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S. Aromie Noe, Director, Office of Standards, Regulations, and Variances
U.S. Department of Labor
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SUBJECT: Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection
RIN 1219-AB36; Docket No. MSHA-2023-0001

Dear Mr. Williamson and Ms. Noe,

Since 2002, Appalachian Citizens' Law Center (ACLC) has represented claimants for federal black lung benefits and advocated for the safety and health of coal miners through rule-making petitions, litigation, and policy. In 2008 ACLC petitioned for a writ of mandamus in federal court to force MSHA to reduce miners exposure to silica. In 2009 our organization submitted a petition for rulemaking to request a reduced and separately enforceable Permissible Exposure Limit (PEL) for respirable crystalline silica. Since that time, scores of miners have come through our doors with Progressive Massive Fibrosis (PMF). In just the past few years, many of the miners with PMF have been younger and have progressed to Category B and Category C complicated coal workers' pneumoconiosis. Thus, many of our clients are suffering from an increasingly severe disease and will likely experience horrible, suffocating deaths.

In this context of rising incidence of severe disease, we are glad the agency is taking action to limit miners' exposure to this toxic dust. However, it is important to reiterate the agency's mandate from Congress to completely prevent coal miners from ever developing lung disease due to their work in the mines.

> "[N]othing short of the total prevention of pneumoconiosis is an acceptable objective for coal mine legislation."
> - House Rept. No. 91-563, at p. 2520 (Oct. 13, 1969)

Respirable coal dust and silica arguably are the best-known and most thoroughly documented threats to coal miners' health. Black lung and silicosis have been a scourge to miners for generations. In the 1969 Coal Act, Congress directed the Secretary of Labor to eliminate this disease by promulgating respirable dust exposure limits that will prevent new cases of respirable illness and prevent existing cases from worsening. In 1977, Congress passed the updated Mine Act, which retains that directive and begins with this sentence: "Congress declares that the first priority and concern of all in the coal or other mining industry must be the health and safety of its most precious resource – *the miner*." 30 U.S.C. § 801(a) (emphasis added).

In establishing health and safety protections for miners, Congress focused on respiratory illnesses – and the respirable dust which causes such illnesses. The Mine Act requires the Secretary to "set standards

which most adequately assure on the basis of the best available evidence that no miner will suffer material impairment of health or functional capacity *even if such miner has regular exposure to the hazards dealt with by such standard for the period of his working life.*" 30 U.S.C. § 811(a)(6) (emphasis added).

The Mine Act further directs reducing the average concentration of respirable dust in the mine atmosphere during each shift such that each miner in the active workings is exposed "to a level of personal exposure *which will prevent new incidences of respiratory disease and the further development of such disease in any person*." 30 U.S.C. § 842(d) (emphasis added).

If Congress' intent on this matter wasn't already abundantly clear, the Mine Act, again, spells out that its purpose is "to provide, to the greatest extent possible, that the working conditions in each underground coal mine are *sufficiently free of respirable dust concentrations* in the mine atmosphere to permit each miner the opportunity to *work underground during the period of his entire adult working life without incurring any disability from pneumoconiosis or any other occupation- related disease during or at the end of such period*." 30 U.S.C. § 841(b) (emphasis added).

As MSHA has previously observed, "Congress was convinced that the only way each miner could be protected from black lung disease or other occupational dust diseases was by limiting the amount of respirable coal mine dust allowed in the air that miners breathe." 65 Fed. Reg. 42068, 42069 (July 7, 2000).

With these mandates in place, by the 1990's, the worst form of the disease, complicated pneumoconiosis or progressive massive fibrosis had been almost entirely eradicated in the United States. In fact, during the entirety of the 1990s, NIOSH's CWHSP only identified 31 cases of PMF nationwide.

