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DEC 14 2009

December 14, 2009

Mr. Patricia W. Silvey
Director
Office of Standards, Variance and Regulations
Mine Safety and Health Administration
1100 Wilson Boulevard, Room 2350
Arlington, Va. 22209-3939

Re: Respirable Coal Mine Dust; Continuous Personal Dust Monitor – Request for Information (74 Fed. Reg. 52,708)

Dear Ms. Silvey:

These attached comments are submitted on behalf of the members of the Bituminous Coal Operators' Association (BCOA) in response to the Request for Information (RFI) published by the Mine Safety and Health Administration on Oct. 14, 2009.

In making these comments, we emphasize BCOA's long involvement with the Continuous Personal Dust Monitor (CPDM), from its inception, though its development, and now to the deployment stage. BCOA has been, and continues to be, a strong supporter of the CPDM and its potential to reduce individual miner's respirable dust exposure. BCOA member companies are actively involved in testing of the equipment and are also using the device as an engineering tool that provides real-time data in managing dust exposure in their mines. We believe the CPDM is the best step forward in protecting shift miners from disabling occupational lung disease. It is significant part of the various efforts that must be undertaken to assure that miners have a healthy environment.

We have also enclosed a Memorandum of Understanding between the BCOA and the UMWA that set forth our joint view on the appropriate implementation of the CPDM program.

We are pleased to submit these comments and look forward to working with MSHA in designing a robust sampling system that protects miners from the consequences of over exposure to respirable dust in coalmines.

Sincerely,

David M Young
President

AB 48-COMM-5

Attachment 1

12/11/09

# CPDM Request for Information

# By MSHA

### *A. CPDM Application Strategies*

Why change?

The present program that uses the gravimetric sampler and the respirable dust control plan has brought about a tremendous reduction in coal miners exposure to respirable coalmine dust since 1970.

We need change because the current program of respirable dust monitoring in the nation's underground coalmines has not kept up with the changes in mining technology and miners' work schedules. For example, the current sampling system does not account for non-traditional work schedules, which have generally replaced the traditional 8 hour per day / 5 days per week format, or the increases in coal production that have been achieved—in part due to the prevalence of long wall mining. The present program only samples for 8 hours per production shift and only 5 production shifts every 2 months.

This does not account for approximately 10 to 30 % of a miner's daily exposure and only accounts for approximately 10 to 12 % of a miner's bi-monthly exposure. This is hardly representative.

To date, regulatory and legislative responses to this situation have been to attempt to reform and "tighten" the current antiquated system rather than look toward new ways to measure compliance, such as a miner's individual respirable dust exposure and a reduction in the actual amount of respirable dust to which an individual miner is exposed. Mere changes to the gravimetric system, rather than developing a new 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 operator.

The CPDM, which is now available for use in the nation's underground coalmines, presents an opportunity to provide meaningful reform in coalmine respirable dust sampling. It allows individual coal miners to monitor their respirable dust exposure in real time and empowers them to make adjustments to reduce their individual exposure to concentrations of respirable dust that do not exceed relevant dosage. It can become a powerful tool in the fight against coal worker's pneumoconiosis (black lung).

The common goal of the coal mining industry is to develop a system that is easily understandable and credible to the miner, who is the individual we are all trying to protect. The CPDM provides the Mine Safety and Health Administration (MSHA), mine operators and miners the ability to collect individual exposure data for compliance purposes, and a monitoring tool to help control individual respirable dust exposures in real time.

Therefore, it is strongly recommended that we—MSHA, mine operators and miners—take out a clean sheet of paper and start a process to replace the current gravimetric system with CPDMs. The current regulations and proposed changes neither address the shortcomings in the current system, nor find an acceptable remedy. This request for information is a good first step.

***Issue A.1:*** Please address conditions and circumstances under which CPDMs should be proposed for use in underground coalmines. 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.

***Comment:***

MSHA CPDM compliance sampling will be conducted on all designated occupations, as determined by MSHA, on all shifts on which coal is produced during a calendar week, (Sunday through Saturday). Miners designated to wear the MSHA CPDM will wear the device for a full shift.

The exposure limit for a week will not be permitted to exceed the dose equivalent to that received as if exposed to 2.0 $mg/m^3$ for forty hours per week. If a miner works

for more than forty hours during a week, the exposure limit must be reduced to the level that would equal the dose equivalent to 2.0 $mg/m^3$ 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 $mg/m^3$) $x$ 40 / 60 = 1.33 $mg/m^3$. In general, the exposure limit for a week would be equal to (2.0 $mg/m^3$) $x$ 40 / H where H is the hours worked for that week for H > 40 hours. However under no circumstances could the exposure limit be increased to a level above 2.0 $mg/m^3$ if, for example, H < 40 hours.

