MONSANTO CHEMICALS LIMITED

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TO: Mr. D.F. Smith, M.C. St. Louis. DATE: 4th January, 1965

REFERENCE: ECG/TDR/MAL SUBJECT: N.C.B. - PYDRAUL

3/15/65

Dear Dale,

Recently I visited the N.C.B. Mining Research Establishment to determine the present N.C.B. position with regard to the introduction of fire resistant hydraulic fluids into the mines.

If you would like a copy of this call report, I can send one to you. The most important point at the moment is that the N.C.B. are concentrating on using dilute oil in water emulsions (5-10%) in pit props and 60/40 oil in water for heavy duties. Phosphate esters are being field tested for fluid coupling and compressor duties. The N.C.B. are worried about toxicity of Ortho derivatives of phosphates and so far only Cellulubes satisfy their requirements in this direction. The toxicity yardstick is a paper entitled "A study on the acute toxicity of the Tri-aryl phosphates used as plasticizers" by H.F. Bondy, E.J. Field, A.N. Worden and J.P.W. Hughes, a copy of which is enclosed. Ideally the N.C.B. would like an assurance from us that Pydraul fluids are no more unsafe than Shell Tellus Oils. At this stage I think the best thing would be if you can assure me that the phosphates used in Pydraul are safe, as far as the enclosed paper is concerned. Having gained a little ground in this direction, the chlorinated hydrocarbon part will then have to be met.

They are preparing a specification and preliminary list of approved fluids for trial purposes; phosphate esters will be represented if they have passed toxicity requirements. We really want to ensure that Pydraul gets included on the list and if you can assure me on the phosphate side, the fact that Pydrauls A200 and 625 have passed the Luxembourg tests, [redacted] will be sufficient to sway the N.C.B. in our direction.

I should like to take this opportunity of wishing you a Very Happy New Year.

With best wishes,

Yours sincerely,

T. Denton-Roberts

T. DENTON-ROBERTS

DSW 586211

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