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Marvin W. Nichols, Director
Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
1100 Wilson Boulevard
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Arlington, Virginia 22209-3939

Re: **COMMENTS OF THE MARG DIESEL COALITION IN RESPONSE TO
THE MINE SAFETY AND HEALTH ADMINISTRATION ADVANCE NOTICE
OF PROPOSED RULEMAKING ON DIESEL PARTICULATE MATTER
EXPOSURE OF UNDERGROUND METAL AND NONMETAL MINERS
67 FEDERAL REGISTER 60199 (SEPTEMBER 25, 2002)**

Dear Mr. Nichols:

The MARG Diesel Coalition ("MARG")¹ submits the following comments in response to the Mine Safety and Health Administration's ("MSHA") Advance Notice of Proposed Rulemaking ("ANPRM") dated September 25, 2002 (67 Fed. Reg. 60199-202). MARG appreciates MSHA's solicitation of comments on the anticipated proposed rulemaking, and welcomes the opportunity to share its thoughts and comments as the Agency formulates its proposed rule for notice and comment in 2003.

As MSHA is aware, the impending proposed rule is the result of two years of good faith work and negotiation between the Agency, MARG and other parties to the litigation. That effort provided a unique, but extremely productive, environment in which regulators, the regulated community, and other interested parties shared their common concerns, and worked together to forge a mutually acceptable settlement of their disagreements over how the Diesel Particulate Rule should be crafted and implemented in the Metal/Non-Metal community. It is in that same spirit of good faith cooperation that MARG submits its comments and observations in response

¹ MARG consists of the MARG Diesel Coalition, the National Mining Association, the Salt Institute, Morton International, FMC Wyoming, General Chemical, IMC Fertilizer, Solvay Minerals, Cargill, Stillwater Mining and Newmont Gold. Individual Coalition members are also filing comments on their own behalf clarifying, expanding, or adding to this comments.

AB29-COMM-3

Marvin Nichols
November 22, 2002
Page 2

to the ANPRM. MARG would welcome the opportunity to talk with MSHA following its receipt of these comments to clarify any of the suggestions made below, or to provide additional information that the Agency may find useful in its drafting of the proposed rule.

The comments below are organized to address the specific questions that MSHA outlined in the ANPRM, in the order that MSHA posed them. However, MARG wishes to raise two preliminary issues before addressing the specific ANPRM inquiries.

If MSHA Examines The Underlying Science It Will Determine That a Diesel PEL Is Not Justified And Withdraw the Final PEL of 160 Micromams:

Before addressing MSHA's specific inquiries, MARG urges MSHA to address the issue of the scientific basis for a diesel exposure limit, beyond the interim limit of 400 micrograms per meter cubed of air of Total Carbon (converted to elemental carbon) agreed to in the Interim Partial Settlement Agreement. First, MARG again notes the pending completion of the seven year, multimillion dollar NIOSH study of potential health effects of diesel exhaust in about 10,000 miners included in the study. This study, initiated by the agency to which the Mine Act delegated health research responsibility, was undertaken because the existing science is inconclusive. The Congress has instructed in Appropriations reports that this study undergo the highest level of independent scientific review, and that any MSHA rulemaking be "informed" by this study. Moreover, the courts have demanded that the data developed by this study be delivered to Congress for review, prior to publication. MARG, whose members include the mines being studied, and the government and the workforce, have a monumental investment in the NIOSH study and its promised sound science. MSHA should revoke the final standard and await the NIOSH study to determine if any PEL is needed and if so, what substance should be regulated and what level is justified by the science mandated by Congress.

In this regard, it is important to note again for the record, and the reader, that the Total Carbon (TC) PEL was simply a selected surrogate for diesel particulate matter (DPM) which is composed of thousands of components that vary for each engine and under differing operating conditions, without any health effects scientifically established to be caused by TC (or its constituent elemental carbon—EC) or any reliable consistent relationship between TC and other DPM constituents.

The requirements of the Mine Act, and the Information Dissemination Provision of the Paperwork Reduction Act, 44 U.S.C. 3504(d)(1) and 3516 note, and its implementing regulations (*See, e.g.*, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by Federal Agencies ("Data Quality Guidelines"), 67 Fed. Reg. 369 (January 3, 2002), mandate that MSHA undertake a review regarding the health science

Marvin Nichols
November 22, 2002
Page 3

underlying any PEL proposal and final rule, and the engineering science underlying any determination that proposed or final rules are feasible. MARG suggests that the science strongly supports the revocation of the final PEL included in MSHA's January, 2001 rule and a stay of enforcement of the Interim PEL, pending a sound scientific analysis.

