

SOURCE INVENTORY
CATEGORIES # 1110 - 1112
GROUND SUPPORT EQUIPMENT

1999 EMISSIONS

Introduction

Considered in these categories are emissions from Ground Support Equipment (GSE) that service the aircraft while loading and unloading passengers and freights at the major commercial airports in the Bay Area. These commercial airports are San Francisco International (SFO), Oakland International (OAK), and San Jose International (SJC). Examples of these equipment include baggage/aircraft tractors and tugs, ground power units, air start units, auxiliary power units, cargo belt loaders, cargo moving equipment, fuel trucks, food service trucks, and other assorted service vehicles. The majority of these equipment in use at the Bay Area commercial airport is fueled by gasoline or diesel; however, some equipment is fuel by alternative fuels such as CNG, LPG, or electricity.

Methodology

Based on ARB's publication, "Air Pollution Mitigation Measures for Airports and Associated Activity", May 1994, emission factors for various equipment are presented in grams/BHP-hr. Therefore, for each equipment, an estimate of BHP, load factor, typical hours of usage, and an equivalent ratio produced the amount of BHP-hr per day. The emissions for each equipment are estimated from these data. An estimate of the GSE population at each airport were about 395 equipment at SFO, 112 at OAK, and 119 at SJC. These numbers are used to calculate total emission from GSE for each airport.

The number of operations for commercial aircraft were obtained from the three major airports in the Bay Area. Based on the total emissions from the various equipment, a composite emission factor for each airport was calculated. The emission factor is expressed in pounds of pollutant per landing and takeoffs (LTO).

Sample calculation:

Data: 199,128 LTO/yr at SFO - for Commercial Aircraft
TOG emission factor = 0.369 pounds/LTO

Emissions = 199,128 LTO/yr x 0.369 lbs./LTO / 2000 lbs/ton / 365 days/yr

= 0.10 ton/day of TOG

Monthly Variation

Monthly distribution was based on the monthly number of operations at each airport.

County Distribution

The county location of each airport was used to distribute emissions into each county, where SFO is in San Mateo County, OAK is in Alameda County, and SJC in Santa Clara County.

TRENDS

History

Emissions through the years were estimated based on the number of operations from each airport.

Growth

Projection to year 2010 was based on estimates of the number of operations taken from MTC's "Regional Airport Systems Plan Update", (1994 and 2000).