731	8.77734	0.00050	0.00022	8.85523
50:1 gas/oil mix	2-stroke	9.4	0.50070	4.65932	0.05563	0.00560	0.07357	0.04782	8.87172	0.00050	0.00022	8.95045
50:1 gas/oil mix	2-stroke	9.5	0.50603	4.70889	0.05623	0.00565	0.07435	0.04833	8.96610	0.00051	0.00022	9.04567
50:1 gas/oil mix	2-stroke	9.6	0.51136	4.75846	0.05682	0.00571	0.07513	0.04884	9.06048	0.00051	0.00022	9.14088
50:1 gas/oil mix	2-stroke	9.7	0.51668	4.80803	0.05741	0.00577	0.07592	0.04935	9.15486	0.00052	0.00023	9.23610
50:1 gas/oil mix	2-stroke	9.8	0.52201	4.85759	0.05800	0.00583	0.07670	0.04985	9.24924	0.00052	0.00023	9.33132
50:1 gas/oil mix	2-stroke	9.9	0.52734	4.90716	0.05859	0.00589	0.07748	0.05036	9.34362	0.00053	0.00023	9.42654
50:1 gas/oil mix	**2-stroke**	**10**	**0.53266**	**4.95673**	**0.05918**	**0.00595**	**0.07826**	**0.05087**	**7.86500**	**0.00045**	**0.00020**	**7.93480**
50:1 gas/oil mix	2-stroke	11	0.58593	5.45240	0.06510	0.00655	0.08609	0.05596	8.65150	0.00049	0.00021	8.72827
50:1 gas/oil mix	2-stroke	12	0.63920	5.94807	0.07102	0.00714	0.09392	0.06105	9.43800	0.00053	0.00023	9.52175
50:1 gas/oil mix	2-stroke	13	0.69246	6.44375	0.07694	0.00774	0.10174	0.06613	10.22450	0.00058	0.00025	10.31523
50:1 gas/oil mix	2-stroke	14	0.74573	6.93942	0.08286	0.00833	0.10957	0.07122	11.01100	0.00062	0.00027	11.10871
50:1 gas/oil mix	2-stroke	15	0.79899	7.43509	0.08878	0.00893	0.11740	0.07631	11.79750	0.00067	0.00029	11.90219
50:1 gas/oil mix	2-stroke	16	0.85226	7.93076	0.09470	0.00952	0.12522	0.08140	12.58400	0.00071	0.00031	12.69567
50:1 gas/oil mix	2-stroke	17	0.90553	8.42644	0.10061	0.01012	0.13305	0.08648	13.37050	0.00076	0.00033	13.48915
50:1 gas/oil mix	2-stroke	18	0.95879	8.92211	0.10653	0.01071	0.14088	0.09157	14.15700	0.00080	0.00035	14.28263
50:1 gas/oil mix	2-stroke	19	1.01206	9.41778	0.11245	0.01131	0.14870	0.09666	14.94350	0.00085	0.00037	15.07611
50:1 gas/oil mix	2-stroke	20	1.06533	9.91346	0.11837	0.01191	0.15653	0.10174	15.73000	0.00089	0.00039	15.86959
50:1 gas/oil mix	2-stroke	21	1.11859	10.40913	0.12429	0.01250	0.16436	0.10683	16.51650	0.00093	0.00041	16.66307
50:1 gas/oil mix	2-stroke	22	1.17186	10.90480	0.13021	0.01310	0.17218	0.11192	17.30300	0.00098	0.00043	17.45655
50:1 gas/oil mix	2-stroke	23	1.22513	11.40047	0.13613	0.01369	0.18001	0.11701	18.08950	0.00102	0.00045	18.25003
50:1 gas/oil mix	2-stroke	24	1.27839	11.89615	0.14204	0.01429	0.18783	0.12209	18.87600	0.00107	0.00047	19.04351
50:1 gas/oil mix	2-stroke	25	1.33166	12.39182	0.14796	0.01488	0.19566	0.12718	19.66250	0.00111	0.00049	19.83699
50:1 gas/oil mix	2-stroke	26	1.38492	12.88749	0.15388	0.01548	0.20349	0.13227	20.44900	0.00116	0.00051	20.63047
50:1 gas/oil mix	2-stroke	27	1.43819	13.38316	0.15980	0.01607	0.21131	0.13735	21.23550	0.00120	0.00053	21.42395
50:1 gas/oil mix	2-stroke	28	1.49146	13.87884	0.16572	0.01667	0.21914	0.14244	22.02200	0.00125	0.00055	22.21743
50:1 gas/oil mix	2-stroke	29	1.54472	14.37451	0.17164	0.01726	0.22697	0.14753	22.80850	0.00129	0.00057	23.01091
50:1 gas/oil mix	2-stroke	30	1.59799	14.87018	0.17755	0.01786	0.23479	0.15262	23.59500	0.00134	0.00059	23.80439
50:1 gas/oil mix	2-stroke	31	1.65126	15.36586	0.18347	0.01845	0.24262	0.15770	24.38150	0.00138	0.00060	24.59786
50:1 gas/oil mix	2-stroke	32	1.70452	15.86153	0.18939	0.01905	0.25045	0.16279	25.16800	0.00142	0.00062	25.39134
50:1 gas/oil mix	2-stroke	33	1.75779	16.35720	0.19531	0.01964	0.25827	0.16788	25.95450	0.00147	0.00064	26.18482
50:1 gas/oil mix	2-stroke	34	1.81106	16.85287	0.20123	0.02024	0.26610	0.17296	26.74100	0.00151	0.00066	26.97830
50:1 gas/oil mix	2-stroke	35	1.86432	17.34855	0.20715	0.02083	0.27393	0.17805	27.52750	0.00156	0.00068	27.77178
50:1 gas/oil mix	2-stroke	36	1.91759	17.84422	0.21307	0.02143	0.28175	0.18314	28.31400	0.00160	0.00070	28.56526
50:1 gas/oil mix	2-stroke	37	1.97085	18.33989	0.21898	0.02202	0.28958	0.18823	29.10050	0.00165	0.00072	29.35874
50:1 gas/oil mix	2-stroke	38	2.02412	18.83557	0.22490	0.02262	0.29741	0.19331	29.88700	0.00169	0.00074	30.15222
50:1 gas/oil mix	2-stroke	39	2.07739	19.33124	0.23082	0.02321	0.30523	0.19840	30.67350	0.00174	0.00076	30.94570
50:1 gas/oil mix	2-stroke	40	2.13065	19.82691	0.23674	0.02381	0.31306	0.20349	31.46000	0.00178	0.00078	31.73918
50:1 gas/oil mix	2-stroke	41	2.18392	20.32258	0.24266	0.02441	0.32088	0.20857	32.24650	0.00182	0.00080	32.53266
50:1 gas/oil mix	2-stroke	42	2.23719	20.81826	0.24858	0.02500	0.32871	0.21366	33.03300	0.00187	0.00082	33.32614
50:1 gas/oil mix	2-stroke	43	2.29045	21.31393	0.25449	0.02560	0.33654	0.21875	33.81950	0.00191	0.00084	34.11962
50:1 gas/oil mix	2-stroke	44	2.34372	21.80960	0.26041	0.02619	0.34436	0.22384	34.60600	0.00196	0.00086	34.91310
50:1 gas/oil mix	2-stroke	45	2.39698	22.30527	0.26633	0.02679	0.35219	0.22892	35.39250	0.00200	0.00088	35.70658
50:1 gas/oil mix	2-stroke	46	2.45025	22.80095	0.27225	0.02738	0.36002	0.23401	36.17900	0.00205	0.00090	36.50006
50:1 gas/oil mix	2-stroke	47	2.50352	23.29662	0.27817	0.02798	0.36784	0.23910	36.96550	0.00209	0.00092	37.29354
50:1 gas/oil mix	2-stroke	48	2.55678	23.79229	0.28409	0.02857	0.37567	0.24419	37.75200	0.00214	0.00094	38.08702
50:1 gas/oil mix	2-stroke	49	2.61005	24.28797	0.29001	0.02917	0.38350	0.24927	38.53850	0.00218	0.00096	38.88050
50:1 gas/oil mix	2-stroke	50	2.66332	24.78364	0.29592	0.02976	0.39132	0.25436	39.32500	0.00223	0.00098	39.67398
50:1 gas/oil mix	2-stroke	51	2.71658	25.27931	0.30184	0.03036	0.39915	0.25945	40.11150	0.00227	0.00099	40.46745
50:1 gas/oil mix	2-stroke	52	2.76985	25.77498	0.30776	0.03095	0.40698	0.26453	40.89800	0.00231	0.00101	41.26093
50:1 gas/oil mix	2-stroke	53	2.82312	26.27066	0.31368	0.03155	0.41480	0.26962	41.68450	0.00236	0.00103	42.05441
50:1 gas/oil mix	2-stroke	54	2.87638	26.76633	0.31960	0.03214	0.42263	0.27471	42.47100	0.00240	0.00105	42.84789
50:1 gas/oil mix	2-stroke	55	2.92965	27.26200	0.32552	0.03274	0.43045	0.27980	43.25750	0.00245	0.00107	43.64137
50:1 gas/oil mix	2-stroke	56	2.98291	27.75768	0.33143	0.03333	0.43828	0.28488	44.04400	0.00249	0.00109	44.43485
50:1 gas/oil mix	2-stroke	57	3.03618	28.25335	0.33735	0.03393	0.44611	0.28997	44.83050	0.00254	0.00111	45.22833
50:1 gas/oil mix	2-stroke	58	3.08945	28.74902	0.34327	0.03452	0.45393	0.29506	45.61700	0.00258	0.00113	46.02181
50:1 gas/oil mix	2-stroke	59	3.14271	29.24469	0.34919	0.03512	0.46176	0.30014	46.40350	0.00263	0.00115	46.81529
50:1 gas/oil mix	2-stroke	60	3.19598	29.74037	0.35511	0.03572	0.46959	0.30523	47.19000	0.00267	0.00117	47.60877
50:1 gas/oil mix	2-stroke	61	3.24925	30.23604	0.36103	0.03631	0.47741	0.31032	47.97650	0.00271	0.00119	48.40225
50:1 gas/oil mix	2-stroke	62	3.30251	30.73171	0.36695	0.03691	0.48524	0.31541	48.76300	0.00276	0.00121	49.19573
50:1 gas/oil mix	2-stroke	63	3.35578	31.22738	0.37286	0.03750	0.49307	0.32049	49.54950	0.00280	0.00123	49.98921
50:1 gas/oil mix	2-stroke	64	3.40905	31.72306	0.37878	0.03810	0.50089	0.32558	50.33600	0.00285	0.00125	50.78269

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
50:1 gas/oil mix	2-stroke	65	3.46231	32.21873	0.38470	0.03869	0.50872	0.33067	51.12250	0.00289	0.00127	51.57617
50:1 gas/oil mix	2-stroke	66	3.51558	32.71440	0.39062	0.03929	0.51655	0.33575	51.90900	0.00294	0.00129	52.36965
50:1 gas/oil mix	2-stroke	67	3.56884	33.21008	0.39654	0.03988	0.52437	0.34084	52.69550	0.00298	0.00131	53.16313
50:1 gas/oil mix	2-stroke	68	3.62211	33.70575	0.40246	0.04048	0.53220	0.34593	53.48200	0.00303	0.00133	53.95661
50:1 gas/oil mix	2-stroke	69	3.67538	34.20142	0.40838	0.04107	0.54003	0.35102	54.26850	0.00307	0.00135	54.75009
50:1 gas/oil mix	2-stroke	70	3.72864	34.69709	0.41429	0.04167	0.54785	0.35610	55.05500	0.00312	0.00137	55.54357
50:1 gas/oil mix	2-stroke	71	3.78191	35.19277	0.42021	0.04226	0.55568	0.36119	55.84150	0.00316	0.00138	56.33704
50:1 gas/oil mix	2-stroke	72	3.83518	35.68844	0.42613	0.04286	0.56350	0.36628	56.62800	0.00320	0.00140	57.13052
50:1 gas/oil mix	2-stroke	73	3.88844	36.18411	0.43205	0.04345	0.57133	0.37137	57.41450	0.00325	0.00142	57.92400
50:1 gas/oil mix	2-stroke	74	3.94171	36.67979	0.43797	0.04405	0.57916	0.37645	58.20100	0.00329	0.00144	58.71748
50:1 gas/oil mix	2-stroke	75	3.99497	37.17546	0.44389	0.04464	0.58698	0.38154	58.98750	0.00334	0.00146	59.51096
50:1 gas/oil mix	2-stroke	76	4.04824	37.67113	0.44980	0.04524	0.59481	0.38663	59.77400	0.00338	0.00148	60.30444
50:1 gas/oil mix	2-stroke	77	4.10151	38.16680	0.45572	0.04583	0.60264	0.39171	60.56050	0.00343	0.00150	61.09792
50:1 gas/oil mix	2-stroke	78	4.15477	38.66248	0.46164	0.04643	0.61046	0.39680	61.34700	0.00347	0.00152	61.89140
50:1 gas/oil mix	2-stroke	79	4.20804	39.15815	0.46756	0.04702	0.61829	0.40189	62.13350	0.00352	0.00154	62.68488
50:1 gas/oil mix	2-stroke	80	4.26131	39.65382	0.47348	0.04762	0.62612	0.40698	62.92000	0.00356	0.00156	63.47836
50:1 gas/oil mix	2-stroke	81	4.31457	40.14949	0.47940	0.04822	0.63394	0.41206	63.70650	0.00360	0.00158	64.27184
50:1 gas/oil mix	2-stroke	82	4.36784	40.64517	0.48532	0.04881	0.64177	0.41715	64.49300	0.00365	0.00160	65.06532
50:1 gas/oil mix	2-stroke	83	4.42111	41.14084	0.49123	0.04941	0.64960	0.42224	65.27950	0.00369	0.00162	65.85880
50:1 gas/oil mix	2-stroke	84	4.47437	41.63651	0.49715	0.05000	0.65742	0.42732	66.06600	0.00374	0.00164	66.65228
50:1 gas/oil mix	2-stroke	85	4.52764	42.13219	0.50307	0.05060	0.66525	0.43241	66.85250	0.00378	0.00166	67.44576
50:1 gas/oil mix	2-stroke	86	4.58090	42.62786	0.50899	0.05119	0.67307	0.43750	67.63900	0.00383	0.00168	68.23924
50:1 gas/oil mix	2-stroke	87	4.63417	43.12353	0.51491	0.05179	0.68090	0.44259	68.42550	0.00387	0.00170	69.03272
50:1 gas/oil mix	2-stroke	88	4.68744	43.61920	0.52083	0.05238	0.68873	0.44767	69.21200	0.00392	0.00172	69.82620
50:1 gas/oil mix	2-stroke	89	4.74070	44.11488	0.52674	0.05298	0.69655	0.45276	69.99850	0.00396	0.00174	70.61968
50:1 gas/oil mix	2-stroke	90	4.79397	44.61055	0.53266	0.05357	0.70438	0.45785	70.78500	0.00401	0.00176	71.41316
50:1 gas/oil mix	2-stroke	91	4.84724	45.10622	0.53858	0.05417	0.71221	0.46293	71.57150	0.00405	0.00177	72.20663
50:1 gas/oil mix	2-stroke	92	4.90050	45.60190	0.54450	0.05476	0.72003	0.46802	72.35800	0.00409	0.00179	73.00011
50:1 gas/oil mix	2-stroke	93	4.95377	46.09757	0.55042	0.05536	0.72786	0.47311	73.14450	0.00414	0.00181	73.79359
50:1 gas/oil mix	2-stroke	94	5.00703	46.59324	0.55634	0.05595	0.73569	0.47820	73.93100	0.00418	0.00183	74.58707
50:1 gas/oil mix	2-stroke	95	5.06030	47.08891	0.56226	0.05655	0.74351	0.48328	74.71750	0.00423	0.00185	75.38055
50:1 gas/oil mix	2-stroke	96	5.11357	47.58459	0.56817	0.05714	0.75134	0.48837	75.50400	0.00427	0.00187	76.17403
50:1 gas/oil mix	2-stroke	97	5.16683	48.08026	0.57409	0.05774	0.75917	0.49346	76.29050	0.00432	0.00189	76.96751
50:1 gas/oil mix	2-stroke	98	5.22010	48.57593	0.58001	0.05833	0.76699	0.49854	77.07700	0.00436	0.00191	77.76099
50:1 gas/oil mix	2-stroke	99	5.27337	49.07160	0.58593	0.05893	0.77482	0.50363	77.86350	0.00441	0.00193	78.55447
50:1 gas/oil mix	2-stroke	100	5.32663	49.56728	0.59185	0.05953	0.78265	0.50872	78.65000	0.00445	0.00195	79.34795
50:1 gas/oil mix	2-stroke	101	5.37990	50.06295	0.59777	0.06012	0.79047	0.51381	79.43650	0.00449	0.00197	80.14143
50:1 gas/oil mix	2-stroke	102	5.43317	50.55862	0.60369	0.06072	0.79830	0.51889	80.22300	0.00454	0.00199	80.93491
50:1 gas/oil mix	2-stroke	103	5.48643	51.05430	0.60960	0.06131	0.80612	0.52398	81.00950	0.00458	0.00201	81.72839
50:1 gas/oil mix	2-stroke	104	5.53970	51.54997	0.61552	0.06191	0.81395	0.52907	81.79600	0.00463	0.00203	82.52187
50:1 gas/oil mix	2-stroke	105	5.59296	52.04564	0.62144	0.06250	0.82178	0.53416	82.58250	0.00467	0.00205	83.31535
50:1 gas/oil mix	2-stroke	106	5.64623	52.54131	0.62736	0.06310	0.82960	0.53924	83.36900	0.00472	0.00207	84.10883
50:1 gas/oil mix	2-stroke	107	5.69950	53.03699	0.63328	0.06369	0.83743	0.54433	84.15550	0.00476	0.00209	84.90231
50:1 gas/oil mix	2-stroke	108	5.75276	53.53266	0.63920	0.06429	0.84526	0.54942	84.94200	0.00481	0.00211	85.69579
50:1 gas/oil mix	2-stroke	109	5.80603	54.02833	0.64511	0.06488	0.85308	0.55450	85.72850	0.00485	0.00213	86.48927
50:1 gas/oil mix	2-stroke	110	5.85930	54.52401	0.65103	0.06548	0.86091	0.55959	86.51500	0.00490	0.00215	87.28275
50:1 gas/oil mix	2-stroke	111	5.91256	55.01968	0.65695	0.06607	0.86874	0.56468	87.30150	0.00494	0.00216	88.07622
50:1 gas/oil mix	2-stroke	112	5.96583	55.51535	0.66287	0.06667	0.87656	0.56977	88.08800	0.00498	0.00218	88.86970
50:1 gas/oil mix	2-stroke	113	6.01910	56.01102	0.66879	0.06726	0.88439	0.57485	88.87450	0.00503	0.00220	89.66318
50:1 gas/oil mix	2-stroke	114	6.07236	56.50670	0.67471	0.06786	0.89222	0.57994	89.66100	0.00507	0.00222	90.45666
50:1 gas/oil mix	2-stroke	115	6.12563	57.00237	0.68063	0.06845	0.90004	0.58503	90.44750	0.00512	0.00224	91.25014
50:1 gas/oil mix	2-stroke	116	6.17889	57.49804	0.68654	0.06905	0.90787	0.59011	91.23400	0.00516	0.00226	92.04362
50:1 gas/oil mix	2-stroke	117	6.23216	57.99371	0.69246	0.06964	0.91569	0.59520	92.02050	0.00521	0.00228	92.83710
50:1 gas/oil mix	2-stroke	118	6.28543	58.48939	0.69838	0.07024	0.92352	0.60029	92.80700	0.00525	0.00230	93.63058
50:1 gas/oil mix	2-stroke	119	6.33869	58.98506	0.70430	0.07083	0.93135	0.60538	93.59350	0.00530	0.00232	94.42406
50:1 gas/oil mix	2-stroke	120	6.39196	59.48073	0.71022	0.07143	0.93917	0.61046	94.38000	0.00534	0.00234	95.21754
50:1 gas/oil mix	2-stroke	121	6.44523	59.97641	0.71614	0.07203	0.94700	0.61555	95.16650	0.00538	0.00236	96.01102
50:1 gas/oil mix	2-stroke	122	6.49849	60.47208	0.72205	0.07262	0.95483	0.62064	95.95300	0.00543	0.00238	96.80450
50:1 gas/oil mix	2-stroke	123	6.55176	60.96775	0.72797	0.07322	0.96265	0.62572	96.73950	0.00547	0.00240	97.59798
50:1 gas/oil mix	2-stroke	124	6.60502	61.46342	0.73389	0.07381	0.97048	0.63081	97.52600	0.00552	0.00242	98.39146
50:1 gas/oil mix	2-stroke	125	6.65829	61.95910	0.73981	0.07441	0.97831	0.63590	98.31250	0.00556	0.00244	99.18494
50:1 gas/oil mix	2-stroke	126	6.71156	62.45477	0.74573	0.07500	0.98613	0.64099	99.09900	0.00561	0.00246	99.97842
50:1 gas/oil mix	2-stroke	127	6.76482	62.95044	0.75165	0.07560	0.99396	0.64607	99.88550	0.00565	0.00248	100.77190
50:1 gas/oil mix	2-stroke	128	6.81809	63.44612	0.75757	0.07619	1.00179	0.65116	100.67200	0.00570	0.00250	101.56538
50:1 gas/oil mix	2-stroke	129	6.87136	63.94179	0.76348	0.07679	1.00961	0.65625	101.45850	0.00574	0.00252	102.35886
50:1 gas/oil mix	2-stroke	130	6.92462	64.43746	0.76940	0.07738	1.01744	0.66134	102.24500	0.00579	0.00254	103.15234
50:1 gas/oil mix	2-stroke	131	6.97789	64.93313	0.77532	0.07798	1.02527	0.66642	103.03150	0.00583	0.00255	103.94581
50:1 gas/oil mix	2-stroke	132	7.03116	65.42881	0.78124	0.07857	1.03309	0.67151	103.81800	0.00587	0.00257	104.73929
50:1 gas/oil mix	2-stroke	133	7.08442	65.92448	0.78716	0.07917	1.04092	0.67660	104.60450	0.00592	0.00259	105.53277
50:1 gas/oil mix	2-stroke	134	7.13769	66.42015	0.79308	0.07976	1.04874	0.68168	105.39100	0.00596	0.00261	106.32625
50:1 gas/oil mix	2-stroke	135	7.19095	66.91582	0.79899	0.08036	1.05657	0.68677	106.17750	0.00601	0.00263	107.11973
50:1 gas/oil mix	2-stroke	136	7.24422	67.41150	0.80491	0.08095	1.06440	0.69186	106.96400	0.00605	0.00265	107.91321
50:1 gas/oil mix	2-stroke	137	7.29749	67.90717	0.81083	0.08155	1.07222	0.69695	107.75050	0.00610	0.00267	108.70669
50:1 gas/oil mix	2-stroke	138	7.35075	68.40284	0.81675	0.08214	1.08005	0.70203	108.53700	0.00614	0.00269	109.50017
50:1 gas/oil mix	2-stroke	139	7.40402	68.89852	0.82267	0.08274	1.08788	0.70712	109.32350	0.00619	0.00271	110.29365
50:1 gas/oil mix	2-stroke	140	7.45729	69.39419	0.82859	0.08334	1.09570	0.71221	110.11000	0.00623	0.00273	111.08713
50:1 gas/oil mix	2-stroke	141	7.51055	69.88986	0.83451	0.08393	1.10353	0.71729	110.89650	0.00627	0.00275	111.88061
50:1 gas/oil mix	2-stroke	142	7.56382	70.38553	0.84042	0.08453	1.11136	0.72238	111.68300	0.00632	0.00277	112.67409

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
50:1 gas/oil mix	2-stroke	143	7.61708	70.88121	0.84634	0.08512	1.11918	0.72747	112.46950	0.00636	0.00279	113.46757
50:1 gas/oil mix	2-stroke	144	7.67035	71.37688	0.85226	0.08572	1.12701	0.73256	113.25600	0.00641	0.00281	114.26105
50:1 gas/oil mix	2-stroke	145	7.72362	71.87255	0.85818	0.08631	1.13484	0.73764	114.04250	0.00645	0.00283	115.05453
50:1 gas/oil mix	2-stroke	146	7.77688	72.36823	0.86410	0.08691	1.14266	0.74273	114.82900	0.00650	0.00285	115.84801
50:1 gas/oil mix	2-stroke	147	7.83015	72.86390	0.87002	0.08750	1.15049	0.74782	115.61550	0.00654	0.00287	116.64149
50:1 gas/oil mix	2-stroke	148	7.88342	73.35957	0.87594	0.08810	1.15831	0.75290	116.40200	0.00659	0.00289	117.43497
50:1 gas/oil mix	2-stroke	149	7.93668	73.85524	0.88185	0.08869	1.16614	0.75799	117.18850	0.00663	0.00291	118.22845
50:1 gas/oil mix	2-stroke	150	7.98995	74.35092	0.88777	0.08929	1.17397	0.76308	117.97500	0.00668	0.00293	119.02193
50:1 gas/oil mix	2-stroke	151	8.04322	74.84659	0.89369	0.08988	1.18179	0.76817	118.76150	0.00672	0.00294	119.81540
50:1 gas/oil mix	2-stroke	152	8.09648	75.34226	0.89961	0.09048	1.18962	0.77325	119.54800	0.00676	0.00296	120.60888
50:1 gas/oil mix	2-stroke	153	8.14975	75.83793	0.90553	0.09107	1.19745	0.77834	120.33450	0.00681	0.00298	121.40236
50:1 gas/oil mix	2-stroke	154	8.20301	76.33361	0.91145	0.09167	1.20527	0.78343	121.12100	0.00685	0.00300	122.19584
50:1 gas/oil mix	2-stroke	155	8.25628	76.82928	0.91736	0.09226	1.21310	0.78851	121.90750	0.00690	0.00302	122.98932
50:1 gas/oil mix	2-stroke	156	8.30955	77.32495	0.92328	0.09286	1.22093	0.79360	122.69400	0.00694	0.00304	123.78280
50:1 gas/oil mix	2-stroke	157	8.36281	77.82063	0.92920	0.09345	1.22875	0.79869	123.48050	0.00699	0.00306	124.57628
50:1 gas/oil mix	2-stroke	158	8.41608	78.31630	0.93512	0.09405	1.23658	0.80378	124.26700	0.00703	0.00308	125.36976
50:1 gas/oil mix	2-stroke	159	8.46935	78.81197	0.94104	0.09464	1.24441	0.80886	125.05350	0.00708	0.00310	126.16324
50:1 gas/oil mix	2-stroke	160	8.52261	79.30764	0.94696	0.09524	1.25223	0.81395	125.84000	0.00712	0.00312	126.95672
50:1 gas/oil mix	2-stroke	161	8.57588	79.80332	0.95288	0.09584	1.26006	0.81904	126.62650	0.00716	0.00314	127.75020
50:1 gas/oil mix	2-stroke	162	8.62915	80.29899	0.95879	0.09643	1.26789	0.82413	127.41300	0.00721	0.00316	128.54368
50:1 gas/oil mix	2-stroke	163	8.68241	80.79466	0.96471	0.09703	1.27571	0.82921	128.19950	0.00725	0.00318	129.33716
50:1 gas/oil mix	2-stroke	164	8.73568	81.29034	0.97063	0.09762	1.28354	0.83430	128.98600	0.00730	0.00320	130.13064
50:1 gas/oil mix	2-stroke	165	8.78894	81.78601	0.97655	0.09822	1.29136	0.83939	129.77250	0.00734	0.00322	130.92412
50:1 gas/oil mix	2-stroke	166	8.84221	82.28168	0.98247	0.09881	1.29919	0.84447	130.55900	0.00739	0.00324	131.71760
50:1 gas/oil mix	2-stroke	167	8.89548	82.77735	0.98839	0.09941	1.30702	0.84956	131.34550	0.00743	0.00326	132.51108
50:1 gas/oil mix	2-stroke	168	8.94874	83.27303	0.99430	0.10000	1.31484	0.85465	132.13200	0.00748	0.00328	133.30456
50:1 gas/oil mix	2-stroke	169	9.00201	83.76870	1.00022	0.10060	1.32267	0.85974	132.91850	0.00752	0.00330	134.09804
50:1 gas/oil mix	2-stroke	170	9.05528	84.26437	1.00614	0.10119	1.33050	0.86482	133.70500	0.00757	0.00332	134.89152
50:1 gas/oil mix	2-stroke	171	9.10854	84.76004	1.01206	0.10179	1.33832	0.86991	134.49150	0.00761	0.00333	135.68499
50:1 gas/oil mix	2-stroke	172	9.16181	85.25572	1.01798	0.10238	1.34615	0.87500	135.27800	0.00765	0.00335	136.47847
50:1 gas/oil mix	2-stroke	173	9.21507	85.75139	1.02390	0.10298	1.35398	0.88008	136.06450	0.00770	0.00337	137.27195
50:1 gas/oil mix	2-stroke	174	9.26834	86.24706	1.02982	0.10357	1.36180	0.88517	136.85100	0.00774	0.00339	138.06543
50:1 gas/oil mix	2-stroke	175	9.32161	86.74274	1.03573	0.10417	1.36963	0.89026	137.63750	0.00779	0.00341	138.85891
50:1 gas/oil mix	2-stroke	176	9.37487	87.23841	1.04165	0.10476	1.37746	0.89535	138.42400	0.00783	0.00343	139.65239
50:1 gas/oil mix	2-stroke	177	9.42814	87.73408	1.04757	0.10536	1.38528	0.90043	139.21050	0.00788	0.00345	140.44587
50:1 gas/oil mix	2-stroke	178	9.48141	88.22975	1.05349	0.10595	1.39311	0.90552	139.99700	0.00792	0.00347	141.23935
50:1 gas/oil mix	2-stroke	179	9.53467	88.72543	1.05941	0.10655	1.40093	0.91061	140.78350	0.00797	0.00349	142.03283
50:1 gas/oil mix	2-stroke	180	9.58794	89.22110	1.06533	0.10715	1.40876	0.91569	141.57000	0.00801	0.00351	142.82631
50:1 gas/oil mix	2-stroke	181	9.64121	89.71677	1.07125	0.10774	1.41659	0.92078	142.35650	0.00805	0.00353	143.61979
50:1 gas/oil mix	2-stroke	182	9.69447	90.21245	1.07716	0.10834	1.42441	0.92587	143.14300	0.00810	0.00355	144.41327
50:1 gas/oil mix	2-stroke	183	9.74774	90.70812	1.08308	0.10893	1.43224	0.93096	143.92950	0.00814	0.00357	145.20675
50:1 gas/oil mix	2-stroke	184	9.80100	91.20379	1.08900	0.10953	1.44007	0.93604	144.71600	0.00819	0.00359	146.00023
50:1 gas/oil mix	2-stroke	185	9.85427	91.69946	1.09492	0.11012	1.44789	0.94113	145.50250	0.00823	0.00361	146.79371
50:1 gas/oil mix	2-stroke	186	9.90754	92.19514	1.10084	0.11072	1.45572	0.94622	146.28900	0.00828	0.00363	147.58719
50:1 gas/oil mix	2-stroke	187	9.96080	92.69081	1.10676	0.11131	1.46355	0.95131	147.07550	0.00832	0.00365	148.38067
50:1 gas/oil mix	2-stroke	188	10.01407	93.18648	1.11267	0.11191	1.47137	0.95639	147.86200	0.00837	0.00367	149.17415
50:1 gas/oil mix	2-stroke	189	10.06734	93.68215	1.11859	0.11250	1.47920	0.96148	148.64850	0.00841	0.00369	149.96763
50:1 gas/oil mix	2-stroke	190	10.12060	94.17783	1.12451	0.11310	1.48703	0.96657	149.43500	0.00846	0.00371	150.76111
50:1 gas/oil mix	2-stroke	191	10.17387	94.67350	1.13043	0.11369	1.49485	0.97165	150.22150	0.00850	0.00372	151.55458
50:1 gas/oil mix	2-stroke	192	10.22714	95.16917	1.13635	0.11429	1.50268	0.97674	151.00800	0.00854	0.00374	152.34806
50:1 gas/oil mix	2-stroke	193	10.28040	95.66485	1.14227	0.11488	1.51051	0.98183	151.79450	0.00859	0.00376	153.14154
50:1 gas/oil mix	2-stroke	194	10.33367	96.16052	1.14819	0.11548	1.51833	0.98692	152.58100	0.00863	0.00378	153.93502
50:1 gas/oil mix	2-stroke	195	10.38693	96.65619	1.15410	0.11607	1.52616	0.99200	153.36750	0.00868	0.00380	154.72850
50:1 gas/oil mix	2-stroke	196	10.44020	97.15186	1.16002	0.11667	1.53398	0.99709	154.15400	0.00872	0.00382	155.52198
50:1 gas/oil mix	2-stroke	197	10.49347	97.64754	1.16594	0.11726	1.54181	1.00218	154.94050	0.00877	0.00384	156.31546
50:1 gas/oil mix	2-stroke	198	10.54673	98.14321	1.17186	0.11786	1.54964	1.00726	155.72700	0.00881	0.00386	157.10894
50:1 gas/oil mix	2-stroke	199	10.60000	98.63888	1.17778	0.11845	1.55746	1.01235	156.51350	0.00886	0.00388	157.90242
50:1 gas/oil mix	2-stroke	200	10.65327	99.13456	1.18370	0.11905	1.56529	1.01744	157.30000	0.00890	0.00390	158.69590
Methane	**Methane**	**10**	**0.07938**	**0.03342**	**0.05082**	**0.00004**	**0.00060**	**0.00039**	**6.99600**	**0.00014**	**0.00001**	**7.00262**
CNG	Methane	11	0.08732	0.03676	0.05590	0.00004	0.00066	0.00043	7.69560	0.00015	0.00001	7.70288
CNG	Methane	12	0.09526	0.04010	0.06098	0.00004	0.00072	0.00047	8.39520	0.00017	0.00001	8.40314
CNG	Methane	13	0.10319	0.04345	0.06607	0.00005	0.00078	0.00051	9.09480	0.00018	0.00002	9.10340
CNG	Methane	14	0.11113	0.04679	0.07115	0.00005	0.00084	0.00055	9.79440	0.00019	0.00002	9.80367
CNG	Methane	15	0.11907	0.05013	0.07623	0.00005	0.00090	0.00059	10.49400	0.00021	0.00002	10.50393
CNG	Methane	16	0.12701	0.05347	0.08131	0.00006	0.00096	0.00062	11.19360	0.00022	0.00002	11.20419
CNG	Methane	17	0.13495	0.05681	0.08639	0.00006	0.00102	0.00066	11.89320	0.00023	0.00002	11.90445
CNG	Methane	18	0.14288	0.06016	0.09148	0.00006	0.00108	0.00070	12.59280	0.00025	0.00002	12.60471
CNG	Methane	19	0.15082	0.06350	0.09656	0.00007	0.00114	0.00074	13.29240	0.00026	0.00002	13.30497
CNG	Methane	20	0.15876	0.06684	0.10164	0.00007	0.00120	0.00078	13.99200	0.00028	0.00002	14.00524
CNG	Methane	21	0.16670	0.07018	0.10672	0.00008	0.00126	0.00082	14.69160	0.00029	0.00003	14.70550
CNG	Methane	22	0.17464	0.07352	0.11180	0.00008	0.00132	0.00086	15.39120	0.00030	0.00003	15.40576
CNG	Methane	23	0.18257	0.07687	0.11689	0.00008	0.00138	0.00090	16.09080	0.00032	0.00003	16.10602
CNG	Methane	24	0.19051	0.08021	0.12197	0.00009	0.00144	0.00094	16.79040	0.00033	0.00003	16.80628
CNG	Methane	25	0.19845	0.08355	0.12705	0.00009	0.00150	0.00098	17.49000	0.00035	0.00003	17.50655
CNG	Methane	26	0.20639	0.08689	0.13213	0.00009	0.00156	0.00101	18.18960	0.00036	0.00003	18.20681
CNG	Methane	27	0.21433	0.09023	0.13721	0.00010	0.00162	0.00105	18.88920	0.00037	0.00003	18.90707
CNG	Methane	28	0.22226	0.09358	0.14230	0.00010	0.00168	0.00109	19.58880	0.00039	0.00003	19.60733
CNG	Methane	29	0.23020	0.09692	0.14738	0.00010	0.00174	0.00113	20.28840	0.00040	0.00003	20.30759

