September 20, 1965

Mr. Kenneth M. Morse
Director - Industrial Hygiene
United States Steel Corporation
525 William Penn Place
Pittsburgh, Pennsylvania 30

Dear Mr. Morse:

We are pleased to confirm the discussions you had with Mack Nichols and Dale Smith, September 14, concerning the composition, toxicity, and handling of MCS-312.

Without revealing exact percentage figures, we can tell you the MCS-312 formulation contains chlorinated biphenyl, phosphate ester, and a high viscosity selected petroleum fraction of low volatility.

This fluid is being transferred to our Organic Division Marketing Department and commercially will be PYRANOL 312. The label for PYRANOL 312 will contain the following Handling and Hygiene Information:

CAUTION!
Contains Chlorinated Hydrocarbons.

Avoid prolonged breathing of vapors or mists.
Avoid contact with eyes or prolonged contact with skin.
If skin contact occurs, remove by washing with soap and water. Following eye contact flush with water.
If clothing becomes soaked with fluid, launder before wearing again.

We are enclosing a copy of the toxicological investigation report on MCS-312. This work was done by Younger Laboratories, St. Louis, Missouri.

There is enclosed also a table comparing these acute or range-finding toxicity data with Pydraul F-9, A-200, and 150 which I understand your company has used in other applications for some time. The third enclosure is a reprint of Dr. Treon's publication on the chronic inhalation studies with Arochlors 1242 and 1254. Perhaps I have sent you copies of this before but I'm taking this opportunity to send a copy to Dr. Wright also.

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The operation of the Allis-Chalmers front end loaders was witnessed by Nichols and Smith and described to us. We would strongly recommend the installation of a heat exchanger on these units to lower the hydraulic fluid temperature below the present 250°F to 325°F. We would consider these temperatures "elevated" and would not recommend continuous exposure to the vapors from the hydraulic fluid reservoir vent. The installation of a small activated charcoal filter on the tank vent would eliminate unpleasant fluid vapors. I am told that Viton seals and "O" rings would eliminate or reduce the occurrence of leaks and loss of fluid.

Of course, the final proof as to whether or not there might be significant exposures to the chlorinated biphenyl or other components of MCS-312 could be determined by air samples taken at the breathing level of the operators of the equipment. I recognize that this would not be a simple procedure either from the standpoint of sampling on a piece of moving equipment or from the standpoint of the laboratory analysis involved. The absence of unpleasant odors would be nearly as definitive since I am not aware of anyone who has ever experienced excessive exposures when the chlorinated biphenyl could not be detected by smell.

The elimination of the "stinker" from the MCS-312 formulation is receiving priority attention by Monsanto Research. We hope to have the problem solved soon and our Marketing people will keep you posted on our progress.

A sample label for each of the Pydraul fluids is enclosed. This, too, was discussed and Mr. Smith promised to send them to you.

If I can add any further information, please let me know.

Best personal regards.

Sincerely,

Elmer P. Wheeler
Manager, Environmental Health
Medical Department

EPW:mjb

cc: C. Craig Wright, M.D.
U. S. Steel Corp., 525 William Penn Pl., Pittsburgh

Mr. W. M. Schrey
U. S. Steel Corp., Research Labs, Monroeville, Pa.

Mack Nichols, Monsanto - Cleveland
D. F. Smith, Monsanto - St. Louis