Bay Area Air Quality Management District
Health Risk Screening Analysis, A#20563
Union City- Civic Center/City Hall, P# 19647
May 7, 2009

This document describes the basis for the health risk screening analysis prepared for the City of Suisun City, located at 701 Civic Center Blvd in Suisun City, California. This facility wishes to operate an emergency standby generator diesel engine. In order to do this, the facility must obtain 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 risk screening analysis.

Particulates from diesel engine exhaust, a toxic air contaminant (TAC) and a carcinogen, will be emitted during the operation of the engine. BAAQMD staff evaluates the possible impact of the diesel exhaust particulate emissions that will occur during routine operation of the diesel engine. The diesel exhaust particulate impact is expressed in terms of the increased risk of contracting cancer by individuals who live or work near the proposed engine.

The estimated increase in diesel exhaust particulate emissions that can be expected from this source is 8.126 pounds per year. Ambient air concentrations of diesel exhaust particulate were predicted using the ISCST3 air dispersion computer model. This model uses information about the facility and the emission rates of TACs to estimate air concentrations expected at various locations around the site. The estimated concentrations of diesel exhaust particulate are used to calculate the possible cancer and non-cancer health 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 potential exposures occur 24 hours per day, 350 days per year for a 70-year lifetime. Risk estimates for offsite workers assume potential exposure occurs 8 hours per day, 245 days per year, for 40 years. For students, the assumptions include higher breathing rates for children, and potential exposures occur 10 hours per day, 180 days per year, over a 9-year period. The cancer risk is based on the "best estimates" of plausible cancer potencies as determined by Cal/EPA's 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 non-cancer health effects is evaluated by comparing the long-term exposure level to a Reference Exposure Level (REL). A REL is a concentration level at or below which no adverse health effects are anticipated. RELs are designed to protect sensitive individuals within the population. Comparisons to RELs are made by determining the hazard quotient, which is the ratio of the estimated exposure level to the REL.

The proposed operation would result in an increased maximum cancer risk of 9.4 chances in a million and a hazard quotient of 0.0057 for residences near the facility. For off-site workers, the increased maximum cancer risk is 2.0 chances in a million and the hazard quotient is 0.0014. For the students who attend Crystal Middle School, the increased maximum cancer risk is 0.17 chances in a million and a hazard quotient of 0.0004. These health risk values, presented in the table below, meet the criteria for acceptable levels established in the BAAQMD's Regulation 2, Rule 5.

Health Risk Results		
Receptor	Maximum Cancer Risk	Chronic Hazard Quotient
Resident	9.4 chances in a million	0.0057
Offsite Worker	2.0 chances in a million	0.0014
School- Crystal Middle School	0.17 chances in a million	0.0004

School address: Crystal Middle School
400 Whispering Bay lane
Suisun City, CA 94585