On November 5, 2001, Dr. Jonathan Borak of the Yale University Medical School submitted a set of comments to MSHA on the scientific validity of the January 2001 Rule. In his cover letter submitting the analysis, Dr. Borak concluded that "MSHA [had chosen] to ignore statistical significance in classifying studies as positive evidence of disease causation, the adoption of the 'razor thin' criterion that a relative risk of 1.1 is evidence of a 'clearly significant health hazard', and the incorrect reliance upon the 'healthy worker effect' to explain the absence of effects in other studies." Letter from Jonathan Borak, MD, DABT, FACOEM, FACP, FRCP(C) to Hon. Dave Lauriski, October 5, 2001, at 2. We include Dr. Borak's comments in this rulemaking record.

MARG suggests if MSHA complies with its legal requirements and common sense, it must conclude that MSHA's PELs, both interim and final, are not supported by sound science. As such, MSHA should withdraw the final standard of 160 micrograms, and leave in place the 400 microgram standard as a settlement PEL, to be converted to Elemental Carbon.

MSHA Should Propose Suspending Enforcement of the Interim PEL (converted to Elemental Carbon) Pending Reliable Feasibility Data:

As noted above, MARG believes that the Joint Study was a valuable effort, but its results do not comply with the law cited above requiring sound and unbiased science to support regulations. The conclusions contained in the draft MSHA study report are directly contradicted by: (1) MSHA's settlement acknowledgement in the settlement agreement that a Total Carbon surrogate is not feasible and its agreement to convert the interim standard to elemental carbon; (2) actual field data that contradicts the assumptions made by the MSHA report, and its reliance on the Agency's compliance "estimator." These and other Joint Study failings are pointed out in detail in the reports submitted by Dr. Thomas Hall, PhD, from the University of Oklahoma, and H. John Head, lead mining engineer with HLA. For example, the study identified numerous interferences with DPM sampling, but could not adequately and completely analyze for such contaminants as environmental tobacco smoke (ETS). Similarly, the Joint Study revealed significant data gaps in MSHA's technical and economic feasibility analysis, like assumed ventilation that did not exist in reality. (MARG incorporates the Hall and Head reports as part of this rulemaking record.) In the coal industry, MSHA itself has acknowledged that DPM rules are not technically feasible. MSHA has also published information demonstrating that certain filtering devices produce dangerous levels of nitrogen & oxide, (NO₂) and may create fire hazards

Marvin Nichols
November 22, 2002
Page 4

in underground mines. MARG suggests that experimentation in the underground mine environment with developing control technology must be undertaken under controlled and safe conditions, prior to establishing rules and enforcing them.

Many of the questions that MSHA has posed in its ANPRM address the same series of issues that the Joint Study did not resolve. Primary among those issues are the availability of control technologies that would allow those mines out of compliance with the interim exposure limit to reduce DPM emissions and achieve compliance. As MSHA now recognizes, some proposed DPM control technologies are introducing other significant health risks (NO₂), that are regarded as more harmful to miners than unconfirmed health effects of suspected DPM exposures. Not enough is known about other potentially toxic gases possibly introduced to the mine atmosphere during filter regeneration to even comment at this time. NIOSH reportedly has a study underway to investigate this situation, so it would be prudent to wait and *see* what gases they find emitted before endorsing or requiring use of filter technology.

While MARG respects the fact that the Mine Act is intended to be technology forcing, as of today there has been no full-scale in-mine tests of diesel control technologies that support the availability of effective DPM controls that reduce exposures to the mandated interim PEL level. In fact the opposite is true; US and Canadian industry and government researchers continue to struggle to identify and test feasible and effective technology for the vast array of equipment in use, one piece of equipment at a time.

As MSHA is aware, recently NIOSH and industry have initiated efforts to create and develop in-mine technology testing in the hopes of developing sufficient technologies that can be made widely available on the market for mines experiencing out-of-compliance mines to use. In light of the complex nature of the issues facing MSHA in this anticipated rulemaking, the incomplete data regarding feasible control technologies, and the anticipated studies being undertaken by NIOSH and industry to address the core issues of concern in this rulemaking, MARG urges MSHA to propose the adoption of a permanent stay on enforcement of interim DPM exposure limit, until such time as adequate data to support it exists.

Such a stay will not impact the promulgation and refinement of all other rules that MSHA is anticipating addressing, nor will it delay implementation of feasible controls, retrofitted on existing fleets, or other DPM reduction activities. Moreover, new equipment is subject to MSHA and EPA approval requirements and their increasingly stringent dpm production mandates. It will, however, prevent the promulgation of a rule that simply is infeasible for mines to comply with for the foreseeable future.

