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Questions and Answers
MSHA's Final Rule to Lower Miners' Exposure to Respirable Coal Mine Dust

1. Why is MSHA promulgating this rule?

- The Mine Safety and Health Administration took the historic step of issuing today's rule to lower coal dust exposure for miners in the effort to end black lung disease, a debilitating illness that continues to devastate coal miners, their families and communities. Black lung disease has been the cause or contributing factor in the deaths of more than 76,000 miners since 1968, including thousands in the last ten years;
- Extensive research shows that miners continue to get the disease, including younger miners, with more than 1,000 miners diagnosed by the National Institute for Occupational Safety and Health (NIOSH) in more than a dozen states based on the latest 10 year surveillance data;
- More than $45 billion in federal compensation benefits have been paid to victims and their survivors since 1970, with more than $5 billion in the last 10 year period; the latest figures show compensation for more than 7,000 miners;
- The rule is the centerpiece of MSHA's "End Black Lung – Act Now!" campaign, begun in 2009, which includes enhanced enforcement, collaborative outreach and education, training and rulemaking.

2. Where is the disease occurring?

- Miners across coal-producing regions continue to get black lung, a debilitating disease that is devastating miners' lives, families and communities.
- Multiple sources of evidence show that black lung is not a regional or localized problem. NIOSH reports on deaths, federal compensation payments for black lung victims and NIOSH data on miners diagnosed with the disease show the devastating impact of the disease throughout all coal mining regions and states.
- NIOSH continues to find the disease among active miners, with more than 1,000 underground miners in over a dozen states with evidence of the disease based on the latest 10-year surveillance data.

3. What does the rule do?

The final rule achieves the historic goal of reducing miners' harmful exposures to coal mine dust in a number of ways:

- Reduces the concentration of coal dust in the air miners breathe and further reduces dust exposure by closing loopholes and improving sampling practices to better reflect actual working conditions and protect miners from overexposures.
- Increases sampling and makes use of cutting-edge technology developed for the mining environment to provide real-time information about dust levels, allowing miners and operators to identify problems and make necessary adjustments instead of letting overexposures languish. Requires immediate corrective action when limits are exceeded.

- Provides MSHA the ability to protect miners by issuing citations based upon a single full shift sample that exceeds the citation level.
- Has a common sense phase-in approach over a two-year period to give the industry the time it needs to adjust to the new requirements, acquire monitoring equipment, and obtain compliance assistance from MSHA.

More specifically, the rule:

- Lowers dust levels by eliminating loopholes that masked overexposures and improves sampling for more accurate measurements:
  - Changes the current practice of averaging dust samples, which allows miners on some shifts to be exposed to levels above the standard;
  - Mandates immediate action by mine operators when dust levels are high instead of allowing miners to be exposed to unhealthy dust levels for days or weeks;
  - Requires more frequent sampling of areas known to have high dust levels, such as those closest to the production area;
  - Requires sampling for the full shift a miner works to ensure protection for all working hours rather than stopping sampling after 8 hours, as is the existing requirement;
  - Requires dust samples to be taken when mines are operating at least 80 percent of production, as opposed to the existing 50 percent requirement, so that samples are more representative of actual working conditions; and
  - Requires more thorough examinations of the dust controls on mining sections each shift with records of the exams signed by mine officials.
- Lowers dust concentration levels by reducing the overall dust standards in coal mines from 2.0 to 1.5 milligrams per cubic meter of air (mg/m3) in areas of the mine where coal is produced and for surface mines; cutting in half the existing standard from 1.0 to 0.5 mg/m3 in mine entries used to ventilate areas where miners work and for miners who have reported evidence of pneumoconiosis.
- The rule enhances MSHA's ability to enforce the standard by:
  - Eliminating averaging of MSHA collected samples for enforcement purposes;
  - Providing that MSHA sample the full shift, eliminating the requirement that MSHA cut off sampling after 8 hours; and
  - Providing that MSHA cite a violation for any single sample it takes exceeding the citation level.
- The final rule strengthens the requirements for certified persons who perform dust sampling and who maintain and calibrate sampling equipment to ensure that samples are taken by qualified personnel using reliable equipment. It requires:
  - Completion of an MSHA course of instruction;
  - Passing an MSHA examination, and
  - Recertification by MSHA every three years.
  - The rule adds procedures allowing MSHA to revoke a person's certification for failing to properly carry out the required sampling or maintenance and calibration.
- Utilizes cutting-edge technology to measure dust levels by requiring the use of the continuous personal dust monitor (CPDM), a device developed with mining industry involvement to provide real-time sampling results.
  - The CPDM is to be worn by miners in highest exposure occupations and continuously evaluates dust levels in order to provide a digital read-out to miners and operators, who can adjust locations or look for problems causing excessive dust.

