**OFFICE MEMORANDUM**
**SEPTEMBER 5, 2002**

**TO: ERIC CHAN**

**FROM: B. BATEMAN**

**SUBJECT: RESULTS OF RISK SCREEN FOR MOLLOY CONSTRUCTION CO. STANDBY DIESEL ENGINE A/N 5701**

---

As requested in your memo dated August 5, 2002, we have completed a risk screen for the above referenced permit application. The screen estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from a new standby diesel engine at this facility located in San Francisco.

Diesel particulate matter (PM) was used as a surrogate for all emitted TACs. The analysis was based on a diesel PM emission estimate of 9.14 lb/yr (assuming 377 hp, 0.11 g/hp-hr, 100 hr/yr).

Because no representative meteorological data were available for this site, a screening approach was used to estimate ambient diesel PM concentrations. The ISCST3 dispersion model was used to estimate maximum 1-hour average ground-level ambient concentrations. In addition, because there are a number of tall buildings in the immediate vicinity of the project that may have ventilation air intakes or windows above ground level, a number of additional model runs were made with flagpole receptors at various heights. Lastly, because part of the off-site receptor area is located within the building cavity area (not currently addressed by ISCST3), the ISCST3-Prime model was also used. ISCST3-Prime incorporates EPA-proposed building cavity treatment. Meteorological inputs consisted of the 54 combinations of wind speed/stability class included in the SCREEN3 model repeated at 5-degree radials. Annual average concentrations were estimated to be equal to 10 percent of the predicted maximum 1-hour average concentration at each receptor. Terrain elevations for the analysis were extracted from 10-meter Digital Elevation Models. Additional details of the analysis are included in the attached materials.

Health risks were calculated for this mixed-use area assuming continuous lifetime exposure to the maximum predicted annual average diesel PM air concentrations (for all modeling scenarios evaluated). The maximum cancer risk was estimated to be 4.22E-06 (4.22 in a million), and the maximum non-cancer risk was a chronic hazard index of 2.81E-03. The maximum risks are acceptable under the District's Risk Management Policy for diesel engines that meet T-BACT for reducing diesel PM. T-BACT for diesel PM is currently defined as an emission level of 0.15 g/bhp-hr or less as determined during a steady-state engine certification test (ISO 8178). Because it appears that the proposed engine meets T-BACT, the **risk screen therefore passes**.

We have also provided health risk estimates for the three school sites identified in your memo (see attached table). These risk estimates follow the same screening-level modeling approach previously described, and are based on the assumption of continuous 70-year exposure.

Your memo also requests a comparison of the proposed project's risk to the risk of several other activities (e.g., riding in a bus, being in proximity to Van Ness traffic or construction equipment at Sacred Heart School). Unfortunately, this type of specific information is not readily available to us, and cannot be provided. The ARB has provided some more general information regarding diesel PM health risks that you may be interested in (see http://www.arb.ca.gov/diesel/documents.htm). For example, ARB has estimated the current population-weighted average lifetime cancer risk due to diesel PM exposure in the Bay Area to be about 450 in a million. The ARB has also estimated the lifetime cancer risk for an Idling School Bus emissions scenario to be up to 100 in a million. A Low-Volume Freeway scenario (which may be similar to Van Ness traffic) was estimated to be 100 to 200 in a million (see http://www.arb.ca.gov/diesel/documents/rrpapp7.PDF). (The risk for these localized exposure scenarios are in addition to the average background risks).

Please let me know if you have any questions or would like to discuss.