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
CNG	Methane	30	0.23814	0.10026	0.15246	0.00011	0.00180	0.00117	20.98800	0.00041	0.00004	21.00785
CNG	Methane	31	0.24608	0.10360	0.15754	0.00011	0.00186	0.00121	21.68760	0.00043	0.00004	21.70812
CNG	Methane	32	0.25402	0.10694	0.16262	0.00012	0.00192	0.00125	22.38720	0.00044	0.00004	22.40838
CNG	Methane	33	0.26195	0.11029	0.16771	0.00012	0.00198	0.00129	23.08680	0.00046	0.00004	23.10864
CNG	Methane	34	0.26989	0.11363	0.17279	0.00012	0.00204	0.00133	23.78640	0.00047	0.00004	23.80890
CNG	Methane	35	0.27783	0.11697	0.17787	0.00013	0.00210	0.00137	24.48600	0.00048	0.00004	24.50916
CNG	Methane	36	0.28577	0.12031	0.18295	0.00013	0.00216	0.00140	25.18560	0.00050	0.00004	25.20942
CNG	Methane	37	0.29371	0.12365	0.18803	0.00013	0.00222	0.00144	25.88520	0.00051	0.00004	25.90969
CNG	Methane	38	0.30164	0.12700	0.19312	0.00014	0.00228	0.00148	26.58480	0.00052	0.00005	26.60995
CNG	Methane	39	0.30958	0.13034	0.19820	0.00014	0.00234	0.00152	27.28440	0.00054	0.00005	27.31021
CNG	Methane	40	0.31752	0.13368	0.20328	0.00014	0.00240	0.00156	27.98400	0.00055	0.00005	28.01047
CNG	Methane	41	0.32546	0.13702	0.20836	0.00015	0.00246	0.00160	28.68360	0.00057	0.00005	28.71073
CNG	Methane	42	0.33340	0.14036	0.21344	0.00015	0.00252	0.00164	29.38320	0.00058	0.00005	29.41100
CNG	Methane	43	0.34133	0.14371	0.21853	0.00015	0.00258	0.00168	30.08280	0.00059	0.00005	30.11126
CNG	Methane	44	0.34927	0.14705	0.22361	0.00016	0.00264	0.00172	30.78240	0.00061	0.00005	30.81152
CNG	Methane	45	0.35721	0.15039	0.22869	0.00016	0.00270	0.00176	31.48200	0.00062	0.00005	31.51178
CNG	Methane	46	0.36515	0.15373	0.23377	0.00017	0.00276	0.00179	32.18160	0.00063	0.00006	32.21204
CNG	Methane	47	0.37309	0.15707	0.23885	0.00017	0.00282	0.00183	32.88120	0.00065	0.00006	32.91230
CNG	Methane	48	0.38102	0.16042	0.24394	0.00017	0.00288	0.00187	33.58080	0.00066	0.00006	33.61257
CNG	Methane	49	0.38896	0.16376	0.24902	0.00018	0.00294	0.00191	34.28040	0.00068	0.00006	34.31283
CNG	Methane	50	0.39690	0.16710	0.25410	0.00018	0.00300	0.00195	34.98000	0.00069	0.00006	35.01309
CNG	Methane	51	0.40484	0.17044	0.25918	0.00018	0.00306	0.00199	35.67960	0.00070	0.00006	35.71335
CNG	Methane	52	0.41278	0.17378	0.26426	0.00019	0.00312	0.00203	36.37920	0.00072	0.00006	36.41361
CNG	Methane	53	0.42071	0.17713	0.26935	0.00019	0.00318	0.00207	37.07880	0.00073	0.00006	37.11388
CNG	Methane	54	0.42865	0.18047	0.27443	0.00019	0.00324	0.00211	37.77840	0.00075	0.00006	37.81414
CNG	Methane	55	0.43659	0.18381	0.27951	0.00020	0.00330	0.00215	38.47800	0.00076	0.00007	38.51440
CNG	Methane	56	0.44453	0.18715	0.28459	0.00020	0.00336	0.00218	39.17760	0.00077	0.00007	39.21466
CNG	Methane	57	0.45247	0.19049	0.28967	0.00021	0.00342	0.00222	39.87720	0.00079	0.00007	39.91492
CNG	Methane	58	0.46040	0.19384	0.29476	0.00021	0.00348	0.00226	40.57680	0.00080	0.00007	40.61518
CNG	Methane	59	0.46834	0.19718	0.29984	0.00021	0.00354	0.00230	41.27640	0.00081	0.00007	41.31545
CNG	Methane	60	0.47628	0.20052	0.30492	0.00022	0.00360	0.00234	41.97600	0.00083	0.00007	42.01571
CNG	Methane	61	0.48422	0.20386	0.31000	0.00022	0.00366	0.00238	42.67560	0.00084	0.00007	42.71597
CNG	Methane	62	0.49216	0.20720	0.31508	0.00022	0.00372	0.00242	43.37520	0.00086	0.00007	43.41623
CNG	Methane	63	0.50009	0.21055	0.32017	0.00023	0.00378	0.00246	44.07480	0.00087	0.00008	44.11649
CNG	Methane	64	0.50803	0.21389	0.32525	0.00023	0.00384	0.00250	44.77440	0.00088	0.00008	44.81676
CNG	Methane	65	0.51597	0.21723	0.33033	0.00023	0.00390	0.00254	45.47400	0.00090	0.00008	45.51702
CNG	Methane	66	0.52391	0.22057	0.33541	0.00024	0.00396	0.00257	46.17360	0.00091	0.00008	46.21728
CNG	Methane	67	0.53185	0.22391	0.34049	0.00024	0.00402	0.00261	46.87320	0.00092	0.00008	46.91754
CNG	Methane	68	0.53978	0.22726	0.34558	0.00024	0.00408	0.00265	47.57280	0.00094	0.00008	47.61780
CNG	Methane	69	0.54772	0.23060	0.35066	0.00025	0.00414	0.00269	48.27240	0.00095	0.00008	48.31806
CNG	Methane	70	0.55566	0.23394	0.35574	0.00025	0.00420	0.00273	48.97200	0.00097	0.00008	49.01833
CNG	Methane	71	0.56360	0.23728	0.36082	0.00026	0.00426	0.00277	49.67160	0.00098	0.00009	49.71859
CNG	Methane	72	0.57154	0.24062	0.36590	0.00026	0.00432	0.00281	50.37120	0.00099	0.00009	50.41885
CNG	Methane	73	0.57947	0.24397	0.37099	0.00026	0.00438	0.00285	51.07080	0.00101	0.00009	51.11911
CNG	Methane	74	0.58741	0.24731	0.37607	0.00027	0.00444	0.00289	51.77040	0.00102	0.00009	51.81937
CNG	Methane	75	0.59535	0.25065	0.38115	0.00027	0.00450	0.00293	52.47000	0.00104	0.00009	52.51964
CNG	Methane	76	0.60329	0.25399	0.38623	0.00027	0.00456	0.00296	53.16960	0.00105	0.00009	53.21990
CNG	Methane	77	0.61123	0.25733	0.39131	0.00028	0.00462	0.00300	53.86920	0.00106	0.00009	53.92016
CNG	Methane	78	0.61916	0.26068	0.39640	0.00028	0.00468	0.00304	54.56880	0.00108	0.00009	54.62042
CNG	Methane	79	0.62710	0.26402	0.40148	0.00028	0.00474	0.00308	55.26840	0.00109	0.00009	55.32068
CNG	Methane	80	0.63504	0.26736	0.40656	0.00029	0.00480	0.00312	55.96800	0.00110	0.00010	56.02094
CNG	Methane	81	0.64298	0.27070	0.41164	0.00029	0.00486	0.00316	56.66760	0.00112	0.00010	56.72121
CNG	Methane	82	0.65092	0.27404	0.41672	0.00030	0.00492	0.00320	57.36720	0.00113	0.00010	57.42147
CNG	Methane	83	0.65885	0.27739	0.42181	0.00030	0.00498	0.00324	58.06680	0.00115	0.00010	58.12173
CNG	Methane	84	0.66679	0.28073	0.42689	0.00030	0.00504	0.00328	58.76640	0.00116	0.00010	58.82199
CNG	Methane	85	0.67473	0.28407	0.43197	0.00031	0.00510	0.00332	59.46600	0.00117	0.00010	59.52225
CNG	Methane	86	0.68267	0.28741	0.43705	0.00031	0.00516	0.00335	60.16560	0.00119	0.00010	60.22251
CNG	Methane	87	0.69061	0.29075	0.44213	0.00031	0.00522	0.00339	60.86520	0.00120	0.00010	60.92278
CNG	Methane	88	0.69854	0.29410	0.44722	0.00032	0.00528	0.00343	61.56480	0.00121	0.00011	61.62304
CNG	Methane	89	0.70648	0.29744	0.45230	0.00032	0.00534	0.00347	62.26440	0.00123	0.00011	62.32330
CNG	Methane	90	0.71442	0.30078	0.45738	0.00032	0.00540	0.00351	62.96400	0.00124	0.00011	63.02356
CNG	Methane	91	0.72236	0.30412	0.46246	0.00033	0.00546	0.00355	63.66360	0.00126	0.00011	63.72382
CNG	Methane	92	0.73030	0.30746	0.46754	0.00033	0.00552	0.00359	64.36320	0.00127	0.00011	64.42409
CNG	Methane	93	0.73823	0.31081	0.47263	0.00033	0.00558	0.00363	65.06280	0.00128	0.00011	65.12435
CNG	Methane	94	0.74617	0.31415	0.47771	0.00034	0.00564	0.00367	65.76240	0.00130	0.00011	65.82461
CNG	Methane	95	0.75411	0.31749	0.48279	0.00034	0.00570	0.00371	66.46200	0.00131	0.00011	66.52487
CNG	Methane	96	0.76205	0.32083	0.48787	0.00035	0.00576	0.00374	67.16160	0.00132	0.00012	67.22513
CNG	Methane	97	0.76999	0.32417	0.49295	0.00035	0.00582	0.00378	67.86120	0.00134	0.00012	67.92539
CNG	Methane	98	0.77792	0.32752	0.49804	0.00035	0.00588	0.00382	68.56080	0.00135	0.00012	68.62566
CNG	Methane	99	0.78586	0.33086	0.50312	0.00036	0.00594	0.00386	69.26040	0.00137	0.00012	69.32592
CNG	Methane	100	0.79380	0.33420	0.50820	0.00036	0.00600	0.00390	69.96000	0.00138	0.00012	70.02618
CNG	Methane	101	0.80174	0.33754	0.51328	0.00036	0.00606	0.00394	70.65960	0.00139	0.00012	70.72644
CNG	Methane	102	0.80968	0.34088	0.51836	0.00037	0.00612	0.00398	71.35920	0.00141	0.00012	71.42670
CNG	Methane	103	0.81761	0.34423	0.52345	0.00037	0.00618	0.00402	72.05880	0.00142	0.00012	72.12697
CNG	Methane	104	0.82555	0.34757	0.52853	0.00037	0.00624	0.00406	72.75840	0.00144	0.00012	72.82723
CNG	Methane	105	0.83349	0.35091	0.53361	0.00038	0.00630	0.00410	73.45800	0.00145	0.00013	73.52749
CNG	Methane	106	0.84143	0.35425	0.53869	0.00038	0.00636	0.00413	74.15760	0.00146	0.00013	74.22775
CNG	Methane	107	0.84937	0.35759	0.54377	0.00039	0.00642	0.00417	74.85720	0.00148	0.00013	74.92801

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
CNG	Methane	108	0.85730	0.36094	0.54886	0.00039	0.00648	0.00421	75.55680	0.00149	0.00013	75.62827
CNG	Methane	109	0.86524	0.36428	0.55394	0.00039	0.00654	0.00425	76.25640	0.00150	0.00013	76.32854
CNG	Methane	110	0.87318	0.36762	0.55902	0.00040	0.00660	0.00429	76.95600	0.00152	0.00013	77.02880
CNG	Methane	111	0.88112	0.37096	0.56410	0.00040	0.00666	0.00433	77.65560	0.00153	0.00013	77.72906
CNG	Methane	112	0.88906	0.37430	0.56918	0.00040	0.00672	0.00437	78.35520	0.00155	0.00013	78.42932
CNG	Methane	113	0.89699	0.37765	0.57427	0.00041	0.00678	0.00441	79.05480	0.00156	0.00014	79.12958
CNG	Methane	114	0.90493	0.38099	0.57935	0.00041	0.00684	0.00445	79.75440	0.00157	0.00014	79.82985
CNG	Methane	115	0.91287	0.38433	0.58443	0.00041	0.00690	0.00449	80.45400	0.00159	0.00014	80.53011
CNG	Methane	116	0.92081	0.38767	0.58951	0.00042	0.00696	0.00452	81.15360	0.00160	0.00014	81.23037
CNG	Methane	117	0.92875	0.39101	0.59459	0.00042	0.00702	0.00456	81.85320	0.00161	0.00014	81.93063
CNG	Methane	118	0.93668	0.39436	0.59968	0.00042	0.00708	0.00460	82.55280	0.00163	0.00014	82.63089
CNG	Methane	119	0.94462	0.39770	0.60476	0.00043	0.00714	0.00464	83.25240	0.00164	0.00014	83.33115
CNG	Methane	120	0.95256	0.40104	0.60984	0.00043	0.00720	0.00468	83.95200	0.00166	0.00014	84.03142
CNG	Methane	121	0.96050	0.40438	0.61492	0.00044	0.00726	0.00472	84.65160	0.00167	0.00015	84.73168
CNG	Methane	122	0.96844	0.40772	0.62000	0.00044	0.00732	0.00476	85.35120	0.00168	0.00015	85.43194
CNG	Methane	123	0.97637	0.41107	0.62509	0.00044	0.00738	0.00480	86.05080	0.00170	0.00015	86.13220
CNG	Methane	124	0.98431	0.41441	0.63017	0.00045	0.00744	0.00484	86.75040	0.00171	0.00015	86.83246
CNG	Methane	125	0.99225	0.41775	0.63525	0.00045	0.00750	0.00488	87.45000	0.00173	0.00015	87.53273
CNG	Methane	126	1.00019	0.42109	0.64033	0.00045	0.00756	0.00491	88.14960	0.00174	0.00015	88.23299
CNG	Methane	127	1.00813	0.42443	0.64541	0.00046	0.00762	0.00495	88.84920	0.00175	0.00015	88.93325
CNG	Methane	128	1.01606	0.42778	0.65050	0.00046	0.00768	0.00499	89.54880	0.00177	0.00015	89.63351
CNG	Methane	129	1.02400	0.43112	0.65558	0.00046	0.00774	0.00503	90.24840	0.00178	0.00015	90.33377
CNG	Methane	130	1.03194	0.43446	0.66066	0.00047	0.00780	0.00507	90.94800	0.00179	0.00016	91.03403
CNG	Methane	131	1.03988	0.43780	0.66574	0.00047	0.00786	0.00511	91.64760	0.00181	0.00016	91.73430
CNG	Methane	132	1.04782	0.44114	0.67082	0.00048	0.00792	0.00515	92.34720	0.00182	0.00016	92.43456
CNG	Methane	133	1.05575	0.44449	0.67591	0.00048	0.00798	0.00519	93.04680	0.00184	0.00016	93.13482
CNG	Methane	134	1.06369	0.44783	0.68099	0.00048	0.00804	0.00523	93.74640	0.00185	0.00016	93.83508
CNG	Methane	135	1.07163	0.45117	0.68607	0.00049	0.00810	0.00527	94.44600	0.00186	0.00016	94.53534
CNG	Methane	136	1.07957	0.45451	0.69115	0.00049	0.00816	0.00530	95.14560	0.00188	0.00016	95.23560
CNG	Methane	137	1.08751	0.45785	0.69623	0.00049	0.00822	0.00534	95.84520	0.00189	0.00016	95.93587
CNG	Methane	138	1.09544	0.46120	0.70132	0.00050	0.00828	0.00538	96.54480	0.00190	0.00017	96.63613
CNG	Methane	139	1.10338	0.46454	0.70640	0.00050	0.00834	0.00542	97.24440	0.00192	0.00017	97.33639
CNG	Methane	140	1.11132	0.46788	0.71148	0.00050	0.00840	0.00546	97.94400	0.00193	0.00017	98.03665
CNG	Methane	141	1.11926	0.47122	0.71656	0.00051	0.00846	0.00550	98.64360	0.00195	0.00017	98.73691
CNG	Methane	142	1.12720	0.47456	0.72164	0.00051	0.00852	0.00554	99.34320	0.00196	0.00017	99.43718
CNG	Methane	143	1.13513	0.47791	0.72673	0.00051	0.00858	0.00558	100.04280	0.00197	0.00017	100.13744
CNG	Methane	144	1.14307	0.48125	0.73181	0.00052	0.00864	0.00562	100.74240	0.00199	0.00017	100.83770
CNG	Methane	145	1.15101	0.48459	0.73689	0.00052	0.00870	0.00566	101.44200	0.00200	0.00017	101.53796
CNG	Methane	146	1.15895	0.48793	0.74197	0.00053	0.00876	0.00569	102.14160	0.00201	0.00018	102.23822
CNG	Methane	147	1.16689	0.49127	0.74705	0.00053	0.00882	0.00573	102.84120	0.00203	0.00018	102.93848
CNG	Methane	148	1.17482	0.49462	0.75214	0.00053	0.00888	0.00577	103.54080	0.00204	0.00018	103.63875
CNG	Methane	149	1.18276	0.49796	0.75722	0.00054	0.00894	0.00581	104.24040	0.00206	0.00018	104.33901
CNG	Methane	150	1.19070	0.50130	0.76230	0.00054	0.00900	0.00585	104.94000	0.00207	0.00018	105.03927
CNG	Methane	151	1.19864	0.50464	0.76738	0.00054	0.00906	0.00589	105.63960	0.00208	0.00018	105.73953
CNG	Methane	152	1.20658	0.50798	0.77246	0.00055	0.00912	0.00593	106.33920	0.00210	0.00018	106.43979
CNG	Methane	153	1.21451	0.51133	0.77755	0.00055	0.00918	0.00597	107.03880	0.00211	0.00018	107.14006
CNG	Methane	154	1.22245	0.51467	0.78263	0.00055	0.00924	0.00601	107.73840	0.00213	0.00018	107.84032
CNG	Methane	155	1.23039	0.51801	0.78771	0.00056	0.00930	0.00605	108.43800	0.00214	0.00019	108.54058
CNG	Methane	156	1.23833	0.52135	0.79279	0.00056	0.00936	0.00608	109.13760	0.00215	0.00019	109.24084
CNG	Methane	157	1.24627	0.52469	0.79787	0.00057	0.00942	0.00612	109.83720	0.00217	0.00019	109.94110
CNG	Methane	158	1.25420	0.52804	0.80296	0.00057	0.00948	0.00616	110.53680	0.00218	0.00019	110.64136
CNG	Methane	159	1.26214	0.53138	0.80804	0.00057	0.00954	0.00620	111.23640	0.00219	0.00019	111.34163
CNG	Methane	160	1.27008	0.53472	0.81312	0.00058	0.00960	0.00624	111.93600	0.00221	0.00019	112.04189
CNG	Methane	161	1.27802	0.53806	0.81820	0.00058	0.00966	0.00628	112.63560	0.00222	0.00019	112.74215
CNG	Methane	162	1.28596	0.54140	0.82328	0.00058	0.00972	0.00632	113.33520	0.00224	0.00019	113.44241
CNG	Methane	163	1.29389	0.54475	0.82837	0.00059	0.00978	0.00636	114.03480	0.00225	0.00020	114.14267
CNG	Methane	164	1.30183	0.54809	0.83345	0.00059	0.00984	0.00640	114.73440	0.00226	0.00020	114.84294
CNG	Methane	165	1.30977	0.55143	0.83853	0.00059	0.00990	0.00644	115.43400	0.00228	0.00020	115.54320
CNG	Methane	166	1.31771	0.55477	0.84361	0.00060	0.00996	0.00647	116.13360	0.00229	0.00020	116.24346
CNG	Methane	167	1.32565	0.55811	0.84869	0.00060	0.01002	0.00651	116.83320	0.00230	0.00020	116.94372
CNG	Methane	168	1.33358	0.56146	0.85378	0.00060	0.01008	0.00655	117.53280	0.00232	0.00020	117.64398
CNG	Methane	169	1.34152	0.56480	0.85886	0.00061	0.01014	0.00659	118.23240	0.00233	0.00020	118.34424
CNG	Methane	170	1.34946	0.56814	0.86394	0.00061	0.01020	0.00663	118.93200	0.00235	0.00020	119.04451
CNG	Methane	171	1.35740	0.57148	0.86902	0.00062	0.01026	0.00667	119.63160	0.00236	0.00021	119.74477
CNG	Methane	172	1.36534	0.57482	0.87410	0.00062	0.01032	0.00671	120.33120	0.00237	0.00021	120.44503
CNG	Methane	173	1.37327	0.57817	0.87919	0.00062	0.01038	0.00675	121.03080	0.00239	0.00021	121.14529
CNG	Methane	174	1.38121	0.58151	0.88427	0.00063	0.01044	0.00679	121.73040	0.00240	0.00021	121.84555
CNG	Methane	175	1.38915	0.58485	0.88935	0.00063	0.01050	0.00683	122.43000	0.00242	0.00021	122.54582
CNG	Methane	176	1.39709	0.58819	0.89443	0.00063	0.01056	0.00686	123.12960	0.00243	0.00021	123.24608
CNG	Methane	177	1.40503	0.59153	0.89951	0.00064	0.01062	0.00690	123.82920	0.00244	0.00021	123.94634
CNG	Methane	178	1.41296	0.59488	0.90460	0.00064	0.01068	0.00694	124.52880	0.00246	0.00021	124.64660
CNG	Methane	179	1.42090	0.59822	0.90968	0.00064	0.01074	0.00698	125.22840	0.00247	0.00021	125.34686
CNG	Methane	180	1.42884	0.60156	0.91476	0.00065	0.01080	0.00702	125.92800	0.00248	0.00022	126.04712
CNG	Methane	181	1.43678	0.60490	0.91984	0.00065	0.01086	0.00706	126.62760	0.00250	0.00022	126.74739
CNG	Methane	182	1.44472	0.60824	0.92492	0.00066	0.01092	0.00710	127.32720	0.00251	0.00022	127.44765
CNG	Methane	183	1.45265	0.61159	0.93001	0.00066	0.01098	0.00714	128.02680	0.00253	0.00022	128.14791
CNG	Methane	184	1.46059	0.61493	0.93509	0.00066	0.01104	0.00718	128.72640	0.00254	0.00022	128.84817
CNG	Methane	185	1.46853	0.61827	0.94017	0.00067	0.01110	0.00722	129.42600	0.00255	0.00022	129.54843