Now, the prevalence and severity of lung disease being observed in coal miners is incomprehensible. Over the past decade, clinics in eastern Kentucky and southwest Virginia have diagnosed hundreds and hundreds of miners with complicated pneumoconiosis. In fact, an epidemiologist at NIOSH called this region, "the epicenter of one of the largest industrial medicine disasters that the United States has ever seen."[1] In a published study, NIOSH researchers, succinctly described the crisis:

Approximately 1 in 20 long-tenured miners in central Appalachia has CWP that has progressed to PMF, a condition that is by definition totally disabling. We can think of no other industry or workplace in the United States in which this would be considered acceptable.[2]

In the face of so much unnecessary suffering and death, the agency's response with this proposed rule is to ignore their Congressional mandates and to very slightly alter the status quo. It is impossible to read MSHA's own projections and arrive at a different conclusion.

The Preliminary Risk Analysis (PRA) for the proposed rule says it will save very few coal miners' lives due to overexposure to silica dust while allowing thousands of miners to continue to perish over the coming decades. Under one analysis, only 63 lives would be saved by promulgation of this rule while an estimated 2,202 miners would die because the agency didn't prevent coal companies from overexposing their workers to too much silica dust. (PRA Table 18). However, the PRA acknowledges that the analysis

1 Berkes, H. 2017. *Government Researchers Plan Response To Rising Rates Of Black Lung Disease*. National Public Radio. Accessed online via: https://www.npr.org/2017/06/30/535059200/government-researchers-plan-response-to-rising-rates-of-black-lung-disease

2 Blackley, D.J. et al. (2018) Continued Increase in Prevalence of Coal Workers' Pneumoconiosis in the United States, 1970–2017. *Am J Public Health.* 108:1220-1222

may be "underestimating true risks in the population." PRA at page 103. In fact, "MSHA believes adjusted estimates for the healthy worker survivor bias are more reliable than unadjusted estimates." Id. at 106.

So what do the estimates that MSHA believes are more reliable reveal? The numbers are even more bleak and upsetting. MSHA estimates under this other analysis that 94 miners' deaths would be prevented by the proposed rule but an astounding 3,287 coal miners would die over this same period from breathing too much silica dust.[3]

Given the high incidence rate of severe disease today,[4] our organization is shocked at the agency's analysis that thousands of miners will continue to get sick and die from overexposure to silica dust under the proposed rule. The rule as currently proposed would intentionally and brazenly ignore MSHA's clear mandate to make it so that "underground mines are sufficiently free of respirable coal mine dust concentrations in the mine atmosphere to permit a miner to work underground during his or her entire working life without incurring any disability from pneumoconiosis or other occupation-related disease." At the very least, MSHA must significantly strengthen this rule so that the vast majority of these lives will be saved over the coming decades. The agency should be focused on entirely preventing any disability or disease from inhaling silica dust, not merely slightly reducing the overall number of cases.

ACLC sincerely hopes the final rule adheres to Congress' declaration "that the first priority and concern of all… must be the health and safety of its most precious resource – the miner." As written, the proposed rule clearly prioritizes the interests of coal companies, valuing profits over miners' health.

In spite of our conclusion that the proposed rule is vastly insufficient for protecting miners, we also offer comments addressing several specific concerns. Specifically, we offer comments regarding the underlying modeling that informs the rule (e.g. the Preliminary Risk Analysis and the Preliminary Regulatory Impact Analysis and Regulatory Alternatives), the proposed elimination of the reduced standard for respirable dust, dust sampling frequency and specificity, appropriate sampling technology, criteria for the issuance of citations, the permitted use of respirators, and additional corrective measures.

Modeling inputs and approach

Concerning the PRA, MSHA should model exposure to silica dust based on a longer history of dust sampling. The quartz sampling frame used in the PRA (2016 - 2021) is a time period during which quartz was lower, on average, than in preceding years. Justification for using such a limited time frame is that the coal dust rule went into effect in 2016. However, the coal dust rule doesn't directly regulate silica and thus we do not think it is justifiable to exclude prior sampling data. The model in the PRA is examining risk of developing disease and death due to silica dust exposure rather than overall dust exposure, thus we ask that MSHA also model risk using a coal dust sampling dataset that dates back several more years.

