



Alpha Natural Resources

2009 DEC 14 P 12:55

December 14, 2009

Patricia W. Silvey
Director, Office of Standards, Regulations & Variances
U. S. Department of Labor
Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, VA 22209-3939

RE: Request for Information- Respirable Coal Mine Dust: Continuous Personal Dust Monitor (CPDM); 30 CFR Parts 70, 71 and 90; RIN 1219-AB48

Ms. Silvey,

Alpha Natural Resources and its affiliate companies (collectively referred to herein as "Alpha") appreciate the opportunity to submit comments and information in regards to Respirable Coal Mine Dust: Continuous Personal Dust Monitor (CPDM). Alpha supports the comments submitted by the National Mining Association and the Bituminous Coal Operators Association. We look forward to working with MSHA on this very important matter of miners' health.

Respectfully,


John Gallick

VP Health and Safety

Alpha Natural Resources Services, LLC

General Overview:

Proposed regulatory changes to the respirable dust sampling requirements have all attempted to modify the present gravimetric sampling system. These changes to the gravimetric sampling system would perpetuate the gravimetric system's core problem: the built in time delay between the time the sample is collected and the time the results of that sample are made known to the miner tested and the mine operator.

The CPDM, which is now available for use in underground coal mines, presents an opportunity to provide meaningful change in the respirable dust sampling program. It allows for real time sampling data and empowers miners and coal mine managers to reduce individual worker exposure to concentrations of respirable dust as the exposure is detected.

Alpha's goal is to provide a credible system for the miner. The CPDM provides MSHA, mine operators and miners the ability to collect individual exposure data for compliance purposes. Real time data empowers workers and managers to make adjustments before a worker is overexposed.

Replacing gravimetric sampling system with CPDM units will require a paradigm shift in the regulatory approach going forward. A complete change in the approach to sampling must be undertaken to take full advantage of the benefits of the CPDM. The CPDM will provide in the near term a good engineering / management tool for training in worker location and studying the effect of various engineering controls. Longer term, it is imperative that the regulations be re-written to provide a regulatory system that takes advantage of the real time capability of the CPDM.

A. CPDM Application Strategies

1. Please address conditions and circumstances under which CPDMs should be proposed for use in underground coal mines. In your response, include factors such as mine size, compliance history, type of mining, presence of quartz, and designated occupation. In addition, please address whether the CPDM could be integrated into the existing compliance strategy, and, if so, how. Please be specific in your response, and address any technological and economic feasibility issues associated with using CPDMs.

Alpha's Response

All underground designated occupations should be sampled using the CPDM units. The sampling regime however cannot continue to be the present compliance system. We recommend that the sampling system be changed to provide for personal dust sampling by measuring the actual exposure of each individual assigned to a designated occupation. Further we believe that the new regulation should be based on a weekly dosage limit for those specific individuals. The example below of the method that we believe is the most effective sampling system is from the Bituminous Coal Operators Association (BCOA) White Paper.

MSHA PDM compliance sampling will be conducted on all scheduled production shifts during a calendar week, (Sunday through Saturday). Miners designated to wear the MSHA PDM will wear the device for a full shift, not to exceed 12 hours. If a miner, who is designated to wear a MSHA PDM, is off work during any of these scheduled production shifts, that miner's exposure for that shift will be recorded as zero.

Dust exposure compliance determinations will be based on full shift samples taken on all scheduled production shifts each calendar week (i.e. from Sunday through Saturday). The exposure limit for a week will not exceed the dose equivalent to that received as if exposed to 2.0 mg/m³ for forty hours per week. If a miner works for more than forty hours during a week, the exposure limit will be reduced to the level, which would equal the dose equivalent to 2.0 mg/m³ for forty hours. For example, if a miner

works for sixty hours during a week, the exposure limit for that week would equal $(2.0 \text{ mg/m}^3) \times 40 / 60 = 1.33 \text{ mg/m}^3$. In general, the exposure limit for a week would be equal to $(2.0 \text{ mg/m}^3) \times 40 / H$ where H is the hours worked for that week for $H > 40$ hours. Under no circumstances would the exposure limit be increased to a level above 2.0 mg/m^3 if, for example, $H < 40$ hours.

This sampling strategy or a similar designed method provides for the capability to adjust to the present (and future) work cycles of employees. Further, this sampling measures the actual individual exposure and eliminates the present sampling process whereby an area is sampled and worker exposure levels are extrapolated from that data.

Although mine size will be a factor in costs etc., the size of the mine, the mining method, or quartz should not be a major factor in sampling systems design. It is possible that the compliance history may provide a basis for a different sampling requirement rather than each shift. That will need further exploration.