As stated above in A, the present compliance is not adequate.

***Issue A.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.

***Comment:***

The existing compliance strategy shortcomings have been noted above. The workplace in an underground coal mine is ever changing as coal is being mined. We want to limit the exposure of the individual miner and the best way is by personal sampling. Given the dual capability of compliance monitoring and exposure control that the CPDM provides, personal sampling is the best way of monitoring and empowering the wearer to control their exposure.

***Issue A.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.

***Comment:***

See above.

The Personal Respirable Dust Program (PRDP) would be applicable to all underground areas of underground coalmines. MSHA will designate which individuals are to be sampled for compliance from those occupations that have the highest potential for a miner to be overexposed. We recommend that the current designated occupations be utilized as PDM wearers. After MSHA performs an evaluation at each operation it may determine that additional occupations need to be sampled.

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. Any additional monitoring of mine personnel by MSHA will require MSHA to download the data electronically at the mine so that the mine operator and miners have access to that data. MSHA will be responsible for all aspects of the deployment and maintenance of all sampling devices under this section.

MSHA will purchase sufficient numbers of PDM's for use in both compliance and monitoring determinations. MSHA will be responsible for replacement, recalibration and/or refurbishing of MSHA CPDMs, including maintenance, other than routine cleaning and consumable parts replacement. Mine operators will be responsible for MSHA PDM's operational readiness and deployment. Mine operators will be required to have an adequate number of personnel, certified by MSHA, to administer the mine operators' responsibilities.

The operator would be responsible for the routine maintenance and deployment of the CPDM. The miner wearing the CPDM would periodically monitor the device's display during the shift and either takes corrective action and/or immediate reports to management any signs of over-exposure trending.

***Issue A.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.

***Comment:***

Sampling will be conducted on all designated occupations, as determined by MSHA, on all shifts on which coal is produced during a calendar week, (Sunday through Saturday). Miners designated to wear the MSHA PDM will wear the device for a full shift. This sampling will be for compliance and control purposes. MSHA will determine the impact on the frequency of sampling.

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

***Comment:***

The examinations **do need** changed to be compatible with the PDM.

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

The flow rate check during the 2$^{nd}$ and last hour are 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.

Everything you need can be found in the PDM data downloaded for the sample.

The only checks needed might be to ensure 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.

***Issue A.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?

***Comment:***

As noted in the earlier comments, the sampling system will be for the entire shift. The CPDM is capable of monitoring an individual miner's exposure for up to 12 hours. Based on present work schedules, this time will be more than adequate. If a miner needs to work beyond 12 hours, this will be more than likely known in advance. At such time another CPDM can be programmed and switched out with the miner.

***Issue A.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?

***Comment:***

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 may approve and incorporate in the operators plan the use of NIOSH approved self-contained 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. 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.

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

***Comment:***

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. Any additional monitoring of mine personnel by MSHA will require MSHA to download the data electronically at the mine so that the mine operator and miners have access to that data. MSHA will be responsible for all aspects of the deployment and maintenance of all sampling devices under this section.

***Issue A.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.

***Comment:***

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 control plans will be posted on the mine bulletin board.

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, after consultation with the miners' representative, 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 may approve and incorporate in the operators plan the use of NIOSH approved self-contained 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.

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

***Comment:***

The exposure limit is based upon a work week, therefore the shift-to-shift exposure levels are not specifically an issue. The advantage of a CDPM is that the adjustment to respirable dust exposure can be made during the shift and if the weekly dose is an issue, changes and adjustments can be made during the week. The real time capability of the CPDM should prevent this from happening. The miner wearing the CPDM would periodically monitor the device's display during the shift and either takes corrective action and/or immediately reports to management any signs of over-exposure trending.

. As stated in A.1. above, exposure limit will be determined on a weekly basis.

A.1.

> The exposure limit for a week will not be permitted to exceed the dose equivalent to that received as if exposed to 2.0 $mg/m^3$ for forty hours per week. If a miner works for more than forty hours during a week, the exposure limit must be reduced to the level that would equal the dose equivalent to 2.0 $mg/m^3$ 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 $mg/m^3$) $x$ 40 / 60 = 1.33 $mg/m^3$. In general, the exposure limit for a week would be equal to (2.0 $mg/m^3$) $x$ 40 / H where H is the hours worked for that week for H > 40 hours. However under no circumstances could the exposure limit be increased to a level above 2.0 $mg/m^3$ if, for example, H < 40 hours.