Marvin Nichols
November 22, 2002
Page 5

Specific Responses to MSHA's Questions

In addition to the comments above, MARG has the following responses:

1. Section 57.5060(a) and (b), Limit on concentration of diesel particulate matter.

(a) Appropriate interim and final limits if EC is the surrogate:

As noted above, MARG believes that the scientific evidence does not support adoption of exposure limits on dpm. For MSHA to utilize its settlement approved, 400-microgram limit it must convert the limit to a more reliable elemental carbon PEL, based on sound science and repeatability of results. MARG notes that there are no perfect means of monitoring DPM using either TC or EC methods. Sampling and analysis error and various interferences documented in the field show a clear need for assuring that non-compliance determinations are valid, before enforcement. Until such time as a DPM surrogate linked to health effects is identified and accurate measurement is shown to be feasible, MARG suggests that MSHA enforcement must account for error and variability, as well as examine all available DPM measurements, to determine the most accurate estimate of exposure possible prior to making enforcement decisions.

MARG continues to be concerned that the sampling and analytical process is so new and uncertain as to not constitute a feasible sampling and analytical system, capable of supporting a new regulation, or of providing reliable and accurate results for enforcement. We were shocked recently to learn that SKC has made yet additional changes to the impactor being used by MSHA. We recommend that NIOSH test the reliability and sufficiency of the SKC sampling device, and its comparability to the device that was previously used by MSHA during the Joint Industry Study. MSHA may also want to consider the market availability and possibly higher lab analysis costs of the sampling device.

MARG endorses the Settlement Agreement value of 320 micrograms for elemental carbon, with an appropriate error factor and certain procedural protections to avoid false readings. MARG urges MSHA to determine whether the conversion factor is sensitive to the DPM level; in other words, whether the conversion ratio changes depending upon the elemental carbon loading on a particular sample. Finally, MARG urges MSHA to publish for comment: (i) the methods it will use to assure uniform distribution of EC on the filter, resulting in a representative sample analysis; (ii) the accuracy of an enforcement sample when viewed in comparison to other representative results; and (iii) the error factor to be applied to account for inherent and undisputed analysis and environmental variability and how that error factor was determined.

Marvin Nichols
November 22, 2002
Page 6

(b) Elemental Carbon personal sample error factor.

MARG appreciates MSHA's efforts to develop an appropriate error factor, but urges MSHA to conduct both inter and intra-lab sampling and analysis on spiked elemental carbon samples to obtain reliable information. A sampling protocol designed to mimic and create an applicable AIHA PAT program is the appropriate model for MSHA to adopt.

Because inter- and intra-laboratory variability are themselves interdependent, MARG further urges MSHA to create an error factor model that accounts for the joint and related variability in laboratory analysis, and to then combine that variability with pump flow rate, sample collection size, other sampling and analytic variables. Then, based upon a statistically strong database, MSHA should be able to determine the appropriate error factor for elemental carbon samples.

In addition to the normal error factor considerations, MARG urges MSHA to include a sample review method and an error factor component accounting for location on the filter from which the sample punch was collected. The 31 Mine study, and the "second punch" analysis showed some variation in sample results from "punch to punch." While MARG does not believe that punch-to-punch variability was a major error factor consideration in the carefully controlled MSHA study, MARG believes that the industry experience shows it will become a factor when "production" analysis starts at the MSHA laboratory.

MARG strongly recommends that MSHA design and implement a sample retention program that will permit mine operators or miners to obtain a punch for analysis from any sample analyzed by MSHA. While the program should be started now, it should be set forth for comment in the proposed rule. Moreover, MARG places MSHA on notice that its failure to maintain samples for additional punch analysis will support allegations of evidence spoliation in future enforcement cases supporting citation dismissal motions and/or requested findings of invalid sample results.

Finally, MARG urges MSHA to propose that the error factor account for environmental variability within the breathing zone (i.e. the variability from place to place within the breathing zone). To MARG's knowledge, no data currently exist documenting the variability associated with this acknowledged variability. Particularly if MSHA intends to proceed with enforcement predicated upon single samples taken somewhere within the breathing zone, it is critical to obtain an accurate and representative result that MSHA define the environmental variability in its error factor analysis.

