

Bay Area Air Quality Management District
Risk Screening Assessment
World Oil; P# 6895;
GDF# 5179;
March 14, 2003

This document describes the basis for the health risk screening assessment prepared for World Oil, 3148 Senter Road, San Jose, California. This facility wishes to modify the gas station and request a throughput increase. In order to do this, the facility must get a permit from the Bay Area Air Quality Management District (BAAQMD). The BAAQMD, as a routine part of the evaluation of a permit application, prepared this screening risk assessment.

Benzene, a toxic air contaminant and a carcinogen, will be emitted during the operation of the gas dispensing facility (GDF). BAAQMD staff evaluates the possible impact of the benzene emissions that will occur during routine operation of the GDF. The benzene emission impact is expressed in terms of the increased risk of contracting cancer by individuals who live or work near the GDF.

The estimated increases in benzene emissions that can be expected from this source are 34.3 pounds per year for the allowable 5.0632 million gallons per year increase. Ambient air concentrations of benzene were predicted using the ISCST3 air dispersion computer model. This model uses information about the facility and the emission rates of toxic air contaminants to estimate what concentrations would be expected in the air at various locations around the site. The estimated concentrations of benzene are used to calculate the possible cancer risk that might be expected to arise from this exposure.

The potential cancer risk was calculated using standard risk assessment methodology. For residents, they include the assumptions that exposures are continuous for 24 hours per day, 7 days per week for 70-years. For students the assumptions include higher breathing rates for children and that exposures are for 36 weeks per year over a 9-year period. The cancer risk is based on the "best estimates" of plausible cancer potencies as determined by the California Office of Environmental Health Hazard Assessment (OEHHA). The actual cancer risk, which cannot be determined, may approach zero. This type of analysis is considered to be health-protective.

The potential for noncancer health effects is evaluated by comparing the long-term exposure level to a Reference Exposure Level (REL). A REL is a concentration level or dose at or below which no adverse health effects are anticipated. RELs are designed to protect the most sensitive individuals in the population. Comparisons to RELs are made by determining the hazard index, which is the ratio of the estimated exposure level to the REL.

The proposed operation would result in an increased maximum cancer risk of 10 chances in a million and a hazard index of 0.006 for maximally exposed residential receptors near the facility. For maximally exposed industrial receptors the risk is 1.3 in a million and the hazard index is 0.03. For the students who attend Andrew P. Hill High School the increased maximum cancer risk is 0.06 chances in a million and the hazard index is 0.002.

These health risk values, presented in the table below, meet the criteria for acceptable levels established in the BAAQMD's Risk Management Policy.

Health Risk Results		
Receptor	Increased Maximum Cancer Risk	Hazard Index
Residential	10.0 chances in a million	0.006
Industrial	1.3 chances in a million	0.03
Andrew P. Hill School	0.0064 chances in a million	0.002

School address:

Andrew P. Hill High School
3200 Senter Road
San Jose, CA 95111-1332