

NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Oral Testimony to MSHA on its

Proposed Rule for Diesel Particulate Matter Exposure of Underground Miners

October 7, 2003

Good morning. My name is Jim Sharpe and I am Vice President of Safety & Health Services for the National Stone, Sand & Gravel Association (NSSGA). On behalf of NSSGA, I would like to thank MSHA for arranging this public hearing in the Washington, D.C. metropolitan area. It affords NSSGA the opportunity, foreclosed by the original hearing schedule, to present our views. I see there are others, besides myself, on the schedule this morning who also intend to take advantage of this opportunity to speak.

NSSGA, based near the nation's capital, is the world's largest mining association by product volume, representing 800 member companies and approximately 120,000 working men and women in the aggregates (construction materials) industry. During 2002, a total of about 2.73 billion metric tons of crushed stone, sand and gravel, valued at \$14.6 billion, were produced and sold in the United States.

Based on the number of mines involved, MSHA's proposed DPM rule far and away is now having and will continue to have the greatest impact on underground stone mines, which NSSGA represents. Of the 196 underground dieselized Metal/Nonmetal mines, 97, or nearly 50%, are stone mines (p. 9). No other Metal/Nonmetal commodity comes close to this number of mines. Of these 97 underground stone operations, 56% are considered small by MSHA's definition of a small mine (pp.13-14). All are considered small by the definition used by the Small Business Administration (SBA).

NSSGA plans to submit detailed written comments before the comment period closes in a week; therefore, our purpose today will be to highlight issues with the DPM rulemaking that we have particular concerns about. But first, let me summarize NSSGA's position: we believe there is insufficient exposure-response information to justify establishment of occupational exposure limits for DPM at this time. Nevertheless, our industry is committed to trying to comply with the interim permissible exposure limit (PEL). We steadfastly oppose the final PEL, however, because of the dearth of exposure-response data, and because we believe the final PEL is neither technologically nor economically feasible. We support rotation of workers as a viable administrative control option, and oppose any attempt to impose further record-keeping burdens on an industry already buried in regulatory paper, some of it quite unnecessary.

The 2001 Rulemaking Was Arbitrary and Capricious

We are all sitting here today essentially because of the final DPM rule issued on January 19, 2001, the last day of the previous Administration. This rulemaking appears to have been arbitrary and capricious for several reasons. The health effects/risk characterization sections of

this document were not independently peer-reviewed. For a regulation that imposes the economic burden on an industry that this one does, failure to submit this work product for validation by credible independent resources is inexcusable and must be rejected for that reason alone.

You all are aware that the Office of Management and Budget (OMB) has issued guidelines for federal agencies to follow that are designed to improve the quality of information developed and disseminated by federal agencies, including MSHA. Those guidelines are currently in effect. Although they post-dated issuance of MSHA's January 2001 rulemaking, they are relevant in this rulemaking nonetheless because (1) they set a standard for information quality by which all rulemaking, present or past, must be measured against, and (2) MSHA specifically mentions in its Preamble to the August 14, 2003 proposed rule that MSHA has incorporated into the record of this particular rulemaking the existing rulemaking record, *including the risk assessment to the January 19, 2001 standard*, (p. 48668) [emphasis added] and because MSHA says on that same page of the Preamble that it requests comments on the final PEL, of which the 2001 risk assessment is based.

I would expect MSHA to respond that OMB's Data Quality Guidelines do not apply because OMB's recommendation for independent peer review only applies to *influential* studies, which has been defined as those costing more than \$100 million. MSHA economic analysis puts the cost of the DPM rule substantially below this figure. But, as the industry pointed out in its own technical and economical feasibility analysis in 2000, MSHA's figures are grossly underestimated. The industry will provide an updated economic analysis before the comment period closes in support of its conclusion that, from an economic standpoint, this rulemaking meets the President's definition of significant rulemaking as stated in section 3(f)(1) of Executive Order 12866.

NSSGA would also point out that even prior to issuance of the OMB Guidelines, Congress gave all federal government agencies the standard to follow when disseminating information in the context of health risks. I am speaking of the principles applied by Congress to risk information pursuant to the Safe Water Drinking Act Amendments of 1996. Those guidelines constitute Appendix II of the Department of Labor's own Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information, dated Oct. 1, 2002.