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
CNG	Methane	186	1.47647	0.62161	0.94525	0.00067	0.01116	0.00725	130.12560	0.00257	0.00022	130.24869
CNG	Methane	187	1.48441	0.62495	0.95033	0.00067	0.01122	0.00729	130.82520	0.00258	0.00022	130.94896
CNG	Methane	188	1.49234	0.62830	0.95542	0.00068	0.01128	0.00733	131.52480	0.00259	0.00023	131.64922
CNG	Methane	189	1.50028	0.63164	0.96050	0.00068	0.01134	0.00737	132.22440	0.00261	0.00023	132.34948
CNG	Methane	190	1.50822	0.63498	0.96558	0.00068	0.01140	0.00741	132.92400	0.00262	0.00023	133.04974
CNG	Methane	191	1.51616	0.63832	0.97066	0.00069	0.01146	0.00745	133.62360	0.00264	0.00023	133.75000
CNG	Methane	192	1.52410	0.64166	0.97574	0.00069	0.01152	0.00749	134.32320	0.00265	0.00023	134.45027
CNG	Methane	193	1.53203	0.64501	0.98083	0.00069	0.01158	0.00753	135.02280	0.00266	0.00023	135.15053
CNG	Methane	194	1.53997	0.64835	0.98591	0.00070	0.01164	0.00757	135.72240	0.00268	0.00023	135.85079
CNG	Methane	195	1.54791	0.65169	0.99099	0.00070	0.01170	0.00761	136.42200	0.00269	0.00023	136.55105
CNG	Methane	196	1.55585	0.65503	0.99607	0.00071	0.01176	0.00764	137.12160	0.00270	0.00024	137.25131
CNG	Methane	197	1.56379	0.65837	1.00115	0.00071	0.01182	0.00768	137.82120	0.00272	0.00024	137.95157
CNG	Methane	198	1.57172	0.66172	1.00624	0.00071	0.01188	0.00772	138.52080	0.00273	0.00024	138.65184
CNG	Methane	199	1.57966	0.66506	1.01132	0.00072	0.01194	0.00776	139.22040	0.00275	0.00024	139.35210
CNG	Methane	200	1.58760	0.66840	1.01640	0.00072	0.01200	0.00780	139.92000	0.00276	0.00024	140.05236
LPG	Propane	10	0.07938	0.03342	0.05082	0.00004	0.00060	0.00039	8.23200	0.00001	0.00002	8.23771
LPG	Propane	11	0.08732	0.03676	0.05590	0.00004	0.00066	0.00043	9.05520	0.00001	0.00002	9.06148
LPG	Propane	12	0.09526	0.04010	0.06098	0.00004	0.00072	0.00047	9.87840	0.00001	0.00002	9.88525
LPG	Propane	13	0.10319	0.04345	0.06607	0.00005	0.00078	0.00051	10.70160	0.00001	0.00002	10.70902
LPG	Propane	14	0.11113	0.04679	0.07115	0.00005	0.00084	0.00055	11.52480	0.00001	0.00003	11.53279
LPG	Propane	15	0.11907	0.05013	0.07623	0.00005	0.00090	0.00059	12.34800	0.00001	0.00003	12.35656
LPG	Propane	16	0.12701	0.05347	0.08131	0.00006	0.00096	0.00062	13.17120	0.00001	0.00003	13.18033
LPG	Propane	17	0.13495	0.05681	0.08639	0.00006	0.00102	0.00066	13.99440	0.00001	0.00003	14.00410
LPG	Propane	18	0.14288	0.06016	0.09148	0.00006	0.00108	0.00070	14.81760	0.00001	0.00003	14.82787
LPG	Propane	19	0.15082	0.06350	0.09656	0.00007	0.00114	0.00074	15.64080	0.00001	0.00003	15.65164
LPG	Propane	20	0.15876	0.06684	0.10164	0.00007	0.00120	0.00078	16.46400	0.00001	0.00004	16.47541
LPG	Propane	21	0.16670	0.07018	0.10672	0.00008	0.00126	0.00082	17.28720	0.00001	0.00004	17.29918
LPG	Propane	22	0.17464	0.07352	0.11180	0.00008	0.00132	0.00086	18.11040	0.00001	0.00004	18.12295
LPG	Propane	23	0.18257	0.07687	0.11689	0.00008	0.00138	0.00090	18.93360	0.00001	0.00004	18.94672
LPG	Propane	24	0.19051	0.08021	0.12197	0.00009	0.00144	0.00094	19.75680	0.00001	0.00004	19.77049
LPG	Propane	25	0.19845	0.08355	0.12705	0.00009	0.00150	0.00098	20.58000	0.00002	0.00005	20.59427
LPG	Propane	26	0.20639	0.08689	0.13213	0.00009	0.00156	0.00101	21.40320	0.00002	0.00005	21.41804
LPG	Propane	27	0.21433	0.09023	0.13721	0.00010	0.00162	0.00105	22.22640	0.00002	0.00005	22.24181
LPG	Propane	28	0.22226	0.09358	0.14230	0.00010	0.00168	0.00109	23.04960	0.00002	0.00005	23.06558
LPG	Propane	29	0.23020	0.09692	0.14738	0.00010	0.00174	0.00113	23.87280	0.00002	0.00005	23.88935
LPG	Propane	30	0.23814	0.10026	0.15246	0.00011	0.00180	0.00117	24.69600	0.00002	0.00005	24.71312
LPG	Propane	31	0.24608	0.10360	0.15754	0.00011	0.00186	0.00121	25.51920	0.00002	0.00006	25.53689
LPG	Propane	32	0.25402	0.10694	0.16262	0.00012	0.00192	0.00125	26.34240	0.00002	0.00006	26.36066
LPG	Propane	33	0.26195	0.11029	0.16771	0.00012	0.00198	0.00129	27.16560	0.00002	0.00006	27.18443
LPG	Propane	34	0.26989	0.11363	0.17279	0.00012	0.00204	0.00133	27.98880	0.00002	0.00006	28.00820
LPG	Propane	35	0.27783	0.11697	0.17787	0.00013	0.00210	0.00137	28.81200	0.00002	0.00006	28.83197
LPG	Propane	36	0.28577	0.12031	0.18295	0.00013	0.00216	0.00140	29.63520	0.00002	0.00006	29.65574
LPG	Propane	37	0.29371	0.12365	0.18803	0.00013	0.00222	0.00144	30.45840	0.00002	0.00007	30.47951
LPG	Propane	38	0.30164	0.12700	0.19312	0.00014	0.00228	0.00148	31.28160	0.00002	0.00007	31.30328
LPG	Propane	39	0.30958	0.13034	0.19820	0.00014	0.00234	0.00152	32.10480	0.00002	0.00007	32.12705
LPG	Propane	40	0.31752	0.13368	0.20328	0.00014	0.00240	0.00156	32.92800	0.00002	0.00007	32.95082
LPG	Propane	41	0.32546	0.13702	0.20836	0.00015	0.00246	0.00160	33.75120	0.00002	0.00007	33.77459
LPG	Propane	42	0.33340	0.14036	0.21344	0.00015	0.00252	0.00164	34.57440	0.00003	0.00008	34.59837
LPG	Propane	43	0.34133	0.14371	0.21853	0.00015	0.00258	0.00168	35.39760	0.00003	0.00008	35.42214
LPG	Propane	44	0.34927	0.14705	0.22361	0.00016	0.00264	0.00172	36.22080	0.00003	0.00008	36.24591
LPG	Propane	45	0.35721	0.15039	0.22869	0.00016	0.00270	0.00176	37.04400	0.00003	0.00008	37.06968
LPG	Propane	46	0.36515	0.15373	0.23377	0.00017	0.00276	0.00179	37.86720	0.00003	0.00008	37.89345
LPG	Propane	47	0.37309	0.15707	0.23885	0.00017	0.00282	0.00183	38.69040	0.00003	0.00008	38.71722
LPG	Propane	48	0.38102	0.16042	0.24394	0.00017	0.00288	0.00187	39.51360	0.00003	0.00009	39.54099
LPG	Propane	49	0.38896	0.16376	0.24902	0.00018	0.00294	0.00191	40.33680	0.00003	0.00009	40.36476
LPG	Propane	50	0.39690	0.16710	0.25410	0.00018	0.00300	0.00195	41.16000	0.00003	0.00009	41.18853
LPG	Propane	51	0.40484	0.17044	0.25918	0.00018	0.00306	0.00199	41.98320	0.00003	0.00009	42.01230
LPG	Propane	52	0.41278	0.17378	0.26426	0.00019	0.00312	0.00203	42.80640	0.00003	0.00009	42.83607
LPG	Propane	53	0.42071	0.17713	0.26935	0.00019	0.00318	0.00207	43.62960	0.00003	0.00010	43.65984
LPG	Propane	54	0.42865	0.18047	0.27443	0.00019	0.00324	0.00211	44.45280	0.00003	0.00010	44.48361
LPG	Propane	55	0.43659	0.18381	0.27951	0.00020	0.00330	0.00215	45.27600	0.00003	0.00010	45.30738
LPG	Propane	56	0.44453	0.18715	0.28459	0.00020	0.00336	0.00218	46.09920	0.00003	0.00010	46.13115
LPG	Propane	57	0.45247	0.19049	0.28967	0.00021	0.00342	0.00222	46.92240	0.00003	0.00010	46.95492
LPG	Propane	58	0.46040	0.19384	0.29476	0.00021	0.00348	0.00226	47.74560	0.00003	0.00010	47.77869
LPG	Propane	59	0.46834	0.19718	0.29984	0.00021	0.00354	0.00230	48.56880	0.00004	0.00011	48.60247
LPG	Propane	60	0.47628	0.20052	0.30492	0.00022	0.00360	0.00234	49.39200	0.00004	0.00011	49.42624
LPG	Propane	61	0.48422	0.20386	0.31000	0.00022	0.00366	0.00238	50.21520	0.00004	0.00011	50.25001
LPG	Propane	62	0.49216	0.20720	0.31508	0.00022	0.00372	0.00242	51.03840	0.00004	0.00011	51.07378
LPG	Propane	63	0.50009	0.21055	0.32017	0.00023	0.00378	0.00246	51.86160	0.00004	0.00011	51.89755
LPG	Propane	64	0.50803	0.21389	0.32525	0.00023	0.00384	0.00250	52.68480	0.00004	0.00012	52.72132
LPG	Propane	65	0.51597	0.21723	0.33033	0.00023	0.00390	0.00254	53.50800	0.00004	0.00012	53.54509
LPG	Propane	66	0.52391	0.22057	0.33541	0.00024	0.00396	0.00257	54.33120	0.00004	0.00012	54.36886
LPG	Propane	67	0.53185	0.22391	0.34049	0.00024	0.00402	0.00261	55.15440	0.00004	0.00012	55.19263
LPG	Propane	68	0.53978	0.22726	0.34558	0.00024	0.00408	0.00265	55.97760	0.00004	0.00012	56.01640
LPG	Propane	69	0.54772	0.23060	0.35066	0.00025	0.00414	0.00269	56.80080	0.00004	0.00012	56.84017
LPG	Propane	70	0.55566	0.23394	0.35574	0.00025	0.00420	0.00273	57.62400	0.00004	0.00013	57.66394
LPG	Propane	71	0.56360	0.23728	0.36082	0.00026	0.00426	0.00277	58.44720	0.00004	0.00013	58.48771
LPG	Propane	72	0.57154	0.24062	0.36590	0.00026	0.00432	0.00281	59.27040	0.00004	0.00013	59.31148

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
LPG	Propane	73	0.57947	0.24397	0.37099	0.00026	0.00438	0.00285	60.09360	0.00004	0.00013	60.13525
LPG	Propane	74	0.58741	0.24731	0.37607	0.00027	0.00444	0.00289	60.91680	0.00004	0.00013	60.95902
LPG	Propane	75	0.59535	0.25065	0.38115	0.00027	0.00450	0.00293	61.74000	0.00005	0.00014	61.78280
LPG	Propane	76	0.60329	0.25399	0.38623	0.00027	0.00456	0.00296	62.56320	0.00005	0.00014	62.60657
LPG	Propane	77	0.61123	0.25733	0.39131	0.00028	0.00462	0.00300	63.38640	0.00005	0.00014	63.43034
LPG	Propane	78	0.61916	0.26068	0.39640	0.00028	0.00468	0.00304	64.20960	0.00005	0.00014	64.25411
LPG	Propane	79	0.62710	0.26402	0.40148	0.00028	0.00474	0.00308	65.03280	0.00005	0.00014	65.07788
LPG	Propane	80	0.63504	0.26736	0.40656	0.00029	0.00480	0.00312	65.85600	0.00005	0.00014	65.90165
LPG	Propane	81	0.64298	0.27070	0.41164	0.00029	0.00486	0.00316	66.67920	0.00005	0.00015	66.72542
LPG	Propane	82	0.65092	0.27404	0.41672	0.00030	0.00492	0.00320	67.50240	0.00005	0.00015	67.54919
LPG	Propane	83	0.65885	0.27739	0.42181	0.00030	0.00498	0.00324	68.32560	0.00005	0.00015	68.37296
LPG	Propane	84	0.66679	0.28073	0.42689	0.00030	0.00504	0.00328	69.14880	0.00005	0.00015	69.19673
LPG	Propane	85	0.67473	0.28407	0.43197	0.00031	0.00510	0.00332	69.97200	0.00005	0.00015	70.02050
LPG	Propane	86	0.68267	0.28741	0.43705	0.00031	0.00516	0.00335	70.79520	0.00005	0.00015	70.84427
LPG	Propane	87	0.69061	0.29075	0.44213	0.00031	0.00522	0.00339	71.61840	0.00005	0.00016	71.66804
LPG	Propane	88	0.69854	0.29410	0.44722	0.00032	0.00528	0.00343	72.44160	0.00005	0.00016	72.49181
LPG	Propane	89	0.70648	0.29744	0.45230	0.00032	0.00534	0.00347	73.26480	0.00005	0.00016	73.31558
LPG	Propane	90	0.71442	0.30078	0.45738	0.00032	0.00540	0.00351	74.08800	0.00005	0.00016	74.13935
LPG	Propane	91	0.72236	0.30412	0.46246	0.00033	0.00546	0.00355	74.91120	0.00005	0.00016	74.96312
LPG	Propane	92	0.73030	0.30746	0.46754	0.00033	0.00552	0.00359	75.73440	0.00006	0.00017	75.78690
LPG	Propane	93	0.73823	0.31081	0.47263	0.00033	0.00558	0.00363	76.55760	0.00006	0.00017	76.61067
LPG	Propane	94	0.74617	0.31415	0.47771	0.00034	0.00564	0.00367	77.38080	0.00006	0.00017	77.43444
LPG	Propane	95	0.75411	0.31749	0.48279	0.00034	0.00570	0.00371	78.20400	0.00006	0.00017	78.25821
LPG	Propane	96	0.76205	0.32083	0.48787	0.00035	0.00576	0.00374	79.02720	0.00006	0.00017	79.08198
LPG	Propane	97	0.76999	0.32417	0.49295	0.00035	0.00582	0.00378	79.85040	0.00006	0.00017	79.90575
LPG	Propane	98	0.77792	0.32752	0.49804	0.00035	0.00588	0.00382	80.67360	0.00006	0.00018	80.72952
LPG	Propane	99	0.78586	0.33086	0.50312	0.00036	0.00594	0.00386	81.49680	0.00006	0.00018	81.55329
LPG	Propane	100	0.79380	0.33420	0.50820	0.00036	0.00600	0.00390	82.32000	0.00006	0.00018	82.37706
LPG	Propane	101	0.80174	0.33754	0.51328	0.00036	0.00606	0.00394	83.14320	0.00006	0.00018	83.20083
LPG	Propane	102	0.80968	0.34088	0.51836	0.00037	0.00612	0.00398	83.96640	0.00006	0.00018	84.02460
LPG	Propane	103	0.81761	0.34423	0.52345	0.00037	0.00618	0.00402	84.78960	0.00006	0.00019	84.84837
LPG	Propane	104	0.82555	0.34757	0.52853	0.00037	0.00624	0.00406	85.61280	0.00006	0.00019	85.67214
LPG	Propane	105	0.83349	0.35091	0.53361	0.00038	0.00630	0.00410	86.43600	0.00006	0.00019	86.49591
LPG	Propane	106	0.84143	0.35425	0.53869	0.00038	0.00636	0.00413	87.25920	0.00006	0.00019	87.31968
LPG	Propane	107	0.84937	0.35759	0.54377	0.00039	0.00642	0.00417	88.08240	0.00006	0.00019	88.14345
LPG	Propane	108	0.85730	0.36094	0.54886	0.00039	0.00648	0.00421	88.90560	0.00006	0.00019	88.96722
LPG	Propane	109	0.86524	0.36428	0.55394	0.00039	0.00654	0.00425	89.72880	0.00007	0.00020	89.79100
LPG	Propane	110	0.87318	0.36762	0.55902	0.00040	0.00660	0.00429	90.55200	0.00007	0.00020	90.61477
LPG	Propane	111	0.88112	0.37096	0.56410	0.00040	0.00666	0.00433	91.37520	0.00007	0.00020	91.43854
LPG	Propane	112	0.88906	0.37430	0.56918	0.00040	0.00672	0.00437	92.19840	0.00007	0.00020	92.26231
LPG	Propane	113	0.89699	0.37765	0.57427	0.00041	0.00678	0.00441	93.02160	0.00007	0.00020	93.08608
LPG	Propane	114	0.90493	0.38099	0.57935	0.00041	0.00684	0.00445	93.84480	0.00007	0.00021	93.90985
LPG	Propane	115	0.91287	0.38433	0.58443	0.00041	0.00690	0.00449	94.66800	0.00007	0.00021	94.73362
LPG	Propane	116	0.92081	0.38767	0.58951	0.00042	0.00696	0.00452	95.49120	0.00007	0.00021	95.55739
LPG	Propane	117	0.92875	0.39101	0.59459	0.00042	0.00702	0.00456	96.31440	0.00007	0.00021	96.38116
LPG	Propane	118	0.93668	0.39436	0.59968	0.00042	0.00708	0.00460	97.13760	0.00007	0.00021	97.20493
LPG	Propane	119	0.94462	0.39770	0.60476	0.00043	0.00714	0.00464	97.96080	0.00007	0.00021	98.02870
LPG	Propane	120	0.95256	0.40104	0.60984	0.00043	0.00720	0.00468	98.78400	0.00007	0.00022	98.85247
LPG	Propane	121	0.96050	0.40438	0.61492	0.00044	0.00726	0.00472	99.60720	0.00007	0.00022	99.67624
LPG	Propane	122	0.96844	0.40772	0.62000	0.00044	0.00732	0.00476	100.43040	0.00007	0.00022	100.50001
LPG	Propane	123	0.97637	0.41107	0.62509	0.00044	0.00738	0.00480	101.25360	0.00007	0.00022	101.32378
LPG	Propane	124	0.98431	0.41441	0.63017	0.00045	0.00744	0.00484	102.07680	0.00007	0.00022	102.14755
LPG	Propane	125	0.99225	0.41775	0.63525	0.00045	0.00750	0.00488	102.90000	0.00008	0.00023	102.97133
LPG	Propane	126	1.00019	0.42109	0.64033	0.00045	0.00756	0.00491	103.72320	0.00008	0.00023	103.79510
LPG	Propane	127	1.00813	0.42443	0.64541	0.00046	0.00762	0.00495	104.54640	0.00008	0.00023	104.61887
LPG	Propane	128	1.01606	0.42778	0.65050	0.00046	0.00768	0.00499	105.36960	0.00008	0.00023	105.44264
LPG	Propane	129	1.02400	0.43112	0.65558	0.00046	0.00774	0.00503	106.19280	0.00008	0.00023	106.26641
LPG	Propane	130	1.03194	0.43446	0.66066	0.00047	0.00780	0.00507	107.01600	0.00008	0.00023	107.09018
LPG	Propane	131	1.03988	0.43780	0.66574	0.00047	0.00786	0.00511	107.83920	0.00008	0.00024	107.91395
LPG	Propane	132	1.04782	0.44114	0.67082	0.00048	0.00792	0.00515	108.66240	0.00008	0.00024	108.73772
LPG	Propane	133	1.05575	0.44449	0.67591	0.00048	0.00798	0.00519	109.48560	0.00008	0.00024	109.56149
LPG	Propane	134	1.06369	0.44783	0.68099	0.00048	0.00804	0.00523	110.30880	0.00008	0.00024	110.38526
LPG	Propane	135	1.07163	0.45117	0.68607	0.00049	0.00810	0.00527	111.13200	0.00008	0.00024	111.20903
LPG	Propane	136	1.07957	0.45451	0.69115	0.00049	0.00816	0.00530	111.95520	0.00008	0.00024	112.03280
LPG	Propane	137	1.08751	0.45785	0.69623	0.00049	0.00822	0.00534	112.77840	0.00008	0.00025	112.85657
LPG	Propane	138	1.09544	0.46120	0.70132	0.00050	0.00828	0.00538	113.60160	0.00008	0.00025	113.68034
LPG	Propane	139	1.10338	0.46454	0.70640	0.00050	0.00834	0.00542	114.42480	0.00008	0.00025	114.50411
LPG	Propane	140	1.11132	0.46788	0.71148	0.00050	0.00840	0.00546	115.24800	0.00008	0.00025	115.32788
LPG	Propane	141	1.11926	0.47122	0.71656	0.00051	0.00846	0.00550	116.07120	0.00008	0.00025	116.15165
LPG	Propane	142	1.12720	0.47456	0.72164	0.00051	0.00852	0.00554	116.89440	0.00009	0.00026	116.97543
LPG	Propane	143	1.13513	0.47791	0.72673	0.00051	0.00858	0.00558	117.71760	0.00009	0.00026	117.79920
LPG	Propane	144	1.14307	0.48125	0.73181	0.00052	0.00864	0.00562	118.54080	0.00009	0.00026	118.62297
LPG	Propane	145	1.15101	0.48459	0.73689	0.00052	0.00870	0.00566	119.36400	0.00009	0.00026	119.44674
LPG	Propane	146	1.15895	0.48793	0.74197	0.00053	0.00876	0.00569	120.18720	0.00009	0.00026	120.27051
LPG	Propane	147	1.16689	0.49127	0.74705	0.00053	0.00882	0.00573	121.01040	0.00009	0.00026	121.09428
LPG	Propane	148	1.17482	0.49462	0.75214	0.00053	0.00888	0.00577	121.83360	0.00009	0.00027	121.91805
LPG	Propane	149	1.18276	0.49796	0.75722	0.00054	0.00894	0.00581	122.65680	0.00009	0.00027	122.74182
LPG	Propane	150	1.19070	0.50130	0.76230	0.00054	0.00900	0.00585	123.48000	0.00009	0.00027	123.56559

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
LPG	Propane	151	1.19864	0.50464	0.76738	0.00054	0.00906	0.00589	124.30320	0.00009	0.00027	124.38936
LPG	Propane	152	1.20658	0.50798	0.77246	0.00055	0.00912	0.00593	125.12640	0.00009	0.00027	125.21313
LPG	Propane	153	1.21451	0.51133	0.77755	0.00055	0.00918	0.00597	125.94960	0.00009	0.00028	126.03690
LPG	Propane	154	1.22245	0.51467	0.78263	0.00055	0.00924	0.00601	126.77280	0.00009	0.00028	126.86067
LPG	Propane	155	1.23039	0.51801	0.78771	0.00056	0.00930	0.00605	127.59600	0.00009	0.00028	127.68444
LPG	Propane	156	1.23833	0.52135	0.79279	0.00056	0.00936	0.00608	128.41920	0.00009	0.00028	128.50821
LPG	Propane	157	1.24627	0.52469	0.79787	0.00057	0.00942	0.00612	129.24240	0.00009	0.00028	129.33198
LPG	Propane	158	1.25420	0.52804	0.80296	0.00057	0.00948	0.00616	130.06560	0.00009	0.00028	130.15575
LPG	Propane	159	1.26214	0.53138	0.80804	0.00057	0.00954	0.00620	130.88880	0.00010	0.00029	130.97953
LPG	Propane	160	1.27008	0.53472	0.81312	0.00058	0.00960	0.00624	131.71200	0.00010	0.00029	131.80330
LPG	Propane	161	1.27802	0.53806	0.81820	0.00058	0.00966	0.00628	132.53520	0.00010	0.00029	132.62707
LPG	Propane	162	1.28596	0.54140	0.82328	0.00058	0.00972	0.00632	133.35840	0.00010	0.00029	133.45084
LPG	Propane	163	1.29389	0.54475	0.82837	0.00059	0.00978	0.00636	134.18160	0.00010	0.00029	134.27461
LPG	Propane	164	1.30183	0.54809	0.83345	0.00059	0.00984	0.00640	135.00480	0.00010	0.00030	135.09838
LPG	Propane	165	1.30977	0.55143	0.83853	0.00059	0.00990	0.00644	135.82800	0.00010	0.00030	135.92215
LPG	Propane	166	1.31771	0.55477	0.84361	0.00060	0.00996	0.00647	136.65120	0.00010	0.00030	136.74592
LPG	Propane	167	1.32565	0.55811	0.84869	0.00060	0.01002	0.00651	137.47440	0.00010	0.00030	137.56969
LPG	Propane	168	1.33358	0.56146	0.85378	0.00060	0.01008	0.00655	138.29760	0.00010	0.00030	138.39346
LPG	Propane	169	1.34152	0.56480	0.85886	0.00061	0.01014	0.00659	139.12080	0.00010	0.00030	139.21723
LPG	Propane	170	1.34946	0.56814	0.86394	0.00061	0.01020	0.00663	139.94400	0.00010	0.00031	140.04100
LPG	Propane	171	1.35740	0.57148	0.86902	0.00062	0.01026	0.00667	140.76720	0.00010	0.00031	140.86477
LPG	Propane	172	1.36534	0.57482	0.87410	0.00062	0.01032	0.00671	141.59040	0.00010	0.00031	141.68854
LPG	Propane	173	1.37327	0.57817	0.87919	0.00062	0.01038	0.00675	142.41360	0.00010	0.00031	142.51231
LPG	Propane	174	1.38121	0.58151	0.88427	0.00063	0.01044	0.00679	143.23680	0.00010	0.00031	143.33608
LPG	Propane	175	1.38915	0.58485	0.88935	0.00063	0.01050	0.00683	144.06000	0.00011	0.00032	144.15986
LPG	Propane	176	1.39709	0.58819	0.89443	0.00063	0.01056	0.00686	144.88320	0.00011	0.00032	144.98363
LPG	Propane	177	1.40503	0.59153	0.89951	0.00064	0.01062	0.00690	145.70640	0.00011	0.00032	145.80740
LPG	Propane	178	1.41296	0.59488	0.90460	0.00064	0.01068	0.00694	146.52960	0.00011	0.00032	146.63117
LPG	Propane	179	1.42090	0.59822	0.90968	0.00064	0.01074	0.00698	147.35280	0.00011	0.00032	147.45494
LPG	Propane	180	1.42884	0.60156	0.91476	0.00065	0.01080	0.00702	148.17600	0.00011	0.00032	148.27871
LPG	Propane	181	1.43678	0.60490	0.91984	0.00065	0.01086	0.00706	148.99920	0.00011	0.00033	149.10248
LPG	Propane	182	1.44472	0.60824	0.92492	0.00066	0.01092	0.00710	149.82240	0.00011	0.00033	149.92625
LPG	Propane	183	1.45265	0.61159	0.93001	0.00066	0.01098	0.00714	150.64560	0.00011	0.00033	150.75002
LPG	Propane	184	1.46059	0.61493	0.93509	0.00066	0.01104	0.00718	151.46880	0.00011	0.00033	151.57379
LPG	Propane	185	1.46853	0.61827	0.94017	0.00067	0.01110	0.00722	152.29200	0.00011	0.00033	152.39756
LPG	Propane	186	1.47647	0.62161	0.94525	0.00067	0.01116	0.00725	153.11520	0.00011	0.00033	153.22133
LPG	Propane	187	1.48441	0.62495	0.95033	0.00067	0.01122	0.00729	153.93840	0.00011	0.00034	154.04510
LPG	Propane	188	1.49234	0.62830	0.95542	0.00068	0.01128	0.00733	154.76160	0.00011	0.00034	154.86887
LPG	Propane	189	1.50028	0.63164	0.96050	0.00068	0.01134	0.00737	155.58480	0.00011	0.00034	155.69264
LPG	Propane	190	1.50822	0.63498	0.96558	0.00068	0.01140	0.00741	156.40800	0.00011	0.00034	156.51641
LPG	Propane	191	1.51616	0.63832	0.97066	0.00069	0.01146	0.00745	157.23120	0.00011	0.00034	157.34018
LPG	Propane	192	1.52410	0.64166	0.97574	0.00069	0.01152	0.00749	158.05440	0.00012	0.00035	158.16396
LPG	Propane	193	1.53203	0.64501	0.98083	0.00069	0.01158	0.00753	158.87760	0.00012	0.00035	158.98773
LPG	Propane	194	1.53997	0.64835	0.98591	0.00070	0.01164	0.00757	159.70080	0.00012	0.00035	159.81150
LPG	Propane	195	1.54791	0.65169	0.99099	0.00070	0.01170	0.00761	160.52400	0.00012	0.00035	160.63527
LPG	Propane	196	1.55585	0.65503	0.99607	0.00071	0.01176	0.00764	161.34720	0.00012	0.00035	161.45904
LPG	Propane	197	1.56379	0.65837	1.00115	0.00071	0.01182	0.00768	162.17040	0.00012	0.00035	162.28281
LPG	Propane	198	1.57172	0.66172	1.00624	0.00071	0.01188	0.00772	162.99360	0.00012	0.00036	163.10658
LPG	Propane	199	1.57966	0.66506	1.01132	0.00072	0.01194	0.00776	163.81680	0.00012	0.00036	163.93035
LPG	Propane	200	1.58760	0.66840	1.01640	0.00072	0.01200	0.00780	164.64000	0.00012	0.00036	164.75412
Gasoline	**Sport**	**10**	**0.05670**	**1.88100**	**0.04890**	**0.00252**	**0.00300**	**0.00195**	**4.71900**	**0.00027**	**0.00012**	**4.76088**
Gasoline	Sport	11	0.06237	2.06910	0.05379	0.00277	0.00330	0.00215	5.19090	0.00029	0.00013	5.23696
Gasoline	Sport	12	0.06804	2.25720	0.05868	0.00302	0.00360	0.00234	5.66280	0.00032	0.00014	5.71305
Gasoline	Sport	13	0.07371	2.44530	0.06357	0.00328	0.00390	0.00254	6.13470	0.00035	0.00015	6.18914
Gasoline	Sport	14	0.07938	2.63340	0.06846	0.00353	0.00420	0.00273	6.60660	0.00037	0.00016	6.66523
Gasoline	Sport	15	0.08505	2.82150	0.07335	0.00378	0.00450	0.00293	7.07850	0.00040	0.00018	7.14132
Gasoline	Sport	16	0.09072	3.00960	0.07824	0.00403	0.00480	0.00312	7.55040	0.00043	0.00019	7.61740
Gasoline	Sport	17	0.09639	3.19770	0.08313	0.00428	0.00510	0.00332	8.02230	0.00045	0.00020	8.09349
Gasoline	Sport	18	0.10206	3.38580	0.08802	0.00454	0.00540	0.00351	8.49420	0.00048	0.00021	8.56958
Gasoline	Sport	19	0.10773	3.57390	0.09291	0.00479	0.00570	0.00371	8.96610	0.00051	0.00022	9.04567
Gasoline	Sport	20	0.11340	3.76200	0.09780	0.00504	0.00600	0.00390	9.43800	0.00053	0.00023	9.52175
Gasoline	Sport	21	0.11907	3.95010	0.10269	0.00529	0.00630	0.00410	9.90990	0.00056	0.00025	9.99784
Gasoline	Sport	22	0.12474	4.13820	0.10758	0.00554	0.00660	0.00429	10.38180	0.00059	0.00026	10.47393
Gasoline	Sport	23	0.13041	4.32630	0.11247	0.00580	0.00690	0.00449	10.85370	0.00061	0.00027	10.95002
Gasoline	Sport	24	0.13608	4.51440	0.11736	0.00605	0.00720	0.00468	11.32560	0.00064	0.00028	11.42610
Gasoline	Sport	25	0.14175	4.70250	0.12225	0.00630	0.00750	0.00488	11.79750	0.00067	0.00029	11.90219
Gasoline	Sport	26	0.14742	4.89060	0.12714	0.00655	0.00780	0.00507	12.26940	0.00069	0.00030	12.37828
Gasoline	Sport	27	0.15309	5.07870	0.13203	0.00680	0.00810	0.00527	12.74130	0.00072	0.00032	12.85437
Gasoline	Sport	28	0.15876	5.26680	0.13692	0.00706	0.00840	0.00546	13.21320	0.00075	0.00033	13.33046
Gasoline	Sport	29	0.16443	5.45490	0.14181	0.00731	0.00870	0.00566	13.68510	0.00077	0.00034	13.80654
Gasoline	Sport	30	0.17010	5.64300	0.14670	0.00756	0.00900	0.00585	14.15700	0.00080	0.00035	14.28263
Gasoline	Sport	31	0.17577	5.83110	0.15159	0.00781	0.00930	0.00605	14.62890	0.00083	0.00036	14.75872
Gasoline	Sport	32	0.18144	6.01920	0.15648	0.00806	0.00960	0.00624	15.10080	0.00085	0.00037	15.23481
Gasoline	Sport	33	0.18711	6.20730	0.16137	0.00832	0.00990	0.00644	15.57270	0.00088	0.00039	15.71089
Gasoline	Sport	34	0.19278	6.39540	0.16626	0.00857	0.01020	0.00663	16.04460	0.00091	0.00040	16.18698
Gasoline	Sport	35	0.19845	6.58350	0.17115	0.00882	0.01050	0.00683	16.51650	0.00093	0.00041	16.66307
Gasoline	Sport	36	0.20412	6.77160	0.17604	0.00907	0.01080	0.00702	16.98840	0.00096	0.00042	17.13916
Gasoline	Sport	37	0.20979	6.95970	0.18093	0.00932	0.01110	0.00722	17.46030	0.00099	0.00043	17.61524