Marvin Nichols
November 22, 2002
Page 7

(c) Interferences in the MNM elemental carbon personal samples:

One of the unfortunate shortcomings of the Joint Study was the inability of MSHA or industry to adequately develop the necessary protocols to document the full range of DPM sampling interferences. Thus, MSHA does not have the necessary database from which to answer this question. While the adoption of elemental carbon as the DPM surrogate is expected to eliminate interferences from oil mist, environmental tobacco smoke, and perhaps other aerosol carbon materials, there is still no data upon which MSHA can conclude that carbonaceous ores will not continue to pose a risk of interfering with DPM sampling. MSHA should propose additional research and seek comments on the research, before concluding that the adoption of an elemental carbon DPM surrogate (even when sampling with an impactor) will eliminate all interference problems.

(d) Necessity of a field blank

Although a field blank may not be necessary to assist in detecting sampling train variability (presumably MSHA will take this variability into account in its error factor calculation), we believe that MSHA should propose that two field blanks be used: one from the same and another one from a different manufacturer lot. The purpose is to determine the extent to which the field blank is adding to the EC result by off gassing. The manufacturing problems encountered by SKC in development and sale of the impactor are further grounds to justify utilizing a field blank, even if it will not be the perfect indicator of bias among impactor and sample filter lots. Thus, we urge MSHA to propose the use of two field blanks for all DPM compliance sampling.

2. Section 57.5060(c) -- extensions of time to meet DPM concentration limits.

(a) Circumstances necessary to permit time extensions

The Joint study demonstrated that a considerable number of mines would be unable to comply with either the interim or "final" DPM concentration limits. We believe that MSHA's sampling efforts this coming year will have similar results and should be posted on the web as they are received to permit all parties to review MSHA's DPM sampling progress in a timely manner during this rulemaking.

We applaud MSHA's consideration of a process through which mines can obtain extensions of time to meet their compliance requirements. That being said, we do not believe that the previously set forth "final" 160 DPM level is either feasible or scientifically supported and should be withdrawn.

Marvin Nichols
November 22, 2002
Page 8

MARG urges MSHA to propose that any mine demonstrating a “good faith” attempt to reduce in-mine DPM levels be granted a one-year renewable extension of time to meet the compliance level in effect. MARG further recommends that until feasible filters (particularly for the small and larger engines) are demonstrated to be available in the marketplace for the diesel engines and equipment in use at the particular mine at issue, MSHA adopt a rebuttable presumption that any mine seeking an extension should be granted one.

(b) Extension Duration

As noted above, MARG urges MSHA to propose renewable extensions for annual periods. MARG acknowledges that MSHA should be allowed to collect or request evidence from the mine during the extension period, and also proposes that MSHA make available to the mine Compliance assistance that includes referrals to other mines that have installed filters that MSHA might claim are feasible for the equipment in question.

(c) Extension Renewal

As also noted above, MSHA should propose allowing mines repeated extension renewals so long as they demonstrate good faith efforts to reduce DPM levels. U R G also urges that such renewals be virtually automatic until such time as a ready available source of effective, feasible, and functional DPM control technologies, and in specific filters for the equipment in use, are available and have been proven in the field.

(d) Required Operator Actions During Extension Periods.

Although U R G believes that MSHA can seek to examine the “good faith” efforts of an operator to mitigate DPM levels during any extension period, MARG recommends that MSHA not propose a list of “good faith” steps. The combination of the unique conditions in MNM underground mines and the differing ventilation and diesel equipment used in those mines, precludes the adoption of any listing or definition of steps that would be universally applicable. For some mines, increased diesel equipment maintenance might be the only feasible steps while others might be able to afford financial experimentation with controls that have not been proven elsewhere.

MARG also recommends that MSHA acknowledge that operators subject to an extension can employ appropriate personal protective equipment and administrative controls to ensure that miners are not exposed to DPM levels that are objectionable by MSHA. In this regard, MARG again encourages MSHA to expedite research on the applicability of air helmets for DPM control since they may provide a comfortable and effective DPM control technology.

Marvin Nichols
November 22, 2002
Page 9

3. Section 57.5060(d) - exceptions to the concentration limit.

(a) **Is this Provision Needed If MSHA Adopts its current hierarchy of controls?**

MARG agrees that this provision can be deleted if the current hierarchy of controls used by MSHA in MNM operations is applied to all affected miners. The provision, as drafted, is limited to inspection, maintenance or repair activities, which presumes that miners must be protected in some fashion at all times.

(b) **The impact of removing this provision**

MARG does not see an impact from the removal of this provision, since current MSHA policy requires protection and permits PPE and administrative controls in non-compliance situations.

4. Section 57.5060(e) prohibits use of personal protective equipment to comply with the concentration limits; and Sec. 57.5060(f) prohibits use of administrative controls to comply with the concentration limits.