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

***Comment:***

The Personal Respirable Dust Program (PRDP) would be applicable to all underground areas of underground coalmines.

### *B. Dust Control Plan Requirements*

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. The variability of the work place during production makes this approach of using a surrogate somewhat questionable, but at present is the best means available.

The CPDM, because it can show compliance 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.

***Issue B.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.

***Comment:***

The hierarchy of dust controls should be engineering controls, administrative controls and finally PAPRS when the engineering controls are not feasible. The plan to use the PAPRs was discussed previously.

***Issue B.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.

***Comment:***

This plan is a **"methane and dust control"** plan. Consideration needs to be given that the specific parameters used for dust control are also used to control ignition sources while mining. As such, sprays, water pressures and air requirements that are part of the parameters serve dual purposes.

***C. Recordkeeping***

***Issue C.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?

***Comment:***

The CPDM provides programmed data that can be downloaded. The recordkeeping system has to be designed to not allow the measurement data to be altered. Users of the data should have a read only capability.

In that the data will be digital, it can be program for the needs of the miners, the mine operators and the government.

***Issue C.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?

***Comment:***

The transmission of the data can range from downloading the data at the mine by the inspector to transmission electronically. As proposed above, compliance determinations will be made on a weekly basis. Transmission capability of data electronically may vary from mine to mine. Once the needs of the parties is determined then means can be devised for transmission and format.

***Issue C.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.

***Comment:***

Electronic data can be sorted. MSHA should develop a standard summary form to be posted for 31 days. Miners need to be aware of the summary of the results of their personal sampling.

***D. Education and Training***

***Issue D.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?

***Comment:***

Initial training should be given to all miners who will wear the PDM so they can use it properly to determine their dust exposures. MSHA can help with training each time they contact a PDM wearer underground. Follow up training as part of annual retraining.

***Issue D.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?

***Comment:***

Similar to the current requirements for certification in sampling/maintenance and calibration. Adapt to the PDM device. MSHA test required.

***Issue D.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?

***Comment:***

As stated previously, Mine operators will be responsible for MSHA PDM's operational readiness and deployment. Mine operators will be required to have an adequate number of personnel, certified by MSHA, to administer the mine operators' responsibilities.

***E. Benefits and Costs***

***Issue E.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.

***Comment:***

Obviously the benefit of the cost for reducing or eliminating black lung cannot be underestimated. By having the most at risk person wear the PDM instead of every miner will be a substantial savings. MSHA will decide who wears the PDMs based on historic sampling data.

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

***Comment:***

MSHA would purchase all PDMs used for compliance sampling. Maintenance plans can be worked out with the manufacturers. Costs for consumable parts would be paid by the operator.

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

***Comment:***

By having the most at risk person wear the PDM instead of every miner will be a substantial savings. MSHA will decide who wears the PDMs based on historic sampling data.

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

***Comment:***

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 additional people.

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

***Comment:***

Continue to push the programs to end black lung and train the many new miners who will be joining the workforce in the future. Education will play a major role in effective use.

***Issue E.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?

***Comment:***

Attachment 2

**UMWA/BCOA**
**MEMORANDUM OF UNDERSTANDING**
**MODERNIZING COAL MINE RESPIRABLE DUST SAMPLING**

The Personal Dust Monitor (PDM), which is now available for use in the nation's underground coal mines, presents an opportunity to provide meaningful reform in coal mine respirable dust sampling. It allows individual coal miners to monitor their respirable dust exposure in real time and empowers them to make adjustments to reduce their individual exposure to concentrations of respirable dust that do not exceed relevant standards. It can become a powerful tool in the fight against coal worker's pneumoconiosis (black lung).

Respirable dust monitoring in the nation's underground coal mines has not kept up with the changes in mining technology and miners' work schedules. For example, the current sampling system does not account for non-traditional work schedules, which have generally replaced the traditional 8 hour per day / 5 days per week format, or the increases in coal production that have been achieved—in part due to the prevalence of longwall mining.

To date, regulatory and legislative responses to this situation have been to attempt to reform and "tighten" the current antiquated system rather than look toward new ways to measure compliance, such as a miner's individual respirable dust exposure and a reduction in the actual amount of respirable dust to which an individual miner is exposed. Mere changes to the gravimetric system, rather than developing a new 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 operator.

