From: Jon Volkwein
To: zzMSHA-Standards - Comments to Fed Reg Group
Subject: RIN 1219-AB36
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Attachments: Silica rule comment.pdf

Please find comment to subject rule attached.

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S. Aromie Noe, Director
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RE: RIN 1219–AB36 , Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection; Comments:

Background

From 1974 to 2011, I worked as a scientist in Dust Control and Ventilation groups for the Bureau of Mines and NIOSH Mining group where I visited and collected dust samples in well over 100 different mines. I was the technical project officer for the contract that developed the continuous personal dust monitor and helped guide the technical portions of CFR 30§74 for certification of dust samplers. Since my retirement from government service, I have remained active in mine industry consulting for government, mining companies, and manufactures. I offer the following comments to the proposed rule based on my research, study, and observations.

Proposed Exposure Monitoring

Exposure monitoring is the foundation for the control of respirable dust hazards and ultimately mine workers health. In addition to lowering the standard, it is essential that accuracy, frequency of sampling, and range of activities monitored be done well.

In response to MSHA's question 17, (p 12/282), regarding proposed approaches to monitoring exposures: silica analysis is expensive, but frequent sampling is essential to fully protect miners' health. The current practice of measuring the percentage of silica in representative samples and then implementing a reduced standard to be applied to subsequent respirable coal mine dust samples has been an economically efficient way to frequently monitor for silica overexposure. Mines are already required to take respirable coal mine dust samples on a frequent basis. While we cannot yet use the CPDM filter samples for silica analysis, maintaining the currently used reduced standard method allows for frequent monitoring for silica overexposures in near real time. Once silica representative samples have shown what a typical percentage of silica is in a particular mine area then frequent sampling can be conducted at no additional cost using the CPDM under a reduced dust standard.

Joy[i] pointed out that the reduced standard practice may not precisely equate to the mass based concentration standard. However, inclusion of precision limits, adjustment in the allowable percentage of silica in a sample, or other administrative methods could be made to address the issue that Joy discussed. The benefits of using a reduced standard to easily enable more frequent monitoring using the CPDM outweigh the issue Joy raised, especially with the lower PEL as proposed. This use of the reduced standard was thoroughly discussed by the joint government, labor, and industry partnership during the development of the CPDM to specifically answer the question of how silica exposures would be addressed. The only addition in the rule to the use of the reduced standard in its present form to

improve the rule would be to increase frequency, timing, and locations at which the typical percentage of silica in the mine dust was determined.

Regulations can also be technology forcing. Work by NIOSH demonstrated a method to determine the silica content of mine dust collected on the CPDM filters. The patent by D. Tuchman (US69156405P) for an ashable PDM filter that was compatible with the existing MSHA infrared silica determinations was demonstrated. Rights to this patent were licensed to Thermo Fisher for commercialization that has yet to occur.

Frequency of Samples

MSHA has pointed out in the proposed rule that geology and mine activities are key determinants to silica exposures. In response to question 18 on page 12, MSHA states that, "Many potential sources of respirable crystalline silica are present only when the mine is operating under typical conditions." However, we know that encounters with non-typical events such as faults, pinch outs, and other geologic discontinuities within a seam can cause wide variability in the silica content of dust generated during these activities. In fact silica content during typical conditions can vary widely from one side to the other of a mining section. Frequent and routine sampling of all mining activities is required to prevent miners' overexposure to silica. The new rule should continue to use of the current reduced standard practice determined on a quarterly basis. This is a cost effective way to prevent silica overexposures during both typical and non-typical mining activities.

Consistency of Exposure Assessment Across Industry and International Standards: Remove the Practice of Occupational Sampling (Item 27)

One of the purposes of the new silica rule states "…exposure monitoring requirements, which include sampling miners' exposures, would facilitate operator compliance with the proposed PEL, harmonize MSHA's approach to monitoring and evaluating respirable crystalline silica exposures in both MNM and coal mines, and lead to better protection of miners' health."[ii] The current practice in the US metal and nonmetal industries, and all other international coal and non-coal dust measurement practices is to monitor the individual's dust exposure and not a measurement of the occupation. While the act requires the dust concentration in the atmosphere in which miners work to be less than the standard, this requirement is met by assessing the baseline exposure of all workers and the periodic reassessment as proposed in the new rule. In the interests to simplify and harmonize silica sampling within MSHA and to harmonize sampling practices with OSHA, there is no longer the need to continue the practice of occupational sampling in the coal mining sector.