(a) Currently, there is no approved respirator for use in protecting miners exposed to DPM atmospheres. If MSHA includes requirements for some form of respiratory protection, what type of respirators would be protective of miners? What are their specifications?

First, we strongly urge MSHA to **delete** this prohibition that interferes with protecting miners. PPE may be far more effective in protecting miners from suspected DPM health effects than any available and feasible engineering control technology. We are confident that there are and will be approved respirators and air helmets that provide protection from DPM. NMA, a MARG member with respirator manufacturer members, has been advised that:

“3M series P Filtering Facepiece Respirators and Series P Elastomeric Facepiece Respirators have been approved for applications similar to those encountered in the *mining* environment. These devices have proven efficiencies of either, depending upon the particular device chosen, 95 or 100 percent in filtering particles smaller in diameter than those emitted as TC from diesel-powered engines.”

These NMA comments are consistent with MSHA staff statements at “Outreach Meetings” indicating that effective respirators are available. Moreover, we encourage MSHA to accelerate research by NIOSH, MSHA and the manufacturers regarding comfortable PPE devices, such as

Marvin Nichols
November 22, 2002
Page 10

the air helmets, which have proven acceptable to employees and eliminate many of the costly and problematic issues regarding respirator use (fit testing, medical qualifications and employee comfort).

(b) Should MSHA propose to require mine operators to implement a written respiratory protection program when miners must wear respiratory protection?

MSHA should not propose a separate written respiratory protection plan. MSHA already has respiratory protection regulations, and the use of respiratory protection for DPM purposes should not be subject to a different regulatory scheme. Thus, MSHA should rely upon its existing regulations for respiratory protection, rather than develop new and potentially conflicting standards for DPM exposures only.

(c) Should MSHA require mine operators to apply to the Secretary for approval to use respiratory protection? Should the application be in writing? What conditions should MSHA require mine operators to meet before approval is granted to use respirators?

While MARG does not object to applying all current respiratory protection regulations to DPM protection, MARG does not believe there is any value in requiring operators to file plans with the district manager before utilizing PPE. Nor does MARG believe it would be a good use of administrative or enforcement resources to require that MSHA pre-approve the use of PPE. MSHA has authority to obtain and review any mine's required plans during inspections or other enforcement activities, rather than forcing operators to deliver documents in advance of need, since most of the materials will be irrelevant to the agency. Thus, to mitigate paperwork, promote efficiency, and in keeping with good logical sense, MSHA should permit operators to use PPE at their discretion, subject to existing regulatory requirements to prepare a written PPE program.

(d) Should MSHA propose to require mine operators to implement a written administrative control plan when they use administrative controls to reduce miners' exposures to the required limit?

Consistent with the above responses, MARG objects to any new proposal for written administrative control plans but does not object to the applicability of current regulatory requirements to DPM.

Marvin Nichols
November 22, 2002
Page 11

5. Section 57.5061(b) –MSHA compliance sample collection and analysis.

MARG supports MSHA's decision to change its DPM surrogate from Total Carbon to Elemental Carbon, as agreed in the second interim settlement agreement. That being said, the Joint Study revealed a startling inconsistency in MSHA sampling and analysis protocols, notwithstanding the fact that the sampling conducted during the study was among the most closely watched sampling and analytic effort that MSHA has conducted in recent memory. MARG believes it is appropriate to question the consistency with which compliance samples will be collected by MSHA enforcement personnel trained in DPM sampling with far less rigor than those individuals who participated in the Joint Study sampling and analysis effort. Thus, MARG urges MSHA to propose a detailed chain of custody and sampling methodology record keeping requirement for both inspectors and laboratory personnel, so that the regulated community will have confidence in the manner in which the samples were taken and analyzed. To that effect, MARG urges MSHA to propose that enforcement and lab personnel maintain detailed sampling logs, including an assigned number or unique code for every DPM sample taken. The sampling logs should also document calibration techniques and measurements, field blank processing, descriptions of events during sampling, shipment to MSHA's analytic lab, and detailed laboratory procedures undertaken for each sample. A copy of the sampling and analysis log must be given to the mine operator, at the end of every sampling day before the inspector leaves the mine site, and following the lab's analysis. Moreover, MARG strongly recommends that MSHA retain the portion of the sample that was not analyzed and make it available to the operator for analysis.

6. Section 57.5061(c) -- personal, area, and occupational compliance sampling.

(a) Operator cost implications to conduct personal sampling using an EC surrogate.