Relatedly, we are concerned that underestimating the benefits of the rule, the lives saved and illnesses prevented, will impact the cost-benefit analysis of the rule, skewing the analysis such that benefits of the

3 Although the value of these lives are immeasurable, using MSHA's analysis in its PRIA, the monetary benefit to society in saving all of these lives would total more than $39 billion dollars. See. PRIA at 3-8 to 3-11.
4 Recent investigative reporting aggregated diagnoses of PMF across black lung clinics and NIOSH screenings and found more than 4000 cases of PMF diagnosed since 2010. See: Berkes, H. and Hicks, J. 2023. *Federal Fix for Silica Dust Understates What We Found: Thousands of Coal Miners Still Sick and Dying.* Public Health Watch. Accessed online via: https://publichealthwatch.org/2023/08/31/the-federal-fix-for-silica-dust-understates-what-we-found-thousands-of-coal-miners-still-sick-and-dying/

rule are reduced. Even with the current, low estimate of illnesses and deaths prevented, the benefit of the proposed PEL of 50µg/m^3 far outweighs the costs. However, the exploration of regulatory alternatives reveals that for a PEL of 25µg/m^3, the costs outweigh the benefits. We are concerned by this conclusion because it is clear that a 25µg/m^3 will provide greater protection for miners. We urge MSHA, after revising the PRA to reflect a longer history of coal dust sampling data, to recalculate and revise the cost-benefit analysis. In revising the cost-benefit analysis, we also ask that MSHA analyze coal and MNM mines separately. We think this is appropriate given that it appears that compliance costs are primarily driven by MNM mines (for example, the cost of engineering controls and medical surveillance for MNM mines is driving up the costs for that industry but is not applicable to coal mines).

The reduced standard for respirable dust

We support the creation of a standalone and separately enforceable PEL, but also encourage the preservation of the reduced standard for respirable dust when silica is present in coal mines. Maintaining the reduced standard ensures that both the standalone effects of silica and coal dust are accounted for as well as the combined effects of multiple dust hazards simultaneously. In addition, maintaining a reduced standard for respirable dust in the presence of high silica levels will allow for more, though indirect, real-time monitoring due to the use of Continuous Personal Dust Monitors (CPDMs) and sampling over 15 shifts for coal dust.

Dust sampling frequency and specificity

Sampling Frequency: Overall, the sampling frequency outlined in the proposed rule – one time baseline sampling, no requirement of periodic sampling, and the submission of qualitative evaluations of mining conditions every six months – is completely inadequate for monitoring silica dust in underground coal mine operations. As MSHA has previously stated, underground coal mines are "dynamic work environments"[5] and "geologic conditions change daily."[6] NIOSH researchers have also documented that silica dust levels in particular are highly variable in space and time, and can vary within the same mine even over the course of a week.[7] We strongly recommend that MSHA require that all operators conduct periodic *weekly* sampling (over multiple shifts) for silica and that MSHA inspectors conduct silica sampling monthly. Sampling conducted by MSHA inspectors is particularly important given the rampant practice of manipulating dust sampling (see the last section of our comment for more evidence on dust sampling manipulation).

Sampling Specificity: In none of the discussion of the four types of sampling outlined in the proposed rule does MSHA provide any specificity concerning the occupations or work areas that should be sampled. For example, in the section that discusses baseline sampling, section 60.12(A) of the proposed rule, it states that operators should sample "each miner who is or may reasonably be expected to be exposed to respirable crystalline silica at any level." However, MSHA also states that "Based on the Agency's experience, both MNM and coal mine operators generally know from their existing sampling data and

5 MSHA. 2006. Emergency Mine Evacuation, Final Rule. Accessed online via: https://arlweb.msha.gov/REGS/FEDREG/FINAL/2006finl/06-2255.asp