We commend MSHA for having an earlier version of its 2001 risk assessment independently peer reviewed. Clearly, the agency subscribes to the principle of independent peer review of its work; why then wasn't the 2001 risk assessment peer-reviewed? Of course, even with that peer review, we wonder if that process meets the current OMB proposal, as published in the *Federal Register* on Sept. 15, 2003, for how peer review is to be done; namely, whether the peer reviewer (1) has any financial interests in the matter at issue; (2) has, in recent years, advocated a position on the specific matter at issue; (3) is currently receiving or seeking substantial funding from the agency through a contract or research grant, whether directly or indirectly; or (4) has conducted multiple peer reviews for the same agency in recent years, or has conducted a peer review for the same agency on the same specific matter in recent years.

I would also like to state here that NSSGA supports the comments made during this lengthy rulemaking by Drs. Borak, Cohen and Valberg concerning MSHA's risk assessments, as well as the comments of IMC Global.

Besides failing to peer review its 2001 risk assessment in support of the rule, we see no evidence that MSHA subjected to peer review the 7 so-called Haney industrial hygiene studies done during 2000 in response to comments by industry made in response to MSHA's initial proposed DPM rule of 1998. NSSGA supports the numerous comments made about these reports that were submitted for the record by the MARG Coalition on July 31, 2000, and supports a motion made by the National Mining Association to have these documents stricken from the record.

The purpose of the Haney studies apparently was to determine the validity of industry complaints that interferences during sampling from carbonaceous sources, including carbon-based ores, oil mist and cigarette smoke, might produce false positive results when total carbon is used as a surrogate for DPM. Although numerous criticisms of these studies were mentioned by MARG, the most pertinent in the context of these oral remarks is the following (p. 5):

The Haney studies and reports were designed and conducted without any apparent protocol or independent peer review. They have not been published nor submitted for publication. The Haney reports lack the capacity for independent verification because the underlying data have not been released, missing data has not been accounted for, and equipment and procedures are neither available nor standardized.

According to MSHA (p. 5712 of Preamble to 2001 rule), Mr. Haney's work established that the submicron impactor can eliminate any interferences from carbonates, carbonaceous minerals and graphitic ores. MSHA gave Mr. Haney's research such weight that use of the submicron impactor was included in the 2001 rule. At the time the 2001 rule was promulgated, NIOSH was in the midst of doing its own study of possible interferences with its 5040 analytical method for DPM. But MSHA brushes aside industry's plea to wait on the results of that study, saying the health risk to miners compelled it to take action to complete what at the time was nearly a decade-long rulemaking. Parenthetically, MSHA pointed that NIOSH supported MSHA's rulemaking. That may well be, but nowhere is it clear NIOSH supported setting mandatory exposure limits; in fact, NIOSH is charged with recommending exposure limits to regulatory agencies, but has pointedly failed to make any such recommendation regarding DPM. OSHA, MSHA's sister agency within the Department of Labor, an agency with responsibility for tens of thousands of worksites where DPM is present, has not done so either.

But, while basing a significant provision of the sampling portion of its 2001 rulemaking on this shaky foundation, the Agency stumbled yet again by requiring that the surrogate remain total carbon and not elemental carbon. It's reasoning for doing so was that MSHA "does not at this time know the ratio between the amount of elemental carbon and the amount of dpm. Accordingly, rather than deal with the uncertainties in all samples which this approach would present, MSHA is going to use a method (i.e., sampling for both organic carbon and elemental carbon) that, if properly applied, provides accurate results." (p. 5712)

MSHA took this action in the face of a clear recommendation from its own research agency, NIOSH, that elemental carbon, not total carbon, be used as the surrogate for DPM in field measurements. NIOSH also took the opportunity to state that measuring for elemental carbon would also reduce sampling costs, an important point for operators, particularly small ones, another point lost on the Agency. NIOSH submitted its comments on July 31, 2000, yet MSHA disregarded them in its final 2001 rule. The Agency was also aware of an occupational exposure limit based on elemental carbon promulgated in 1996 by the Federal Republic of Germany (Preamble, p. 5846).