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Sport	38	0.21546	7.14780	0.18582	0.00958	0.01140	0.00741	17.93220	0.00101	0.00044	18.09133
Gasoline	Sport	39	0.22113	7.33590	0.19071	0.00983	0.01170	0.00761	18.40410	0.00104	0.00046	18.56742
Gasoline	Sport	40	0.22680	7.52400	0.19560	0.01008	0.01200	0.00780	18.87600	0.00107	0.00047	19.04351
Gasoline	Sport	41	0.23247	7.71210	0.20049	0.01033	0.01230	0.00800	19.34790	0.00109	0.00048	19.51960
Gasoline	Sport	42	0.23814	7.90020	0.20538	0.01058	0.01260	0.00819	19.81980	0.00112	0.00049	19.99568
Gasoline	Sport	43	0.24381	8.08830	0.21027	0.01084	0.01290	0.00839	20.29170	0.00115	0.00050	20.47177
Gasoline	Sport	44	0.24948	8.27640	0.21516	0.01109	0.01320	0.00858	20.76360	0.00117	0.00051	20.94786
Gasoline	Sport	45	0.25515	8.46450	0.22005	0.01134	0.01350	0.00878	21.23550	0.00120	0.00053	21.42395
Gasoline	Sport	46	0.26082	8.65260	0.22494	0.01159	0.01380	0.00897	21.70740	0.00123	0.00054	21.90003
Gasoline	Sport	47	0.26649	8.84070	0.22983	0.01184	0.01410	0.00917	22.17930	0.00125	0.00055	22.37612
Gasoline	Sport	48	0.27216	9.02880	0.23472	0.01210	0.01440	0.00936	22.65120	0.00128	0.00056	22.85221
Gasoline	Sport	49	0.27783	9.21690	0.23961	0.01235	0.01470	0.00956	23.12310	0.00131	0.00057	23.32830
Gasoline	Sport	50	0.28350	9.40500	0.24450	0.01260	0.01500	0.00975	23.59500	0.00134	0.00059	23.80439
Gasoline	Sport	51	0.28917	9.59310	0.24939	0.01285	0.01530	0.00995	24.06690	0.00136	0.00060	24.28047
Gasoline	Sport	52	0.29484	9.78120	0.25428	0.01310	0.01560	0.01014	24.53880	0.00139	0.00061	24.75656
Gasoline	Sport	53	0.30051	9.96930	0.25917	0.01336	0.01590	0.01034	25.01070	0.00142	0.00062	25.23265
Gasoline	Sport	54	0.30618	10.15740	0.26406	0.01361	0.01620	0.01053	25.48260	0.00144	0.00063	25.70874
Gasoline	Sport	55	0.31185	10.34550	0.26895	0.01386	0.01650	0.01073	25.95450	0.00147	0.00064	26.18482
Gasoline	Sport	56	0.31752	10.53360	0.27384	0.01411	0.01680	0.01092	26.42640	0.00150	0.00066	26.66091
Gasoline	Sport	57	0.32319	10.72170	0.27873	0.01436	0.01710	0.01112	26.89830	0.00152	0.00067	27.13700
Gasoline	Sport	58	0.32886	10.90980	0.28362	0.01462	0.01740	0.01131	27.37020	0.00155	0.00068	27.61309
Gasoline	Sport	59	0.33453	11.09790	0.28851	0.01487	0.01770	0.01151	27.84210	0.00158	0.00069	28.08917
Gasoline	Sport	60	0.34020	11.28600	0.29340	0.01512	0.01800	0.01170	28.31400	0.00160	0.00070	28.56526
Gasoline	Sport	61	0.34587	11.47410	0.29829	0.01537	0.01830	0.01190	28.78590	0.00163	0.00071	29.04135
Gasoline	Sport	62	0.35154	11.66220	0.30318	0.01562	0.01860	0.01209	29.25780	0.00166	0.00073	29.51744
Gasoline	Sport	63	0.35721	11.85030	0.30807	0.01588	0.01890	0.01229	29.72970	0.00168	0.00074	29.99353
Gasoline	Sport	64	0.36288	12.03840	0.31296	0.01613	0.01920	0.01248	30.20160	0.00171	0.00075	30.46961
Gasoline	Sport	65	0.36855	12.22650	0.31785	0.01638	0.01950	0.01268	30.67350	0.00174	0.00076	30.94570
Gasoline	Sport	66	0.37422	12.41460	0.32274	0.01663	0.01980	0.01287	31.14540	0.00176	0.00077	31.42179
Gasoline	Sport	67	0.37989	12.60270	0.32763	0.01688	0.02010	0.01307	31.61730	0.00179	0.00078	31.89788
Gasoline	Sport	68	0.38556	12.79080	0.33252	0.01714	0.02040	0.01326	32.08920	0.00182	0.00080	32.37396
Gasoline	Sport	69	0.39123	12.97890	0.33741	0.01739	0.02070	0.01346	32.56110	0.00184	0.00081	32.85005
Gasoline	Sport	70	0.39690	13.16700	0.34230	0.01764	0.02100	0.01365	33.03300	0.00187	0.00082	33.32614
Gasoline	Sport	71	0.40257	13.35510	0.34719	0.01789	0.02130	0.01385	33.50490	0.00190	0.00083	33.80223
Gasoline	Sport	72	0.40824	13.54320	0.35208	0.01814	0.02160	0.01404	33.97680	0.00192	0.00084	34.27831
Gasoline	Sport	73	0.41391	13.73130	0.35697	0.01840	0.02190	0.01424	34.44870	0.00195	0.00085	34.75440
Gasoline	Sport	74	0.41958	13.91940	0.36186	0.01865	0.02220	0.01443	34.92060	0.00198	0.00087	35.23049
Gasoline	Sport	75	0.42525	14.10750	0.36675	0.01890	0.02250	0.01463	35.39250	0.00200	0.00088	35.70658
Gasoline	Sport	76	0.43092	14.29560	0.37164	0.01915	0.02280	0.01482	35.86440	0.00203	0.00089	36.18267
Gasoline	Sport	77	0.43659	14.48370	0.37653	0.01940	0.02310	0.01502	36.33630	0.00206	0.00090	36.65875
Gasoline	Sport	78	0.44226	14.67180	0.38142	0.01966	0.02340	0.01521	36.80820	0.00208	0.00091	37.13484
Gasoline	Sport	79	0.44793	14.85990	0.38631	0.01991	0.02370	0.01541	37.28010	0.00211	0.00092	37.61093
Gasoline	Sport	80	0.45360	15.04800	0.39120	0.02016	0.02400	0.01560	37.75200	0.00214	0.00094	38.08702
Gasoline	Sport	81	0.45927	15.23610	0.39609	0.02041	0.02430	0.01580	38.22390	0.00216	0.00095	38.56310
Gasoline	Sport	82	0.46494	15.42420	0.40098	0.02066	0.02460	0.01599	38.69580	0.00219	0.00096	39.03919
Gasoline	Sport	83	0.47061	15.61230	0.40587	0.02092	0.02490	0.01619	39.16770	0.00222	0.00097	39.51528
Gasoline	Sport	84	0.47628	15.80040	0.41076	0.02117	0.02520	0.01638	39.63960	0.00224	0.00098	39.99137
Gasoline	Sport	85	0.48195	15.98850	0.41565	0.02142	0.02550	0.01658	40.11150	0.00227	0.00099	40.46745
Gasoline	Sport	86	0.48762	16.17660	0.42054	0.02167	0.02580	0.01677	40.58340	0.00230	0.00101	40.94354
Gasoline	Sport	87	0.49329	16.36470	0.42543	0.02192	0.02610	0.01697	41.05530	0.00232	0.00102	41.41963
Gasoline	Sport	88	0.49896	16.55280	0.43032	0.02218	0.02640	0.01716	41.52720	0.00235	0.00103	41.89572
Gasoline	Sport	89	0.50463	16.74090	0.43521	0.02243	0.02670	0.01736	41.99910	0.00238	0.00104	42.37181
Gasoline	Sport	90	0.51030	16.92900	0.44010	0.02268	0.02700	0.01755	42.47100	0.00240	0.00105	42.84789
Gasoline	Sport	91	0.51597	17.11710	0.44499	0.02293	0.02730	0.01775	42.94290	0.00243	0.00106	43.32398
Gasoline	Sport	92	0.52164	17.30520	0.44988	0.02318	0.02760	0.01794	43.41480	0.00246	0.00108	43.80007
Gasoline	Sport	93	0.52731	17.49330	0.45477	0.02344	0.02790	0.01814	43.88670	0.00248	0.00109	44.27616
Gasoline	Sport	94	0.53298	17.68140	0.45966	0.02369	0.02820	0.01833	44.35860	0.00251	0.00110	44.75224
Gasoline	Sport	95	0.53865	17.86950	0.46455	0.02394	0.02850	0.01853	44.83050	0.00254	0.00111	45.22833
Gasoline	Sport	96	0.54432	18.05760	0.46944	0.02419	0.02880	0.01872	45.30240	0.00256	0.00112	45.70442
Gasoline	Sport	97	0.54999	18.24570	0.47433	0.02444	0.02910	0.01892	45.77430	0.00259	0.00113	46.18051
Gasoline	Sport	98	0.55566	18.43380	0.47922	0.02470	0.02940	0.01911	46.24620	0.00262	0.00115	46.65659
Gasoline	Sport	99	0.56133	18.62190	0.48411	0.02495	0.02970	0.01931	46.71810	0.00264	0.00116	47.13268
Gasoline	Sport	100	0.56700	18.81000	0.48900	0.02520	0.03000	0.01950	47.19000	0.00267	0.00117	47.60877
Gasoline	Sport	101	0.57267	18.99810	0.49389	0.02545	0.03030	0.01970	47.66190	0.00270	0.00118	48.08486
Gasoline	Sport	102	0.57834	19.18620	0.49878	0.02570	0.03060	0.01989	48.13380	0.00272	0.00119	48.56095
Gasoline	Sport	103	0.58401	19.37430	0.50367	0.02596	0.03090	0.02009	48.60570	0.00275	0.00121	49.03703
Gasoline	Sport	104	0.58968	19.56240	0.50856	0.02621	0.03120	0.02028	49.07760	0.00278	0.00122	49.51312
Gasoline	Sport	105	0.59535	19.75050	0.51345	0.02646	0.03150	0.02048	49.54950	0.00280	0.00123	49.98921
Gasoline	Sport	106	0.60102	19.93860	0.51834	0.02671	0.03180	0.02067	50.02140	0.00283	0.00124	50.46530
Gasoline	Sport	107	0.60669	20.12670	0.52323	0.02696	0.03210	0.02087	50.49330	0.00286	0.00125	50.94138
Gasoline	Sport	108	0.61236	20.31480	0.52812	0.02722	0.03240	0.02106	50.96520	0.00288	0.00126	51.41747
Gasoline	Sport	109	0.61803	20.50290	0.53301	0.02747	0.03270	0.02126	51.43710	0.00291	0.00128	51.89356
Gasoline	Sport	110	0.62370	20.69100	0.53790	0.02772	0.03300	0.02145	51.90900	0.00294	0.00129	52.36965
Gasoline	Sport	111	0.62937	20.87910	0.54279	0.02797	0.03330	0.02165	52.38090	0.00296	0.00130	52.84573
Gasoline	Sport	112	0.63504	21.06720	0.54768	0.02822	0.03360	0.02184	52.85280	0.00299	0.00131	53.32182
Gasoline	Sport	113	0.64071	21.25530	0.55257	0.02848	0.03390	0.02204	53.32470	0.00302	0.00132	53.79791
Gasoline	Sport	114	0.64638	21.44340	0.55746	0.02873	0.03420	0.02223	53.79660	0.00304	0.00133	54.27400
Gasoline	Sport	115	0.65205	21.63150	0.56235	0.02898	0.03450	0.02243	54.26850	0.00307	0.00135	54.75009

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Sport	116	0.65772	21.81960	0.56724	0.02923	0.03480	0.02262	54.74040	0.00310	0.00136	55.22617
Gasoline	Sport	117	0.66339	22.00770	0.57213	0.02948	0.03510	0.02282	55.21230	0.00312	0.00137	55.70226
Gasoline	Sport	118	0.66906	22.19580	0.57702	0.02974	0.03540	0.02301	55.68420	0.00315	0.00138	56.17835
Gasoline	Sport	119	0.67473	22.38390	0.58191	0.02999	0.03570	0.02321	56.15610	0.00318	0.00139	56.65444
Gasoline	Sport	120	0.68040	22.57200	0.58680	0.03024	0.03600	0.02340	56.62800	0.00320	0.00140	57.13052
Gasoline	Sport	121	0.68607	22.76010	0.59169	0.03049	0.03630	0.02360	57.09990	0.00323	0.00142	57.60661
Gasoline	Sport	122	0.69174	22.94820	0.59658	0.03074	0.03660	0.02379	57.57180	0.00326	0.00143	58.08270
Gasoline	Sport	123	0.69741	23.13630	0.60147	0.03100	0.03690	0.02399	58.04370	0.00328	0.00144	58.55879
Gasoline	Sport	124	0.70308	23.32440	0.60636	0.03125	0.03720	0.02418	58.51560	0.00331	0.00145	59.03487
Gasoline	Sport	125	0.70875	23.51250	0.61125	0.03150	0.03750	0.02438	58.98750	0.00334	0.00146	59.51096
Gasoline	Sport	126	0.71442	23.70060	0.61614	0.03175	0.03780	0.02457	59.45940	0.00336	0.00147	59.98705
Gasoline	Sport	127	0.72009	23.88870	0.62103	0.03200	0.03810	0.02477	59.93130	0.00339	0.00149	60.46314
Gasoline	Sport	128	0.72576	24.07680	0.62592	0.03226	0.03840	0.02496	60.40320	0.00342	0.00150	60.93923
Gasoline	Sport	129	0.73143	24.26490	0.63081	0.03251	0.03870	0.02516	60.87510	0.00344	0.00151	61.41531
Gasoline	Sport	130	0.73710	24.45300	0.63570	0.03276	0.03900	0.02535	61.34700	0.00347	0.00152	61.89140
Gasoline	Sport	131	0.74277	24.64110	0.64059	0.03301	0.03930	0.02555	61.81890	0.00350	0.00153	62.36749
Gasoline	Sport	132	0.74844	24.82920	0.64548	0.03326	0.03960	0.02574	62.29080	0.00352	0.00154	62.84358
Gasoline	Sport	133	0.75411	25.01730	0.65037	0.03352	0.03990	0.02594	62.76270	0.00355	0.00156	63.31966
Gasoline	Sport	134	0.75978	25.20540	0.65526	0.03377	0.04020	0.02613	63.23460	0.00358	0.00157	63.79575
Gasoline	Sport	135	0.76545	25.39350	0.66015	0.03402	0.04050	0.02633	63.70650	0.00360	0.00158	64.27184
Gasoline	Sport	136	0.77112	25.58160	0.66504	0.03427	0.04080	0.02652	64.17840	0.00363	0.00159	64.74793
Gasoline	Sport	137	0.77679	25.76970	0.66993	0.03452	0.04110	0.02672	64.65030	0.00366	0.00160	65.22401
Gasoline	Sport	138	0.78246	25.95780	0.67482	0.03478	0.04140	0.02691	65.12220	0.00368	0.00161	65.70010
Gasoline	Sport	139	0.78813	26.14590	0.67971	0.03503	0.04170	0.02711	65.59410	0.00371	0.00163	66.17619
Gasoline	Sport	140	0.79380	26.33400	0.68460	0.03528	0.04200	0.02730	66.06600	0.00374	0.00164	66.65228
Gasoline	Sport	141	0.79947	26.52210	0.68949	0.03553	0.04230	0.02750	66.53790	0.00376	0.00165	67.12837
Gasoline	Sport	142	0.80514	26.71020	0.69438	0.03578	0.04260	0.02769	67.00980	0.00379	0.00166	67.60445
Gasoline	Sport	143	0.81081	26.89830	0.69927	0.03604	0.04290	0.02789	67.48170	0.00382	0.00167	68.08054
Gasoline	Sport	144	0.81648	27.08640	0.70416	0.03629	0.04320	0.02808	67.95360	0.00384	0.00168	68.55663
Gasoline	Sport	145	0.82215	27.27450	0.70905	0.03654	0.04350	0.02828	68.42550	0.00387	0.00170	69.03272
Gasoline	Sport	146	0.82782	27.46260	0.71394	0.03679	0.04380	0.02847	68.89740	0.00390	0.00171	69.50880
Gasoline	Sport	147	0.83349	27.65070	0.71883	0.03704	0.04410	0.02867	69.36930	0.00392	0.00172	69.98489
Gasoline	Sport	148	0.83916	27.83880	0.72372	0.03730	0.04440	0.02886	69.84120	0.00395	0.00173	70.46098
Gasoline	Sport	149	0.84483	28.02690	0.72861	0.03755	0.04470	0.02906	70.31310	0.00398	0.00174	70.93707
Gasoline	Sport	150	0.85050	28.21500	0.73350	0.03780	0.04500	0.02925	70.78500	0.00401	0.00176	71.41316
Gasoline	Sport	151	0.85617	28.40310	0.73839	0.03805	0.04530	0.02945	71.25690	0.00403	0.00177	71.88924
Gasoline	Sport	152	0.86184	28.59120	0.74328	0.03830	0.04560	0.02964	71.72880	0.00406	0.00178	72.36533
Gasoline	Sport	153	0.86751	28.77930	0.74817	0.03856	0.04590	0.02984	72.20070	0.00409	0.00179	72.84142
Gasoline	Sport	154	0.87318	28.96740	0.75306	0.03881	0.04620	0.03003	72.67260	0.00411	0.00180	73.31751
Gasoline	Sport	155	0.87885	29.15550	0.75795	0.03906	0.04650	0.03023	73.14450	0.00414	0.00181	73.79359
Gasoline	Sport	156	0.88452	29.34360	0.76284	0.03931	0.04680	0.03042	73.61640	0.00417	0.00183	74.26968
Gasoline	Sport	157	0.89019	29.53170	0.76773	0.03956	0.04710	0.03062	74.08830	0.00419	0.00184	74.74577
Gasoline	Sport	158	0.89586	29.71980	0.77262	0.03982	0.04740	0.03081	74.56020	0.00422	0.00185	75.22186
Gasoline	Sport	159	0.90153	29.90790	0.77751	0.04007	0.04770	0.03101	75.03210	0.00425	0.00186	75.69794
Gasoline	Sport	160	0.90720	30.09600	0.78240	0.04032	0.04800	0.03120	75.50400	0.00427	0.00187	76.17403
Gasoline	Sport	161	0.91287	30.28410	0.78729	0.04057	0.04830	0.03140	75.97590	0.00430	0.00188	76.65012
Gasoline	Sport	162	0.91854	30.47220	0.79218	0.04082	0.04860	0.03159	76.44780	0.00433	0.00190	77.12621
Gasoline	Sport	163	0.92421	30.66030	0.79707	0.04108	0.04890	0.03179	76.91970	0.00435	0.00191	77.60230
Gasoline	Sport	164	0.92988	30.84840	0.80196	0.04133	0.04920	0.03198	77.39160	0.00438	0.00192	78.07838
Gasoline	Sport	165	0.93555	31.03650	0.80685	0.04158	0.04950	0.03218	77.86350	0.00441	0.00193	78.55447
Gasoline	Sport	166	0.94122	31.22460	0.81174	0.04183	0.04980	0.03237	78.33540	0.00443	0.00194	79.03056
Gasoline	Sport	167	0.94689	31.41270	0.81663	0.04208	0.05010	0.03257	78.80730	0.00446	0.00195	79.50665
Gasoline	Sport	168	0.95256	31.60080	0.82152	0.04234	0.05040	0.03276	79.27920	0.00449	0.00197	79.98273
Gasoline	Sport	169	0.95823	31.78890	0.82641	0.04259	0.05070	0.03296	79.75110	0.00451	0.00198	80.45882
Gasoline	Sport	170	0.96390	31.97700	0.83130	0.04284	0.05100	0.03315	80.22300	0.00454	0.00199	80.93491
Gasoline	Sport	171	0.96957	32.16510	0.83619	0.04309	0.05130	0.03335	80.69490	0.00457	0.00200	81.41100
Gasoline	Sport	172	0.97524	32.35320	0.84108	0.04334	0.05160	0.03354	81.16680	0.00459	0.00201	81.88708
Gasoline	Sport	173	0.98091	32.54130	0.84597	0.04360	0.05190	0.03374	81.63870	0.00462	0.00202	82.36317
Gasoline	Sport	174	0.98658	32.72940	0.85086	0.04385	0.05220	0.03393	82.11060	0.00465	0.00204	82.83926
Gasoline	Sport	175	0.99225	32.91750	0.85575	0.04410	0.05250	0.03413	82.58250	0.00467	0.00205	83.31535
Gasoline	Sport	176	0.99792	33.10560	0.86064	0.04435	0.05280	0.03432	83.05440	0.00470	0.00206	83.79144
Gasoline	Sport	177	1.00359	33.29370	0.86553	0.04460	0.05310	0.03452	83.52630	0.00473	0.00207	84.26752
Gasoline	Sport	178	1.00926	33.48180	0.87042	0.04486	0.05340	0.03471	83.99820	0.00475	0.00208	84.74361
Gasoline	Sport	179	1.01493	33.66990	0.87531	0.04511	0.05370	0.03491	84.47010	0.00478	0.00209	85.21970
Gasoline	Sport	180	1.02060	33.85800	0.88020	0.04536	0.05400	0.03510	84.94200	0.00481	0.00211	85.69579
Gasoline	Sport	181	1.02627	34.04610	0.88509	0.04561	0.05430	0.03530	85.41390	0.00483	0.00212	86.17187
Gasoline	Sport	182	1.03194	34.23420	0.88998	0.04586	0.05460	0.03549	85.88580	0.00486	0.00213	86.64796
Gasoline	Sport	183	1.03761	34.42230	0.89487	0.04612	0.05490	0.03569	86.35770	0.00489	0.00214	87.12405
Gasoline	Sport	184	1.04328	34.61040	0.89976	0.04637	0.05520	0.03588	86.82960	0.00491	0.00215	87.60014
Gasoline	Sport	185	1.04895	34.79850	0.90465	0.04662	0.05550	0.03608	87.30150	0.00494	0.00216	88.07622
Gasoline	Sport	186	1.05462	34.98660	0.90954	0.04687	0.05580	0.03627	87.77340	0.00497	0.00218	88.55231
Gasoline	Sport	187	1.06029	35.17470	0.91443	0.04712	0.05610	0.03647	88.24530	0.00499	0.00219	89.02840
Gasoline	Sport	188	1.06596	35.36280	0.91932	0.04738	0.05640	0.03666	88.71720	0.00502	0.00220	89.50449
Gasoline	Sport	189	1.07163	35.55090	0.92421	0.04763	0.05670	0.03686	89.18910	0.00505	0.00221	89.98058
Gasoline	Sport	190	1.07730	35.73900	0.92910	0.04788	0.05700	0.03705	89.66100	0.00507	0.00222	90.45666
Gasoline	Sport	191	1.08297	35.92710	0.93399	0.04813	0.05730	0.03725	90.13290	0.00510	0.00223	90.93275
Gasoline	Sport	192	1.08864	36.11520	0.93888	0.04838	0.05760	0.03744	90.60480	0.00513	0.00225	91.40884
Gasoline	Sport	193	1.09431	36.30330	0.94377	0.04864	0.05790	0.03764	91.07670	0.00515	0.00226	91.88493

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Sport	194	1.09998	36.49140	0.94866	0.04889	0.05820	0.03783	91.54860	0.00518	0.00227	92.36101
Gasoline	Sport	195	1.10565	36.67950	0.95355	0.04914	0.05850	0.03803	92.02050	0.00521	0.00228	92.83710
Gasoline	Sport	196	1.11132	36.86760	0.95844	0.04939	0.05880	0.03822	92.49240	0.00523	0.00229	93.31319
Gasoline	Sport	197	1.11699	37.05570	0.96333	0.04964	0.05910	0.03842	92.96430	0.00526	0.00230	93.78928
Gasoline	Sport	198	1.12266	37.24380	0.96822	0.04990	0.05940	0.03861	93.43620	0.00529	0.00232	94.26536
Gasoline	Sport	199	1.12833	37.43190	0.97311	0.05015	0.05970	0.03881	93.90810	0.00531	0.00233	94.74145
Gasoline	**Sport**	**200**	**1.13400**	**37.62000**	**0.97800**	**0.05040**	**0.06000**	**0.03900**	**94.38000**	**0.00534**	**0.00234**	**95.21754**
Gasoline	Sport	210	1.19070	39.50100	1.02690	0.05292	0.06300	0.04095	99.09900	0.00561	0.00246	99.97842
Gasoline	Sport	220	1.24740	41.38200	1.07580	0.05544	0.06600	0.04290	103.81800	0.00587	0.00257	104.73929
Gasoline	Sport	230	1.30410	43.26300	1.12470	0.05796	0.06900	0.04485	108.53700	0.00614	0.00269	109.50017
Gasoline	Sport	240	1.36080	45.14400	1.17360	0.06048	0.07200	0.04680	113.25600	0.00641	0.00281	114.26105
Gasoline	Sport	250	1.41750	47.02500	1.22250	0.06300	0.07500	0.04875	117.97500	0.00668	0.00293	119.02193
Gasoline	Sport	260	1.47420	48.90600	1.27140	0.06552	0.07800	0.05070	122.69400	0.00694	0.00304	123.78280
Gasoline	Sport	270	1.53090	50.78700	1.32030	0.06804	0.08100	0.05265	127.41300	0.00721	0.00316	128.54368
Gasoline	Sport	280	1.58760	52.66800	1.36920	0.07056	0.08400	0.05460	132.13200	0.00748	0.00328	133.30456
Gasoline	Sport	290	1.64430	54.54900	1.41810	0.07308	0.08700	0.05655	136.85100	0.00774	0.00339	138.06543
Gasoline	Sport	300	1.70100	56.43000	1.46700	0.07560	0.09000	0.05850	141.57000	0.00801	0.00351	142.82631
Gasoline	Sport	310	1.75770	58.31100	1.51590	0.07812	0.09300	0.06045	146.28900	0.00828	0.00363	147.58719
Gasoline	Sport	320	1.81440	60.19200	1.56480	0.08064	0.09600	0.06240	151.00800	0.00854	0.00374	152.34806
Gasoline	Sport	330	1.87110	62.07300	1.61370	0.08316	0.09900	0.06435	155.72700	0.00881	0.00386	157.10894
Gasoline	Sport	340	1.92780	63.95400	1.66260	0.08568	0.10200	0.06630	160.44600	0.00908	0.00398	161.86982
Gasoline	Sport	350	1.98450	65.83500	1.71150	0.08820	0.10500	0.06825	165.16500	0.00935	0.00410	166.63070
Gasoline	Sport	360	2.04120	67.71600	1.76040	0.09072	0.10800	0.07020	169.88400	0.00961	0.00421	171.39157
Gasoline	Sport	370	2.09790	69.59700	1.80930	0.09324	0.11100	0.07215	174.60300	0.00988	0.00433	176.15245
Gasoline	Sport	380	2.15460	71.47800	1.85820	0.09576	0.11400	0.07410	179.32200	0.01015	0.00445	180.91333
Gasoline	Sport	390	2.21130	73.35900	1.90710	0.09828	0.11700	0.07605	184.04100	0.01041	0.00456	185.67420
Gasoline	Sport	400	2.26800	75.24000	1.95600	0.10080	0.12000	0.07800	188.76000	0.01068	0.00468	190.43508
Gasoline	Sport	410	2.32470	77.12100	2.00490	0.10332	0.12300	0.07995	193.47900	0.01095	0.00480	195.19596
Gasoline	Sport	420	2.38140	79.00200	2.05380	0.10584	0.12600	0.08190	198.19800	0.01121	0.00491	199.95683
Gasoline	Sport	430	2.43810	80.88300	2.10270	0.10836	0.12900	0.08385	202.91700	0.01148	0.00503	204.71771
Gasoline	Sport	440	2.49480	82.76400	2.15160	0.11088	0.13200	0.08580	207.63600	0.01175	0.00515	209.47859
Gasoline	Sport	450	2.55150	84.64500	2.20050	0.11340	0.13500	0.08775	212.35500	0.01202	0.00527	214.23947
Gasoline	Sport	460	2.60820	86.52600	2.24940	0.11592	0.13800	0.08970	217.07400	0.01228	0.00538	219.00034
Gasoline	Sport	470	2.66490	88.40700	2.29830	0.11844	0.14100	0.09165	221.79300	0.01255	0.00550	223.76122
Gasoline	Sport	480	2.72160	90.28800	2.34720	0.12096	0.14400	0.09360	226.51200	0.01282	0.00562	228.52210
Gasoline	Sport	490	2.77830	92.16900	2.39610	0.12348	0.14700	0.09555	231.23100	0.01308	0.00573	233.28297
Gasoline	Sport	500	2.83500	94.05000	2.44500	0.12600	0.15000	0.09750	235.95000	0.01335	0.00585	238.04385
Jet A	**Turbine**	**200**	**0.00065**	**0.00521**	**1.38960**	**0.00245**	**0.01895**	**0.01232**	**257.90400**	**0.00713**	**0.00826**	**260.61491**
Jet A	Turbine	210	0.00068	0.00547	1.45908	0.00258	0.01990	0.01293	270.79920	0.00748	0.00868	273.64565
Jet A	Turbine	220	0.00071	0.00573	1.52856	0.00270	0.02084	0.01355	283.69440	0.00784	0.00909	286.67640
Jet A	Turbine	230	0.00074	0.00599	1.59804	0.00282	0.02179	0.01416	296.58960	0.00820	0.00950	299.70714
Jet A	Turbine	240	0.00078	0.00625	1.66752	0.00295	0.02274	0.01478	309.48480	0.00855	0.00991	312.73789
Jet A	Turbine	250	0.00081	0.00651	1.73700	0.00307	0.02369	0.01540	322.38000	0.00891	0.01033	325.76864
Jet A	Turbine	260	0.00084	0.00677	1.80648	0.00319	0.02463	0.01601	335.27520	0.00927	0.01074	338.79938
Jet A	Turbine	270	0.00087	0.00703	1.87596	0.00331	0.02558	0.01663	348.17040	0.00962	0.01115	351.83013
Jet A	Turbine	280	0.00091	0.00730	1.94544	0.00344	0.02653	0.01724	361.06560	0.00998	0.01157	364.86087
Jet A	Turbine	290	0.00094	0.00756	2.01492	0.00356	0.02748	0.01786	373.96080	0.01034	0.01198	377.89162
Jet A	Turbine	300	0.00097	0.00782	2.08440	0.00368	0.02842	0.01848	386.85600	0.01069	0.01239	390.92236
Jet A	Turbine	310	0.00100	0.00808	2.15388	0.00380	0.02937	0.01909	399.75120	0.01105	0.01281	403.95311
Jet A	Turbine	320	0.00104	0.00834	2.22336	0.00393	0.03032	0.01971	412.64640	0.01140	0.01322	416.98385
Jet A	Turbine	330	0.00107	0.00860	2.29284	0.00405	0.03127	0.02032	425.54160	0.01176	0.01363	430.01460
Jet A	Turbine	340	0.00110	0.00886	2.36232	0.00417	0.03221	0.02094	438.43680	0.01212	0.01405	443.04534
Jet A	Turbine	350	0.00113	0.00912	2.43180	0.00430	0.03316	0.02155	451.33200	0.01247	0.01446	456.07609
Jet A	Turbine	360	0.00117	0.00938	2.50128	0.00442	0.03411	0.02217	464.22720	0.01283	0.01487	469.10683
Jet A	Turbine	370	0.00120	0.00964	2.57076	0.00454	0.03506	0.02279	477.12240	0.01319	0.01528	482.13758
Jet A	Turbine	380	0.00123	0.00990	2.64024	0.00466	0.03600	0.02340	490.01760	0.01354	0.01570	495.16833
Jet A	Turbine	390	0.00126	0.01016	2.70972	0.00479	0.03695	0.02402	502.91280	0.01390	0.01611	508.19907
Jet A	Turbine	400	0.00129	0.01042	2.77920	0.00491	0.03790	0.02463	515.80800	0.01426	0.01652	521.22982
Jet A	Turbine	410	0.00133	0.01068	2.84868	0.00503	0.03885	0.02525	528.70320	0.01461	0.01694	534.26056
Jet A	Turbine	420	0.00136	0.01094	2.91816	0.00515	0.03979	0.02587	541.59840	0.01497	0.01735	547.29131
Jet A	Turbine	430	0.00139	0.01120	2.98764	0.00528	0.04074	0.02648	554.49360	0.01533	0.01776	560.32205
Jet A	Turbine	440	0.00142	0.01146	3.05712	0.00540	0.04169	0.02710	567.38880	0.01568	0.01818	573.35280
Jet A	Turbine	450	0.00146	0.01172	3.12660	0.00552	0.04264	0.02771	580.28400	0.01604	0.01859	586.38354
Jet A	Turbine	460	0.00149	0.01199	3.19608	0.00565	0.04358	0.02833	593.17920	0.01639	0.01900	599.41429
Jet A	Turbine	470	0.00152	0.01225	3.26556	0.00577	0.04453	0.02894	606.07440	0.01675	0.01942	612.44503
Jet A	Turbine	480	0.00155	0.01251	3.33504	0.00589	0.04548	0.02956	618.96960	0.01711	0.01983	625.47578
Jet A	Turbine	490	0.00159	0.01277	3.40452	0.00601	0.04643	0.03018	631.86480	0.01746	0.02024	638.50652
Jet A	Turbine	500	0.00162	0.01303	3.47400	0.00614	0.04737	0.03079	644.76000	0.01782	0.02066	651.53727
Jet A	Turbine	510	0.00165	0.01329	3.54348	0.00626	0.04832	0.03141	657.65520	0.01818	0.02107	664.56802
Jet A	Turbine	520	0.00168	0.01355	3.61296	0.00638	0.04927	0.03202	670.55040	0.01853	0.02148	677.59876
Jet A	Turbine	530	0.00172	0.01381	3.68244	0.00650	0.05022	0.03264	683.44560	0.01889	0.02189	690.62951
Jet A	Turbine	540	0.00175	0.01407	3.75192	0.00663	0.05116	0.03326	696.34080	0.01925	0.02231	703.66025
Jet A	Turbine	550	0.00178	0.01433	3.82140	0.00675	0.05211	0.03387	709.23600	0.01960	0.02272	716.69100
Jet A	Turbine	560	0.00181	0.01459	3.89088	0.00687	0.05306	0.03449	722.13120	0.01996	0.02313	729.72174
Jet A	Turbine	570	0.00185	0.01485	3.96036	0.00700	0.05400	0.03510	735.02640	0.02031	0.02355	742.75249
Jet A	Turbine	580	0.00188	0.01511	4.02984	0.00712	0.05495	0.03572	747.92160	0.02067	0.02396	755.78323
Jet A	Turbine	590	0.00191	0.01537	4.09932	0.00724	0.05590	0.03633	760.81680	0.02103	0.02437	768.81398
Jet A	Turbine	600	0.00194	0.01563	4.16880	0.00736	0.05685	0.03695	773.71200	0.02138	0.02479	781.84472