6 MSHA. 2008. Coal miner's handbook for roof and rib control. U.S. Department of Labor, National Mine Health and Safety Academy. Accessed online via: https://arlweb.msha.gov/S&HINFO/PROP/PROPBulletins/2008/2008%20PROP%20Booklet.pdf

7 Cauda, E. et al. 2016. *Silica Adds to Respirable Dust Concerns.* Coal Age. Accessed online via: https://www.coalage.com/features/silica-adds-to-respirable-dust-concerns/; NIOSH. 1995. Criteria for a recommended standard: Occupational exposure to respirable coal mine dust. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 95-106.

MSHA's sampling data the occupations, work areas, and work activities where respirable crystalline silica exposures occur." We agree that there is plenty of evidence that supports the occupations that are most likely to be exposed to silica dust and, for that reason, see no reason not to specify those occupations in the proposed rule. This is especially perplexing given that MSHA's 2014 coal dust rule provides a lot of specificity concerning the areas and occupations that are to be sampled for coal dust. MSHA should require that high risk occupations be sampled and, based on the mine and ventilation plans, identify additional areas and occupations for sampling on a mine by mine basis.

There is an overwhelming amount of evidence that certain occupations are exposed to greater concentrations of dust. First, the analysis of silica dust samples by occupation (table IV-6 and table IV-3) show this variability. For coal mines, occupations with the highest exposures include drillers, continuous miner operators, longwall workers, operators of large powered haulage equipment, and roof bolters. At the Denver public hearing, Dr. James Brandon Crum reported that in his clinic in Pikeville, KY nearly 200 miners were screened and had a positive diagnosis of PMF in 2022 alone. Of those miners, the majority were either operators of continuous miners or roof bolters. In 2019, NPR and the Ohio Valley ReSource interviewed 34 miners with PMF, ranging in age from 47 to 77, who had worked in coal mines in Central Appalachia and found similar results. Roof bolters (27), continuous mine operators (17), and shuttle car operators (16) were the three primary occupations held by these miners.[8] Doney et al. (2019) documented that continuous roof bolters (21.9%) and continuous operators & helpers (19.1%) were the two primary mining job categories where silica dust samples exceeded the 100 $\mu g/m^3$ PEL and represented 82% of samples exceeding the PEL.[9] Reynolds et al. (2018) found that of the 27 miners with PMF that they interviewed were primarily roof bolters and continuous mining operators.[10] It is remarkably clear that silica sampling must be conducted for the following occupations: continuous miner operators, longwall workers, operators of large powered haulage equipment, and roof bolters.

In addition, MSHA's silica enforcement initiative has identified that other types of workers may be particularly susceptible to exposures of high concentrations: miners involved in mine construction or overburden removal. Section 60.12(f) articulates that sampling should be conducted during "typical mining activities." To ensure no confusion, we urge MSHA to explicitly articulate that construction activities are "typical mining activities." Further, when a mine is going to conduct construction work, the operator should notify MSHA. Once the construction work is ongoing, operators should be required to sample frequently, even daily.

Sampling technology

As recognized by the circuit courts of appeals, occupational safety and health statutes should be viewed as "technology forcing", and a proposed health standard should not be rejected as infeasible "when the necessary technology looms on today's horizon."11 As was the approach in MSHA's 2014 coal dust rule, MSHA should modify section 60.12 to require operators to adopt (or phase in) best available technology. The proposed approach to require only the use of gravimetric samplers is problematic because information about silica dust levels will always be delayed. The results are often unavailable for over a

8 Berkes, H. and Jingnan, H. 2019. *Coal Miners To Demand Congress Restore Full Black Lung Benefits Tax.* NPR. Accessed online via: https://www.npr.org/2019/07/23/743152782/coal-miners-to-demand-congress-restore-full-black-lung-benefits-tax

9 Doney, B. et al. 2019. Respirable coal mine dust in underground mines, United States, 1982 - 2017. *Am J Ind Med.* 1-8.

