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Sent: Tuesday, March 06, 2007 1:27 PM
To: NIOSH Docket Office (CDC)
Cc: Kohler, Jeffery L. (CDC/NIOSH/OD); Watzman,Bruce; Zipf, Richard K. (Karl) (CDC/NIOSH/PRL); Brune, Jurgen F. (CDC/NIOSH/PRL); Peter.Mills@MinovaInt.com; Joe.Burdette@MinovaInt.com; Eugene.Allport@MinovaInt.com; David.Himes@MinovaInt.com; Hoch, Terry (MSHA) (CDC dol.gov); Fredland.John@dol.gov
Subject: 100 - Mine Seals Comments

Minova offers the following comments to the NIOSH report titled "Explosion Pressure Design Criteria for New Seals in U.S. Coal Mines" by Karl Zipf, Michael Sapko, and Jurgen Brune:

The theoretical explosion yield estimations are very unlikely in actual coal mine conditions. The presence of limestone rock dust and water in the sealed areas would work to quench the explosion and limit the load on an actual seal.

The construction of a seal in an actual coal mine environment would be far more complicated and expensive than the report implies. The highly variable nature of coal measure rock was ignored in the report.

The history of success with the Minova 20 psi seal has been ignored in the rush to damn all the alternative seals. Both the Sago and Darby Mine disasters were the direct result of the failure of an alternative seal, significantly different from Minova's Tekseal in design and performance.

Australia has had success with 20 psi rated seals providing the gob area is monitored to ensure an inert atmosphere. The Poles use relatively weak Durafoam (Tekfoam) where there is no explosive risk. What is the justification for recommending 50 psi rated seals in these circumstances ?

Have there ever been any recorded instances anywhere in the world where underground explosive pressures have reached anything close to 640 psi? Should we be designing structures to resist explosive forces that realistically will never occur?

Page 35. It is stated that a wall of concrete blocks 18 ins thick could meet the challenge of a 120 psi pressure pulse. RI 9477 states " a standard type seal with no pilaster, but with floor keying also failed structurally ". This seal was a double row of block 1.3 ft thick. It failed at less than 20 psi. This result does not appear to accord with the statement that a 1.5 ft wall could withstand a 120 psi blast .

Hardstop, which is chemically, beta hemihydrate gypsum has been used in the past to make plug seals in British Coal mines. Its strength is not 600 psi as stated but is about 100 psi. It can only generate high strengths when it is allowed to dry out which is impossible in the large bulk of a seal. Nevertheless the fact that seals made from very weak Hardstop reliably withstand test explosions is a testament to the efficacy of plug seals.

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