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Jet A	Turbine	610	0.00197	0.01589	4.23828	0.00749	0.05779	0.03757	786.60720	0.02174	0.02520	794.87547
Jet A	Turbine	620	0.00201	0.01615	4.30776	0.00761	0.05874	0.03818	799.50240	0.02210	0.02561	807.90621
Jet A	Turbine	630	0.00204	0.01641	4.37724	0.00773	0.05969	0.03880	812.39760	0.02245	0.02603	820.93696
Jet A	Turbine	640	0.00207	0.01668	4.44672	0.00785	0.06064	0.03941	825.29280	0.02281	0.02644	833.96771
Jet A	Turbine	650	0.00210	0.01694	4.51620	0.00798	0.06158	0.04003	838.18800	0.02317	0.02685	846.99845
Jet A	Turbine	660	0.00214	0.01720	4.58568	0.00810	0.06253	0.04065	851.08320	0.02352	0.02726	860.02920
Jet A	Turbine	670	0.00217	0.01746	4.65516	0.00822	0.06348	0.04126	863.97840	0.02388	0.02768	873.05994
Jet A	Turbine	680	0.00220	0.01772	4.72464	0.00835	0.06443	0.04188	876.87360	0.02424	0.02809	886.09069
Jet A	Turbine	690	0.00223	0.01798	4.79412	0.00847	0.06537	0.04249	889.76880	0.02459	0.02850	899.12143
Jet A	Turbine	700	0.00227	0.01824	4.86360	0.00859	0.06632	0.04311	902.66400	0.02495	0.02892	912.15218
Jet A	Turbine	710	0.00230	0.01850	4.93308	0.00871	0.06727	0.04373	915.55920	0.02530	0.02933	925.18292
Jet A	Turbine	720	0.00233	0.01876	5.00256	0.00884	0.06822	0.04434	928.45440	0.02566	0.02974	938.21367
Jet A	Turbine	730	0.00236	0.01902	5.07204	0.00896	0.06916	0.04496	941.34960	0.02602	0.03016	951.24441
Jet A	Turbine	740	0.00240	0.01928	5.14152	0.00908	0.07011	0.04557	954.24480	0.02637	0.03057	964.27516
Jet A	Turbine	750	0.00243	0.01954	5.21100	0.00920	0.07106	0.04619	967.14000	0.02673	0.03098	977.30591
Jet A	Turbine	760	0.00246	0.01980	5.28048	0.00933	0.07201	0.04680	980.03520	0.02709	0.03140	990.33665
Jet A	Turbine	770	0.00249	0.02006	5.34996	0.00945	0.07295	0.04742	992.93040	0.02744	0.03181	1003.36740
Jet A	Turbine	780	0.00252	0.02032	5.41944	0.00957	0.07390	0.04804	1005.82560	0.02780	0.03222	1016.39814
Jet A	Turbine	790	0.00256	0.02058	5.48892	0.00970	0.07485	0.04865	1018.72080	0.02816	0.03263	1029.42889
Jet A	Turbine	800	0.00259	0.02084	5.55840	0.00982	0.07580	0.04927	1031.61600	0.02851	0.03305	1042.45963
Jet A	Turbine	810	0.00262	0.02110	5.62788	0.00994	0.07674	0.04988	1044.51120	0.02887	0.03346	1055.49038
Jet A	Turbine	820	0.00265	0.02137	5.69736	0.01006	0.07769	0.05050	1057.40640	0.02922	0.03387	1068.52112
Jet A	Turbine	830	0.00269	0.02163	5.76684	0.01019	0.07864	0.05112	1070.30160	0.02958	0.03429	1081.55187
Jet A	Turbine	840	0.00272	0.02189	5.83632	0.01031	0.07959	0.05173	1083.19680	0.02994	0.03470	1094.58261
Jet A	Turbine	850	0.00275	0.02215	5.90580	0.01043	0.08053	0.05235	1096.09200	0.03029	0.03511	1107.61336
Jet A	Turbine	860	0.00278	0.02241	5.97528	0.01055	0.08148	0.05296	1108.98720	0.03065	0.03553	1120.64410
Jet A	Turbine	870	0.00282	0.02267	6.04476	0.01068	0.08243	0.05358	1121.88240	0.03101	0.03594	1133.67485
Jet A	Turbine	880	0.00285	0.02293	6.11424	0.01080	0.08338	0.05419	1134.77760	0.03136	0.03635	1146.70560
Jet A	Turbine	890	0.00288	0.02319	6.18372	0.01092	0.08432	0.05481	1147.67280	0.03172	0.03677	1159.73634
Jet A	Turbine	900	0.00291	0.02345	6.25320	0.01105	0.08527	0.05543	1160.56800	0.03208	0.03718	1172.76709
Jet A	Turbine	910	0.00295	0.02371	6.32268	0.01117	0.08622	0.05604	1173.46320	0.03243	0.03759	1185.79783
Jet A	Turbine	920	0.00298	0.02397	6.39216	0.01129	0.08717	0.05666	1186.35840	0.03279	0.03801	1198.82858
Jet A	Turbine	930	0.00301	0.02423	6.46164	0.01141	0.08811	0.05727	1199.25360	0.03315	0.03842	1211.85932
Jet A	Turbine	940	0.00304	0.02449	6.53112	0.01154	0.08906	0.05789	1212.14880	0.03350	0.03883	1224.89007
Jet A	Turbine	950	0.00308	0.02475	6.60060	0.01166	0.09001	0.05851	1225.04400	0.03386	0.03924	1237.92081
Jet A	Turbine	960	0.00311	0.02501	6.67008	0.01178	0.09096	0.05912	1237.93920	0.03421	0.03966	1250.95156
Jet A	Turbine	970	0.00314	0.02527	6.73956	0.01190	0.09190	0.05974	1250.83440	0.03457	0.04007	1263.98230
Jet A	Turbine	980	0.00317	0.02553	6.80904	0.01203	0.09285	0.06035	1263.72960	0.03493	0.04048	1277.01305
Jet A	Turbine	990	0.00320	0.02579	6.87852	0.01215	0.09380	0.06097	1276.62480	0.03528	0.04090	1290.04379
Jet A	Turbine	1000	0.00324	0.02606	6.94800	0.01227	0.09475	0.06158	1289.52000	0.03564	0.04131	1303.07454
Gasoline	**Utility**	**1.0**	**0.00657**	**0.50143**	**0.00560**	**0.00043**	**0.00049**	**0.00032**	**0.94380**	**0.00005**	**0.00002**	**0.95218**
Gasoline	Utility	1.1	0.00723	0.55157	0.00616	0.00047	0.00053	0.00035	1.03818	0.00006	0.00003	1.04739
Gasoline	Utility	1.2	0.00788	0.60171	0.00672	0.00052	0.00058	0.00038	1.13256	0.00006	0.00003	1.14261
Gasoline	Utility	1.3	0.00854	0.65185	0.00728	0.00056	0.00063	0.00041	1.22694	0.00007	0.00003	1.23783
Gasoline	Utility	1.4	0.00920	0.70200	0.00783	0.00060	0.00068	0.00044	1.32132	0.00007	0.00003	1.33305
Gasoline	Utility	1.5	0.00985	0.75214	0.00839	0.00064	0.00073	0.00047	1.41570	0.00008	0.00004	1.42826
Gasoline	Utility	1.6	0.01051	0.80228	0.00895	0.00069	0.00078	0.00050	1.51008	0.00009	0.00004	1.52348
Gasoline	Utility	1.7	0.01117	0.85243	0.00951	0.00073	0.00082	0.00054	1.60446	0.00009	0.00004	1.61870
Gasoline	Utility	1.8	0.01183	0.90257	0.01007	0.00077	0.00087	0.00057	1.69884	0.00010	0.00004	1.71392
Gasoline	Utility	1.9	0.01248	0.95271	0.01063	0.00082	0.00092	0.00060	1.79322	0.00010	0.00004	1.80913
Gasoline	Utility	2.0	0.01314	1.00285	0.01119	0.00086	0.00097	0.00063	1.88760	0.00011	0.00005	1.90435
Gasoline	Utility	2.1	0.01380	1.05300	0.01175	0.00090	0.00102	0.00066	1.98198	0.00011	0.00005	1.99957
Gasoline	Utility	2.2	0.01445	1.10314	0.01231	0.00095	0.00107	0.00069	2.07636	0.00012	0.00005	2.09479
Gasoline	Utility	2.3	0.01511	1.15328	0.01287	0.00099	0.00112	0.00073	2.17074	0.00012	0.00005	2.19000
Gasoline	Utility	2.4	0.01577	1.20342	0.01343	0.00103	0.00116	0.00076	2.26512	0.00013	0.00006	2.28522
Gasoline	Utility	2.5	0.01642	1.25357	0.01399	0.00107	0.00121	0.00079	2.35950	0.00013	0.00006	2.38044
Gasoline	Utility	2.6	0.01708	1.30371	0.01455	0.00112	0.00126	0.00082	2.45388	0.00014	0.00006	2.47566
Gasoline	Utility	2.7	0.01774	1.35385	0.01511	0.00116	0.00131	0.00085	2.54826	0.00014	0.00006	2.57087
Gasoline	Utility	2.8	0.01839	1.40400	0.01567	0.00120	0.00136	0.00088	2.64264	0.00015	0.00007	2.66609
Gasoline	Utility	2.9	0.01905	1.45414	0.01623	0.00125	0.00141	0.00091	2.73702	0.00015	0.00007	2.76131
Gasoline	**Utility**	**3.0**	**0.01505**	**1.50428**	**0.01282**	**0.00129**	**0.00146**	**0.00095**	**2.59545**	**0.00015**	**0.00006**	**2.61848**
Gasoline	Utility	3.1	0.01555	1.55442	0.01325	0.00133	0.00150	0.00098	2.68197	0.00015	0.00007	2.70577
Gasoline	Utility	3.2	0.01605	1.60457	0.01367	0.00138	0.00155	0.00101	2.76848	0.00016	0.00007	2.79305
Gasoline	Utility	3.3	0.01655	1.65471	0.01410	0.00142	0.00160	0.00104	2.85500	0.00016	0.00007	2.88033
Gasoline	Utility	3.4	0.01705	1.70485	0.01453	0.00146	0.00165	0.00107	2.94151	0.00017	0.00007	2.96761
Gasoline	Utility	3.5	0.01756	1.75499	0.01495	0.00150	0.00170	0.00110	3.02803	0.00017	0.00008	3.05490
Gasoline	Utility	3.6	0.01806	1.80514	0.01538	0.00155	0.00175	0.00113	3.11454	0.00018	0.00008	3.14218
Gasoline	Utility	3.7	0.01856	1.85528	0.01581	0.00159	0.00179	0.00117	3.20106	0.00018	0.00008	3.22946
Gasoline	Utility	3.8	0.01906	1.90542	0.01624	0.00163	0.00184	0.00120	3.28757	0.00019	0.00008	3.31674
Gasoline	Utility	3.9	0.01956	1.95556	0.01666	0.00168	0.00189	0.00123	3.37409	0.00019	0.00008	3.40403
Gasoline	Utility	4.0	0.02006	2.00571	0.01709	0.00172	0.00194	0.00126	3.46060	0.00020	0.00009	3.49131
Gasoline	Utility	4.1	0.02057	2.05585	0.01752	0.00176	0.00199	0.00129	3.54712	0.00020	0.00009	3.57859
Gasoline	Utility	4.2	0.02107	2.10599	0.01795	0.00181	0.00204	0.00132	3.63363	0.00021	0.00009	3.66588
Gasoline	Utility	4.3	0.02157	2.15614	0.01837	0.00185	0.00209	0.00136	3.72015	0.00021	0.00009	3.75316
Gasoline	Utility	4.4	0.02207	2.20628	0.01880	0.00189	0.00213	0.00139	3.80666	0.00022	0.00009	3.84044
Gasoline	Utility	4.5	0.02257	2.25642	0.01923	0.00193	0.00218	0.00142	3.89318	0.00022	0.00010	3.92772
Gasoline	Utility	4.6	0.02307	2.30656	0.01965	0.00198	0.00223	0.00145	3.97969	0.00023	0.00010	4.01501
Gasoline	Utility	4.7	0.02357	2.35671	0.02008	0.00202	0.00228	0.00148	4.06621	0.00023	0.00010	4.10229

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Utility	4.8	0.02408	2.40685	0.02051	0.00206	0.00233	0.00151	4.15272	0.00023	0.00010	4.18957
Gasoline	Utility	4.9	0.02458	2.45699	0.02094	0.00211	0.00238	0.00154	4.23924	0.00024	0.00011	4.27685
Gasoline	Utility	5.0	0.02508	2.50713	0.02136	0.00215	0.00243	0.00158	4.32575	0.00024	0.00011	4.36414
Gasoline	Utility	5.1	0.02558	2.55728	0.02179	0.00219	0.00247	0.00161	4.41227	0.00025	0.00011	4.45142
Gasoline	Utility	5.2	0.02608	2.60742	0.02222	0.00224	0.00252	0.00164	4.49878	0.00025	0.00011	4.53870
Gasoline	Utility	5.3	0.02658	2.65756	0.02265	0.00228	0.00257	0.00167	4.58530	0.00026	0.00011	4.62599
Gasoline	Utility	5.4	0.02709	2.70771	0.02307	0.00232	0.00262	0.00170	4.67181	0.00026	0.00012	4.71327
Gasoline	Utility	5.5	0.02759	2.75785	0.02350	0.00236	0.00267	0.00173	4.75833	0.00027	0.00012	4.80055
Gasoline	Utility	5.6	0.02809	2.80799	0.02393	0.00241	0.00272	0.00177	4.84484	0.00027	0.00012	4.88783
Gasoline	Utility	5.7	0.02859	2.85813	0.02436	0.00245	0.00276	0.00180	4.93136	0.00028	0.00012	4.97512
Gasoline	Utility	5.8	0.02909	2.90828	0.02478	0.00249	0.00281	0.00183	5.01787	0.00028	0.00012	5.06240
Gasoline	Utility	5.9	0.02959	2.95842	0.02521	0.00254	0.00286	0.00186	5.10439	0.00029	0.00013	5.14968
Gasoline	Utility	6.0	0.03010	3.00856	0.02564	0.00258	0.00291	0.00189	5.19090	0.00029	0.00013	5.23696
Gasoline	Utility	6.1	0.03060	3.05870	0.02606	0.00262	0.00296	0.00192	5.27742	0.00030	0.00013	5.32425
Gasoline	Utility	6.2	0.03110	3.10885	0.02649	0.00267	0.00301	0.00195	5.36393	0.00030	0.00013	5.41153
Gasoline	Utility	6.3	0.03160	3.15899	0.02692	0.00271	0.00306	0.00199	5.45045	0.00031	0.00014	5.49881
Gasoline	Utility	6.4	0.03210	3.20913	0.02735	0.00275	0.00310	0.00202	5.53696	0.00031	0.00014	5.58610
Gasoline	Utility	6.5	0.03260	3.25927	0.02777	0.00279	0.00315	0.00205	5.62348	0.00032	0.00014	5.67338
Gasoline	Utility	6.6	0.03311	3.30942	0.02820	0.00284	0.00320	0.00208	5.70999	0.00032	0.00014	5.76066
Gasoline	Utility	6.7	0.03361	3.35956	0.02863	0.00288	0.00325	0.00211	5.79651	0.00033	0.00014	5.84794
Gasoline	Utility	6.8	0.03411	3.40970	0.02906	0.00292	0.00330	0.00214	5.88302	0.00033	0.00015	5.93523
Gasoline	Utility	6.9	0.03461	3.45985	0.02948	0.00297	0.00335	0.00218	5.96954	0.00034	0.00015	6.02251
Gasoline	Utility	7.0	0.03511	3.50999	0.02991	0.00301	0.00340	0.00221	6.05605	0.00034	0.00015	6.10979
Gasoline	Utility	7.1	0.03561	3.56013	0.03034	0.00305	0.00344	0.00224	6.14257	0.00035	0.00015	6.19707
Gasoline	Utility	7.2	0.03611	3.61027	0.03076	0.00310	0.00349	0.00227	6.22908	0.00035	0.00015	6.28436
Gasoline	Utility	7.3	0.03662	3.66042	0.03119	0.00314	0.00354	0.00230	6.31560	0.00036	0.00016	6.37164
Gasoline	Utility	7.4	0.03712	3.71056	0.03162	0.00318	0.00359	0.00233	6.40211	0.00036	0.00016	6.45892
Gasoline	Utility	7.5	0.03762	3.76070	0.03205	0.00322	0.00364	0.00236	6.48863	0.00037	0.00016	6.54621
Gasoline	Utility	7.6	0.03812	3.81084	0.03247	0.00327	0.00369	0.00240	6.57514	0.00037	0.00016	6.63349
Gasoline	Utility	7.7	0.03862	3.86099	0.03290	0.00331	0.00373	0.00243	6.66166	0.00038	0.00017	6.72077
Gasoline	Utility	7.8	0.03912	3.91113	0.03333	0.00335	0.00378	0.00246	6.74817	0.00038	0.00017	6.80805
Gasoline	Utility	7.9	0.03963	3.96127	0.03376	0.00340	0.00383	0.00249	6.83469	0.00039	0.00017	6.89534
Gasoline	Utility	8.0	0.04013	4.01141	0.03418	0.00344	0.00388	0.00252	6.92120	0.00039	0.00017	6.98262
Gasoline	Utility	8.1	0.04063	4.06156	0.03461	0.00348	0.00393	0.00255	7.00772	0.00040	0.00017	7.06990
Gasoline	Utility	8.2	0.04113	4.11170	0.03504	0.00353	0.00398	0.00259	7.09423	0.00040	0.00018	7.15719
Gasoline	Utility	8.3	0.04163	4.16184	0.03546	0.00357	0.00403	0.00262	7.18075	0.00041	0.00018	7.24447
Gasoline	Utility	8.4	0.04213	4.21199	0.03589	0.00361	0.00407	0.00265	7.26726	0.00041	0.00018	7.33175
Gasoline	Utility	8.5	0.04264	4.26213	0.03632	0.00365	0.00412	0.00268	7.35378	0.00042	0.00018	7.41903
Gasoline	Utility	8.6	0.04314	4.31227	0.03675	0.00370	0.00417	0.00271	7.44029	0.00042	0.00018	7.50632
Gasoline	Utility	8.7	0.04364	4.36241	0.03717	0.00374	0.00422	0.00274	7.52681	0.00043	0.00019	7.59360
Gasoline	Utility	8.8	0.04414	4.41256	0.03760	0.00378	0.00427	0.00277	7.61332	0.00043	0.00019	7.68088
Gasoline	Utility	8.9	0.04464	4.46270	0.03803	0.00383	0.00432	0.00281	7.69984	0.00044	0.00019	7.76816
Gasoline	Utility	9.0	0.04514	4.51284	0.03846	0.00387	0.00437	0.00284	7.78635	0.00044	0.00019	7.85545
Gasoline	Utility	9.1	0.04564	4.56298	0.03888	0.00391	0.00441	0.00287	7.87287	0.00045	0.00020	7.94273
Gasoline	Utility	9.2	0.04615	4.61313	0.03931	0.00396	0.00446	0.00290	7.95938	0.00045	0.00020	8.03001
Gasoline	Utility	9.3	0.04665	4.66327	0.03974	0.00400	0.00451	0.00293	8.04590	0.00046	0.00020	8.11730
Gasoline	Utility	9.4	0.04715	4.71341	0.04016	0.00404	0.00456	0.00296	8.13241	0.00046	0.00020	8.20458
Gasoline	Utility	9.5	0.04765	4.76356	0.04059	0.00408	0.00461	0.00299	8.21893	0.00047	0.00020	8.29186
Gasoline	Utility	9.6	0.04815	4.81370	0.04102	0.00413	0.00466	0.00303	8.30544	0.00047	0.00021	8.37914
Gasoline	Utility	9.7	0.04865	4.86384	0.04145	0.00417	0.00470	0.00306	8.39196	0.00047	0.00021	8.46643
Gasoline	Utility	9.8	0.04916	4.91398	0.04187	0.00421	0.00475	0.00309	8.47847	0.00048	0.00021	8.55371
Gasoline	Utility	9.9	0.04966	4.96413	0.04230	0.00426	0.00480	0.00312	8.56499	0.00048	0.00021	8.64099
Gasoline	**Utility**	**10**	**0.09450**	**3.13500**	**0.08150**	**0.00420**	**0.00500**	**0.00325**	**7.86500**	**0.00045**	**0.00020**	**7.93480**
Gasoline	Utility	11	0.10395	3.44850	0.08965	0.00462	0.00550	0.00358	8.65150	0.00049	0.00021	8.72827
Gasoline	Utility	12	0.11340	3.76200	0.09780	0.00504	0.00600	0.00390	9.43800	0.00053	0.00023	9.52175
Gasoline	Utility	13	0.12285	4.07550	0.10595	0.00546	0.00650	0.00423	10.22450	0.00058	0.00025	10.31523
Gasoline	Utility	14	0.13230	4.38900	0.11410	0.00588	0.00700	0.00455	11.01100	0.00062	0.00027	11.10871
Gasoline	Utility	15	0.14175	4.70250	0.12225	0.00630	0.00750	0.00488	11.79750	0.00067	0.00029	11.90219
Gasoline	Utility	16	0.15120	5.01600	0.13040	0.00672	0.00800	0.00520	12.58400	0.00071	0.00031	12.69567
Gasoline	Utility	17	0.16065	5.32950	0.13855	0.00714	0.00850	0.00553	13.37050	0.00076	0.00033	13.48915
Gasoline	Utility	18	0.17010	5.64300	0.14670	0.00756	0.00900	0.00585	14.15700	0.00080	0.00035	14.28263
Gasoline	Utility	19	0.17955	5.95650	0.15485	0.00798	0.00950	0.00618	14.94350	0.00085	0.00037	15.07611
Gasoline	Utility	20	0.18900	6.27000	0.16300	0.00840	0.01000	0.00650	15.73000	0.00089	0.00039	15.86959
Gasoline	Utility	21	0.19845	6.58350	0.17115	0.00882	0.01050	0.00683	16.51650	0.00093	0.00041	16.66307
Gasoline	Utility	22	0.20790	6.89700	0.17930	0.00924	0.01100	0.00715	17.30300	0.00098	0.00043	17.45655
Gasoline	Utility	23	0.21735	7.21050	0.18745	0.00966	0.01150	0.00748	18.08950	0.00102	0.00045	18.25003
Gasoline	Utility	24	0.22680	7.52400	0.19560	0.01008	0.01200	0.00780	18.87600	0.00107	0.00047	19.04351
Gasoline	Utility	25	0.23625	7.83750	0.20375	0.01050	0.01250	0.00813	19.66250	0.00111	0.00049	19.83699
Gasoline	Utility	26	0.24570	8.15100	0.21190	0.01092	0.01300	0.00845	20.44900	0.00116	0.00051	20.63047
Gasoline	Utility	27	0.25515	8.46450	0.22005	0.01134	0.01350	0.00878	21.23550	0.00120	0.00053	21.42395
Gasoline	Utility	28	0.26460	8.77800	0.22820	0.01176	0.01400	0.00910	22.02200	0.00125	0.00055	22.21743
Gasoline	Utility	29	0.27405	9.09150	0.23635	0.01218	0.01450	0.00943	22.80850	0.00129	0.00057	23.01091
Gasoline	Utility	30	0.28350	9.40500	0.24450	0.01260	0.01500	0.00975	23.59500	0.00134	0.00059	23.80439
Gasoline	Utility	31	0.29295	9.71850	0.25265	0.01302	0.01550	0.01008	24.38150	0.00138	0.00060	24.59786
Gasoline	Utility	32	0.30240	10.03200	0.26080	0.01344	0.01600	0.01040	25.16800	0.00142	0.00062	25.39134
Gasoline	Utility	33	0.31185	10.34550	0.26895	0.01386	0.01650	0.01073	25.95450	0.00147	0.00064	26.18482
Gasoline	Utility	34	0.32130	10.65900	0.27710	0.01428	0.01700	0.01105	26.74100	0.00151	0.00066	26.97830
Gasoline	Utility	35	0.33075	10.97250	0.28525	0.01470	0.01750	0.01138	27.52750	0.00156	0.00068	27.77178

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Utility	36	0.34020	11.28600	0.29340	0.01512	0.01800	0.01170	28.31400	0.00160	0.00070	28.56526
Gasoline	Utility	37	0.34965	11.59950	0.30155	0.01554	0.01850	0.01203	29.10050	0.00165	0.00072	29.35874
Gasoline	Utility	38	0.35910	11.91300	0.30970	0.01596	0.01900	0.01235	29.88700	0.00169	0.00074	30.15222
Gasoline	Utility	39	0.36855	12.22650	0.31785	0.01638	0.01950	0.01268	30.67350	0.00174	0.00076	30.94570
Gasoline	Utility	40	0.37800	12.54000	0.32600	0.01680	0.02000	0.01300	31.46000	0.00178	0.00078	31.73918
Gasoline	Utility	41	0.38745	12.85350	0.33415	0.01722	0.02050	0.01333	32.24650	0.00182	0.00080	32.53266
Gasoline	Utility	42	0.39690	13.16700	0.34230	0.01764	0.02100	0.01365	33.03300	0.00187	0.00082	33.32614
Gasoline	Utility	43	0.40635	13.48050	0.35045	0.01806	0.02150	0.01398	33.81950	0.00191	0.00084	34.11962
Gasoline	Utility	44	0.41580	13.79400	0.35860	0.01848	0.02200	0.01430	34.60600	0.00196	0.00086	34.91310
Gasoline	Utility	45	0.42525	14.10750	0.36675	0.01890	0.02250	0.01463	35.39250	0.00200	0.00088	35.70658
Gasoline	Utility	46	0.43470	14.42100	0.37490	0.01932	0.02300	0.01495	36.17900	0.00205	0.00090	36.50006
Gasoline	Utility	47	0.44415	14.73450	0.38305	0.01974	0.02350	0.01528	36.96550	0.00209	0.00092	37.29354
Gasoline	Utility	48	0.45360	15.04800	0.39120	0.02016	0.02400	0.01560	37.75200	0.00214	0.00094	38.08702
Gasoline	Utility	49	0.46305	15.36150	0.39935	0.02058	0.02450	0.01593	38.53850	0.00218	0.00096	38.88050
Gasoline	Utility	50	0.47250	15.67500	0.40750	0.02100	0.02500	0.01625	39.32500	0.00223	0.00098	39.67398
Gasoline	Utility	51	0.48195	15.98850	0.41565	0.02142	0.02550	0.01658	40.11150	0.00227	0.00099	40.46745
Gasoline	Utility	52	0.49140	16.30200	0.42380	0.02184	0.02600	0.01690	40.89800	0.00231	0.00101	41.26093
Gasoline	Utility	53	0.50085	16.61550	0.43195	0.02226	0.02650	0.01723	41.68450	0.00236	0.00103	42.05441
Gasoline	Utility	54	0.51030	16.92900	0.44010	0.02268	0.02700	0.01755	42.47100	0.00240	0.00105	42.84789
Gasoline	Utility	55	0.51975	17.24250	0.44825	0.02310	0.02750	0.01788	43.25750	0.00245	0.00107	43.64137
Gasoline	Utility	56	0.52920	17.55600	0.45640	0.02352	0.02800	0.01820	44.04400	0.00249	0.00109	44.43485
Gasoline	Utility	57	0.53865	17.86950	0.46455	0.02394	0.02850	0.01853	44.83050	0.00254	0.00111	45.22833
Gasoline	Utility	58	0.54810	18.18300	0.47270	0.02436	0.02900	0.01885	45.61700	0.00258	0.00113	46.02181
Gasoline	Utility	59	0.55755	18.49650	0.48085	0.02478	0.02950	0.01918	46.40350	0.00263	0.00115	46.81529
Gasoline	Utility	60	0.56700	18.81000	0.48900	0.02520	0.03000	0.01950	47.19000	0.00267	0.00117	47.60877
Gasoline	Utility	61	0.57645	19.12350	0.49715	0.02562	0.03050	0.01983	47.97650	0.00271	0.00119	48.40225
Gasoline	Utility	62	0.58590	19.43700	0.50530	0.02604	0.03100	0.02015	48.76300	0.00276	0.00121	49.19573
Gasoline	Utility	63	0.59535	19.75050	0.51345	0.02646	0.03150	0.02048	49.54950	0.00280	0.00123	49.98921
Gasoline	Utility	64	0.60480	20.06400	0.52160	0.02688	0.03200	0.02080	50.33600	0.00285	0.00125	50.78269
Gasoline	Utility	65	0.61425	20.37750	0.52975	0.02730	0.03250	0.02113	51.12250	0.00289	0.00127	51.57617
Gasoline	Utility	66	0.62370	20.69100	0.53790	0.02772	0.03300	0.02145	51.90900	0.00294	0.00129	52.36965
Gasoline	Utility	67	0.63315	21.00450	0.54605	0.02814	0.03350	0.02178	52.69550	0.00298	0.00131	53.16313
Gasoline	Utility	68	0.64260	21.31800	0.55420	0.02856	0.03400	0.02210	53.48200	0.00303	0.00133	53.95661
Gasoline	Utility	69	0.65205	21.63150	0.56235	0.02898	0.03450	0.02243	54.26850	0.00307	0.00135	54.75009
Gasoline	Utility	70	0.66150	21.94500	0.57050	0.02940	0.03500	0.02275	55.05500	0.00312	0.00137	55.54357
Gasoline	Utility	71	0.67095	22.25850	0.57865	0.02982	0.03550	0.02308	55.84150	0.00316	0.00138	56.33704
Gasoline	Utility	72	0.68040	22.57200	0.58680	0.03024	0.03600	0.02340	56.62800	0.00320	0.00140	57.13052
Gasoline	Utility	73	0.68985	22.88550	0.59495	0.03066	0.03650	0.02373	57.41450	0.00325	0.00142	57.92400
Gasoline	Utility	74	0.69930	23.19900	0.60310	0.03108	0.03700	0.02405	58.20100	0.00329	0.00144	58.71748
Gasoline	Utility	75	0.70875	23.51250	0.61125	0.03150	0.03750	0.02438	58.98750	0.00334	0.00146	59.51096
Gasoline	Utility	76	0.71820	23.82600	0.61940	0.03192	0.03800	0.02470	59.77400	0.00338	0.00148	60.30444
Gasoline	Utility	77	0.72765	24.13950	0.62755	0.03234	0.03850	0.02503	60.56050	0.00343	0.00150	61.09792
Gasoline	Utility	78	0.73710	24.45300	0.63570	0.03276	0.03900	0.02535	61.34700	0.00347	0.00152	61.89140
Gasoline	Utility	79	0.74655	24.76650	0.64385	0.03318	0.03950	0.02568	62.13350	0.00352	0.00154	62.68488
Gasoline	Utility	80	0.75600	25.08000	0.65200	0.03360	0.04000	0.02600	62.92000	0.00356	0.00156	63.47836
Gasoline	Utility	81	0.76545	25.39350	0.66015	0.03402	0.04050	0.02633	63.70650	0.00360	0.00158	64.27184
Gasoline	Utility	82	0.77490	25.70700	0.66830	0.03444	0.04100	0.02665	64.49300	0.00365	0.00160	65.06532
Gasoline	Utility	83	0.78435	26.02050	0.67645	0.03486	0.04150	0.02698	65.27950	0.00369	0.00162	65.85880
Gasoline	Utility	84	0.79380	26.33400	0.68460	0.03528	0.04200	0.02730	66.06600	0.00374	0.00164	66.65228
Gasoline	Utility	85	0.80325	26.64750	0.69275	0.03570	0.04250	0.02763	66.85250	0.00378	0.00166	67.44576
Gasoline	Utility	86	0.81270	26.96100	0.70090	0.03612	0.04300	0.02795	67.63900	0.00383	0.00168	68.23924
Gasoline	Utility	87	0.82215	27.27450	0.70905	0.03654	0.04350	0.02828	68.42550	0.00387	0.00170	69.03272
Gasoline	Utility	88	0.83160	27.58800	0.71720	0.03696	0.04400	0.02860	69.21200	0.00392	0.00172	69.82620
Gasoline	Utility	89	0.84105	27.90150	0.72535	0.03738	0.04450	0.02893	69.99850	0.00396	0.00174	70.61968
Gasoline	Utility	90	0.85050	28.21500	0.73350	0.03780	0.04500	0.02925	70.78500	0.00401	0.00176	71.41316
Gasoline	Utility	91	0.85995	28.52850	0.74165	0.03822	0.04550	0.02958	71.57150	0.00405	0.00177	72.20663
Gasoline	Utility	92	0.86940	28.84200	0.74980	0.03864	0.04600	0.02990	72.35800	0.00409	0.00179	73.00011
Gasoline	Utility	93	0.87885	29.15550	0.75795	0.03906	0.04650	0.03023	73.14450	0.00414	0.00181	73.79359
Gasoline	Utility	94	0.88830	29.46900	0.76610	0.03948	0.04700	0.03055	73.93100	0.00418	0.00183	74.58707
Gasoline	Utility	95	0.89775	29.78250	0.77425	0.03990	0.04750	0.03088	74.71750	0.00423	0.00185	75.38055
Gasoline	Utility	96	0.90720	30.09600	0.78240	0.04032	0.04800	0.03120	75.50400	0.00427	0.00187	76.17403
Gasoline	Utility	97	0.91665	30.40950	0.79055	0.04074	0.04850	0.03153	76.29050	0.00432	0.00189	76.96751
Gasoline	Utility	98	0.92610	30.72300	0.79870	0.04116	0.04900	0.03185	77.07700	0.00436	0.00191	77.76099
Gasoline	Utility	99	0.93555	31.03650	0.80685	0.04158	0.04950	0.03218	77.86350	0.00441	0.00193	78.55447
Gasoline	Utility	100	0.94500	31.35000	0.81500	0.04200	0.05000	0.03250	78.65000	0.00445	0.00195	79.34795
Gasoline	Utility	101	0.95445	31.66350	0.82315	0.04242	0.05050	0.03283	79.43650	0.00449	0.00197	80.14143
Gasoline	Utility	102	0.96390	31.97700	0.83130	0.04284	0.05100	0.03315	80.22300	0.00454	0.00199	80.93491
Gasoline	Utility	103	0.97335	32.29050	0.83945	0.04326	0.05150	0.03348	81.00950	0.00458	0.00201	81.72839
Gasoline	Utility	104	0.98280	32.60400	0.84760	0.04368	0.05200	0.03380	81.79600	0.00463	0.00203	82.52187
Gasoline	Utility	105	0.99225	32.91750	0.85575	0.04410	0.05250	0.03413	82.58250	0.00467	0.00205	83.31535
Gasoline	Utility	106	1.00170	33.23100	0.86390	0.04452	0.05300	0.03445	83.36900	0.00472	0.00207	84.10883
Gasoline	Utility	107	1.01115	33.54450	0.87205	0.04494	0.05350	0.03478	84.15550	0.00476	0.00209	84.90231
Gasoline	Utility	108	1.02060	33.85800	0.88020	0.04536	0.05400	0.03510	84.94200	0.00481	0.00211	85.69579
Gasoline	Utility	109	1.03005	34.17150	0.88835	0.04578	0.05450	0.03543	85.72850	0.00485	0.00213	86.48927
Gasoline	Utility	110	1.03950	34.48500	0.89650	0.04620	0.05500	0.03575	86.51500	0.00490	0.00215	87.28275
Gasoline	Utility	111	1.04895	34.79850	0.90465	0.04662	0.05550	0.03608	87.30150	0.00494	0.00216	88.07622
Gasoline	Utility	112	1.05840	35.11200	0.91280	0.04704	0.05600	0.03640	88.08800	0.00498	0.00218	88.86970
Gasoline	Utility	113	1.06785	35.42550	0.92095	0.04746	0.05650	0.03673	88.87450	0.00503	0.00220	89.66318