10 Reynolds, L.E. et al. 2018. Work Practices and Respiratory Health Status of Appalachian Coal Miners With Progressive Massive Fibrosis. *J Occup Environ Med.* 60(11): e575-e581.

11 AFL-CIO v. Brennan, 530 F.2d 109 (3d Cir. 1975); Society of Plastics Industry v. OSHA, 509 F.2d 1301 (2d Cir. 1975), cert. denied, 427 U.S. 992 (1975).

week following the sampling, making it impossible to immediately abate any excessive exposures.[12] Furthermore, by the time the gravimetric samples return from the lab, the location and nature of the mining activity has often changed. Fortunately, several portable Fourier transform infrared (FTIR) instruments are already commercially available.[13] These instruments would enable operators and MSHA inspectors to conduct same day analyses in the field and still permit that some collected samples be sent to the lab for further verification of compliance with the PEL.

Criteria for the issuance of citations

The proposed rule does not specify whether or when MSHA will issue citations. Section 60.13 or the proposed rule only specifies that if any sample indicates an exceedance of the PEL, the mine operator will be required to take corrective actions to reduce the concentration of silica dust to levels below the PEL. Unlike the 2014 coal mine dust rule, there are no specified criteria for the issuance of citations or that trigger other enforcement measures. Section 60.12(c) should be revised to explicitly cite the operator and withdraw miners until corrective actions are taken when "any sampling" shows exposures above the PEL. Unlike the coal dust rule, however, MSHA should not only issue citations at calculated Excessive Concentration Values (ECVs). These ECVs are calculated at the 95% confidence interval for a given sample or set of samples. Statistically, confidence intervals always have upper and lower bounds. A confidence interval is the mean of the estimate plus and minus the variation in that estimate. If MSHA maintains the practice to cite within the 95% confidence interval, samples both below and above the PEL should be used to issue citations and require corrective actions. Last, MSHA should also consider increasing penalties for violations of the silica PEL.

Hierarchy of Controls

We strongly support MSHA's proposed hierarchy of controls and agree that engineering controls are most effective, followed by administrative controls. However, we are concerned with MSHA's proposal to permit respirators to be used under "temporary, non-routine" conditions when miners are working in conditions that are above the PEL.

Though we recognize that respirators may provide further protection for miners, as is enforced in the coal dust standard, respiratory protection should not be considered a means through which to achieve silica dust compliance, not even temporarily. As has been demonstrated by researchers, journalists, and lawsuits, respirators have not been reliable protection for miners.[14] In a study by Reynolds et al. (2018), many miners reported that they had used respirators, but they still developed large lung opacities.15 In Berkes' reporting for National Public Radio, he conducted interviews with 34 Central Appalachian miners affected by PMF and 17 of the 34 complained about dust masks and said that they impaired their

12 NIOSH. 2021. Best practices for dust control in coal mining, second edition. By Colinet JF, Halldin CN, Schall J. Pittsburgh PA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2021-119, IC 9532. https://doi.org/10.26616/NIOSHPUB2021119

13 NIOSH. 2022. Direct-on-filter analysis for respirable crystalline silica using a portable FTIR instrument. By Chubb LG, Cauda EG. Pittsburgh PA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2022–108, IC 9533. https://doi.org/10.26616/NIOSHPUB2022108; Ashley, EL et al. 2020. Performance Comparison of Four Portable FTIR Instruments for Direct-on-Filter Measurement of Respirable Crystalline Silica. Ann Work Expo Health. 64(5):536-546. doi: 10.1093/annweh/wxaa031. PMID: 32266371

14 Estep, B. 2018. *Kentucky jury awards $67.5 million to miners who used defective dust masks*. Lexington Herald Leader. Accessed online via: https://www.kentucky.com/news/state/article209783724.html

15 Reynolds, L.E. et al. 2018. Work Practices and Respiratory Health Status of Appalachian Coal Miners With Progressive Massive Fibrosis. *J Occup Environ Med.* 60(11): e575-e581.

breathing, that dust would leak in, that filters would clog, or that they were too hot to wear.[16] Reynolds et al. (2018) stated, "To reliably reduce exposures, the correct type of respirator must be worn at the correct time and must fit and function properly. Breakdowns can occur with any of these steps. This is why engineering controls to reduce respirable dust exposures to safe levels are preferred," (p. 9).

