Monsanto
COMPANY

800 N. Lindbergh Boulevard
St. Louis, Missouri 63166
(314) OXford 4-1000

November 2, 1967

Mr. William Vaughn
Murdock Incorporated
13800 Avalon Blvd.
Compton, California 90052

Dear Mr. Vaughn:

Confirming the information which Mr. Pogue has given you, the principal components resulting from the thermal decomposition of Pydraul F-9 or Pydrual 312 consist of soot, carbon monoxide, carbon dioxide, phenolics, aldehydes, HCl, etc. and vapors of undecomposed fluid. The concentration of these components will depend on the temperature and duration at which the fluid is in contact with hot metal surfaces. For example, if the Pydraul fluid were sprayed on to molten metal, decomposition would be quite complete and there would be higher percentages of CO_2, HCl and soot. On the other hand, if a fluid line ruptures and the fluid is sprayed on to a surface in such a fashion that the metal is continually cooling, the concentration of products might shift to a higher proportion of vapors from the undecomposed fluid.

In any case and as you undoubtedly observed the mixture of smoke fume and gases is irritating and obnoxious. The results of animal toxicity studies indicate that the toxicity of these decomposition products (and undecomposed fluid) is slightly, if any, greater than the toxicity of the decomposition products of a petroleum base fluid. For example, suitable laboratory animals survived without any serious toxic effects when the fluid was sprayed on metal heated to 1250°F and the decomposition products carried into the animal exposure chambers. Exposure times varied from 20 minutes to 4-6 hours.

In industrial experience where lines have ruptured, workmen have not voluntarily remained in a workroom following a line rupture because of the irritating acrid characteristics of the "smoke". There have been one or two experiences where an

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employee who has remained in the contaminated room long enough to shut down equipment and open windows to allow dispersion of the smoke, has experienced nausea and headaches for a few hours in addition to irritation of the nose, throat and eyes. In no case has there been any serious toxic effect. The treatment for individuals who have suffered these temporary symptoms is symptomatic.

I don't know that I can add a great deal more to the information Mr. Pogue gave you. If you have any additional questions, please call me collect at St. Louis, Area Code 314 OXford 4-2191.

Very truly yours,

R. Emmet Kelly, M.D.
Medical Director

REK:cjs

cc: Jerry Balkee - Murdock Incorporated
Don Pogue - Los Angeles

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