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Utility	114	1.07730	35.73900	0.92910	0.04788	0.05700	0.03705	89.66100	0.00507	0.00222	90.45666
Gasoline	Utility	115	1.08675	36.05250	0.93725	0.04830	0.05750	0.03738	90.44750	0.00512	0.00224	91.25014
Gasoline	Utility	116	1.09620	36.36600	0.94540	0.04872	0.05800	0.03770	91.23400	0.00516	0.00226	92.04362
Gasoline	Utility	117	1.10565	36.67950	0.95355	0.04914	0.05850	0.03803	92.02050	0.00521	0.00228	92.83710
Gasoline	Utility	118	1.11510	36.99300	0.96170	0.04956	0.05900	0.03835	92.80700	0.00525	0.00230	93.63058
Gasoline	Utility	119	1.12455	37.30650	0.96985	0.04998	0.05950	0.03868	93.59350	0.00530	0.00232	94.42406
Gasoline	Utility	120	1.13400	37.62000	0.97800	0.05040	0.06000	0.03900	94.38000	0.00534	0.00234	95.21754
Gasoline	Utility	121	1.14345	37.93350	0.98615	0.05082	0.06050	0.03933	95.16650	0.00538	0.00236	96.01102
Gasoline	Utility	122	1.15290	38.24700	0.99430	0.05124	0.06100	0.03965	95.95300	0.00543	0.00238	96.80450
Gasoline	Utility	123	1.16235	38.56050	1.00245	0.05166	0.06150	0.03998	96.73950	0.00547	0.00240	97.59798
Gasoline	Utility	124	1.17180	38.87400	1.01060	0.05208	0.06200	0.04030	97.52600	0.00552	0.00242	98.39146
Gasoline	Utility	125	1.18125	39.18750	1.01875	0.05250	0.06250	0.04063	98.31250	0.00556	0.00244	99.18494
Gasoline	Utility	126	1.19070	39.50100	1.02690	0.05292	0.06300	0.04095	99.09900	0.00561	0.00246	99.97842
Gasoline	Utility	127	1.20015	39.81450	1.03505	0.05334	0.06350	0.04128	99.88550	0.00565	0.00248	100.77190
Gasoline	Utility	128	1.20960	40.12800	1.04320	0.05376	0.06400	0.04160	100.67200	0.00570	0.00250	101.56538
Gasoline	Utility	129	1.21905	40.44150	1.05135	0.05418	0.06450	0.04193	101.45850	0.00574	0.00252	102.35886
Gasoline	Utility	130	1.22850	40.75500	1.05950	0.05460	0.06500	0.04225	102.24500	0.00579	0.00254	103.15234
Gasoline	Utility	131	1.23795	41.06850	1.06765	0.05502	0.06550	0.04258	103.03150	0.00583	0.00255	103.94581
Gasoline	Utility	132	1.24740	41.38200	1.07580	0.05544	0.06600	0.04290	103.81800	0.00587	0.00257	104.73929
Gasoline	Utility	133	1.25685	41.69550	1.08395	0.05586	0.06650	0.04323	104.60450	0.00592	0.00259	105.53277
Gasoline	Utility	134	1.26630	42.00900	1.09210	0.05628	0.06700	0.04355	105.39100	0.00596	0.00261	106.32625
Gasoline	Utility	135	1.27575	42.32250	1.10025	0.05670	0.06750	0.04388	106.17750	0.00601	0.00263	107.11973
Gasoline	Utility	136	1.28520	42.63600	1.10840	0.05712	0.06800	0.04420	106.96400	0.00605	0.00265	107.91321
Gasoline	Utility	137	1.29465	42.94950	1.11655	0.05754	0.06850	0.04453	107.75050	0.00610	0.00267	108.70669
Gasoline	Utility	138	1.30410	43.26300	1.12470	0.05796	0.06900	0.04485	108.53700	0.00614	0.00269	109.50017
Gasoline	Utility	139	1.31355	43.57650	1.13285	0.05838	0.06950	0.04518	109.32350	0.00619	0.00271	110.29365
Gasoline	Utility	140	1.32300	43.89000	1.14100	0.05880	0.07000	0.04550	110.11000	0.00623	0.00273	111.08713
Gasoline	Utility	141	1.33245	44.20350	1.14915	0.05922	0.07050	0.04583	110.89650	0.00627	0.00275	111.88061
Gasoline	Utility	142	1.34190	44.51700	1.15730	0.05964	0.07100	0.04615	111.68300	0.00632	0.00277	112.67409
Gasoline	Utility	143	1.35135	44.83050	1.16545	0.06006	0.07150	0.04648	112.46950	0.00636	0.00279	113.46757
Gasoline	Utility	144	1.36080	45.14400	1.17360	0.06048	0.07200	0.04680	113.25600	0.00641	0.00281	114.26105
Gasoline	Utility	145	1.37025	45.45750	1.18175	0.06090	0.07250	0.04713	114.04250	0.00645	0.00283	115.05453
Gasoline	Utility	146	1.37970	45.77100	1.18990	0.06132	0.07300	0.04745	114.82900	0.00650	0.00285	115.84801
Gasoline	Utility	147	1.38915	46.08450	1.19805	0.06174	0.07350	0.04778	115.61550	0.00654	0.00287	116.64149
Gasoline	Utility	148	1.39860	46.39800	1.20620	0.06216	0.07400	0.04810	116.40200	0.00659	0.00289	117.43497
Gasoline	Utility	149	1.40805	46.71150	1.21435	0.06258	0.07450	0.04843	117.18850	0.00663	0.00291	118.22845
Gasoline	Utility	150	1.41750	47.02500	1.22250	0.06300	0.07500	0.04875	117.97500	0.00668	0.00293	119.02193
Gasoline	Utility	151	1.42695	47.33850	1.23065	0.06342	0.07550	0.04908	118.76150	0.00672	0.00294	119.81540
Gasoline	Utility	152	1.43640	47.65200	1.23880	0.06384	0.07600	0.04940	119.54800	0.00676	0.00296	120.60888
Gasoline	Utility	153	1.44585	47.96550	1.24695	0.06426	0.07650	0.04973	120.33450	0.00681	0.00298	121.40236
Gasoline	Utility	154	1.45530	48.27900	1.25510	0.06468	0.07700	0.05005	121.12100	0.00685	0.00300	122.19584
Gasoline	Utility	155	1.46475	48.59250	1.26325	0.06510	0.07750	0.05038	121.90750	0.00690	0.00302	122.98932
Gasoline	Utility	156	1.47420	48.90600	1.27140	0.06552	0.07800	0.05070	122.69400	0.00694	0.00304	123.78280
Gasoline	Utility	157	1.48365	49.21950	1.27955	0.06594	0.07850	0.05103	123.48050	0.00699	0.00306	124.57628
Gasoline	Utility	158	1.49310	49.53300	1.28770	0.06636	0.07900	0.05135	124.26700	0.00703	0.00308	125.36976
Gasoline	Utility	159	1.50255	49.84650	1.29585	0.06678	0.07950	0.05168	125.05350	0.00708	0.00310	126.16324
Gasoline	Utility	160	1.51200	50.16000	1.30400	0.06720	0.08000	0.05200	125.84000	0.00712	0.00312	126.95672
Gasoline	Utility	161	1.52145	50.47350	1.31215	0.06762	0.08050	0.05233	126.62650	0.00716	0.00314	127.75020
Gasoline	Utility	162	1.53090	50.78700	1.32030	0.06804	0.08100	0.05265	127.41300	0.00721	0.00316	128.54368
Gasoline	Utility	163	1.54035	51.10050	1.32845	0.06846	0.08150	0.05298	128.19950	0.00725	0.00318	129.33716
Gasoline	Utility	164	1.54980	51.41400	1.33660	0.06888	0.08200	0.05330	128.98600	0.00730	0.00320	130.13064
Gasoline	Utility	165	1.55925	51.72750	1.34475	0.06930	0.08250	0.05363	129.77250	0.00734	0.00322	130.92412
Gasoline	Utility	166	1.56870	52.04100	1.35290	0.06972	0.08300	0.05395	130.55900	0.00739	0.00324	131.71760
Gasoline	Utility	167	1.57815	52.35450	1.36105	0.07014	0.08350	0.05428	131.34550	0.00743	0.00326	132.51108
Gasoline	Utility	168	1.58760	52.66800	1.36920	0.07056	0.08400	0.05460	132.13200	0.00748	0.00328	133.30456
Gasoline	Utility	169	1.59705	52.98150	1.37735	0.07098	0.08450	0.05493	132.91850	0.00752	0.00330	134.09804
Gasoline	Utility	170	1.60650	53.29500	1.38550	0.07140	0.08500	0.05525	133.70500	0.00757	0.00332	134.89152
Gasoline	Utility	171	1.61595	53.60850	1.39365	0.07182	0.08550	0.05558	134.49150	0.00761	0.00333	135.68499
Gasoline	Utility	172	1.62540	53.92200	1.40180	0.07224	0.08600	0.05590	135.27800	0.00765	0.00335	136.47847
Gasoline	Utility	173	1.63485	54.23550	1.40995	0.07266	0.08650	0.05623	136.06450	0.00770	0.00337	137.27195
Gasoline	Utility	174	1.64430	54.54900	1.41810	0.07308	0.08700	0.05655	136.85100	0.00774	0.00339	138.06543
Gasoline	Utility	175	1.65375	54.86250	1.42625	0.07350	0.08750	0.05688	137.63750	0.00779	0.00341	138.85891
Gasoline	Utility	176	1.66320	55.17600	1.43440	0.07392	0.08800	0.05720	138.42400	0.00783	0.00343	139.65239
Gasoline	Utility	177	1.67265	55.48950	1.44255	0.07434	0.08850	0.05753	139.21050	0.00788	0.00345	140.44587
Gasoline	Utility	178	1.68210	55.80300	1.45070	0.07476	0.08900	0.05785	139.99700	0.00792	0.00347	141.23935
Gasoline	Utility	179	1.69155	56.11650	1.45885	0.07518	0.08950	0.05818	140.78350	0.00797	0.00349	142.03283
Gasoline	Utility	180	1.70100	56.43000	1.46700	0.07560	0.09000	0.05850	141.57000	0.00801	0.00351	142.82631
Gasoline	Utility	181	1.71045	56.74350	1.47515	0.07602	0.09050	0.05883	142.35650	0.00805	0.00353	143.61979
Gasoline	Utility	182	1.71990	57.05700	1.48330	0.07644	0.09100	0.05915	143.14300	0.00810	0.00355	144.41327
Gasoline	Utility	183	1.72935	57.37050	1.49145	0.07686	0.09150	0.05948	143.92950	0.00814	0.00357	145.20675
Gasoline	Utility	184	1.73880	57.68400	1.49960	0.07728	0.09200	0.05980	144.71600	0.00819	0.00359	146.00023
Gasoline	Utility	185	1.74825	57.99750	1.50775	0.07770	0.09250	0.06013	145.50250	0.00823	0.00361	146.79371
Gasoline	Utility	186	1.75770	58.31100	1.51590	0.07812	0.09300	0.06045	146.28900	0.00828	0.00363	147.58719
Gasoline	Utility	187	1.76715	58.62450	1.52405	0.07854	0.09350	0.06078	147.07550	0.00832	0.00365	148.38067
Gasoline	Utility	188	1.77660	58.93800	1.53220	0.07896	0.09400	0.06110	147.86200	0.00837	0.00367	149.17415
Gasoline	Utility	189	1.78605	59.25150	1.54035	0.07938	0.09450	0.06143	148.64850	0.00841	0.00369	149.96763
Gasoline	Utility	190	1.79550	59.56500	1.54850	0.07980	0.09500	0.06175	149.43500	0.00846	0.00371	150.76111
Gasoline	Utility	191	1.80495	59.87850	1.55665	0.08022	0.09550	0.06208	150.22150	0.00850	0.00372	151.55458

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Gasoline	Utility	192	1.81440	60.19200	1.56480	0.08064	0.09600	0.06240	151.00800	0.00854	0.00374	152.34806
Gasoline	Utility	193	1.82385	60.50550	1.57295	0.08106	0.09650	0.06273	151.79450	0.00859	0.00376	153.14154
Gasoline	Utility	194	1.83330	60.81900	1.58110	0.08148	0.09700	0.06305	152.58100	0.00863	0.00378	153.93502
Gasoline	Utility	195	1.84275	61.13250	1.58925	0.08190	0.09750	0.06338	153.36750	0.00868	0.00380	154.72850
Gasoline	Utility	196	1.85220	61.44600	1.59740	0.08232	0.09800	0.06370	154.15400	0.00872	0.00382	155.52198
Gasoline	Utility	197	1.86165	61.75950	1.60555	0.08274	0.09850	0.06403	154.94050	0.00877	0.00384	156.31546
Gasoline	Utility	198	1.87110	62.07300	1.61370	0.08316	0.09900	0.06435	155.72700	0.00881	0.00386	157.10894
Gasoline	Utility	199	1.88055	62.38650	1.62185	0.08358	0.09950	0.06468	156.51350	0.00886	0.00388	157.90242
Gasoline	Utility	200	1.89000	62.70000	1.63000	0.08400	0.10000	0.06500	157.30000	0.00890	0.00390	158.69590
Diesel	**Offroad**	**5.0**	**0.00444**	**0.03946**	**0.03255**	**0.00004**	**0.00395**	**0.00335**	**3.91200**	**0.00022**	**0.00010**	**3.94719**
Diesel	Offroad	5.1	0.00453	0.04025	0.03320	0.00004	0.00402	0.00342	3.99024	0.00023	0.00010	4.02614
Diesel	Offroad	5.2	0.00462	0.04103	0.03385	0.00004	0.00410	0.00349	4.06848	0.00023	0.00010	4.10508
Diesel	Offroad	5.3	0.00471	0.04182	0.03450	0.00004	0.00418	0.00356	4.14672	0.00024	0.00010	4.18402
Diesel	Offroad	5.4	0.00479	0.04261	0.03516	0.00004	0.00426	0.00362	4.22496	0.00024	0.00011	4.26297
Diesel	Offroad	5.5	0.00488	0.04340	0.03581	0.00004	0.00434	0.00369	4.30320	0.00025	0.00011	4.34191
Diesel	Offroad	5.6	0.00497	0.04419	0.03646	0.00004	0.00442	0.00376	4.38144	0.00025	0.00011	4.42085
Diesel	Offroad	5.7	0.00506	0.04498	0.03711	0.00004	0.00450	0.00382	4.45968	0.00025	0.00011	4.49980
Diesel	Offroad	5.8	0.00515	0.04577	0.03776	0.00004	0.00458	0.00389	4.53792	0.00026	0.00011	4.57874
Diesel	Offroad	5.9	0.00524	0.04656	0.03841	0.00004	0.00466	0.00396	4.61616	0.00026	0.00012	4.65769
Diesel	Offroad	6.0	0.00533	0.04735	0.03906	0.00004	0.00473	0.00402	4.69440	0.00027	0.00012	4.73663
Diesel	Offroad	6.1	0.00542	0.04814	0.03971	0.00005	0.00481	0.00409	4.77264	0.00027	0.00012	4.81557
Diesel	Offroad	6.2	0.00550	0.04893	0.04036	0.00005	0.00489	0.00416	4.85088	0.00028	0.00012	4.89452
Diesel	Offroad	6.3	0.00559	0.04972	0.04102	0.00005	0.00497	0.00423	4.92912	0.00028	0.00012	4.97346
Diesel	Offroad	6.4	0.00568	0.05050	0.04167	0.00005	0.00505	0.00429	5.00736	0.00029	0.00013	5.05240
Diesel	Offroad	6.5	0.00577	0.05129	0.04232	0.00005	0.00513	0.00436	5.08560	0.00029	0.00013	5.13135
Diesel	Offroad	6.6	0.00586	0.05208	0.04297	0.00005	0.00521	0.00443	5.16384	0.00029	0.00013	5.21029
Diesel	Offroad	6.7	0.00595	0.05287	0.04362	0.00005	0.00529	0.00449	5.24208	0.00030	0.00013	5.28924
Diesel	Offroad	6.8	0.00604	0.05366	0.04427	0.00005	0.00537	0.00456	5.32032	0.00030	0.00013	5.36818
Diesel	Offroad	6.9	0.00613	0.05445	0.04492	0.00005	0.00545	0.00463	5.39856	0.00031	0.00014	5.44712
Diesel	Offroad	7.0	0.00621	0.05524	0.04557	0.00005	0.00552	0.00470	5.47680	0.00031	0.00014	5.52607
Diesel	Offroad	7.1	0.00630	0.05603	0.04622	0.00005	0.00560	0.00476	5.55504	0.00032	0.00014	5.60501
Diesel	Offroad	7.2	0.00639	0.05682	0.04687	0.00005	0.00568	0.00483	5.63328	0.00032	0.00014	5.68396
Diesel	Offroad	7.3	0.00648	0.05761	0.04753	0.00005	0.00576	0.00490	5.71152	0.00033	0.00014	5.76290
Diesel	Offroad	7.4	0.00657	0.05840	0.04818	0.00006	0.00584	0.00496	5.78976	0.00033	0.00015	5.84184
Diesel	Offroad	7.5	0.00666	0.05918	0.04883	0.00006	0.00592	0.00503	5.86800	0.00033	0.00015	5.92079
Diesel	Offroad	7.6	0.00675	0.05997	0.04948	0.00006	0.00600	0.00510	5.94624	0.00034	0.00015	5.99973
Diesel	Offroad	7.7	0.00684	0.06076	0.05013	0.00006	0.00608	0.00516	6.02448	0.00034	0.00015	6.07867
Diesel	Offroad	7.8	0.00692	0.06155	0.05078	0.00006	0.00616	0.00523	6.10272	0.00035	0.00015	6.15762
Diesel	Offroad	7.9	0.00701	0.06234	0.05143	0.00006	0.00623	0.00530	6.18096	0.00035	0.00016	6.23656
Diesel	Offroad	8.0	0.00710	0.06313	0.05208	0.00006	0.00631	0.00537	6.25920	0.00036	0.00016	6.31551
Diesel	Offroad	8.1	0.00719	0.06392	0.05273	0.00006	0.00639	0.00543	6.33744	0.00036	0.00016	6.39445
Diesel	Offroad	8.2	0.00728	0.06471	0.05338	0.00006	0.00647	0.00550	6.41568	0.00037	0.00016	6.47339
Diesel	Offroad	8.3	0.00737	0.06550	0.05404	0.00006	0.00655	0.00557	6.49392	0.00037	0.00016	6.55234
Diesel	Offroad	8.4	0.00746	0.06629	0.05469	0.00006	0.00663	0.00563	6.57216	0.00037	0.00017	6.63128
Diesel	Offroad	8.5	0.00755	0.06708	0.05534	0.00006	0.00671	0.00570	6.65040	0.00038	0.00017	6.71023
Diesel	Offroad	8.6	0.00763	0.06787	0.05599	0.00006	0.00679	0.00577	6.72864	0.00038	0.00017	6.78917
Diesel	Offroad	8.7	0.00772	0.06865	0.05664	0.00006	0.00687	0.00584	6.80688	0.00039	0.00017	6.86811
Diesel	Offroad	8.8	0.00781	0.06944	0.05729	0.00007	0.00694	0.00590	6.88512	0.00039	0.00017	6.94706
Diesel	Offroad	8.9	0.00790	0.07023	0.05794	0.00007	0.00702	0.00597	6.96336	0.00040	0.00018	7.02600
Diesel	Offroad	9.0	0.00799	0.07102	0.05859	0.00007	0.00710	0.00604	7.04160	0.00040	0.00018	7.10494
Diesel	Offroad	9.1	0.00808	0.07181	0.05924	0.00007	0.00718	0.00610	7.11984	0.00041	0.00018	7.18389
Diesel	Offroad	9.2	0.00817	0.07260	0.05990	0.00007	0.00726	0.00617	7.19808	0.00041	0.00018	7.26283
Diesel	Offroad	9.3	0.00826	0.07339	0.06055	0.00007	0.00734	0.00624	7.27632	0.00042	0.00018	7.34178
Diesel	Offroad	9.4	0.00835	0.07418	0.06120	0.00007	0.00742	0.00631	7.35456	0.00042	0.00018	7.42072
Diesel	Offroad	9.5	0.00843	0.07497	0.06185	0.00007	0.00750	0.00637	7.43280	0.00042	0.00019	7.49966
Diesel	Offroad	9.6	0.00852	0.07576	0.06250	0.00007	0.00758	0.00644	7.51104	0.00043	0.00019	7.57861
Diesel	Offroad	9.7	0.00861	0.07655	0.06315	0.00007	0.00765	0.00651	7.58928	0.00043	0.00019	7.65755
Diesel	Offroad	9.8	0.00870	0.07733	0.06380	0.00007	0.00773	0.00657	7.66752	0.00044	0.00019	7.73649
Diesel	Offroad	9.9	0.00879	0.07812	0.06445	0.00007	0.00781	0.00664	7.74576	0.00044	0.00019	7.81544
Diesel	**Offroad**	**10**	**0.00888**	**0.06510**	**0.06510**	**0.00007**	**0.00789**	**0.00671**	**7.82400**	**0.00045**	**0.00020**	**7.89438**
Diesel	Offroad	11	0.00977	0.07161	0.07161	0.00008	0.00868	0.00738	8.60640	0.00049	0.00022	8.68382
Diesel	Offroad	12	0.01065	0.07812	0.07812	0.00009	0.00947	0.00805	9.38880	0.00054	0.00024	9.47326
Diesel	Offroad	13	0.01154	0.08463	0.08463	0.00010	0.01026	0.00872	10.17120	0.00058	0.00026	10.26270
Diesel	Offroad	14	0.01243	0.09114	0.09114	0.00010	0.01105	0.00939	10.95360	0.00062	0.00028	11.05214
Diesel	Offroad	15	0.01332	0.09765	0.09765	0.00011	0.01184	0.01006	11.73600	0.00067	0.00030	11.84157
Diesel	Offroad	16	0.01420	0.10417	0.10417	0.00012	0.01263	0.01073	12.51840	0.00071	0.00031	12.63101
Diesel	Offroad	17	0.01509	0.11068	0.11068	0.00013	0.01342	0.01140	13.30080	0.00076	0.00033	13.42045
Diesel	Offroad	18	0.01598	0.11719	0.11719	0.00013	0.01420	0.01207	14.08320	0.00080	0.00035	14.20989
Diesel	Offroad	19	0.01687	0.12370	0.12370	0.00014	0.01499	0.01274	14.86560	0.00085	0.00037	14.99933
Diesel	Offroad	20	0.01776	0.13021	0.13021	0.00015	0.01578	0.01342	15.64800	0.00089	0.00039	15.78876
Diesel	Offroad	21	0.01864	0.13672	0.13672	0.00016	0.01657	0.01409	16.43040	0.00094	0.00041	16.57820
Diesel	Offroad	22	0.01953	0.14323	0.14323	0.00016	0.01736	0.01476	17.21280	0.00098	0.00043	17.36764
Diesel	Offroad	23	0.02042	0.14974	0.14974	0.00017	0.01815	0.01543	17.99520	0.00103	0.00045	18.15708
Diesel	Offroad	24	0.02131	0.15625	0.15625	0.00018	0.01894	0.01610	18.77760	0.00107	0.00047	18.94652
Diesel	**Offroad**	**25**	**0.02219**	**0.13563**	**0.16276**	**0.00016**	**0.01480**	**0.01258**	**17.11500**	**0.00098**	**0.00043**	**17.26896**
Diesel	Offroad	26	0.02308	0.14106	0.16927	0.00017	0.01539	0.01308	17.79960	0.00102	0.00045	17.95972
Diesel	Offroad	27	0.02397	0.14648	0.17578	0.00018	0.01598	0.01358	18.48420	0.00105	0.00046	18.65048
Diesel	Offroad	28	0.02486	0.15191	0.18229	0.00018	0.01657	0.01409	19.16880	0.00109	0.00048	19.34124

