

The Agency requested data and information from the mining community in its ANPRM on high altitude effects on control devices. Commenters noted that MSHA had conducted the test in an underground coal mine located in a high altitude area and that used diesel powered equipment. MSHA worked with the coal mining industry to determine whether high altitudes affected the performance of ceramic filters in controlling DPM emissions. The Agency found no evidence to conclude that altitude affects filtration performance. Some initial verbal comments were received stating that active regeneration stations could not operate effectively at higher altitudes, but further investigation by the coal mine operators and the filter manufacturers indicated that the problem was due to improper use of the equipment. One situation was that an incorrect setting in the control panel on an active regeneration station was determined to be the problem. In another instance, the mine was not following the schedule for active regeneration and allowed the filter to become overloaded with DPM thus preventing proper regeneration. MSHA has made mine operators aware of these problems.

The Agency believes that at high altitudes, excessive DPM is produced whenever the engine is improperly derated for elevation, such as, the fuel:air ratio is not properly set. Mine operators should check with the engine manufacturer or the engine distributor to verify that the engine is set to the proper fuel setting specification, especially when the engine is operating above 1000 feet in elevation. Increases in DPM emitted could overload the filter and not allow proper regeneration of either a passive or active system. Mine operators should install backpressure monitoring devices when a filter is installed and follow engine manufacturers' recommendations for maximum allowable exhaust backpressure.

Some commenters to the ANPRM stated that diesel particulate filters cannot work in their mines, or DPM filters are not feasible for a number of reasons. MSHA has stated that all commercially available ceramic filters can significantly reduce DPM levels. Regeneration schemes have been identified in this preamble that can be feasibly applied to all types of underground mining machines. Commenters also stated that active regeneration systems are not feasible in their mining operations although no specific scenarios were provided to the Agency to respond to the concern.

MSHA believes that the active systems offer a variety of advantages, such as no dependence on exhaust gas temperature or duty cycle, no increases in NO₂, and easier installation due to less restraints for installation of filters close to the exhaust outlet. MSHA understands that active regeneration systems may require mines to make adjustments in their fleet management in order to guarantee that active regeneration works. However, active regeneration systems are commercially available and feasible. MSHA requests that mine operators provide more specific information on the issues associated with the diesel powered equipment that would need active regeneration systems.

Several commenters expressed the view that ventilation system upgrades, though potentially effective in principle, would be infeasible to implement for many mines. Specific problems that could prevent mines from increasing ventilation system capacity include inherent mine design and configurations (drift size and shape), space limitations, and other external prohibitions, as well as economic considerations. MSHA acknowledges that ventilation system upgrades may not be a cost effective DPM control for mines with these limitations. To the contrary, MSHA anticipates the metal and nonmetal underground mining industry will comply with the DPM interim limit primarily through the application of DPF systems rather than ventilation upgrades.

At this time, MSHA estimates that mine operators may not be able to achieve compliance with the proposed DPM limit for every underground miner on every shift, particularly those engaged in inspection, maintenance and repair activities. Existing § 57.5060(d)(2) identifies exceptional conditions where MSHA anticipates that it may not be feasible for many mine operators to use engineering and administrative controls. These conditions, which presently exist in some mines include inspection, maintenance, and repair activities conducted exclusively outside of environmentally controlled cabs or enclosed booths. The existing rule requires mine operators to apply to the Secretary for relief from applying control technology to reduce the concentration limit. MSHA traditionally does not accept use of personal protective equipment for compliance with its other exposure-based standards applicable to metal and nonmetal mines, except while establishing controls or during occasional entry into hazardous atmospheres to perform maintenance or investigations. This proposal would allow the use of

personal protective equipment when all feasible and administrative controls have been implemented. MSHA has included in this proposed rule a tiered approach in controlling miners' exposures that operators must use in achieving compliance. MSHA anticipates that very few mine operators will have significant compliance problems with meeting the proposed DMP limit in circumstances other than inspection, maintenance, and repair activities.

The exposure data relied on by MSHA in making its technological feasibility determinations include the final report on the 31-Mine Study, and results of MSHA's DPM baseline compliance assistance sampling conducted at each underground mine covered by the standard. In the 31-Mine Study, the data showed that many miners' exposures are below the proposed DPM limit without application of any additional engineering or administrative controls. The sampling data includes miners' exposures by job category to permit the Agency to pinpoint those occupations in need of additional controls to achieve compliance with the interim PEL.

DPM engineering controls are not new technology. Moreover, the existing DPM standard was promulgated on January 19, 2001 (66 FR 5706) with an effective date of July 19, 2002 for existing § 57.5060(a). As a result of the settlement agreement, MSHA allowed mine operators to take an additional year in which to begin to install appropriate controls to reduce DPM concentrations due to feasibility constraints. Any controls currently used to meet the existing concentration limit may also be used to reduce miners' exposures to DPM required under this rulemaking.

Because of the lack of documented feasibility data for an interim proposed PEL of less than 308 micrograms per cubic meter of air, MSHA has concluded that there is insufficient information available to support the feasibility of lowering the DPM limit at this time. The Agency believes that this level is a reasonable interim limit for which MSHA currently can document feasibility across the affected sector of underground metal and nonmetal mines. MSHA is continuing to gather information on the feasibility of compliance with a final DPM PEL of less than 308 micrograms.

C. Economic Feasibility

MSHA believes the requirements for engineering and administrative controls clearly meet the feasibility requirements of the Mine Act, its legislative history, and related case law. A PEL of 308