2. Please address the advantages and disadvantages of the existing compliance strategy, which relies on a combination of occupational and area sampling, versus a personal exposure monitoring strategy only. Please be specific in your response, noting the safety and health benefits of each strategy.

Alpha's Response

The present compliance strategy is incompatible with the appropriate use of CPDM's. The reason for a CPDM program is real time measurement and real time adjustments. The existing compliance strategy relies on an overly detailed dust control plan designed to account for all variability in the mining cycle and to engineer for the worst case scenario. The present system relies on an engineering dust control plan that continues to be dominated by requiring minutia in each individual mine methane and dust control plan. The present system has evolved into a plan that is measured for its detail on spray

angles etc. without any real knowledge of what effect these items have on true respirable dust control.

Personal sampling is the ideal way of monitoring and empowering the wearer to control his exposure. Measuring the individual workers exposure over a weekly period is the appropriate method of assuring a healthy work environment for the individual workers. The CPDM system will allow the individual to be aware at all times of his or her level of exposure for any period. The CPDM provides real time information. Real time information combined with the empowerment to make changes, which may be as simple as the worker changing his or her position to more complicated engineering studies will make the new system more effective than any changes or modifications to the present regulations. It is imperative that the CPDM not be used as a gravimetric substitution. A complete new sampling and measuring strategy must be developed for CPDMs.

3. If CPDMs were to be required, how should a compliance strategy based on CPDMs be structured? Please be specific as to miners and occupations covered and include the rationale for your response. Include suggestions for the role of the mine operator, miner, miners' representatives, and MSHA under such a strategy.

Alpha's Response

The BCOA White Paper on CPDM outlines a compliance strategy for CPDM usage. The roles of the mine operator, miner and miner's representative only change in that the CPDM will allow for real time adjustments to the day-to-day mining and respirable dust exposure. Clearly the engineering portion of the dust control plan will not require the minute detail now being required.

MSHA should be responsible for the respirable dust sampling program. The CPDM provides an opportunity to make that happen. By responsible, we mean that MSHA should, at a minimum, own and assign the PDMs to each mine for designated occupation sampling. All non-occupational sampling that MSHA deems necessary should be conducted by MSHA.

4. How would the use of CPDMs impact the frequency of sampling? Please be specific and address how the concentration and exposure levels impact the frequency of sampling.

Alpha's Response

More frequent sampling with immediately known results can be conducted with CPDM's, thereby assisting individuals to be able to reduce their exposure. The frequency of sampling for designated occupations will be significantly increased if a system as outlined in the BCOA White Paper is implemented. Non- designated occupation sampling should be conducted by MSHA. MSHA will no longer need to sample designated occupations, as the details of the sampling will be available via data logs. Any additional sampling that MSHA deems necessary can be conducted by MSHA inspectors as a routine part of their inspection program. Again, with real time information any non-designated occupation issues can be resolved immediately.

5. What examinations should be performed to assure the validity of exposure measurements, and how frequently should these examinations be made?

Alpha's Response

The examinations must be changed to be compatible with the PDM. The CPDM is equipped with certain intrinsic capabilities that reduce the need for examinations. The CPDM has tilt and movement sensors that should prevent, for example, the placement of samplers in intake air courses or in remote areas of the underground environment. The database management system for the CPDM is available for review to ensure the validity of the sample.

Pre-op checks do not necessarily need to be done within 3 hours prior to sampling since the PDM can be programmed a week in advance.

The flow rate check during the 2nd and last hour is not necessary because the flow rate is not displayed on the PDM, and the flow rate is recorded each minute along with the other data. Also, faults are recorded and logged on the PDM.

All details needed, can be found in the PDM data downloaded for the sample.

The only checks needed might be to ensure that the miner to be sampled is wearing the proper CPDM and the data card is properly filled out.

MSHA will do all compliance sampling for quartz, Part 90 miners, and intake air and it will audit the compliance-sampling program to verify that valid procedures are being used.

6. Since the current exposure limits were developed from 8-hour shift exposure measurements, how should the miner's end-of-shift exposure be reported when the work shift is longer than 8 hours?

Alpha's Response

The dose model described in the BCOA White Paper provides for full shift sampling for one week. The CPDM is designed to be compatible with the full shift, full week dose plan, except for extraordinary circumstances. Again, the advantage of the CPDM strategy described in the BCOA White Paper is that the full shift / full week exposure of employees is measured, and the average exposure over time is a more meaningful measure than the exposure on any particular shift.

7. Since the CPDM cannot be used to monitor for quartz, how should the applicable dust standard, including reduced standards established when the quartz content of the respirable dust exceeds 5 percent, be addressed when using a CPDM?