    - The CPDM provides operators with readings they can use to take immediate action to correct dust conditions, instead of waiting days for lab results, as is necessary with current sampling methods.
- Improves the early warning system for the disease by making lung function testing available to all coal miners, expanding chest x-rays to include surface miners, and expanding dust sampling for working miners with evidence of the disease.
- By reducing overall dust levels, better protects miners from exposure to respirable silica dust.

4. When does the final rule go into effect?

The rule adopts a common sense three-step phase-in approach, with each step systematically reducing miners' exposure. This transition period gives miners additional protection early, while allowing the industry time to adjust to the new requirements, acquire monitoring equipment, and obtain compliance assistance from MSHA:

August 1, 2014: Several provisions that will reduce miners' exposure to harmful quantities of respirable coal mine dust go into effect immediately on the effective date of the rule:

- Requires the operator to take immediate corrective actions to lower respirable dust concentrations when any operator-collected sample exceeds the concentration limit;
- Changes the method of averaging of samples that left some miners on some shifts exposed to dust levels above the standard;
- Requires sampling for the full shift that a miner works, instead of just 8 hours;
- Requires samples to be collected when the production on the mining unit is near normal levels (at least 80%), as opposed to just 50%;
- Requires that the ventilation plans be upgraded to specify the individual dust controls used on each mechanized mining unit;
- Requires more thorough and verified exams of the dust controls each shift;
- Makes noncompliance determinations based on a single full-shift MSHA-collected respirable dust sample;
- Increases sampling at surface mines;
- Requires sampling on all shifts;
- Increases sampling frequency for miners with evidence of the disease;
- Improves the early warning system for the disease by expanding the medical surveillance program to include lung function testing, occupational history, and symptom assessment as well as x-rays to all coal miners; and
- Expands to surface miners with evidence of the disease the right to transfer to a work assignment in a less dusty area of the mine.

February 1, 2016: MSHA provides an additional 18 months for operators to implement the requirements for use of the CPDMs that will increase protections and provide real-time dust levels, allowing corrective actions more quickly. This transition period provides sufficient time for operators to purchase and use the new CPDMs. The rule's increased sampling frequency provisions will also go into effect at this time.

August 1, 2016: MSHA provides an additional 24-months for mine operators to achieve the final 1.5 and 0.5 mg/m3 standards. This 24-month transition period allows mine operators the opportunity to identify and implement feasible engineering controls; train miners and mine management in new technology and control measures; and improve their overall dust control program. In addition, the 1.0 mg/m^3 standards for miners with evidence of the disease and for intake air ventilating the mine are lowered to 0.5 mg/m^3.

5. How does the new rule better protect miners from overexposure to dust for long periods while the mine awaits sampling results?

Currently, miners can work in high levels of dust for days or weeks before the process requires operators to take corrective action to reduce dust overexposures. Under the final rule, this delay is eliminated. The final rule gives miners protection right away by requiring corrective action immediately when a sample is out of compliance.

6. What impact will the increased frequency of sampling in the new rule have on ending black lung?

- The new sampling frequency will have a significant impact on keeping dust levels and controls in check. Currently, mine operators are required to take 5 samples every two months at locations where coal is produced. That means for most mines, only about 5% of the shifts on which miners work are sampled by mine operators;
- Under the final rule, sampling will increase considerably, with a minimum of 30 to 45 shifts sampled each quarter depending on the mining systems in place;
- Sampling requirements will increase further at mines with additional occupations designated for sampling;
- Similar to MSHA's strategic impact inspection approach at troubled mines, the new rule allows MSHA to require additional sampling at mines that fail to maintain dust controls as specified in the mine's approved ventilation plan.

7. How does the final rule ensure that operators will actually implement and maintain required dust controls so miners will be better protected?

- The final rule builds in new accountability measures to ensure that operators are implementing and maintaining required dust controls. We know that dust controls do not actually protect miners unless they are reliably implemented and maintained.
- The current rule does not require regular examination of all dust controls in use.
- The new accountability measures in the final rule include:
    - complete and thorough exams of all dust control measures on every shift to ensure protections are in place and working properly;
    - a written record of the exam signed by a mine official;
    - the posting in a clear and legible form on a board located where miners are working, showing the day and time that the required examinations of dust controls were made on each operating unit so that miners can see if the exams were made as required.