The common goal of the coal mining industry is to develop a system that is easily understandable and credible to the miner, who is the individual we are all trying to protect. The PDM provides the Mine Safety and Health Administration (MSHA), mine operators and miners the ability to collect individual exposure data for compliance

purposes, and a monitoring tool to help control individual respirable dust exposures in real time.

Therefore, it is strongly recommended that we—MSHA, mine operators and miners—take out a clean sheet of paper and start a process to replace the current gravimetric system with PDMs. The current regulations and proposed changes neither address the shortcomings in the current system, nor find an acceptable remedy.

While the PDM was being developed[1], some members of the industry began thinking about how best to use this instrument. The shortcomings of the present gravimetric sampling system provided the foundation for a list of things that need to be corrected and could be corrected with the PDM. The PDM has superior capabilities over the present gravimetric system and it is important to take advantage of them. The PDM's significant sampling improvements should be used as the basis for whatever new regulations are developed.

The development of the PDM and the discussions about how it should be introduced led the industry to the "dose concept"—measuring the actual respirable dust exposure of each individual miner for his full shift over a specific period of time. The partnership has developed a framework for the implementation of the PDM and a new regulatory regime for respirable dust compliance and exposure. These concepts have been shared with all parties of the partnership.

The BCOA safety committee entered into in depth discussions with the UMWA in order to reach the following agreement in principle for the introduction of PDMs:

1. Representatives of the UMWA and many operators made it clear in public testimony related to MSHA's failed 2003 dust proposal, that the Agency, not the operator should be responsible for compliance sampling. There is a strong perception that an operator-controlled system is not credible with regard to compliance sampling. Therefore, mine operators are willing to cede compliance sampling to MSHA as long as sufficient safeguards are put in place.

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[1] See NIOSH RI 9669/2006

2. The Personal Respirable Dust Program (PRDP) must be considered in its entirety and not by its individual parts. The PRDP would be applicable to all underground areas of underground coal mines. MSHA will designate which individuals are to be sampled for compliance from those occupations that have the highest potential for a miner to be overexposed. We recommend that the current designated occupations be utilized as PDM wearers. After MSHA performs an evaluation at each operation it may determine that additional occupations need to be sampled.

3. 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. Any additional monitoring of mine personnel by MSHA will require MSHA to download the data electronically at the mine so that the mine operator and miners have access to that data. MSHA will be responsible for all aspects of the deployment and maintenance of all sampling devices under this section.

4. MSHA will purchase sufficient numbers of PDMs for use in both compliance and monitoring determinations. MSHA will be responsible for replacement and/or refurbishing of MSHA PDMs, including maintenance, other than cleaning and consumable parts replacement. Mine operators will be responsible for MSHA PDM's operational readiness and deployment. Mine operators will be required to have an adequate number of personnel, certified by MSHA, to administer the mine operators' responsibilities.

5. MSHA PDM compliance sampling will be conducted on all designated occupations, as determined by MSHA, on all shifts on which coal is produced during a calendar week, (Sunday through Saturday). Miners designated to wear the MSHA PDM will wear the device for a full shift.

6. The exposure limit for a week will not be permitted to exceed the dose equivalent to that received as if exposed to 2.0 $mg/m^3$ for forty hours per week. If a miner works for more than forty hours during a week, the exposure limit must be

reduced to the level that would equal the dose equivalent to 2.0 $mg/m^3$ 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 $mg/m^3$) $x$ 40 / 60 = 1.33 $mg/m^3$. In general, the exposure limit for a week would be equal to (2.0 $mg/m^3$) $x$ 40 / H where H is the hours worked for that week for H > 40 hours. However under no circumstances could the exposure limit be increased to a level above 2.0 $mg/m^3$ if, for example, H < 40 hours.

7. 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 may approve and incorporate in the operators plan the use of NIOSH approved self-contained 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.

8. 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 control plans will be posted on the mine bulletin board.

   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, after consultation with the miners' representative, 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.

9. Mine operators may choose to purchase their own PDMs to help identify dust sources and manage exposures in a timely manner. Operator PDMs will be distinctively marked to readily distinguish them from the MSHA PDMs. The mine operator will responsible for all cost associated with its PDMs. The operator will be responsible for keeping data from the Operator PDMs separate and distinct from data collected from the MSHA PDMs. Maintenance records will be kept on mine property and made available to the representative of the miners.