Alpha's Response

The currently used quartz sampling devices used by MSHA and the operator should continue to be utilized. With the use of the CPDM for compliance sampling, the quartz sampling program could allow for extended periods of quartz sampling with gravimetric samplers to assure adequate amount of total dust content is achieved for analysis. The present compliance strategy relies on an 8 hour sample for analysis. Since the sample may be a relatively low weight gain sample the total silica in the sample may be in fact relatively low, yet the percentage of the sample may be relatively high. This can be corrected by assuring a quartz sample with a higher total weight gain. Longer sampling time per shift or even multiple shift sampling can be conducted to accomplish this. Ironically, the present system allows this method for the additional operator quartz samples but does not for the initial sample. This should be changed now and definitely should be changed with a new program.

The present system requires reducing the respirable dust standard on a particular Mechanical Mining Unit (MMU) due to quartz, to a level where existing controls are not adequate to keep miners' exposure under the permitted limits; the mine operator must implement a plan describing how and under what conditions mining will continue without exposing miners to excessive levels. After all feasible engineering controls to reduce the miners' exposure have been exhausted, MSHA should approve and incorporate into the operators' plans the use of NIOSH approved respirator fit test program or NIOSH approved powered air respirators. Once the plan has been implemented, MSHA and the operator should meet periodically to determine if continued use of the plan is necessary for the protection of the miners.

The current formula for finding the reduced standard when quartz is present (10 divided by % quartz) can still be used. The reduced standard should only be applied when the equivalent concentration for the work-week exceeds 40 hours is greater than the reduced standard due to quartz. Ex. 60 hour week gives a 1.3mg /m³ equivalent concentration.....7% quartz gives a reduced concentration of 1.42 mg/m³. The quartz standard should not apply since we have already effectively reduced the standard below that by considering longer shifts.

8. Please address the use of CPDMs for sampling in outby areas, including specific areas, occupations, and frequency of sampling.

Alpha's Response

Any non designated occupation sampling that is to be conducted with CPDM's should be conducted by MSHA with MSHA CPDM's. Operators should only be responsible for sampling designated occupations. The frequency of non-designated area sampling should be based on data derived by MSHA. The frequency of sampling should be up to MSHA as the sampling will be conducted by them.

9. Please address the use of engineering and administrative controls including how such controls should be applied to the CPDM's real-time exposure readings.

Alpha's Response

Because of the real time capability of the PDM, dust control plans will take on a different role in this program. The "Engineering Control Plans" will identify the major dust control features in use and will be used to assist miners if they detect an unaccounted for increase in their exposure. The initial Engineering Control Plan (ECP) will be submitted to MSHA for approval. Approved respirable dust control plans will be posted on the

mine bulletin board. The new EC Plans should no longer include the extensive details currently required in the present plans that rely on gravimetric sampling units.

Based on the real time results of the PDM, if significant increases and /or additions need to be made to the existing ECP, the mine operator will make those changes. Once the changes have been determined to be adequate, the operator will notify MSHA and post the changes to the ECP on the mine bulletin board.

When conditions require reducing the respirable dust standard on a particular Mechanical Mining Unit (MMU) due to quartz, to a level where existing controls are not adequate to keep miners' exposure under the permitted limits, the mine operator must implement a plan describing how and under what conditions mining will continue without exposing miners to excessive levels. After all feasible engineering controls to reduce the miners' exposure have been exhausted, MSHA should approve and incorporate in the operators' plan the use of NIOSH approved respirators or powered air respirators. Once the plan has been implemented, MSHA, the operator and the representative of the miners will meet periodically to determine if continued use of the plan is necessary for the protection of the miners.

10. What action should be taken by the mine operator when a miner's exposure during a working shift reaches the dust standard limit?

Alpha's Response

Individual shift excursions should not be used for compliance. By utilizing the full week dose measurement, the individual should not exceed his dust standard limit for the weekly dose. By measuring for the full week, various strategies to maintain compliance if there is a concern for the individual to exceed the limit can be utilized. i.e., job shifting or job sharing can take place, as well as enhanced engineering controls or work station location.

11. Please address the use of CPDMs at surface mines, including sampling of areas, occupations and miners.

Alpha's Response

CPDM's can be a valuable tool for surface miners; however we have no specific data to address this issue.

B. Dust Control Plan Requirements

1. Please address the advantages and disadvantages of using engineering controls to maintain the mine atmosphere in the area where miners work or travel. Please be specific in your response and include the technological and economic feasibility of such controls. In addition, please address the advantages and disadvantages of using administrative controls as part of an effective exposure control program.

2. If CPDMs are used, please address the information that would need to be included in the dust control portion of the mine ventilation plan, including information related to addressing silica.

Alpha's Response for No's 1 and 2.

The dust control plan was designed to be a surrogate means of preventing over exposure to respirable dust without sampling. The present sampling program does not provide real time measurements. It was felt that once engineering controls were quantified and sampling showed compliance, the engineering parameters would be the minimum limits of the dust control plan.

