



DRY SYSTEMS TECHNOLOGIES®

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Technology for a safer and cleaner Mining Environment

Re: Comments to FR Vol. 70, No. 180 and FR Vol. 70, No. 172

Dry Systems Technologies® wishes to have included the following comments in the publication of the “Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners; Final Rule” and also make an oral presentation of same comments at one or more of the scheduled public hearings.

Comments by Dry Systems Technologies®:

As MSHA proposes “Final Rules” for limiting “Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners”, we find that the NIOSH studies referenced by MSHA are limited to technology that mostly has not yet been proven in the mining industry. As expected, difficulties have arisen from adapting particulate traps and/or fuel additives to the confined and harsh mining environment. Reports of premature particulate trap failure, uncontrolled regeneration, increased NO₂, increased emissions during regeneration of the trap and questions about platinum suspended in the air are raising suspicion if such technology indeed is suitable for the hardrock mining industry.

While not evaluated in detail during the NIOSH studies, a whole new filtration technology has emerged during the past 15 years. This technology has been thoroughly tested and is approved by MSHA for use in gassy areas of coal mines. It is extensively used by the coal mining industry of the USA, as well as South Africa, Australia and Canada. Separately, approvals have been issued for Pennsylvania and West Virginia coal mines, where documented ambient exposure to Total DPM has to be reduced to less than 0.10mg/m³. The technology, known as the “Dry System®” is offered for a wide range of diesel engines by USA based Dry Systems Technologies® in Woodridge, Illinois.

The explosionproof and MSHA Part 7F Approved “Inby” version of the “Dry System®” represents the state-of-the-art technology for explosion-proofing and emissions control. Because of the lengthy and costly MSHA Approval process of

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the "Inby Dry System®" for the coal industry, it would be cost prohibitive for use in the hardrock industry. An "Outby Dry System®" was therefore developed for areas in mining that do not require explosionproof power packages. The "Outby Dry System®" can not be used in gassy areas of mines, but otherwise maintains all emissions control features of the "Inby Dry System®", at a significantly lower cost.

The "Dry System®" is already a mine proven technology and not a research experiment. More than 300 "Dry Systems®" in operation have accumulated more than 1 Million operating hours. Some "Dry Systems®" have been in service for over 12 years and outlasted 3-4 diesel engine replacements. We estimate "Dry System®" to last in excess of 40,000 hours with only minimum maintenance, but had none fail yet.

The "Dry System®" concept is fundamentally different from soot trap systems. The filtration is done at low temperatures (240-270°F) where not only the Elementary Carbon, but also the Hydrocarbons are captured in the filter. Unlike on soot trap systems with regeneration, the captured DPM is removed from the "Dry System®" when the low cost filter is replaced and is being discarded as refuse. There is no need to use special fuel, although ultra low sulfur diesel fuel or Biodiesel blends would increase the useful filter life. There is also no need to replace older engines that are still in working condition, because with the "Dry Systems®" documented 96% reduction of Total DPM, even older and dirtier engines can be brought into compliance with the MSHA exposure limits.

"Dry System®" power packages are available for most existing and new diesel engines ranging from 30 Hp to 500 Hp and can be adapted to most existing machine frames.

Norbert Paas
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