Recall that the initial dust assessments under Coal Mine Health and Safety Act from 1969 required a coal mine workers social security number to be entered on the mine filter dust data card. The identification of miners by their social security number was removed as a perceived invasion of privacy issue. At about that time, the Mine Acts language that, "(a) Each operator of a coal mine shall take accurate samples of the amount of respirable dust in the mine atmosphere to which each miner in the active workings of such mine is exposed."[iii] was reinterpreted to mean sampling of the occupation to assure

that the atmosphere is accurately sampled. The proposed rules method for baseline and periodic assessment of individuals meets this requirement while protecting an individual's privacy.

A section of the proposed rule agrees with the individual sampling across all sectors stating, "Under this proposed standard, mine operators would need to accurately characterize the exposure of *each miner* (*emphasis added*) who is or may reasonably be expected to be exposed to respirable crystalline silica. As discussed later in detail, mine operators would be permitted to use representative sampling whenever sampling is required. In some cases, however, operators may have to sample all miners to obtain an accurate assessment of exposures."[iv] The practice of occupational sampling as I have observed underground leads to inaccurate assessment when miners are required to remove and remount samplers. They are not adequately trained in occupational hygiene practices to maintain the sampler in a vertical position and appropriate location within the breathing zone. While the goal is to ensure that the atmosphere is safe for all miners, measurement of occupations and the transfer of samplers from one person to another in order to "remain with the occupation" will never be able to establish the true dust exposure of miners. As the proposed rule states, "More specifically, the sampler remains with the miner for the entire shift, regardless of the task or occupation performed."[v] No exceptions are warranted for coal mining. Harmonizing individual silica exposure assessment within all of US Mining as well as international assessment practices has the added benefit of providing more accurate data to the epidemiology community.

I would further ask MSHA to formally define what, "…remaining with the miner for the entire shift…" means. The practice of removing a sampler and hanging it "near" the operators work station is hardly representative of that individual's exposure. This practice has enabled samplers to be hung in clean air areas near the workplace which may be "near" the worker but hardly representative of their true exposure as numerous miners have indicated in various testimonies. Requiring that samplers be worn by the miner should be added to the rule, with perhaps a few exceptions such as when seated in the cab. By requiring samplers be worn by the miner, the motion tilt sensor data in the CPDM could be used to verify if the sampler was indeed worn by the miner for the full shift.

<u>Typical Mining Activities Must Include Construction</u>

MSHA proposes that baseline sampling be required when silica may "reasonably be expected" and yet excludes mine construction activities because they are not typical production. Construction activities should be specifically included for baseline sampling because they can frequently involve silica bearing strata. For example, the construction of a tunnel from one seam to another underground would not be regarded as a production activity but is highly likely to encounter silica bearing strata. The construction of overcasts is another potential high silica generating activity where roof rock is likely to contain silica bearing strata. In the public comment to this rule by miner John Robinson on 08/28/2023 graphically illustrates the need to include construction stating; "Near the end of my time as a miner, I cut about 3400 feet of slope for about two years. That was the third slope I had cut and it was just straight silica all day. They couldn't run dust pumps and we cut through solid rock to get to the coal seam. But because we hadn't hit coal yet, it wasn't considered a coal mine. That's when my health really began to decline, and in those years, I don't remember them doing any dust samples at all." It is wrong that such

tunneling between seams not be subject to MSHA health oversight. Construction activities should be specifically included for baseline and periodic sampling in the new rule. MSHA has the obligation to protect miners during all underground work, not just production.

[i] Gerald J. Joy (2012) Evaluation of the Approach to Respirable Quartz Exposure Control in U.S. Coal Mines, Journal of Occupational and Environmental Hygiene, 9:2, 65-68, DOI: 10.1080/15459624.2011.639232
ii 89/282 A Proposed Rule by the Mine Safety and Health Administration on 07/13/2023
iii https://arlweb.msha.gov/SOLICITOR/COALACT/69actt2.htm#2
iv 90/282, A Proposed Rule by the Mine Safety and Health Administration on 07/13/2023
v Ibid P92/282