- To ensure that samples are taken by qualified personnel with reliable equipment, the final rule revises requirements for certified persons who perform dust sampling and who maintain and calibrate sampling equipment.
    - It requires:
        - Completion of an MSHA course of instruction;
        - Passing an MSHA examination,
        - Recertification every three years by MSHA.
    - The rule adds procedures allowing MSHA to revoke a person's certification for failing to properly carry out the required sampling or maintenance and calibration.
- If dust controls are not being maintained at all times, MSHA can require additional on-shift examinations to ensure dust controls are in place and working as intended for the entire shift.

8. The final rule requires that average coal production be at 80% when the mine air is sampled for dust – up from just 50% under the current rule. How does sampling at the higher average production level better protect miners from black lung disease?

As more coal is mined more dust is generated. Taking dust samples at 50% of average production is not representative of normal mining conditions and can easily mask the higher levels of dust that miners are breathing on a normal production shift. Allowing dust samples to be taken for compliance at those lower levels will no longer be permitted. The 80% production minimum more accurately reflects dust levels during normal mining conditions.

9. How is the new full shift sampling different from the current sampling method and how will miners be better protected?

- The final rule requires dust to be measured the full shift miners work, as opposed to the current standard of shutting off the dust sampling device after 480 minutes or 8 hours.
- The current rules do not accurately reflect the total amount of miners' dust exposure. The majority of miners work shifts that far exceed 8 hours.
- That means that miners' dust exposure for the remainder of the 9, 10 or 12 hour shift common in underground mines is not being measured.
- Under the final rule, the mine environment will be sampled for the entire shift, regardless of length, helping ensure effective dust controls are in place for the entire shift.

10. How does averaging of samples under the current rule allow miners to be exposed to more than the 2 mg/m3 standard with no action required to protect the miner and how does the final rule will correct this problem?

Compliance for operator-collected samples on working sections of a mine where coal is produced is currently determined by averaging samples taken over 5 shifts. This averaging method allows some miners on some shifts to be exposed to dust levels that exceed the 2.0 mg/m3 standard when the average of all samples is below the standard and mine operators are not required to take any corrective action to lower dust levels. The following example shows how averaging masks overexposures:

Sample #	Miner Sampled	Sample Concentration (mg/m^3)
1	Day shift	3.309
2	Day shift	1.231
3	Day shift	0.994
4	Day shift	3.488
5	Day shift	0.526
	Average concentration	**1.910**

The new rule changes this practice of averaging. A sample that exceeds the standard will require immediate corrective actions to reduce exposure.

In addition to allowing the averaging of samples, the current rule permits operators to elect to conduct sampling on either consecutive shifts or consecutive days. Consequently, an operator with two production shifts that elects to conduct sampling only on the day shift is not required to sample on the evening shift, ever. The miners on the evening shift may work in excessive dust levels every shift, but the operator's samples would indicate compliance. The new rule eliminates the option of consecutive day sampling, and requires that sampling occur on consecutive production shifts.

11. Some commenters stated that the CPDM should be used as an engineering tool but not for compliance. Why does MSHA not allow it to be used that way?

- MSHA has great confidence in the accuracy of the CPDM devices. That confidence is based on strong science and extensive testing. Accordingly, MSHA determined that it is feasible to use the CPDM as a compliance device to sample respirable coal mine dust.
- The CPDM allows operators to become aware of conditions or problems with dust controls that need to be corrected. This enables a mine operator to be more proactive in taking corrective measures to avoid miners' being overexposed, and to optimize mining procedures and dust control parameters to continuously maintain dust levels at or below the dust standard.
- The CPDM can and should be used by operators as an engineering tool. The CPDM measures the concentration of respirable coal mine dust continuously and almost in real-time and it provides sampling results at specific time intervals, which allows for adjustments during the shift to reduce miners' exposure, as well as at the end of the work shift.
- For operator sampling, operators will not receive a citation if they take immediate corrective action after the first bi-monthly sample meets or exceeds the citation level under the current 5 sample requirement, and after the first or second quarterly sample meets or exceeds the citation level after February 1, 2016.

12. Why doesn't the final rule allow for the use of respirators or other personal protective equipment?

- The law requires that mine operators provide miners with a safe environment. The Mine Act specifically states, "Use of respirators shall not be substituted for environmental control measures in the active workings." MSHA believes that reducing the amount of dust miners are exposed to is the best way to ensure a healthful work place for miners, as the law dictates.