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Diesel	Offroad	29	0.02575	0.15733	0.18880	0.00019	0.01716	0.01459	19.85340	0.00113	0.00050	20.03200
Diesel	Offroad	30	0.02663	0.16276	0.19531	0.00020	0.01776	0.01509	20.53800	0.00117	0.00052	20.72275
Diesel	Offroad	31	0.02752	0.16818	0.20182	0.00020	0.01835	0.01560	21.22260	0.00121	0.00053	21.41351
Diesel	Offroad	32	0.02841	0.17361	0.20833	0.00021	0.01894	0.01610	21.90720	0.00125	0.00055	22.10427
Diesel	Offroad	33	0.02930	0.17903	0.21484	0.00022	0.01953	0.01660	22.59180	0.00129	0.00057	22.79503
Diesel	Offroad	34	0.03018	0.18446	0.22135	0.00022	0.02012	0.01710	23.27640	0.00133	0.00059	23.48579
Diesel	Offroad	35	0.03107	0.18988	0.22786	0.00023	0.02071	0.01761	23.96100	0.00137	0.00060	24.17655
Diesel	Offroad	36	0.03196	0.19531	0.23437	0.00024	0.02131	0.01811	24.64560	0.00141	0.00062	24.86730
Diesel	Offroad	37	0.03285	0.20074	0.24088	0.00024	0.02190	0.01861	25.33020	0.00145	0.00064	25.55806
Diesel	Offroad	38	0.03374	0.20616	0.24739	0.00025	0.02249	0.01912	26.01480	0.00148	0.00065	26.24882
Diesel	Offroad	39	0.03462	0.21159	0.25390	0.00025	0.02308	0.01962	26.69940	0.00152	0.00067	26.93958
Diesel	Offroad	40	0.03551	0.21701	0.26041	0.00026	0.02367	0.02012	27.38400	0.00156	0.00069	27.63034
Diesel	Offroad	41	0.03640	0.22244	0.26692	0.00027	0.02427	0.02063	28.06860	0.00160	0.00071	28.32110
Diesel	Offroad	42	0.03729	0.22786	0.27343	0.00027	0.02486	0.02113	28.75320	0.00164	0.00072	29.01186
Diesel	Offroad	43	0.03817	0.23329	0.27994	0.00028	0.02545	0.02163	29.43780	0.00168	0.00074	29.70261
Diesel	Offroad	44	0.03906	0.23871	0.28645	0.00029	0.02604	0.02214	30.12240	0.00172	0.00076	30.39337
Diesel	Offroad	45	0.03995	0.24414	0.29296	0.00029	0.02663	0.02264	30.80700	0.00176	0.00077	31.08413
Diesel	Offroad	46	0.04084	0.24956	0.29948	0.00030	0.02723	0.02314	31.49160	0.00180	0.00079	31.77489
Diesel	Offroad	47	0.04173	0.25499	0.30599	0.00031	0.02782	0.02364	32.17620	0.00184	0.00081	32.46565
Diesel	Offroad	48	0.04261	0.26041	0.31250	0.00031	0.02841	0.02415	32.86080	0.00187	0.00083	33.15641
Diesel	Offroad	49	0.04350	0.26584	0.31901	0.00032	0.02900	0.02465	33.54540	0.00191	0.00084	33.84716
Diesel	**Offroad**	**50**	**0.04439**	**0.24660**	**0.32552**	**0.00033**	**0.01973**	**0.01677**	**34.23000**	**0.00195**	**0.00086**	**34.53792**
Diesel	Offroad	51	0.04528	0.25154	0.33203	0.00033	0.02012	0.01710	34.91460	0.00199	0.00088	35.22868
Diesel	Offroad	52	0.04616	0.25647	0.33854	0.00034	0.02052	0.01744	35.59920	0.00203	0.00090	35.91944
Diesel	Offroad	53	0.04705	0.26140	0.34505	0.00035	0.02091	0.01778	36.28380	0.00207	0.00091	36.61020
Diesel	Offroad	54	0.04794	0.26633	0.35156	0.00035	0.02131	0.01811	36.96840	0.00211	0.00093	37.30096
Diesel	Offroad	55	0.04883	0.27126	0.35807	0.00036	0.02170	0.01845	37.65300	0.00215	0.00095	37.99172
Diesel	Offroad	56	0.04972	0.27620	0.36458	0.00037	0.02210	0.01878	38.33760	0.00219	0.00096	38.68247
Diesel	Offroad	57	0.05060	0.28113	0.37109	0.00037	0.02249	0.01912	39.02220	0.00223	0.00098	39.37323
Diesel	Offroad	58	0.05149	0.28606	0.37760	0.00038	0.02288	0.01945	39.70680	0.00227	0.00100	40.06399
Diesel	Offroad	59	0.05238	0.29099	0.38411	0.00039	0.02328	0.01979	40.39140	0.00230	0.00102	40.75475
Diesel	Offroad	60	0.05327	0.29592	0.39062	0.00039	0.02367	0.02012	41.07600	0.00234	0.00103	41.44551
Diesel	Offroad	61	0.05415	0.30086	0.39713	0.00040	0.02407	0.02046	41.76060	0.00238	0.00105	42.13627
Diesel	Offroad	62	0.05504	0.30579	0.40364	0.00040	0.02446	0.02079	42.44520	0.00242	0.00107	42.82702
Diesel	Offroad	63	0.05593	0.31072	0.41015	0.00041	0.02486	0.02113	43.12980	0.00246	0.00108	43.51778
Diesel	Offroad	64	0.05682	0.31565	0.41666	0.00042	0.02525	0.02146	43.81440	0.00250	0.00110	44.20854
Diesel	Offroad	65	0.05771	0.32058	0.42317	0.00042	0.02565	0.02180	44.49900	0.00254	0.00112	44.89930
Diesel	Offroad	66	0.05859	0.32552	0.42968	0.00043	0.02604	0.02214	45.18360	0.00258	0.00114	45.59006
Diesel	Offroad	67	0.05948	0.33045	0.43619	0.00044	0.02644	0.02247	45.86820	0.00262	0.00115	46.28082
Diesel	Offroad	68	0.06037	0.33538	0.44270	0.00044	0.02683	0.02281	46.55280	0.00266	0.00117	46.97158
Diesel	Offroad	69	0.06126	0.34031	0.44921	0.00045	0.02723	0.02314	47.23740	0.00270	0.00119	47.66233
Diesel	Offroad	70	0.06214	0.34524	0.45572	0.00046	0.02762	0.02348	47.92200	0.00273	0.00121	48.35309
Diesel	Offroad	71	0.06303	0.35018	0.46223	0.00046	0.02801	0.02381	48.60660	0.00277	0.00122	49.04385
Diesel	Offroad	72	0.06392	0.35511	0.46874	0.00047	0.02841	0.02415	49.29120	0.00281	0.00124	49.73461
Diesel	Offroad	73	0.06481	0.36004	0.47525	0.00048	0.02880	0.02448	49.97580	0.00285	0.00126	50.42537
Diesel	Offroad	74	0.06570	0.36497	0.48176	0.00048	0.02920	0.02482	50.66040	0.00289	0.00127	51.11613
Diesel	**Offroad**	**75**	**0.06658**	**0.36991**	**0.48827**	**0.00049**	**0.02959**	**0.02515**	**51.34500**	**0.00293**	**0.00129**	**51.80688**
Diesel	Offroad	76	0.06747	0.37484	0.49479	0.00050	0.02999	0.02549	52.02960	0.00297	0.00131	52.49764
Diesel	Offroad	77	0.06836	0.37977	0.50130	0.00050	0.03038	0.02582	52.71420	0.00301	0.00133	53.18840
Diesel	Offroad	78	0.06925	0.38470	0.50781	0.00051	0.03078	0.02616	53.39880	0.00305	0.00134	53.87916
Diesel	Offroad	79	0.07013	0.38963	0.51432	0.00052	0.03117	0.02650	54.08340	0.00309	0.00136	54.56992
Diesel	Offroad	80	0.07102	0.39457	0.52083	0.00052	0.03157	0.02683	54.76800	0.00312	0.00138	55.26068
Diesel	Offroad	81	0.07191	0.39950	0.52734	0.00053	0.03196	0.02717	55.45260	0.00316	0.00139	55.95144
Diesel	Offroad	82	0.07280	0.40443	0.53385	0.00054	0.03235	0.02750	56.13720	0.00320	0.00141	56.64219
Diesel	Offroad	83	0.07369	0.40936	0.54036	0.00054	0.03275	0.02784	56.82180	0.00324	0.00143	57.33295
Diesel	Offroad	84	0.07457	0.41429	0.54687	0.00055	0.03314	0.02817	57.50640	0.00328	0.00145	58.02371
Diesel	Offroad	85	0.07546	0.41923	0.55338	0.00055	0.03354	0.02851	58.19100	0.00332	0.00146	58.71447
Diesel	Offroad	86	0.07635	0.42416	0.55989	0.00056	0.03393	0.02884	58.87560	0.00336	0.00148	59.40523
Diesel	Offroad	87	0.07724	0.42909	0.56640	0.00057	0.03433	0.02918	59.56020	0.00340	0.00150	60.09599
Diesel	Offroad	88	0.07812	0.43402	0.57291	0.00057	0.03472	0.02951	60.24480	0.00344	0.00152	60.78674
Diesel	Offroad	89	0.07901	0.43895	0.57942	0.00058	0.03512	0.02985	60.92940	0.00348	0.00153	61.47750
Diesel	Offroad	90	0.07990	0.44389	0.58593	0.00059	0.03551	0.03018	61.61400	0.00352	0.00155	62.16826
Diesel	Offroad	91	0.08079	0.44882	0.59244	0.00059	0.03591	0.03052	62.29860	0.00355	0.00157	62.85902
Diesel	Offroad	92	0.08168	0.45375	0.59895	0.00060	0.03630	0.03086	62.98320	0.00359	0.00158	63.54978
Diesel	Offroad	93	0.08256	0.45868	0.60546	0.00061	0.03669	0.03119	63.66780	0.00363	0.00160	64.24054
Diesel	Offroad	94	0.08345	0.46361	0.61197	0.00061	0.03709	0.03153	64.35240	0.00367	0.00162	64.93130
Diesel	Offroad	95	0.08434	0.46855	0.61848	0.00062	0.03748	0.03186	65.03700	0.00371	0.00164	65.62205
Diesel	Offroad	96	0.08523	0.47348	0.62499	0.00063	0.03788	0.03220	65.72160	0.00375	0.00165	66.31281
Diesel	Offroad	97	0.08611	0.47841	0.63150	0.00063	0.03827	0.03253	66.40620	0.00379	0.00167	67.00357
Diesel	Offroad	98	0.08700	0.48334	0.63801	0.00064	0.03867	0.03287	67.09080	0.00383	0.00169	67.69433
Diesel	Offroad	99	0.08789	0.48827	0.64452	0.00065	0.03906	0.03320	67.77540	0.00387	0.00170	68.38509
Diesel	**Offroad**	**100**	**0.07812**	**0.49321**	**0.57291**	**0.00065**	**0.02959**	**0.02515**	**68.46000**	**0.00391**	**0.00172**	**69.07585**
Diesel	Offroad	101	0.07891	0.49814	0.57864	0.00066	0.02989	0.02541	69.14460	0.00395	0.00174	69.76660
Diesel	Offroad	102	0.07969	0.50307	0.58437	0.00067	0.03018	0.02566	69.82920	0.00398	0.00176	70.45736
Diesel	Offroad	103	0.08047	0.50800	0.59010	0.00067	0.03048	0.02591	70.51380	0.00402	0.00177	71.14812
Diesel	Offroad	104	0.08125	0.51294	0.59583	0.00068	0.03078	0.02616	71.19840	0.00406	0.00179	71.83888
Diesel	Offroad	105	0.08203	0.51787	0.60155	0.00069	0.03107	0.02641	71.88300	0.00410	0.00181	72.52964
Diesel	Offroad	106	0.08281	0.52280	0.60728	0.00069	0.03137	0.02666	72.56760	0.00414	0.00183	73.22040

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Diesel	Offroad	107	0.08359	0.52773	0.61301	0.00070	0.03166	0.02691	73.25220	0.00418	0.00184	73.91116
Diesel	Offroad	108	0.08437	0.53266	0.61874	0.00071	0.03196	0.02717	73.93680	0.00422	0.00186	74.60191
Diesel	Offroad	109	0.08516	0.53760	0.62447	0.00071	0.03226	0.02742	74.62140	0.00426	0.00188	75.29267
Diesel	Offroad	110	0.08594	0.54253	0.63020	0.00072	0.03255	0.02767	75.30600	0.00430	0.00189	75.98343
Diesel	Offroad	111	0.08672	0.54746	0.63593	0.00072	0.03285	0.02792	75.99060	0.00434	0.00191	76.67419
Diesel	Offroad	112	0.08750	0.55239	0.64166	0.00073	0.03314	0.02817	76.67520	0.00437	0.00193	77.36495
Diesel	Offroad	113	0.08828	0.55732	0.64739	0.00074	0.03344	0.02842	77.35980	0.00441	0.00195	78.05571
Diesel	Offroad	114	0.08906	0.56226	0.65312	0.00074	0.03374	0.02868	78.04440	0.00445	0.00196	78.74646
Diesel	Offroad	115	0.08984	0.56719	0.65885	0.00075	0.03403	0.02893	78.72900	0.00449	0.00198	79.43722
Diesel	Offroad	116	0.09062	0.57212	0.66457	0.00076	0.03433	0.02918	79.41360	0.00453	0.00200	80.12798
Diesel	Offroad	117	0.09141	0.57705	0.67030	0.00076	0.03462	0.02943	80.09820	0.00457	0.00201	80.81874
Diesel	Offroad	118	0.09219	0.58198	0.67603	0.00077	0.03492	0.02968	80.78280	0.00461	0.00203	81.50950
Diesel	Offroad	119	0.09297	0.58692	0.68176	0.00078	0.03521	0.02993	81.46740	0.00465	0.00205	82.20026
Diesel	Offroad	120	0.09375	0.59185	0.68749	0.00078	0.03551	0.03018	82.15200	0.00469	0.00207	82.89102
Diesel	Offroad	121	0.09453	0.59678	0.69322	0.00079	0.03581	0.03044	82.83660	0.00473	0.00208	83.58177
Diesel	Offroad	122	0.09531	0.60171	0.69895	0.00080	0.03610	0.03069	83.52120	0.00477	0.00210	84.27253
Diesel	Offroad	123	0.09609	0.60664	0.70468	0.00080	0.03640	0.03094	84.20580	0.00480	0.00212	84.96329
Diesel	Offroad	124	0.09687	0.61158	0.71041	0.00081	0.03669	0.03119	84.89040	0.00484	0.00214	85.65405
Diesel	Offroad	125	0.09765	0.61651	0.71614	0.00082	0.03699	0.03144	85.57500	0.00488	0.00215	86.34481
Diesel	Offroad	126	0.09844	0.62144	0.72187	0.00082	0.03729	0.03169	86.25960	0.00492	0.00217	87.03557
Diesel	Offroad	127	0.09922	0.62637	0.72759	0.00083	0.03758	0.03195	86.94420	0.00496	0.00219	87.72632
Diesel	Offroad	128	0.10000	0.63130	0.73332	0.00084	0.03788	0.03220	87.62880	0.00500	0.00220	88.41708
Diesel	Offroad	129	0.10078	0.63624	0.73905	0.00084	0.03817	0.03245	88.31340	0.00504	0.00222	89.10784
Diesel	Offroad	130	0.10156	0.64117	0.74478	0.00085	0.03847	0.03270	88.99800	0.00508	0.00224	89.79860
Diesel	Offroad	131	0.10234	0.64610	0.75051	0.00086	0.03877	0.03295	89.68260	0.00512	0.00226	90.48936
Diesel	Offroad	132	0.10312	0.65103	0.75624	0.00086	0.03906	0.03320	90.36720	0.00516	0.00227	91.18012
Diesel	Offroad	133	0.10390	0.65596	0.76197	0.00087	0.03936	0.03345	91.05180	0.00519	0.00229	91.87088
Diesel	Offroad	134	0.10469	0.66090	0.76770	0.00087	0.03965	0.03371	91.73640	0.00523	0.00231	92.56163
Diesel	Offroad	135	0.10547	0.66583	0.77343	0.00088	0.03995	0.03396	92.42100	0.00527	0.00232	93.25239
Diesel	Offroad	136	0.10625	0.67076	0.77916	0.00089	0.04025	0.03421	93.10560	0.00531	0.00234	93.94315
Diesel	Offroad	137	0.10703	0.67569	0.78489	0.00089	0.04054	0.03446	93.79020	0.00535	0.00236	94.63391
Diesel	Offroad	138	0.10781	0.68063	0.79061	0.00090	0.04084	0.03471	94.47480	0.00539	0.00238	95.32467
Diesel	Offroad	139	0.10859	0.68556	0.79634	0.00091	0.04113	0.03496	95.15940	0.00543	0.00239	96.01543
Diesel	Offroad	140	0.10937	0.69049	0.80207	0.00091	0.04143	0.03521	95.84400	0.00547	0.00241	96.70618
Diesel	Offroad	141	0.11015	0.69542	0.80780	0.00092	0.04173	0.03547	96.52860	0.00551	0.00243	97.39694
Diesel	Offroad	142	0.11094	0.70035	0.81353	0.00093	0.04202	0.03572	97.21320	0.00555	0.00245	98.08770
Diesel	Offroad	143	0.11172	0.70529	0.81926	0.00093	0.04232	0.03597	97.89780	0.00559	0.00246	98.77846
Diesel	Offroad	144	0.11250	0.71022	0.82499	0.00094	0.04261	0.03622	98.58240	0.00562	0.00248	99.46922
Diesel	Offroad	145	0.11328	0.71515	0.83072	0.00095	0.04291	0.03647	99.26700	0.00566	0.00250	100.15998
Diesel	Offroad	146	0.11406	0.72008	0.83645	0.00095	0.04320	0.03672	99.95160	0.00570	0.00251	100.85074
Diesel	Offroad	147	0.11484	0.72501	0.84218	0.00096	0.04350	0.03698	100.63620	0.00574	0.00253	101.54149
Diesel	Offroad	148	0.11562	0.72995	0.84791	0.00097	0.04380	0.03723	101.32080	0.00578	0.00255	102.23225
Diesel	Offroad	149	0.11640	0.73488	0.85363	0.00097	0.04409	0.03748	102.00540	0.00582	0.00257	102.92301
Diesel	Offroad	150	0.11719	0.73981	0.85936	0.00098	0.04439	0.03773	102.69000	0.00586	0.00258	103.61377
Diesel	Offroad	151	0.11797	0.74474	0.86509	0.00099	0.04468	0.03798	103.37460	0.00590	0.00260	104.30453
Diesel	Offroad	152	0.11875	0.74967	0.87082	0.00099	0.04498	0.03823	104.05920	0.00594	0.00262	104.99529
Diesel	Offroad	153	0.11953	0.75461	0.87655	0.00100	0.04528	0.03848	104.74380	0.00598	0.00263	105.68604
Diesel	Offroad	154	0.12031	0.75954	0.88228	0.00101	0.04557	0.03874	105.42840	0.00602	0.00265	106.37680
Diesel	Offroad	155	0.12109	0.76447	0.88801	0.00101	0.04587	0.03899	106.11300	0.00605	0.00267	107.06756
Diesel	Offroad	156	0.12187	0.76940	0.89374	0.00102	0.04616	0.03924	106.79760	0.00609	0.00269	107.75832
Diesel	Offroad	157	0.12265	0.77433	0.89947	0.00102	0.04646	0.03949	107.48220	0.00613	0.00270	108.44908
Diesel	Offroad	158	0.12344	0.77927	0.90520	0.00103	0.04676	0.03974	108.16680	0.00617	0.00272	109.13984
Diesel	Offroad	159	0.12422	0.78420	0.91093	0.00104	0.04705	0.03999	108.85140	0.00621	0.00274	109.83060
Diesel	Offroad	160	0.12500	0.78913	0.91665	0.00104	0.04735	0.04025	109.53600	0.00625	0.00276	110.52135
Diesel	Offroad	161	0.12578	0.79406	0.92238	0.00105	0.04764	0.04050	110.22060	0.00629	0.00277	111.21211
Diesel	Offroad	162	0.12656	0.79899	0.92811	0.00106	0.04794	0.04075	110.90520	0.00633	0.00279	111.90287
Diesel	Offroad	163	0.12734	0.80393	0.93384	0.00106	0.04824	0.04100	111.58980	0.00637	0.00281	112.59363
Diesel	Offroad	164	0.12812	0.80886	0.93957	0.00107	0.04853	0.04125	112.27440	0.00641	0.00282	113.28439
Diesel	Offroad	165	0.12890	0.81379	0.94530	0.00108	0.04883	0.04150	112.95900	0.00644	0.00284	113.97515
Diesel	Offroad	166	0.12969	0.81872	0.95103	0.00108	0.04912	0.04175	113.64360	0.00648	0.00286	114.66590
Diesel	Offroad	167	0.13047	0.82366	0.95676	0.00109	0.04942	0.04201	114.32820	0.00652	0.00288	115.35666
Diesel	Offroad	168	0.13125	0.82859	0.96249	0.00110	0.04972	0.04226	115.01280	0.00656	0.00289	116.04742
Diesel	Offroad	169	0.13203	0.83352	0.96822	0.00110	0.05001	0.04251	115.69740	0.00660	0.00291	116.73818
Diesel	Offroad	170	0.13281	0.83845	0.97395	0.00111	0.05031	0.04276	116.38200	0.00664	0.00293	117.42894
Diesel	Offroad	171	0.13359	0.84338	0.97967	0.00112	0.05060	0.04301	117.06660	0.00668	0.00294	118.11970
Diesel	Offroad	172	0.13437	0.84832	0.98540	0.00112	0.05090	0.04326	117.75120	0.00672	0.00296	118.81046
Diesel	Offroad	173	0.13515	0.85325	0.99113	0.00113	0.05119	0.04352	118.43580	0.00676	0.00298	119.50121
Diesel	Offroad	174	0.13594	0.85818	0.99686	0.00114	0.05149	0.04377	119.12040	0.00680	0.00300	120.19197
Diesel	**Offroad**	**175**	**0.13672**	**0.60418**	**1.00259**	**0.00114**	**0.03452**	**0.02935**	**119.80500**	**0.00684**	**0.00301**	**120.88273**
Diesel	Offroad	176	0.13750	0.60763	1.00832	0.00115	0.03472	0.02951	120.48960	0.00687	0.00303	121.57349
Diesel	Offroad	177	0.13828	0.61108	1.01405	0.00116	0.03492	0.02968	121.17420	0.00691	0.00305	122.26425
Diesel	Offroad	178	0.13906	0.61454	1.01978	0.00116	0.03512	0.02985	121.85880	0.00695	0.00307	122.95501
Diesel	Offroad	179	0.13984	0.61799	1.02551	0.00117	0.03531	0.03002	122.54340	0.00699	0.00308	123.64576
Diesel	Offroad	180	0.14062	0.62144	1.03124	0.00118	0.03551	0.03018	123.22800	0.00703	0.00310	124.33652
Diesel	Offroad	181	0.14140	0.62489	1.03697	0.00118	0.03571	0.03035	123.91260	0.00707	0.00312	125.02728
Diesel	Offroad	182	0.14219	0.62835	1.04269	0.00119	0.03591	0.03052	124.59720	0.00711	0.00313	125.71804
Diesel	Offroad	183	0.14297	0.63180	1.04842	0.00119	0.03610	0.03069	125.28180	0.00715	0.00315	126.40880
Diesel	Offroad	184	0.14375	0.63525	1.05415	0.00120	0.03630	0.03086	125.96640	0.00719	0.00317	127.09956

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Diesel	Offroad	185	0.14453	0.63870	1.05988	0.00121	0.03650	0.03102	126.65100	0.00723	0.00319	127.79032
Diesel	Offroad	186	0.14531	0.64216	1.06561	0.00121	0.03669	0.03119	127.33560	0.00727	0.00320	128.48107
Diesel	Offroad	187	0.14609	0.64561	1.07134	0.00122	0.03689	0.03136	128.02020	0.00730	0.00322	129.17183
Diesel	Offroad	188	0.14687	0.64906	1.07707	0.00123	0.03709	0.03153	128.70480	0.00734	0.00324	129.86259
Diesel	Offroad	189	0.14765	0.65251	1.08280	0.00123	0.03729	0.03169	129.38940	0.00738	0.00325	130.55335
Diesel	Offroad	190	0.14844	0.65596	1.08853	0.00124	0.03748	0.03186	130.07400	0.00742	0.00327	131.24411
Diesel	Offroad	191	0.14922	0.65942	1.09426	0.00125	0.03768	0.03203	130.75860	0.00746	0.00329	131.93487
Diesel	Offroad	192	0.15000	0.66287	1.09999	0.00125	0.03788	0.03220	131.44320	0.00750	0.00331	132.62562
Diesel	Offroad	193	0.15078	0.66632	1.10571	0.00126	0.03808	0.03236	132.12780	0.00754	0.00332	133.31638
Diesel	Offroad	194	0.15156	0.66977	1.11144	0.00127	0.03827	0.03253	132.81240	0.00758	0.00334	134.00714
Diesel	Offroad	195	0.15234	0.67323	1.11717	0.00127	0.03847	0.03270	133.49700	0.00762	0.00336	134.69790
Diesel	Offroad	196	0.15312	0.67668	1.12290	0.00128	0.03867	0.03287	134.18160	0.00766	0.00338	135.38866
Diesel	Offroad	197	0.15390	0.68013	1.12863	0.00129	0.03886	0.03303	134.86620	0.00769	0.00339	136.07942
Diesel	Offroad	198	0.15469	0.68358	1.13436	0.00129	0.03906	0.03320	135.55080	0.00773	0.00341	136.77018
Diesel	Offroad	199	0.15547	0.68704	1.14009	0.00130	0.03926	0.03337	136.23540	0.00777	0.00343	137.46093
Diesel	Offroad	200	0.15625	0.69049	1.14582	0.00131	0.03946	0.03354	136.92000	0.00781	0.00344	138.15169
Diesel	Offroad	201	0.15703	0.69394	1.15155	0.00131	0.03965	0.03371	137.60460	0.00785	0.00346	138.84245
Diesel	Offroad	202	0.15781	0.69739	1.15728	0.00132	0.03985	0.03387	138.28920	0.00789	0.00348	139.53321
Diesel	Offroad	203	0.15859	0.70085	1.16301	0.00133	0.04005	0.03404	138.97380	0.00793	0.00350	140.22397
Diesel	Offroad	204	0.15937	0.70430	1.16873	0.00133	0.04025	0.03421	139.65840	0.00797	0.00351	140.91473
Diesel	Offroad	205	0.16015	0.70775	1.17446	0.00134	0.04044	0.03438	140.34300	0.00801	0.00353	141.60548
Diesel	Offroad	206	0.16094	0.71120	1.18019	0.00134	0.04064	0.03454	141.02760	0.00805	0.00355	142.29624
Diesel	Offroad	207	0.16172	0.71466	1.18592	0.00135	0.04084	0.03471	141.71220	0.00809	0.00356	142.98700
Diesel	Offroad	208	0.16250	0.71811	1.19165	0.00136	0.04103	0.03488	142.39680	0.00812	0.00358	143.67776
Diesel	Offroad	209	0.16328	0.72156	1.19738	0.00136	0.04123	0.03505	143.08140	0.00816	0.00360	144.36852
Diesel	Offroad	210	0.16406	0.72501	1.20311	0.00137	0.04143	0.03521	143.76600	0.00820	0.00362	145.05928
Diesel	Offroad	211	0.16484	0.72847	1.20884	0.00138	0.04163	0.03538	144.45060	0.00824	0.00363	145.75004
Diesel	Offroad	212	0.16562	0.73192	1.21457	0.00138	0.04182	0.03555	145.13520	0.00828	0.00365	146.44079
Diesel	Offroad	213	0.16640	0.73537	1.22030	0.00139	0.04202	0.03572	145.81980	0.00832	0.00367	147.13155
Diesel	Offroad	214	0.16719	0.73882	1.22603	0.00140	0.04222	0.03589	146.50440	0.00836	0.00369	147.82231
Diesel	Offroad	215	0.16797	0.74228	1.23175	0.00140	0.04242	0.03605	147.18900	0.00840	0.00370	148.51307
Diesel	Offroad	216	0.16875	0.74573	1.23748	0.00141	0.04261	0.03622	147.87360	0.00844	0.00372	149.20383
Diesel	Offroad	217	0.16953	0.74918	1.24321	0.00142	0.04281	0.03639	148.55820	0.00848	0.00374	149.89459
Diesel	Offroad	218	0.17031	0.75263	1.24894	0.00142	0.04301	0.03656	149.24280	0.00852	0.00375	150.58534
Diesel	Offroad	219	0.17109	0.75609	1.25467	0.00143	0.04320	0.03672	149.92740	0.00855	0.00377	151.27610
Diesel	Offroad	220	0.17187	0.75954	1.26040	0.00144	0.04340	0.03689	150.61200	0.00859	0.00379	151.96686
Diesel	Offroad	221	0.17265	0.76299	1.26613	0.00144	0.04360	0.03706	151.29660	0.00863	0.00381	152.65762
Diesel	Offroad	222	0.17344	0.76644	1.27186	0.00145	0.04380	0.03723	151.98120	0.00867	0.00382	153.34838
Diesel	Offroad	223	0.17422	0.76990	1.27759	0.00146	0.04399	0.03739	152.66580	0.00871	0.00384	154.03914
Diesel	Offroad	224	0.17500	0.77335	1.28332	0.00146	0.04419	0.03756	153.35040	0.00875	0.00386	154.72990
Diesel	Offroad	225	0.17578	0.77680	1.28905	0.00147	0.04439	0.03773	154.03500	0.00879	0.00387	155.42065
Diesel	Offroad	226	0.17656	0.78025	1.29477	0.00148	0.04459	0.03790	154.71960	0.00883	0.00389	156.11141
Diesel	Offroad	227	0.17734	0.78371	1.30050	0.00148	0.04478	0.03807	155.40420	0.00887	0.00391	156.80217
Diesel	Offroad	228	0.17812	0.78716	1.30623	0.00149	0.04498	0.03823	156.08880	0.00891	0.00393	157.49293
Diesel	Offroad	229	0.17890	0.79061	1.31196	0.00150	0.04518	0.03840	156.77340	0.00894	0.00394	158.18369
Diesel	Offroad	230	0.17969	0.79406	1.31769	0.00150	0.04538	0.03857	157.45800	0.00898	0.00396	158.87445
Diesel	Offroad	231	0.18047	0.79752	1.32342	0.00151	0.04557	0.03874	158.14260	0.00902	0.00398	159.56520
Diesel	Offroad	232	0.18125	0.80097	1.32915	0.00151	0.04577	0.03890	158.82720	0.00906	0.00400	160.25596
Diesel	Offroad	233	0.18203	0.80442	1.33488	0.00152	0.04597	0.03907	159.51180	0.00910	0.00401	160.94672
Diesel	Offroad	234	0.18281	0.80787	1.34061	0.00153	0.04616	0.03924	160.19640	0.00914	0.00403	161.63748
Diesel	Offroad	235	0.18359	0.81133	1.34634	0.00153	0.04636	0.03941	160.88100	0.00918	0.00405	162.32824
Diesel	Offroad	236	0.18437	0.81478	1.35207	0.00154	0.04656	0.03957	161.56560	0.00922	0.00406	163.01900
Diesel	Offroad	237	0.18515	0.81823	1.35779	0.00155	0.04676	0.03974	162.25020	0.00926	0.00408	163.70976
Diesel	Offroad	238	0.18593	0.82168	1.36352	0.00155	0.04695	0.03991	162.93480	0.00930	0.00410	164.40051
Diesel	Offroad	239	0.18672	0.82513	1.36925	0.00156	0.04715	0.04008	163.61940	0.00934	0.00412	165.09127
Diesel	Offroad	240	0.18750	0.82859	1.37498	0.00157	0.04735	0.04025	164.30400	0.00937	0.00413	165.78203
Diesel	Offroad	241	0.18828	0.83204	1.38071	0.00157	0.04755	0.04041	164.98860	0.00941	0.00415	166.47279
Diesel	Offroad	242	0.18906	0.83549	1.38644	0.00158	0.04774	0.04058	165.67320	0.00945	0.00417	167.16355
Diesel	Offroad	243	0.18984	0.83894	1.39217	0.00159	0.04794	0.04075	166.35780	0.00949	0.00418	167.85431
Diesel	Offroad	244	0.19062	0.84240	1.39790	0.00159	0.04814	0.04092	167.04240	0.00953	0.00420	168.54506
Diesel	Offroad	245	0.19140	0.84585	1.40363	0.00160	0.04833	0.04108	167.72700	0.00957	0.00422	169.23582
Diesel	Offroad	246	0.19218	0.84930	1.40936	0.00161	0.04853	0.04125	168.41160	0.00961	0.00424	169.92658
Diesel	Offroad	247	0.19297	0.85275	1.41509	0.00161	0.04873	0.04142	169.09620	0.00965	0.00425	170.61734
Diesel	Offroad	248	0.19375	0.85621	1.42081	0.00162	0.04893	0.04159	169.78080	0.00969	0.00427	171.30810
Diesel	Offroad	249	0.19453	0.85966	1.42654	0.00163	0.04912	0.04175	170.46540	0.00973	0.00429	171.99886
Diesel	Offroad	250	0.19531	0.86311	1.43227	0.00163	0.04932	0.04192	171.15000	0.00977	0.00431	172.68962
Diesel	Offroad	251	0.19609	0.86656	1.43800	0.00164	0.04952	0.04209	171.83460	0.00980	0.00432	173.38037
Diesel	Offroad	252	0.19687	0.87002	1.44373	0.00165	0.04972	0.04226	172.51920	0.00984	0.00434	174.07113
Diesel	Offroad	253	0.19765	0.87347	1.44946	0.00165	0.04991	0.04243	173.20380	0.00988	0.00436	174.76189
Diesel	Offroad	254	0.19843	0.87692	1.45519	0.00166	0.05011	0.04259	173.88840	0.00992	0.00437	175.45265
Diesel	Offroad	255	0.19922	0.88037	1.46092	0.00166	0.05031	0.04276	174.57300	0.00996	0.00439	176.14341
Diesel	Offroad	256	0.20000	0.88383	1.46665	0.00167	0.05050	0.04293	175.25760	0.01000	0.00441	176.83417
Diesel	Offroad	257	0.20078	0.88728	1.47238	0.00168	0.05070	0.04310	175.94220	0.01004	0.00443	177.52492
Diesel	Offroad	258	0.20156	0.89073	1.47811	0.00168	0.05090	0.04326	176.62680	0.01008	0.00444	178.21568
Diesel	Offroad	259	0.20234	0.89418	1.48383	0.00169	0.05110	0.04343	177.31140	0.01012	0.00446	178.90644
Diesel	Offroad	260	0.20312	0.89764	1.48956	0.00170	0.05129	0.04360	177.99600	0.01016	0.00448	179.59720
Diesel	Offroad	261	0.20390	0.90109	1.49529	0.00170	0.05149	0.04377	178.68060	0.01019	0.00449	180.28796
Diesel	Offroad	262	0.20468	0.90454	1.50102	0.00171	0.05169	0.04393	179.36520	0.01023	0.00451	180.97872