MARG approves of MSHA's determination to utilize personal EC samples only in reaching compliance determinations, and, consistent with the parties' settlement, urges MSHA to propose such a rule. MARG is unaware of any additional cost implications to operators whether EC, rather than TC, is used as the DPM surrogate, and it is possible that the costs may be lower as fewer false readings and contaminated samples are generated.

(b) Operator experience with DPM sampling and analysis.

MARG's membership (noted above) represent some of the largest and most sophisticated MNM underground mining operations in the country, with the most accumulated DPM sampling experience. It is MARG's understanding that the vast majority of mines affected by the DPM rule do not have the capacity to take accurate DPM samples or to establish baseline exposures within their mines. For example, MARG has heard of mines that will be relying upon their

Marvin Nichols
November 22, 2002
Page 12

insurance companies for taking DPM samples, without any determination whether those samples will be taken with an impactor, as required by MSHA, or subject to a competent lab for the NIOSH 5040 analysis. Moreover, MARG has been informed that some mines, which already conducted sampling that they need to rely on for their baseline, may have used prior methods that have now been repudiated by MSHA or NIOSH. As such, it is possible that many existing industry samples will be useless for purposes of the rulemaking requirements at issue here. Further, we believe that many of the mines do not understand the regulations or the mandated DPM sampling or analysis. Even for those companies and mines that have occupational health staff, they are overburdened with new MSHA initiatives (e.g. HazCom, noise, and silica) and when the DPM mandates are added, they will not be able to complete the tasks mandated and required of them.

In light of our perceived inability of the majority of MNM underground mines to accurately and reliably develop a baseline of DPM levels, MARG urges MSHA to use its health staff to help these operations, without enforcement, by providing comprehensive in-mine training and sampling assistance. MSHA's attempts to hold seminars across the country to explain the current iteration of the DPM rule was praiseworthy but not well attended and at times confusing information was presented perhaps due to the rush that created the effort. Far greater efforts, other than enforcement, will be needed by MSHA to help the industry implement these rules.

(c) DPM sampling experience in other industries and other countries?

MARG is aware that some DPM sampling has occurred in the context of EPA's studies, but MARG believes that sampling is not generally applicable to occupational exposure assessments. MARG is also familiar with the efforts that have been undertaken in Canada over the past decade to characterize and analyze DPM in mining and notes that the effort has resulted in a different process than MSHA's rule. MARG notes that the results of this Canadian effort (DEEP), in which MSHA has been a significant participant, have yet to yield conclusive findings on either the health risks posed by DPM or the filter technologies that are available to control DPM emissions. Thus, we again note support for our suggestion that MSHA stay its DPM enforcement regime, and work towards expanding NIOSH research and the Canadian project to further research DPM issues before imposing enforcement on the mining community.

7. Section 57.5062 -- diesel particulate control plan.

MARG strongly urges MSHA to propose that the diesel particulate control plan be eliminated from the MNM DPM rule. Simply put, there is no purpose to the plan other than for purposes of a "gotcha" compliance citation in the event the plan is not completely current or a violation of the PEL is found permitting duplicate citations, one for the plan and another for the specific

Marvin Nichols
November 22, 2002
Page 13

regulation alleged to be violated. The plan itself is nothing more than a paperwork exercise, which will not improve miner health or safety, and which will add additional cost over the considerable expense that every mine will need to incur to respond to the DPM rules. There simply should be no control plan requirement.

In the event that MSHA agrees with MARG and decides to stay the enforcement of the Interim Exposure limit, and delete the Final Limit, MARG could support a requirement that mines document their good faith efforts to reduce miner exposures to DPM and provide that documentation to MSHA upon request.

In light of the comments above, MARG will not address MSHA's individual sub questions related to the plan (how should the control plan be changed, appropriate duration, what triggers plan implementation, roles for respiratory protection and administrative controls, regulatory alternatives, benefits from retaining the plan, and proposed plan deletion). To the extent that MSHA believes it needs each operator to collect data concerning the diesel equipment performance and operation in each mine, MARG notes that much of that data is already collected through pre-shift inspection reports, maintenance reports, and the like. Thus, to avoid regulatory duplication and possible confusion between potentially conflicting regulations, MSHA should simply eliminate any plan requirement.