- Operators are not only allowed to use respirators as a supplemental control, they are required to make NIOSH-approved respiratory equipment available to all miners affected by overexposure as determined by either an MSHA- or operator-collected respirable dust sample.
- Personal protective equipment, such as airstream helmets or respirators, are supplemental controls that operators may use, but they are not a substitute for engineering controls – and engineering controls exist and are used today that can maintain respirable dust levels at or below the standard.

13. How will the new dust control plans required in the mine ventilation plan better protect miners?

- The final rule better protects miners by ensuring that mine ventilation plans more directly address dust exposure and how to control it. Specifically, mine ventilation plans will now require more details and descriptions regarding the ventilation system used to control respirable dust for each mechanized mining unit, including the types of ventilation and dust suppression and collection systems and how they will be used. These improvements will result in better quality dust controls.
- Miners and mine management will be better informed as to what specific controls and what level of control (such as air quantity or water pressure) must be maintained to provide the best protection.

14. What changes in the rule will speed up corrective actions and get dust control plan changes made more quickly?

- There are a number of changes that will speed up corrective actions, resulting in quicker changes to dust control plans to ensure that miners are better protected for more of the time they spend in the mine.
- First, action is required faster in response to dusty conditions. When a sample exceeds the citation level, immediate actions are required to correct the condition (instead of allowing conditions to languish for days or weeks) and to provide NIOSH approved respiratory protection.
- Use of CPDMs will greatly speed up operator responsiveness. Sample results from the CPDM are available to the operator at the end of the sampled shift, as opposed to the 7-10 days necessary to obtain results from the gravimetric filters sent to MSHA's laboratory.
- The final rule sets stricter and shorter deadlines for the plan revision process. CPDM sample data must be sent to MSHA within 24 hours. Mine operators must begin abatement sampling within 8 days when notified of noncompliance. Revised dust control plans are to be implemented, tested and sent to MSHA for approval, all within a maximum of 21 days.

15. How does the final rule promote earlier detection and prevention of black lung for working miners?

The final rule makes several changes to the requirements for medical monitoring of working coal miners to ensure that they have the earliest and best access to measures to prevent this debilitating disease and to get the treatment that they need and deserve.

- The medical monitoring program now guarantees all miners periodic examinations consisting of chest x-rays, spirometry (lung function testing), symptom assessment, and occupational history. For new miners (never worked in a coal mine before) a mine operator must provide the examinations within 30 days of the miner beginning employment, an initial follow-up examination within 3 years, and a second follow-up examination if the initial follow-up indicates any decreased lung function or indication of lung disease.
- In addition, for all miners, a mine operator must provide the opportunity to have a medical examination at least every 5 years that includes an x-ray and spirometry.

16. What is MSHA doing to help the mining industry comply with the new rule?

MSHA will provide extensive guidance and support to mine operators and miners, including:

- Outreach to all coal mine operators during the implementation period;
- Stakeholders meeting at MSHA headquarters in Arlington, VA;
- Field seminars in coal mining regions, including in Beckley, WV; Washington, PA; Hazard, KY; Birmingham, AL; Evansville, IN; and Grand Junction, CO; and
- Comprehensive compliance assistance material, including distribution of guidance documents and a dedicated website for coal miners and coal mine operators.

More outreach sessions will be scheduled. During these sessions, MSHA representatives will highlight the major provisions and effective dates, and will describe best practices for controlling dust and reducing exposures. Training will be provided to MSHA enforcement personnel before implementation, and training materials will be available on the MSHA website for operators and miners.

17. GAO released its final report on its engagement on coal mine respirable dust on April 9, 2014. How did you incorporate information from that engagement in this rule?

- The 2014 GAO engagement examined existing technological options for reducing coal mine dust and the costs, advantages and disadvantages of various methods for reducing concentration of dust in coal mines. However, the GAO Report did not include any recommendations.
- MSHA has reviewed both the 2014 GAO report and an earlier 2012 GAO report. The preamble to the final rule includes a discussion of both GAO reports.
- The 2014 GAO report validated MSHA's reliance on the NIOSH data in developing the proposed rule.
- In the final rule, MSHA considered all available technologies and work practices that would allow mine operators to reduce miners' exposures to respirable coal mine dust. MSHA intends to develop outreach materials related to implementation of the final rule and hold stakeholder seminars in locations accessible to the mining public. MSHA also intends to develop compliance assistance materials to ensure that operators have a sufficient number of certified persons to perform sampling and maintenance and calibration of CPDMs.