As described in the proposed rule, we agree that respirators should be available for miners who are working to correct the cause of excessive dust conditions. However, these above the PEL conditions should be treated as an imminent danger per section 107(a) of the Mine Act. Production work should stop and all workers should be immediately withdrawn other than those implementing corrective actions to improve ventilation. These types of situations further exemplify the need for the use of portable FTIR sampling instruments, discussed above, that can provide same day analysis of silica dust levels such that corrective actions are taken with greater immediacy.

Last, we are concerned that there is too much interpretative error in the terms "temporary" and "non-routine." These are vague and unclear. Mine operators will be able to justify many scenarios as in compliance with these terms and that will lead to miners being overexposed to silica dust.

Additional corrective measures

Given the nature of our comments on sampling (above), the action level of 25µg/m^3 as a trigger for operator sampling should be moot as all operators will be required to conduct regular periodic sampling. However, we do think that an action level is a useful mechanism through which to trigger the operator to consider and plan for increased ventilation under rising dust conditions. We propose that when dust samples are above the action limit, mine operators should be required to submit potential revisions to ventilation plans. Then, in the case of an overexposure, the operator can take corrective actions quickly and efficiently as they have already considered the design and requirements for ventilation adjustments.

Evidence of dust sampling manipulation

During the course of the public hearings on this proposed rule, MSHA staff asked members of the public who provided comments to share additional evidence on dust sampling falsification and the likelihood of falsification if operators are permitted to conduct sampling with the proposed gravimetric samplers. We have compiled evidence from scientific research, investigative journalism, the exceptional cases of dust fraud that were prosecuted and resulted in sentencing, and interviews with ten Central Appalachian miners conducted by our organization.

- In their study, Reynolds et al. (2018) report that, out of the 27 miners they interviewed with PMF, 14 miners stated that proper ventilation was not consistently maintained during their careers, and 8 reported that proper ventilation procedures were only closely followed when MSHA personnel, a corporate safety personnel inspector, or dust sampling monitors were present. Thirteen miners reported in the study that personal dust samplers were not worn properly in order to comply with the 100µg/m^3 PEL, while nine miners reported that the sampler was placed in areas with lower dust levels.
- In Berkes' investigative reporting, referenced above, miners reported that dust was consciously and deliberately minimized during inspection in a notably different way than during a typical work day. Sixteen miners stated that ventilation was robust, machines were idled, and production

16 Berkes, H. and Jingnan, H. 2019. *Coal Miners To Demand Congress Restore Full Black Lung Benefits Tax.* NPR. Accessed online via: https://www.npr.org/2019/07/23/743152782/coal-miners-to-demand-congress-restore-full-black-lung-benefits-tax

was diminished during inspections. Eighteen miners said that they had witnessed or participated in deception during inspection.