By dismissing this expert advice, the Agency violated Sec. 101 (a)(6)(A) of the Mine Act which states that “The Secretary in promulgating mandatory standards dealing with toxic materials or harmful physical agents under this subsection, shall set standards which most adequately assure *on the basis of the best available evidence* [emphasis added] that no miner will suffer material impairment of health or functional capacity... Additionally, the provision states, “In addition to the attainment of the highest degree of health and safety protection for the miner, other considerations shall be *the latest available scientific data in the field...*” [emphasis added].

As we all know, under consideration in this rulemaking is changing the surrogate from total carbon to elemental carbon. We have heard no testimony from anyone during these proceedings objecting to this proposed change, and, for the record, NSSGA supports use of elemental carbon as the surrogate as well. It is difficult for NSSGA to believe that the Agency has not left itself vulnerable to a charge of arbitrary and capricious behavior based on its failure to peer review key activities that form the very foundation of its 2001 regulation and to disregard the latest scientific advice.

We would add parenthetically that we do not believe Congress, under the Mine Act, gave MSHA a mandate to perform research studies, as it has done throughout this rulemaking. It would seem that MSHA itself agrees. Why else, therefore, would the Agency insert into the Preamble of its 2001 final rule the following comment by an individual representing the United Mine Workers:

First of all, MSHA is not a research agency, it is a regulatory agency, so that it would be inappropriate for MSHA to initiate research....It was not arbitrariness or indifference on MSHA's part that it did not initiate research on coal miners; it was not within their mandate and it is inappropriate in any event. (p. 5764).

The Agency's arbitrary and capricious behavior can also be seen in its cavalier dismissal of industry complaints at the time of the 2001 rule that the submicron impactor is not available in sufficient quantities for sampling. Get the old Bureau of Mines (BOM) specifications and then have a local machine shop use them to produce the impactors was MSHA's advice. The Agency's statement is an admission that the impactors were not commercially available. Even taking the Agency's outrageous advice might not have produced an acceptable impactor, since MSHA comments (p. 5727) that sapphire nozzles are more precise, yet also claims (p. 5726) that results using either the BOM sampler or one commercially made would yield the same results.

But it wasn't just the impactor that was not available; the filter cassette wasn't either. According to NIOSH and industry sources, the cassettes were not available for field use before August

2002. If so, that would throw into question all of the results from the 31-mine study, which was done in the fall of 2001, and was used by MSHA as justification for its recommended sampling methodology, use of elemental carbon as a surrogate, and for the EC/TC ratio that forms the basis of the current rulemaking.

MSHA's arbitrary and capricious rush to rulemaking does not stop here. While commenting that it would accept any control, or combination thereof, aside from worker rotation, to meet the PELs in the standard, Agency pronouncements repeatedly favor exhaust filtration devices. But it failed to mention that some platinum-based filters are capable of producing levels of nitrogen dioxide (NO₂) above MSHA's regulatory limit, which is 5 parts per million (ppm) as a ceiling value. The result was that some well-meaning mine operators, following MSHA's advice, unwittingly exposed their miners to elevated levels of this air pollutant, forcing immediate evacuation of the affected area of the mine until levels were brought under control. After the horse was out of the barn, the Agency issued a Program Information Bulletin on the problem in May 31, 2002. The literature shows that this problem was known for some time before MSHA publicly acknowledged it.

MSHA predicated its entire technical and economic feasibility analysis on the used of the Estimator, a computerized spreadsheet program that uses Microsoft® Excel software to help mine operators determine which control or combination thereof would be most appropriate to reduce DPM levels to required concentrations. However, as comments submitted to MSHA by the Diesel Litigation Group in a report dated May 21, 2002 reveal, the Estimator is seriously flawed, in part, because it assumes perfect air mixing and the existence of effective ventilation for dilution of exhaust particulate. Because the instrument itself is flawed, MSHA's feasibility conclusions must be considered invalid and must be withdrawn.

MSHA's reliance on filters is apparently based on its belief that this technology is the only cost-effective way to reach its disputed final PEL. Stone operators are particularly troubled by this recommendation, and see filtration as the choice of last resort. They hold this view for a number of reasons: filters are costly and of questionable durability. Filtration systems present logistical problems, especially active systems, making them far less practical than passive systems. They may lead to stresses on engines, or, as we have seen, substitute another pollutant or pollutants in the air the miners breathe for the one operators are trying to control. A change of behavior is required for most equipment operators to accept active systems.