8. Technological and economic feasibility.

As reflected in the bulk of the comments above, feasibility issues (technologic and economic) are perhaps the greatest bar to promulgation of a legally supportable and effective DPM rule. As MSHA is surely aware, there is simply no dataset that proves the technological and economic feasibility of the rule. The Joint Industry study, and particularly the work of John Head which was submitted to MSHA in response to MSHA's first draft of the report, demonstrated that the economic model upon which MSHA's economic feasibility findings were based was badly flawed. MARG remains frustrated that MSHA is unwilling to recognize the true extent of Mr. Head's comments, and the implications for further rulemaking, and MARG takes this opportunity to again urge MSHA not to accept the MSHA draft Joint Study report, without reviewing it in light of Mr. Head's comments. (The same is true, of course, for Dr. Tom Hall's comments.) Moreover, we believe that the poor quality of MSHA's report, the lack of independent third party scientific review and the bias and inaccurate results identified by Mr. Head and Dr. Hall, invalidate the report's validity under the scientific data requirements discussed above and addressed in OMB's directive to MSHA. We endorse and adopt the comments of MARG members that disclose recent attempts to purchase and install DPM controls and again demonstrate that such controls are neither technically nor economically feasible (and that MSHA cost estimates are at least an order of magnitude lower than real costs).

Marvin Nichols
November 22, 2002
Page 14

(a) What experience do you have modifying ventilation systems to reduce miners' exposure to DPM?

MARG is aware that very few mines have initiated efforts to plan or estimate costs for ventilation increases to reduce DPM exposures. The cost implications of these efforts are enormous and MSHA is well aware that adding a single ventilation shaft can cost *dozens* of dollars and that many underground mines have recently closed or are on the verge of closing due to economic conditions (e.g. copper mines in Arizona, silver mines in Idaho, and zinc mines in Tennessee). Given the proprietary nature of the work, MARG has been unable to determine the costs, or efficacy, of such efforts. However, as noted during the Joint Study, MARG believes that there are many mines where it is impossible to address DPM exposures through ventilation changes for cost reasons as well as technical feasibility reasons. For example, at some mines the necessary ventilation has been estimated to create 30+ mile per hour headwinds in shafts and other access ways. Thus, MARG reminds MSHA that ventilation in many cases, is not even a viable last resort.

(b) What were the costs to mine operators for auxiliary fans, booster fans, flexible ducts, or major ventilation upgrades necessary to meet the interim concentration limit?

See above. MARG also refers MSHA to the cost estimates calculated by John Head addressing this issue. MARG notes that major ventilation upgrades are extremely expensive and not economically feasible for many mines that are challenged to remain viable, even without these new regulations. In addition to being capital intensive (new shafts, particularly those reaching the deeper deposits that are being mined today in older mines, can cost *dozens* of dollars), major ventilation upgrades also require surface access rights that are not always available.

(c) What has been the experience of mine operators with retrofitting existing diesel-powered equipment, especially in the range with less than 50 hp, as well as equipment that has greater than 250 hp, with DPM control devices? What adjustment did mine operators have to make to DPM control devices before there were reductions in DPM levels?

As MSHA is already aware, retrofitting engines can pose significant problems for both the equipment and the operator. Backpressure issues are a significant hurdle, and often preclude the use of those filters available today. MSHA must also consider the costs to the operator of potentially voiding manufacturer warranties on the equipment. Finally, as noted above, the result

Marvin Nichols
November 22, 2002
Page 15

of the retrofit can often be worse than the motivating factor (particularly with available catalytic converters which produce greater amounts of NO₂).

Beyond these general comments, and those addressed in Dr. Hall's and John Head's reports, MARG has not had access to the individual mine experiences in retrofitting engines and expects that some mines will submit those comments. MARG notes, however, that NIOSH plans to undertake a comprehensive analysis of the issue with several different types of mines and that the DEEP program also has accumulated experience that can be evaluated. Thus, MSHA should consider a stay of enforcement of the Interim exposure limit, pending completion and analysis of this important feasibility work.

(d) What are the engineering costs associated with retrofitting?

See C above.

(e) What technical assistance should MSHA provide to mine operators in retrofitting DPM control devices or evaluating a mine's ventilation system, or filtration systems in environmental cabs?

MSHA should make available to mine operators success stories and details regarding technical and economically feasible controls, with references to operator contacts that would be willing to discuss the installations with other operators. MSHA should refrain from forcing repeated costly experiments at mines through the enforcement system, and should accelerate programs similar to those used in noise control to stop such unproductive and costly site-by-site experiments that yielded little improvements and extensive adversarial situations.

(f) Are there circumstances where mine operators have had to change an engine model to accommodate DPM control devices? What were the costs of the engine models?

MARG is not aware of operators successfully retro fitting new engines onto existing equipment, for the reasons set forth by H. John Head in his comments to original proposed rule; anything other than replacing the original engine with the same model is essentially incompatible and would require prohibitive and extensive design engineering analysis and implementation, even if it were compatible.

