City and County of San Francisco

Department of Public Health

March 19, 1990

Commander Naval Base San Francisco
Building 1, Treasure Island
San Francisco, CA 94130-5018

Attn: Mr. Randal Friedman, Code 0311

Following are comments by the San Francisco Department of Public Health on the draft Air Modeling and Risk Assessment of Airborne Contaminants During Proposed Removal Actions at the Tank Farm and Pickling and Plate Yard. These comments are made in the interest of avoiding unnecessary displacement of commercial tenants in the vicinity of the Pickling and Plate Yard. Comments are limited to areas of the risk assessment that are relevant to this concern.

We believe that the risk assessment for noncarcinogenic effects from airborne particles resulting from sandblasting of structures in the Pickling and Plate Yard was overly conservative and that the risks assigned to this operation are overestimated to an unnecessary extent. The area within which noncarcinogenic effects from airborne particles are deemed to be unacceptable and which is apparently intended to be an exclusion zone is unusually large for this type of operation.

There are several points in the determination of airborne concentrations of particles where a more precise treatment may result in showing that unacceptable risks are limited to a much smaller area.

(1) In calculating the weight of residues present on structures, the density of zinc chromate (as chromium 3+) is substituted for the apparently unknown density of the residues. The value used is 212 pounds/cubic foot or 3.4 grams/cubic centimeter. A reasonable estimate of the actual density could be easily determined through simple field or laboratory measurements and may be substantially less.

(2) The method used to determine the dimensions used to calculate the volume of coating is not described or referenced. The regular nature of the quantities provided suggest that they are estimates. If so, such estimates would probably be consistent with other estimates in having a conservative element. Actual dimensions should be obtained and used.

(3) Hand chipping is proposed to partially remove residues prior to sandblasting and the risk assessment estimates that 50% of the residues will be removed by this process. The derivation of this estimate is not explained. The risk assessment assumes that the thickness of the residues on 80% of the coated surfaces is 1.5 inches. If this is the case, it is reasonable to expect that a much larger percentage than 50% could be removed by hand chipping. Simple field trials could provide a better estimate.

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(4) The Removal Action Plan indicates that sandblasting will be done in a fully enclosed area that is ventilated through a filtering media. The risk assessment assumes that this system will result in a 90% reduction in emissions. The proposed system could be expected to provide a much greater level of emission reduction. The value for the expected minimum efficiency should be used.

(5) When using the ISCST modeling program, options should be selected that will produce the model most likely to represent actual conditions rather than the most conservative model.

We are not discounting the necessity of introducing safety factors into risk assessments. However, it should be recognized that there are substantial safety factors incorporated into the EPA reference doses used as exposure standards. An additional safety factor is incorporated into the risk assessment for air contaminants from the Pickling and Plate Yard when hazard indexes for the separate contaminants are combined into a total noncarcinogenic effect ratio (hazard index) with zinc exposure accounting for the largest component (40%). Exposure to the particulates at the level that results in a hazard index of 1 would represent an exposure at less than 2% of the OSHA standard for lead and lesser percentages of the applicable OSHA standards for barium and zinc. There is an additional level of safety in that the standards are based on lifetime exposure while the actual exposure period in this case will be relatively short.

The reference dose standards and treatment of hazard indexes make the risk assessment adequately conservative without the further addition of substantial conservative components to physical quantities used in calculations. Since the results of the risk assessment have a potential impact on the nearby commercial tenants, modeling of air particulate concentrations should be done to the greatest degree of accuracy that is reasonable. We believe that it should be possible to avoid displacement of any of the commercial tenants while maintaining a substantial margin of safety.

If you have any questions regarding these comments, please call Dave Wells at 554-2796.

Sincerely,

William Lee

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