The reluctance of stone operators to believe filters are a viable control technology can be seen in comments NIOSH made to MSHA in a recent letter (June 25, 2003):

With regard to the availability of filters and the interim standard, the experience to date has show that while diesel particulate filter (DPF) systems for retrofitting most existing diesel-powered equipment in underground metal and nonmetal mines are commercially available, the successful application of these systems is predicated on solving technical and operations issues associated with the circumstances unique to each mine. Operators will need to make informed decisions regarding filter selection, retrofitting, engine and equipment deployment, operation, and maintenance and specifically work through issues

such as in-use efficiencies, secondary emissions, engine backpressure, DPF regeneration, DPF reliability and durability.

We would also add other circumstances left out of the recitation by NIOSH: practicality, operator acceptance and cost. We would also point out that, since these systems are equipment-based, operators must make micro-based decisions applicable to each relevant piece of diesel equipment, as well as the macro-decisions; i.e., mine-wide, that NIOSH is talking about. Here's what one stone operator had to say about filters:

...engine filters are too large of an expenditure to partake unless it is deemed necessary. Yearly maintenance is also real high for engine filters...management will not consider engine filters until it is deemed as the last resort when all other controls have failed.

Based on the afore-mentioned issues an operator must go through when considering filters is a control technology, it is no wonder these devices are eschewed, because requirements to determine their mine-worthiness are beyond the scope of most operators. Mines are set up to sell ore and to make a profit doing so; they are not set up to perform mini-research projects to determine if filters are going to work on every piece of equipment MSHA believes might need them. Clearly, an operator could hire a consultant to work through the myriad details associated with determining the suitability of a filtration control device. Consultants, however, cost money, and MSHA has not included consultant costs in its economic analysis. If MSHA holds to this recommendation, it must alter its economic feasibility analysis accordingly.

Stone operators have been committed to meeting MSHA's unjustified interim PEL. Still, judging by the results of MSHA's recently completed so-called baseline studies, a significant portion are having trouble doing so, as 16.2% of the stone samples were out of compliance with the interim limit. Clearly, many more will be unable to comply with the final PEL.

While stone operators are drawing upon the entire panoply of recommended control measures to come into compliance, except for worker rotation and filtration, the most promise seems to come from ventilation upgrades. This may be due in part to the characteristically low ventilation rates extant in most underground stone mines, as well as to the fact that the trona mines, which are heavily ventilated because of their gassy nature, have successfully met both MSHA's interim and final PELs without making major changes. A focus on ventilation is in direct contrast to recommendations from MSHA, which tend to downplay major ventilation upgrades as necessary. We suspect MSHA's subordination of ventilation improvements is due to their recognition that making such changes is generally very costly; as such, it would void the under-estimates so characteristic of MSHA's economic feasibility analysis.

The example of one stone operator is a case in point. This operator decided that ventilation would be its primary method of compliance after commissioning a ventilation and DPM study. The consultant was asked to determine control options and costs for complying with the final PEL. Results of that effort produced an estimate of \$348,450 for engine improvement and \$1.498 million for improvements to the ventilation system. Additional costs for filter maintenance are estimated to range from \$25,500 to \$38,500 per year.

To date, the mine has focused on complying with the interim limit, and, in so doing, has invested \$975,000, primarily for ventilation improvements, however, the cost also includes consultant study costs, a new piece of equipment and a new engine to replace an older unit. Despite these costly changes, mine management believes it will need to make even further changes to comply with the interim limit. They are listed in the order of priority:

- Ventilation improvements
- Cab improvements
- Other engineering controls
- Other administrative controls
- Engine replacement
- Engine filters

This operator has been forced to make these changes, even though its highest recorded DPM value from personal exposure monitoring was 451 micrograms per cubic meter of total carbon ($\mu\text{g}/\text{m}^3_{\text{TC}}$).

NSSGA has learned that the typical cost to construct a ventilation shaft is about \$300,000 plus another approximately \$8,000 a month in energy costs.