(g) How much did control devices cost for different horse-powered engines?

Given that effective and proven control devices are not presently available on the market, MARG cannot respond to this question. MARG notes, however, that the unavailability of effective

Marvin Nichols
November 22, 2002
Page 16

control technology in the market undermines any feasibility analysis. At best, individual mines that have attempted experiments with certain controls are expected to respond individually and provide limited information.

(h) Did mine operators have to modify the exhaust system to apply the DPM control? What were the costs for doing so?

See above.

(i) What are the advantages, disadvantages, and relative costs of different DPM control devices?

See above.

(j) What types of DPM control devices are commercially available and how much do these devices cost?

See above.

(k) What are the engineering costs of the DPM control devices?

John Head attempted to estimate these costs in his comments upon the draft Joint Study report prepared by MSHA and in the comments he submitted to the record for the proposed rule. Thus, MARG refers MSIIA to those cost estimates, which MARG believes more accurately reflect true costs as compared to MSHA's draft study, which is based on incorrect facts and assumptions.

(l) What current reductions in EC levels are mine operators experiencing from having installed DPM control devices? What is the experience with filtration efficiencies?

See above.

(m) What has been the experience of mine operators with the useful life of DPM filters?

See above.

Marvin Nichols
November 22, 2002
Page 17

(n) Is there any information available with DPM control filters in non-mining industries or in other countries?

MARG is unaware of such information at this time that would be applicable to mining equipment, other than the Canadian initiatives referenced above.

(o) What has been the experience of mine operators with DPM filters? Did filters fail or did they perform as the manufacturer predicted? If they failed, what were the causes of filter failure? What could be done to prolong the life of DPM filters?

See above.

(p) Do mine operators have any technical data on their experience with using cabs with filtered breathing air?

MARG is unaware of any such data at this time.

(q) Have you experienced increases in NO, when using any of the following:

(1) A base-metal catalyzed filter; (2) a non-catalyzed filter; or (3) platinum-based catalyzed filter?

MARG is aware of the same reports as noted by MSHA personnel regarding increases in NO, when using base metal and platinum filters. We have no independent information on these issues.

(r) What effect do high altitudes have on the ability of the DPM control device to reduce DPM exposures?

While we have no specific data regarding this question, we agree with the implication it raises that high altitude equipment use has an impact on combustion that should be studied for its effect on DPM control technology.

(s) What costs did mine operators incur for filters that were regenerated off board?

See above.

Marvin Nichols
November 22, 2002
Page 18

(t) What costs did mine operators incur for filters that were regenerated on board?

See above.

(u) Would active regeneration be feasible for your mine; such as off-board filter regeneration in an oven, or on-board electrical regeneration?

See above. However, we note that any large MNM mine will have diesel equipment spread throughout the underground, which would make it difficult to feasibly schedule and conduct regeneration with limited facilities.

(v) What are the costs to mine operators for new engines and venting for filter ovens?

See above.

(w) Would fuel additives used to facilitate regeneration be feasible?

See above.

(x) Are there any significant technologies for controlling DPM when EC is the surrogate?

MARG does not understand MSHA's inquiry, as DPM control technologies should not vary depending on whether TC or EC is the enforcement compliance-sampling surrogate. However, MARG notes that if sound research identifies an actual adverse health effect component of DPM, it would be preferable to regulate it instead of randomly selecting EC or TC.

9. Paperwork Burden Issues.

What paperwork and other costs will you incur if changes are made to the DPM standard, particularly development of a written program for use of administrative controls, use of respiratory protection, and for development of a control plan?

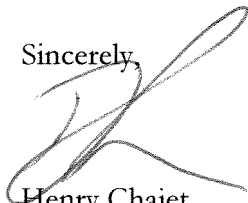
Assuming that a control plan will not be required, there are still significant paperwork issues associated with the proposed rules, as outlined in the settlement agreement. These include, among others, written materials associated with proposed and potential administrative and engineering controls, increased paperwork related to respiratory protection, increased paperwork related to sampling, inspections and equipment repairs and maintenance. MARG has not calculated the costs of such increased paperwork requirements.

Marvin Nichols
November 22, 2002
Page 19

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We appreciate your consideration of MARG's responses to the ANPRM and look forward to cooperatively working with you in the formulation of a more rational, reasonable and legally defensible final DPM rule.

Sincerely,

A handwritten signature in black ink, appearing to be "H. Chajet", written over the word "Sincerely,".

Henry Chajet
David J. Farber