July 16, 1970

Mr. Fred Murdock
Project Engineer
Etiwanda Steel Company
P. O. Drawer No. 8
Etiwanda, California 91739

Dear Mr. Murdock:

I have been asked to express an opinion as to the comparison of hazards to workmen should a hydraulic line containing our Pydraul 312 or a phosphate ester based fluid rupture and spray the fluid at a temperature of 120°F on personnel. Secondly, to compare the hazard if either fluid then sprays on a hot ingot at a temperature of 2000°F.

About 15 years ago we sponsored toxicity studies at a world renowned toxicology laboratory (The Kettering Laboratories, University of Cincinnati Medical School) in which a Pydraul fluid, a phosphate base fluid and a petroleum base fluid were sprayed on metal surfaces heated to 800°F and 1050°F. The decomposition products of the fluids were then conducted into suitable chambers where a variety of experimental animals were housed.

The concentration of decomposition products in the case of Pydraul and phosphate base fluids were such that the animals were obscured in a "cloud" of particulate matter (carbon) and vapors.

The conclusions of the toxicologists conducting the experiments were that the breakdown or decomposition products of the fluids were comparable. In other words the

decomposition products of the Pydraul were no more immediately toxic than those of the phosphate base fluid or petroleum base fluid. In the case of the petroleum base fluid, the experimental equipment had to be modified so that the animals were not exposed to the flame and intense heat associated with the complete burning of the fluid.

In the few instances which have been reported to me where hydraulic fluid lines have ruptured and sprayed Pydraul fluid on personnel or molden metal, workmen have been able to remain in the area (without injury) for periods long enough to shut down the equipment and then leave the area.

If I can be of any further help, please let me know.

Sincerely,

R. Emmet Kelly, M. D.
Medical Director

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c.c. Jerome Davidson, Los Angeles

b.c. R. A. Garcia, Akron
D. A. Hall

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