bcc: C. L. Bradford
J. H. Davidson
R. A. Garcia - Akron
R. V. Weyland - Chicago
P. J. A. Marsh - Brussels

June 10, 1971

Mr. Mason Solem
~~Allis Chalmers~~ Power Systems, Inc.
~~1135 S. 70th Street~~
West Ellis, Wisconsin 53214

Dear Mr. Solem:

Thank you for your inquiry concerning Monsanto fire resistant hydraulic fluids for the electrohydraulic control systems of the steam turbines you will be building in conjunction with Kraft Werk Union Aktiengesellschaft. I will try to briefly review the information as we discussed during our telephone discussion.

Enclosed are three copies each of Pydraul Selector 1 and Pydraul Selector 2. These describe the properties and characteristics of our Pydraul fire resistant hydraulic fluids. The "Fire Resistance Test Methods for Industrial Hydraulic Fluids" brochure reviews some of the tests and background in the field of fire resistance measurement. "Facts About Fire-Resistant Lubricants" discusses some of our experience in fire resistant gas turbine bearing lubricants.

Pydraul 150 and Pydraul 135 have been used satisfactorily in turbine control systems built by Brown-Boveri. Pydraul 135 also passed the electrohydraulic turbine control rig test of General Electric. During 1970, both Pydraul fluids were reformulated to remove polychlorinated biphenyls (PCBs) and are now designated with the letter "A" following the product name. Some PCBs have been considered to be persistent in the environment and Monsanto chose to remove these components from the Pydraul fluids. Pydraul 135A and and Pydraul 150A provide equal or better performance compared to the original versions.

As I indicated over the phone, we are introducing several new fire resistant phosphate ester hydraulic fluids. These so-called "straight synthetic" fluids are phosphate ester fluids which will offer better stability and performance compared to competitive products. Detailed information will be forwarded to you later.

In regard to designing hydraulic turbine control systems for use with such synthetic fluids, proper non-metallic materials must be used. A copy of USA Standard B93.5-1966 may be helpful here and a copy is enclosed. These non-metallics include seal and packing materials, hoses and paints. Synthetics are compatible with the common metals of construction.

Monsanto fluids are handled by Monsanto Europe SA, 1 Place Madou, 1030 Brussels, Belgium. Mr. Peter Marsh is the proper person for initial contact.

Please let us know if we can be of further assistance.

Very truly yours,

R. E. Matton
Technical Manager
Hydraulics & Lubricants

/pep
Enclosures