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Diesel	Offroad	263	0.20547	0.90799	1.50675	0.00172	0.05189	0.04410	180.04980	0.01027	0.00453	181.66947
Diesel	Offroad	264	0.20625	0.91145	1.51248	0.00172	0.05208	0.04427	180.73440	0.01031	0.00455	182.36023
Diesel	Offroad	265	0.20703	0.91490	1.51821	0.00173	0.05228	0.04444	181.41900	0.01035	0.00456	183.05099
Diesel	Offroad	266	0.20781	0.91835	1.52394	0.00174	0.05248	0.04461	182.10360	0.01039	0.00458	183.74175
Diesel	Offroad	267	0.20859	0.92180	1.52967	0.00174	0.05267	0.04477	182.78820	0.01043	0.00460	184.43251
Diesel	Offroad	268	0.20937	0.92526	1.53540	0.00175	0.05287	0.04494	183.47280	0.01047	0.00461	185.12327
Diesel	Offroad	269	0.21015	0.92871	1.54113	0.00176	0.05307	0.04511	184.15740	0.01051	0.00463	185.81403
Diesel	Offroad	270	0.21093	0.93216	1.54685	0.00176	0.05327	0.04528	184.84200	0.01055	0.00465	186.50478
Diesel	Offroad	271	0.21172	0.93561	1.55258	0.00177	0.05346	0.04544	185.52660	0.01059	0.00467	187.19554
Diesel	Offroad	272	0.21250	0.93907	1.55831	0.00178	0.05366	0.04561	186.21120	0.01062	0.00468	187.88630
Diesel	Offroad	273	0.21328	0.94252	1.56404	0.00178	0.05386	0.04578	186.89580	0.01066	0.00470	188.57706
Diesel	Offroad	274	0.21406	0.94597	1.56977	0.00179	0.05406	0.04595	187.58040	0.01070	0.00472	189.26782
Diesel	Offroad	275	0.21484	0.94942	1.57550	0.00180	0.05425	0.04611	188.26500	0.01074	0.00474	189.95858
Diesel	Offroad	276	0.21562	0.95288	1.58123	0.00180	0.05445	0.04628	188.94960	0.01078	0.00475	190.64933
Diesel	Offroad	277	0.21640	0.95633	1.58696	0.00181	0.05465	0.04645	189.63420	0.01082	0.00477	191.34009
Diesel	Offroad	278	0.21718	0.95978	1.59269	0.00181	0.05484	0.04662	190.31880	0.01086	0.00479	192.03085
Diesel	Offroad	279	0.21797	0.96323	1.59842	0.00182	0.05504	0.04679	191.00340	0.01090	0.00480	192.72161
Diesel	Offroad	280	0.21875	0.96669	1.60415	0.00183	0.05524	0.04695	191.68800	0.01094	0.00482	193.41237
Diesel	Offroad	281	0.21953	0.97014	1.60987	0.00183	0.05544	0.04712	192.37260	0.01098	0.00484	194.10313
Diesel	Offroad	282	0.22031	0.97359	1.61560	0.00184	0.05563	0.04729	193.05720	0.01101	0.00486	194.79389
Diesel	Offroad	283	0.22109	0.97704	1.62133	0.00185	0.05583	0.04746	193.74180	0.01105	0.00487	195.48464
Diesel	Offroad	284	0.22187	0.98050	1.62706	0.00185	0.05603	0.04762	194.42640	0.01109	0.00489	196.17540
Diesel	Offroad	285	0.22265	0.98395	1.63279	0.00186	0.05623	0.04779	195.11100	0.01113	0.00491	196.86616
Diesel	Offroad	286	0.22343	0.98740	1.63852	0.00187	0.05642	0.04796	195.79560	0.01117	0.00492	197.55692
Diesel	Offroad	287	0.22422	0.99085	1.64425	0.00187	0.05662	0.04813	196.48020	0.01121	0.00494	198.24768
Diesel	Offroad	288	0.22500	0.99430	1.64998	0.00188	0.05682	0.04829	197.16480	0.01125	0.00496	198.93844
Diesel	Offroad	289	0.22578	0.99776	1.65571	0.00189	0.05701	0.04846	197.84940	0.01129	0.00498	199.62919
Diesel	Offroad	290	0.22656	1.00121	1.66144	0.00189	0.05721	0.04863	198.53400	0.01133	0.00499	200.31995
Diesel	Offroad	291	0.22734	1.00466	1.66717	0.00190	0.05741	0.04880	199.21860	0.01137	0.00501	201.01071
Diesel	Offroad	292	0.22812	1.00811	1.67289	0.00191	0.05761	0.04897	199.90320	0.01141	0.00503	201.70147
Diesel	Offroad	293	0.22890	1.01157	1.67862	0.00191	0.05780	0.04913	200.58780	0.01144	0.00505	202.39223
Diesel	Offroad	294	0.22968	1.01502	1.68435	0.00192	0.05800	0.04930	201.27240	0.01148	0.00506	203.08299
Diesel	Offroad	295	0.23047	1.01847	1.69008	0.00193	0.05820	0.04947	201.95700	0.01152	0.00508	203.77375
Diesel	Offroad	296	0.23125	1.02192	1.69581	0.00193	0.05840	0.04964	202.64160	0.01156	0.00510	204.46450
Diesel	Offroad	297	0.23203	1.02538	1.70154	0.00194	0.05859	0.04980	203.32620	0.01160	0.00511	205.15526
Diesel	Offroad	298	0.23281	1.02883	1.70727	0.00195	0.05879	0.04997	204.01080	0.01164	0.00513	205.84602
Diesel	Offroad	299	0.23359	1.03228	1.71300	0.00195	0.05899	0.05014	204.69540	0.01168	0.00515	206.53678
Diesel	**Offroad**	**300**	**0.22727**	**1.03573**	**1.66664**	**0.00196**	**0.05918**	**0.05031**	**205.38000**	**0.01172**	**0.00517**	**207.22754**
Diesel	Offroad	310	0.23485	1.07026	1.72220	0.00202	0.06116	0.05198	212.22600	0.01211	0.00534	214.13512
Diesel	Offroad	320	0.24242	1.10478	1.77775	0.00209	0.06313	0.05366	219.07200	0.01250	0.00551	221.04271
Diesel	Offroad	330	0.25000	1.13931	1.83331	0.00215	0.06510	0.05534	225.91800	0.01289	0.00568	227.95029
Diesel	Offroad	340	0.25757	1.17383	1.88886	0.00222	0.06708	0.05701	232.76400	0.01328	0.00585	234.85788
Diesel	Offroad	350	0.26515	1.20836	1.94442	0.00228	0.06905	0.05869	239.61000	0.01367	0.00603	241.76546
Diesel	Offroad	360	0.27272	1.24288	1.99997	0.00235	0.07102	0.06037	246.45600	0.01406	0.00620	248.67305
Diesel	Offroad	370	0.28030	1.27741	2.05553	0.00242	0.07299	0.06205	253.30200	0.01445	0.00637	255.58063
Diesel	Offroad	380	0.28787	1.31193	2.11108	0.00248	0.07497	0.06372	260.14800	0.01484	0.00654	262.48821
Diesel	Offroad	390	0.29545	1.34645	2.16664	0.00255	0.07694	0.06540	266.99400	0.01523	0.00672	269.39580
Diesel	Offroad	400	0.30303	1.38098	2.22219	0.00261	0.07891	0.06708	273.84000	0.01562	0.00689	276.30338
Diesel	Offroad	410	0.31060	1.41550	2.27775	0.00268	0.08089	0.06875	280.68600	0.01601	0.00706	283.21097
Diesel	Offroad	420	0.31818	1.45003	2.33330	0.00274	0.08286	0.07043	287.53200	0.01641	0.00723	290.11855
Diesel	Offroad	430	0.32575	1.48455	2.38886	0.00281	0.08483	0.07211	294.37800	0.01680	0.00740	297.02614
Diesel	Offroad	440	0.33333	1.51908	2.44441	0.00287	0.08680	0.07378	301.22400	0.01719	0.00758	303.93372
Diesel	Offroad	450	0.34090	1.55360	2.49997	0.00294	0.08878	0.07546	308.07000	0.01758	0.00775	310.84131
Diesel	Offroad	460	0.34848	1.58813	2.55552	0.00300	0.09075	0.07714	314.91600	0.01797	0.00792	317.74889
Diesel	Offroad	470	0.35606	1.62265	2.61108	0.00307	0.09272	0.07881	321.76200	0.01836	0.00809	324.65648
Diesel	Offroad	480	0.36363	1.65717	2.66663	0.00313	0.09470	0.08049	328.60800	0.01875	0.00827	331.56406
Diesel	Offroad	490	0.37121	1.69170	2.72219	0.00320	0.09667	0.08217	335.45400	0.01914	0.00844	338.47165
Diesel	Offroad	500	0.37878	1.72622	2.77774	0.00326	0.09864	0.08385	342.30000	0.01953	0.00861	345.37923
Diesel	Offroad	510	0.38636	1.76075	2.83330	0.00333	0.10061	0.08552	349.14600	0.01992	0.00878	352.28681
Diesel	Offroad	520	0.39393	1.79527	2.88885	0.00339	0.10259	0.08720	355.99200	0.02031	0.00895	359.19440
Diesel	Offroad	530	0.40151	1.82980	2.94440	0.00346	0.10456	0.08888	362.83800	0.02070	0.00913	366.10198
Diesel	Offroad	540	0.40909	1.86432	2.99996	0.00353	0.10653	0.09055	369.68400	0.02109	0.00930	373.00957
Diesel	Offroad	550	0.41666	1.89885	3.05551	0.00359	0.10851	0.09223	376.53000	0.02148	0.00947	379.91715
Diesel	Offroad	560	0.42424	1.93337	3.11107	0.00366	0.11048	0.09391	383.37600	0.02187	0.00964	386.82474
Diesel	Offroad	570	0.43181	1.96789	3.16662	0.00372	0.11245	0.09558	390.22200	0.02226	0.00982	393.73232
Diesel	Offroad	580	0.43939	2.00242	3.22218	0.00379	0.11442	0.09726	397.06800	0.02265	0.00999	400.63991
Diesel	Offroad	590	0.44696	2.03694	3.27773	0.00385	0.11640	0.09894	403.91400	0.02305	0.01016	407.54749
Diesel	**Offroad**	**600**	**0.45454**	**2.07147**	**3.33329**	**0.00392**	**0.11837**	**0.10061**	**410.76000**	**0.02344**	**0.01033**	**414.45508**
Diesel	Offroad	610	0.46211	2.10599	3.38884	0.00398	0.12034	0.10229	417.60600	0.02383	0.01050	421.36266
Diesel	Offroad	620	0.46969	2.14052	3.44440	0.00405	0.12232	0.10397	424.45200	0.02422	0.01068	428.27025
Diesel	Offroad	630	0.47727	2.17504	3.49995	0.00411	0.12429	0.10564	431.29800	0.02461	0.01085	435.17783
Diesel	Offroad	640	0.48484	2.20957	3.55551	0.00418	0.12626	0.10732	438.14400	0.02500	0.01102	442.08541
Diesel	Offroad	650	0.49242	2.24409	3.61106	0.00424	0.12823	0.10900	444.99000	0.02539	0.01119	448.99300
Diesel	Offroad	660	0.49999	2.27862	3.66662	0.00431	0.13021	0.11068	451.83600	0.02578	0.01137	455.90058
Diesel	Offroad	670	0.50757	2.31314	3.72217	0.00437	0.13218	0.11235	458.68200	0.02617	0.01154	462.80817
Diesel	Offroad	680	0.51514	2.34766	3.77773	0.00444	0.13415	0.11403	465.52800	0.02656	0.01171	469.71575
Diesel	Offroad	690	0.52272	2.38219	3.83328	0.00450	0.13613	0.11571	472.37400	0.02695	0.01188	476.62334
Diesel	Offroad	700	0.53030	2.41671	3.88884	0.00457	0.13810	0.11738	479.22000	0.02734	0.01205	483.53092

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Diesel	Offroad	710	0.53787	2.45124	3.94439	0.00464	0.14007	0.11906	486.06600	0.02773	0.01223	490.43851
Diesel	Offroad	720	0.54545	2.48576	3.99995	0.00470	0.14204	0.12074	492.91200	0.02812	0.01240	497.34609
Diesel	Offroad	730	0.55302	2.52029	4.05550	0.00477	0.14402	0.12241	499.75800	0.02851	0.01257	504.25368
Diesel	Offroad	740	0.56060	2.55481	4.11106	0.00483	0.14599	0.12409	506.60400	0.02890	0.01274	511.16126
Diesel	**Offroad**	**750**	**0.56817**	**2.58934**	**4.16661**	**0.00490**	**0.14796**	**0.12577**	**513.45000**	**0.02930**	**0.01292**	**518.06885**
Diesel	Offroad	760	0.57575	2.62386	4.22217	0.00496	0.14993	0.12744	520.29600	0.02969	0.01309	524.97643
Diesel	Offroad	770	0.58333	2.65838	4.27772	0.00503	0.15191	0.12912	527.14200	0.03008	0.01326	531.88401
Diesel	Offroad	780	0.59090	2.69291	4.33327	0.00509	0.15388	0.13080	533.98800	0.03047	0.01343	538.79160
Diesel	Offroad	790	0.59848	2.72743	4.38883	0.00516	0.15585	0.13248	540.83400	0.03086	0.01360	545.69918
Diesel	Offroad	800	0.60605	2.76196	4.44438	0.00522	0.15783	0.13415	547.68000	0.03125	0.01378	552.60677
Diesel	Offroad	810	0.61363	2.79648	4.49994	0.00529	0.15980	0.13583	554.52600	0.03164	0.01395	559.51435
Diesel	Offroad	820	0.62120	2.83101	4.55549	0.00535	0.16177	0.13751	561.37200	0.03203	0.01412	566.42194
Diesel	Offroad	830	0.62878	2.86553	4.61105	0.00542	0.16374	0.13918	568.21800	0.03242	0.01429	573.32952
Diesel	Offroad	840	0.63636	2.90006	4.66660	0.00548	0.16572	0.14086	575.06400	0.03281	0.01446	580.23711
Diesel	Offroad	850	0.64393	2.93458	4.72216	0.00555	0.16769	0.14254	581.91000	0.03320	0.01464	587.14469
Diesel	Offroad	860	0.65151	2.96910	4.77771	0.00561	0.16966	0.14421	588.75600	0.03359	0.01481	594.05228
Diesel	Offroad	870	0.65908	3.00363	4.83327	0.00568	0.17164	0.14589	595.60200	0.03398	0.01498	600.95986
Diesel	Offroad	880	0.66666	3.03815	4.88882	0.00575	0.17361	0.14757	602.44800	0.03437	0.01515	607.86744
Diesel	Offroad	890	0.67423	3.07268	4.94438	0.00581	0.17558	0.14924	609.29400	0.03476	0.01533	614.77503
Diesel	Offroad	900	0.68181	3.10720	4.99993	0.00588	0.17755	0.15092	616.14000	0.03515	0.01550	621.68261
Diesel	Offroad	910	0.68938	3.14173	5.05549	0.00594	0.17953	0.15260	622.98600	0.03554	0.01567	628.59020
Diesel	Offroad	920	0.69696	3.17625	5.11104	0.00601	0.18150	0.15428	629.83200	0.03594	0.01584	635.49778
Diesel	Offroad	930	0.70454	3.21078	5.16660	0.00607	0.18347	0.15595	636.67800	0.03633	0.01601	642.40537
Diesel	Offroad	940	0.71211	3.24530	5.22215	0.00614	0.18545	0.15763	643.52400	0.03672	0.01619	649.31295
Diesel	Offroad	950	0.71969	3.27982	5.27771	0.00620	0.18742	0.15931	650.37000	0.03711	0.01636	656.22054
Diesel	Offroad	960	0.72726	3.31435	5.33326	0.00627	0.18939	0.16098	657.21600	0.03750	0.01653	663.12812
Diesel	Offroad	970	0.73484	3.34887	5.38882	0.00633	0.19136	0.16266	664.06200	0.03789	0.01670	670.03571
Diesel	Offroad	980	0.74241	3.38340	5.44437	0.00640	0.19334	0.16434	670.90800	0.03828	0.01688	676.94329
Diesel	Offroad	990	0.74999	3.41792	5.49993	0.00646	0.19531	0.16601	677.75400	0.03867	0.01705	683.85088
Diesel	Offroad	1000	0.75757	3.45245	5.55548	0.00653	0.19728	0.16769	684.60000	0.03906	0.01722	690.75846
Diesel	Offroad	1010	0.76514	3.48697	5.61104	0.00659	0.19926	0.16937	691.44600	0.03945	0.01739	697.66604
Diesel	Offroad	1020	0.77272	3.52150	5.66659	0.00666	0.20123	0.17104	698.29200	0.03984	0.01756	704.57363
Diesel	Offroad	1030	0.78029	3.55602	5.72215	0.00672	0.20320	0.17272	705.13800	0.04023	0.01774	711.48121
Diesel	Offroad	1040	0.78787	3.59055	5.77770	0.00679	0.20517	0.17440	711.98400	0.04062	0.01791	718.38880
Diesel	Offroad	1050	0.79544	3.62507	5.83325	0.00685	0.20715	0.17607	718.83000	0.04101	0.01808	725.29638
Diesel	Offroad	1060	0.80302	3.65959	5.88881	0.00692	0.20912	0.17775	725.67600	0.04140	0.01825	732.20397
Diesel	Offroad	1070	0.81060	3.69412	5.94436	0.00699	0.21109	0.17943	732.52200	0.04179	0.01843	739.11155
Diesel	Offroad	1080	0.81817	3.72864	5.99992	0.00705	0.21307	0.18111	739.36800	0.04218	0.01860	746.01914
Diesel	Offroad	1090	0.82575	3.76317	6.05547	0.00712	0.21504	0.18278	746.21400	0.04258	0.01877	752.92672
Diesel	Offroad	1100	0.83332	3.79769	6.11103	0.00718	0.21701	0.18446	753.06000	0.04297	0.01894	759.83431
Diesel	Offroad	1110	0.84090	3.83222	6.16658	0.00725	0.21898	0.18614	759.90600	0.04336	0.01911	766.74189
Diesel	Offroad	1120	0.84847	3.86674	6.22214	0.00731	0.22096	0.18781	766.75200	0.04375	0.01929	773.64948
Diesel	Offroad	1130	0.85605	3.90127	6.27769	0.00738	0.22293	0.18949	773.59800	0.04414	0.01946	780.55706
Diesel	Offroad	1140	0.86362	3.93579	6.33325	0.00744	0.22490	0.19117	780.44400	0.04453	0.01963	787.46464
Diesel	Offroad	1150	0.87120	3.97031	6.38880	0.00751	0.22688	0.19284	787.29000	0.04492	0.01980	794.37223
Diesel	Offroad	1160	0.87878	4.00484	6.44436	0.00757	0.22885	0.19452	794.13600	0.04531	0.01998	801.27981
Diesel	Offroad	1170	0.88635	4.03936	6.49991	0.00764	0.23082	0.19620	800.98200	0.04570	0.02015	808.18740
Diesel	Offroad	1180	0.89393	4.07389	6.55547	0.00770	0.23279	0.19787	807.82800	0.04609	0.02032	815.09498
Diesel	Offroad	1190	0.90150	4.10841	6.61102	0.00777	0.23477	0.19955	814.67400	0.04648	0.02049	822.00257
Diesel	Offroad	1200	0.90908	4.14294	6.66658	0.00783	0.23674	0.20123	821.52000	0.04687	0.02066	828.91015
Gasoline	**Onroad LD**	**LD**	**0.00070**	**0.00660**	**0.00065**	**0.00001**	**0.00009**	**0.00006**	**1.10257**	**0.00006**	**0.00003**	**1.11182**
Diesel	Onroad MD	MD	0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
Diesel	Onroad HD	HD	0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176
Zero	None	0.0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Zero	Electric	0.0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

VLOOKUP Sort	Fuel List	Load Factor
2-stroke	50:1 gas/oil mix	50%
Electric	Zero	
Methane	CNG	60%
None	Zero	
Offroad	Diesel	60%
Onroad HD	Diesel	
Onroad LD	Gasoline	
Onroad MD	Diesel	
Propane	LPG	60%
Sport	Gasoline	30%
Turbine	Jet A	90%
Utility	Gasoline	50%

Factors

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
40 CFR 89.112	Range	Range	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Table 1	KW	BHP	g/kw-hr	g/kw-hr	g/kw-hr		g/kw-hr					
Tier 2 (2005-07)	<8	<11	0.90	8.0	6.60	—	0.80	—	—	—	—	—
Tier 2 (2005-07)	8-19	11-25	0.90	6.6	6.60	—	0.80	—	—	—	—	—
Tier 2 (2004-07)	19-37	25-50	0.90	5.5	6.60	—	0.60	—	—	—	—	—
Tier 2 (2004-07)	37-56	50-75	0.90	5.0	6.60	—	0.40	—	—	—	—	—
Tier 2 (2004-07)	56-75	75-101	0.90	5.0	6.60	—	0.40	—	—	—	—	—
Tier 2 (2003-06)	75-130	101-174	0.79	5.0	5.81	—	0.30	—	—	—	—	—
Tier 2 (2003-05)	130-225	174-302	0.79	3.5	5.81	—	0.20	—	—	—	—	—
Tier 2 (2001-05)	225-450	302-603	0.77	3.5	5.63	—	0.20	—	—	—	—	—
Tier 2 (2002-05)	450-560	603-751	0.77	3.5	5.63	—	0.20	—	—	—	—	—
Tier 2 (2006-10)	560-900	751-1207	0.77	3.5	5.63	—	0.20	—	—	—	—	—

Engine	Heat Rate	Range	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Category	BTU/BHP-hr	BHP	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr
Offroad	8,000	5-9.9 (0.1)	8.88E-04	7.89E-03	6.51E-03	7.46E-06	7.89E-04	6.71E-04	7.82E-01	4.46E-05	1.97E-05	7.89E-01
Offroad	8,000	10-24 (1)	8.88E-04	6.51E-03	6.51E-03	7.46E-06	7.89E-04	6.71E-04	7.82E-01	4.46E-05	1.97E-05	7.89E-01
Offroad	7,000	25-49 (1)	8.88E-04	5.43E-03	6.51E-03	6.53E-06	5.92E-04	5.03E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	50-74 (1)	8.88E-04	4.93E-03	6.51E-03	6.53E-06	3.95E-04	3.35E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	75-99 (1)	8.88E-04	4.93E-03	6.51E-03	6.53E-06	3.95E-04	3.35E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	100-174 (1)	7.81E-04	4.93E-03	5.73E-03	6.53E-06	2.96E-04	2.52E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	175-299 (1)	7.81E-04	3.45E-03	5.73E-03	6.53E-06	1.97E-04	1.68E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	300-590 (10)	7.58E-04	3.45E-03	5.56E-03	6.53E-06	1.97E-04	1.68E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	600-740 (10)	7.58E-04	3.45E-03	5.56E-03	6.53E-06	1.97E-04	1.68E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01
Offroad	7,000	750-1200 (1(	7.58E-04	3.45E-03	5.56E-03	6.53E-06	1.97E-04	1.68E-04	6.85E-01	3.91E-05	1.72E-05	6.91E-01

Engine	Heat Rate	Range	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Category	BTU/BHP-hr	BHP	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr	lb/bhp-hr
2-stroke A (2005)	14,000	0.1-0.9 (0.1)	3.70E-02	6.62E-01	4.11E-03	5.95E-04	7.83E-03	5.09E-03	1.10E+00	6.23E-05	2.73E-05	1.11E+00
2-stroke B (2005)	13,000	1.0-2.9 (0.1)	3.70E-02	6.62E-01	4.11E-03	5.95E-04	7.83E-03	5.09E-03	1.02E+00	5.79E-05	2.54E-05	1.03E+00
2-stroke C (2007)	12,000	3.0-9.9 (0.1)	5.33E-02	4.96E-01	5.92E-03	5.95E-04	7.83E-03	5.09E-03	9.44E-01	5.34E-05	2.34E-05	9.52E-01
2-stroke D (2007)	10,000	10-200 (1)	5.33E-02	4.96E-01	5.92E-03	5.95E-04	7.83E-03	5.09E-03	7.87E-01	4.45E-05	1.95E-05	7.93E-01
Methane	10,000	10-200 (1)	7.94E-03	3.34E-03	5.08E-03	3.60E-06	6.00E-05	3.90E-05	7.00E-01	1.38E-05	1.20E-06	7.00E-01
Propane	10,000	10-200 (1)	7.94E-03	3.34E-03	5.08E-03	3.60E-06	6.00E-05	3.90E-05	8.23E-01	6.00E-07	1.80E-06	8.24E-01
Sport	10,000	10-500 (1,10	5.67E-03	1.88E-01	4.89E-03	2.52E-04	3.00E-04	1.95E-04	4.72E-01	2.67E-05	1.17E-05	4.76E-01
Turbine	9,000	200-1000 (1(	3.24E-06	2.61E-05	6.95E-03	1.23E-05	9.47E-05	6.16E-05	1.29E+00	3.56E-05	4.13E-05	1.30E+00
Utility A (2003)	12,000	1.0-2.9 (0.1)	6.57E-03	5.01E-01	5.60E-03	4.30E-04	4.85E-04	3.15E-04	9.44E-01	5.34E-05	2.34E-05	9.52E-01
Utility B (2005)	11,000	3.0-9.9 (0.1)	5.02E-03	5.01E-01	4.27E-03	4.30E-04	4.85E-04	3.15E-04	8.65E-01	4.90E-05	2.15E-05	8.73E-01
Utility C	10,000	10-200 (1)	9.45E-03	3.14E-01	8.15E-03	4.20E-04	5.00E-04	3.25E-04	7.87E-01	4.45E-05	1.95E-05	7.93E-01

Engine/Motor Type		Output	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Fuel	Category	BHP	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit	lbs/unit
Engine	Model	Range	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20	CO_2 eqv
Category	Year	BHP	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Onroad	2014	LD	0.00070	0.00660	0.00065	0.00001	0.00009	0.00006	1.10257	0.00006	0.00003	1.11182
Onroad	2014	MD	0.00190	0.01284	0.01425	0.00003	0.00055	0.00046	2.79845	0.00009	0.00014	2.84273
Onroad	2014	HD	0.00202	0.00846	0.02418	0.00004	0.00118	0.00101	4.21279	0.00009	0.00009	4.24176

GHG Reference	Annex 2	Annex 3	Annex 3	AP-42/Ax2	Annex 2	Annex 3	Annex 3	Composite
Property	Carbon	CH_4	N_2O	HHV	CO_2	CH_4	N_2O	CO_2e
Units	kg/mmBTU	g/kg fuel	g/kg fuel	BTU/lb	lb/mmBTU	lb/mmBTU	lb/mmBTU	lb/mmBTU
Diesel #2	20.17	0.18	0.08	19300	163.0	0.0093	0.0041	164.47
Gasoline	19.46	0.18	0.08	20300	157.3	0.0089	0.0039	158.70
Jet A	19.70	0.087	0.10	19800	159.2	0.0044	0.0051	160.87
CNG/LNG	14.42	0.052	0.004	22400	116.6	0.0023	0.0002	116.71
LPG	16.97	0.003	0.006	21600	137.2	0.0001	0.0003	137.30

Onroad Notes:

Onroad CARB/SCAQMD emission factors for 2014

Onroad N_2O per Annex 3, Table A-101

Onroad HD includes tire & brake wear

Units are lb/mile

Offroad Notes:

Offroad diesel is Tier 2 per 40 CFR 89.112; AP-42 Table 3.3-1

Offroad gasoline (2-stroke, sport, utility) per 40 CFR 90.103; AP-42 Table 3.3-1; Hare & Springer; Nonroad Sudy Report

Offroad gaseous fuels (methane, propane) per AP-42 Table 3.2-2

Offroad CO_2 per Annex 2, Table A-43

Offroad CH_4 & N_2O per Annex 3, Table A-103

Offroad diesel exhaust $PM_{2.5}$ = 85% of PM_{10} per EMFAC 2007 version 2.3

Offroad gasoline exhaust $PM_{2.5}$ = 65% of PM_{10} per EMFAC 2007 version 2.3

Units are lb/hr

Aviation Notes:

Aviation per AP-42 Tables 3.1-1, -2a adjusted for Jet A fuel HHV

Aviation CO_2 per Annex 2, Table A-43

Aviation CH_4 & N_2O per Annex 3, Table A-103

Aviation exhaust $PM_{2.5}$ = 65% of PM_{10} (assumed for Jet A)

Units are lb/hr

General Notes:

CNG = compressed/cryrogenic natural gas

LPG = liquified petroleum/propane gas

EPA GWPs for CO_2 eqv (1, 21, 310)

Other Counties

Attainment Status - North Central Coast Air Basin (2006-08 data)		
Criteria Pollutants	**Federal Standards**	**State Standards**
	Status	**Status**
Ozone (O_3)	Unclassified/Attainment	Moderate Nonattainment
Carbon Monoxide (CO)	Unclassified/Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO_2)	Unclassified	Attainment
Respirable Particulates (PM_{10})	Unclassified	Nonattainment
Fine Particulates ($PM_{2.5}$)	Unclassified/Attainment	Attainment
Lead (Pb)	Unclassified/Attainment	Attainment

Source: MBUAPCD 2009, CARB 2012b

Notes:

North Central Coast Air Basin (NCCAB) - Santa Cruz, San Benito, and Monterey Counties

Santa Cruz and Monterey Counties are "moderate" nonattainment for state 1-hour ozone standard

Santa Cruz and San Benito Counties are unclassified for CO; Monterey County is attainment for CO

Effective July 26, 2007, the ARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.

On March 12, 2008, EPA adopted a new 8-hour ozone standard of 0.075 ppm, while temporarily retaining the existing 8-hour standard of 0.08 ppm. EPA is expected to issue new designations by March 2010.

In 2006, the Federal 24-hour standard for $PM_{2.5}$ was revised from 65 to 35 ug/m^3. Although final designations have yet to be made, it is expected that the NCCAB will remain designated unclassified/attainment.

On October 15, 2008 EPA substantially strengthened the national ambient air quality standard for lead by lowering the level of the primary standard from 1.5 ug/m^3 to 0.15 ug/m^3. Initial recommendations for designations are to be made by October 2009 with final designations by January 2012.

Emissions Significance Thresholds - North Central Coast Air Basin		
Criteria Emissions	**Significance Thresholds**	
	Pounds per Day	**Tons per Year**
Volatile Organic Compounds (VOC as CH_4)	137	25
Carbon Monoxide (CO)	550	100
Oxides of Nitrogen (NO_X as NO_2)	137	25
Sulfur Dioxide (SO_X as SO_2)	150	27
Respirable Particulates (PM_{10})	82	15
Fine Particulates ($PM_{2.5}$)	--	--
Lead (Pb)	--	0.6

Sources: MBUAPCD 2008, 40 CFR 51.166(b)(23)(i)

Notes:

MBUAPCD thresholds expressed in pounds per day only; applies to construction

-- No applicable threshold

Federal Prevention of Significant Deterioration (PSD) thresholds apply for CO and lead

For comparison, VOC, NO_X, SO_X, and PM_{10}, equivalent tons per year is calculated from pounds per day

For ozone nonattainment areas, thresholds apply to precursors VOC and NO_X

Other Counties

Attainment Status - Northern Sonoma County		
Criteria Emissions	**Federal Standards**	**State Standards**
	Status	**Status**
Ozone (O_3)	Unclassified/Attainment	Uncharacterized/Transitional
Carbon Monoxide (CO)	Unclassified/Attainment	Unclassified
Oxides of Nitrogen (NO_X as NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO_X as SO_2)	Unclassified	Attainment
Respirable Particulates (PM_{10})	Unclassified	Attainment
Fine Particulates ($PM_{2.5}$)	Unclassified/Attainment	Unclassified
Lead (Pb)	Attainment	Attainment
Source: CARB 2012b		
Notes:		
Northern Sonoma County is transitional (uncharacterized) attainment for ozone		

Emissions Significance Thresholds - Northern Sonoma County	
Criteria Emissions	**Significance Threshold**
	Tons per Year
Volatile Organic Compounds (VOC as CH_4)	40
Carbon Monoxide (CO)	100
Oxides of Nitrogen (NO_X as NO_2)	40
Sulfur Dioxide (SO_X as SO_2)	40
Respirable Particulates (PM_{10})	15
Fine Particulates ($PM_{2.5}$)	10
Lead (Pb)	0.6
Source: 40 CFR 51.166(b)(23)(i)	