- Investigative reporters for *The Courier Journal* interviewed 234 miners in the late 1990s who all said that they routinely witnessed the falsification of dust samples. Miners explained that they hid dust pumps in air intakes, in their dinner buckets, and one miner witnessed the superintendent of the mine putting the dust pump at the power center. They also explain other creative methods for falsifying dust samples. One company contracted to conduct dust sampling "put the samples in coffee cans filled with coal dust, shook the cans and pulled the samples when they had the right amount of dust."[17]
- At the Upper Big Branch mine, coal dust samples were routinely fabricated before the mine explosion on April 5, 2010. Mike Kimblinger, a veteran construction foreman at the site of fourteen years, informed federal and state investigators in his testimony that, "I was told to stay away from the dust and not do certain things while I was wearing the dust pump." Autopsy reports from twenty-four of the twenty-nine miners who died in the explosion found that seventeen miners had evidence of pneumoconiosis, a staggeringly high rate. When Massey Energy shifted from two continuous mining operators to one, miners were instructed to wear dust pumps only on those days. Bruce Vickers, another miner at Upper Big Branch, stated to investigators that mine managers would tell him to sit in fresh air intake tunnels while wearing his personal dust monitors, allowing others without the monitor to do his work. Although Vickers testified about these falsifications of dust monitoring samples to a federal grand jury in 1998, no charges were ever brought against Massey.[18]
- In June 2023 the Department of Justice charged Black Diamond Coal Company, LLC, and Walter Perkins, a certified dust examiner for the company, with submitting false coal dust samples to MSHA and lying to MSHA special investigators. The Department of Justice's investigation found that Black Diamond Coal had knowingly lied in their quarterly samples, and when MSHA special investigators arrived at the Black Diamond Number 1 mine, found a continuous personal dust monitor, which had not been moved in days, running in a first aid trailer on the surface.[19]
- In 2022, the US Attorney's Office in the Western District of Kentucky sentenced Steve DeMoss and Ron Ivy, two former mine managers, to six months of probation each for violating MSHA regulations related to coal dust sampling in underground coal mines. DeMoss and Ivy, then Safety Directors at Armstrong Coal's Parkway and Kronos mines, repeatedly took dust-sampling monitors off of miners and moved them from dusty working areas to areas with cleaner air in order to avoid violating coal dust standards at their sites.[20]
- In 2020, D&H Mining, Inc. entered into a guilty plea with the U.S. District Court in Abingdon for "one felony count of conspiracy to defraud the United States for dust sampling fraud," along with a misdemeanor charge for "conduct[ing] roof-bolting in return air." Both Daniel Tucker, owner of D&H Mining, and Gerald Ball, a foreman for the company, admitted to conspiring to commit dust sampling fraud. Tucker programmed personal dust monitoring devices to shut off after nine hours on ten-hour shifts, while Ball himself removed personal dust monitors and placed them in areas with clean air.[21]
- In 2018, again at Armstrong Coal, eight former supervisors and safety officials were indicted for fabricating and submitting false coal dust samples. Test results were submitted on days when the mine was not in operation, and safety officials were pressured by a mine superintendent to ensure

17 Harris, G. and Dunlop, R. 1998. *Cheating on coal-dust tests widespread at nation's mines*. The Courier Journal.
18 Hamby, C. 2012. *Black lung surges back in coal country*. The Center for Public Integrity. Accessed online via: https://publicintegrity.org/inequality-poverty-opportunity/workers-rights/miners-say-upper-big-branch-mine-cheated-on-dust-sampling/
19 *United States v. Black Diamond Coal, LLC, 7:22-CR-00012*
20 *United States v. Barber, 4:18-CR-00015-JHM*
21 Release - U.S. Attorney's Office, Western District of Virginia, August 12, 2020

Armstrong passed its dust sampling tests. One veteran miner who was later diagnosed with pneumoconiosis, Mike Wilson, said in an interview, "They've been doing this for years and years." Wilson related in his interview that he would place the personal dust monitor in his pocket or restrict air flow while on shift, because, "Every boss and every safety guy wanted you to do this. One mine safety attorney, Tony Oppegard, said of dust cheating that this "goes on throughout the industry in a lot of mines and has for many years," but that, "[t]he difference in this case is basically you had miners stand up to try to protect their own health and safety, and that does not happen in very many places."[22]