This plan would then provide a tool to be used in real time, without sampling, that would give some assurance that overexposure to dust did not occur. Over time, the detail of these plans has grown in volume to the point where the degree of exactness is

questionable as to its necessity or benefit. The variability of the work place during production makes this approach of using a surrogate somewhat questionable, but at present it is likely the best means available.

The CPDM, because it can show exposure in real time, and would be used on each production shift, changes the role of the dust control plan. It allows adjustments to the parameters during the shift if the CPDM shows an upward trending of dust concentration, even if the engineering parameters are being complied with. The CPDM removes the uncertainty of using a surrogate means of determining compliance.

C. Recordkeeping

1. Who should be responsible for maintaining the CPDM data files and why? How long should exposure records be maintained? How should information be used?

2. How should the data from operator monitoring using the CPDM be transmitted to MSHA? What data should be transmitted? How often should the data be transmitted (e.g., daily, weekly, or some other frequency)? What steps should be taken to ensure the integrity of the data transmitted to MSHA?

Alpha's Response for No.'s 1 and 2.

The CPDM is designed to enable operators to download sampling data to a laptop for analysis. Read-only protective measures have become commonplace in the information technology field and such protections must be integrated in the CPDM software to guarantee the integrity of the sampling system. Data files should be available for MSHA inspection, upon request. Consistent with most MSHA requirements, the files should be maintained by the operator for a 1-year period.

3. Under current regulations, mine operators, with few exceptions, post the monitoring results on the mine bulletin board for a period of 31 days. How practicable would it be for operators to continue this practice if the monitoring is conducted with the CPDM, which results in the collection of significantly more data than with the current MRE instrument? Would it be appropriate for operators to only provide miners with a portion of the data captured by the CPDM or to post the data for a period less than 31 days? Please be specific with your response, including your rationale.

Alpha's Response

With CPDM database management system, it is very practical for mine operators to be able to review, print out and save monitoring results, thus allowing posting of the results.

D. Education and Training

1. What training should miners receive if required to wear a CPDM? What type of training would be necessary to assure that the miner understands how the device works, what information it provides, and how that information should be used to reduce miners' exposure to respirable dust? How often should miners be required to receive this training?

Alpha's Response

Initial training should be conducted with all individuals required to wear the CPDM utilizing the manufacturer's specifications and recommendations.

2. What qualifications should be required before an individual is permitted to operate and maintain a CPDM? How should an individual be required to demonstrate proficiency before being permitted to operate and maintain a CPDM?

MSHA should revise the certified person sampling certification to accommodate the CPDM's. Persons operating and maintaining the CPDM should receive training approved by or provided by the manufacturer.

3. Which mine personnel should oversee CPDM usage, download exposure information, and interpret data? What type of qualifications/ certifications should these personnel be required to have?

Alpha's Response

Exposure information and data should be accessible to all management personnel and, where appropriate, the representatives of the miners.

E. Benefits and Costs

1. What would be the benefits of using CPDMs in a comprehensive and effective compliance strategy? Note that benefits might differ depending upon which compliance strategy is selected.

Alpha's Response

The CPDM provides miners and operators with a useful tool to make intervention decisions on the basis of real-time data. The result will be a long-term reduction in exposures and a reduction in the potential for lung disease resulting from overexposures.

2. What costs would be associated with using CPDMs? Please be specific as to every component, such as, initial outlay, maintenance, and training.

Alpha's Response

Average cost of a CPDM unit is approximately \$12,000 with filter cassettes costing approximately \$8 each. Initial training and maintenance costs are unknown at this time due to limited use of the CPDM.

As stated previously, the CPDM units will be purchased and owned by MSHA. General maintenance and filter costs will be borne by the operator.

3. What would be the advantages, disadvantages, and relative costs of different methods of using CPDMs?

Alpha's Response

The sampling strategy outlined in the BCOA White Paper would require continual sampling of all Designated Occupations including multiple persons per MMU. The amount of non-Designated sampling should be relatively limited.

4. Would the use of CPDMs affect small mines differently than large mines, and if so, how?

Alpha's Response

Since MSHA would purchase the PDMs used for compliance sampling, the cost of consumables would be the operator responsibility. Since small operators would not need as many PDMs this should be minimized. The cost of having a person maintain and manage the PDMs may mean that mine operators must hire additional people.

5. What incentives, if any, should MSHA consider to promote effective use of CPDMs in coal mines?

Alpha's Response

No comment

6. What actions, if any, should MSHA take to encourage coal mining industry acceptance of the CPDM technology, stimulate economic market forces for more competitive pricing of CPDM devices, and promote innovation in respirable dust monitoring technology?

Alpha's Response

No comment