- Between 1980 and 2002, there were at least 103 cases for fraudulent dust sampling which resulted in criminal convictions.[23] In 1991, the U.S. Department of Labor found more than 500 coal mines had tampered with mine dust samples, in what was then called "an addiction to cheat," according to former Secretary of Labor Lynn Martin.[24]
- Interviews conducted in 2020 by Appalachian Citizens' Law Center (ACLC) with miners in Central Appalachia:
    - Miner 1 worked 23 years in the coal industry, 16 years underground and 7 years at the surface as a mine clerk, until retiring in 2013. During operator sampling, the miner was instructed to wear the monitor during her shift but if the reading wasn't "good" (in compliance) they would make her and the other miners wear them again until they had a passable, in compliance, reading. She said they would sometimes make her wear the device 2-3 times before an acceptable reading was acquired. This miner often operated the shuttle car and said that her foreman would tell her to place the monitor onto the car rather than onto her person. She said that her company thought this would allow for a cleaner sample since the car is constantly moving through the mine and out into the fresh air. Placing the monitor on the shuttle car also kept it further away from the continuous miner. She stated that scrubbers assisted in keeping the dust down within the mines. When sampling, her mine implemented good ventilation controls and practices, however, ordinarily if the curtains were knocked down they were not hung back promptly which led to more dust exposure. Miner 1 summed up her experience with dust sampling stating, "dust sampling was a joke...they made you wear them until they got what they wanted which made them look good. They weren't protecting us from coal dust. They should have always been trying to make things better as far as dust masks and equipment."
    - Miner 2 worked in underground mines for 23 years until the 1990s when he suffered a back injury. He stated that he rarely wore the dust monitor, however he did mention that they would have to wear the monitor 2-3 times before they obtained a sample that would qualify them as compliant to dust standards. He stated that they would also be told to hang the monitor somewhere that was dust free, especially if the miner needed to clean out the drill machine. He said they would have to take the monitor off before opening the filter box to clean out the drill filter. He claimed, "if you wore a monitor like you are supposed to, you didn't get a good sample." Instead, he was required to hang the monitor up somewhere that was dust free and received air circulation. He also said that if you were supposed to wear the monitor that day, they would have you work near the intake airway and have another individual do your job for that day; that would ensure the

22 Fuller, L. 2018. *Feds: Kentucky coal mine supervisors cheated on dust samples*. Associated Press. Accessed online via: Feds: Kentucky coal mine supervisors cheated on dust samples | Archive | WPSD Local 6

23 Berkes, H. 2012. *Black-Lung Rule Loopholes Leave Miners Vulnerable.* National Public Radio. Accessed online via: https://www.npr.org/2012/07/10/155981916/black-lung-rule-loopholes-leave-miners-vulnerable

24 Hilts, P.J. 1991. *U.S. Fines 500 Mine Companies for False Air Tests*. The New York Times. Accessed online via: https://www.nytimes.com/1991/04/05/us/us-fines-500-mine-companies-for-false-air-tests.html

reading was in compliance. Miner 2 worked in a union mine and stated that if they thought something would be hazardous to their health, they mostly didn't do it because they had the union behind them. He explained that some of his friends worked in non-union mines that did not hang curtains unless the MSHA inspectors were coming

- Miner 3 worked in underground mines for 23 years. He held a variety of jobs including section boss and operated all of the equipment in the mine at one point in his career. Miner 3 last worked in the mines in 1992 and was diagnosed with complicated black lung in 2010. His mine completed sampling when the inspector would drop off the monitors, about 3-4 times a year. He would take the monitor down to the individual who had been instructed to wear it that day but admits he was told to make sure they got a "good sample." He admitted that they would have him hang them in the intake at the power center. When the inspector came down into the mine to place the monitor on the miner, he said that they would have the miner turn the monitor off until they received a message that the inspector was coming back into the mine. He wasn't certain of any tampering that occurred to the monitors once they were out of the mine, however he heard rumors the company would tamper with them. He explained that he thinks that the only way monitoring could "work" to keep miners safe is if the inspector stayed in the mines for the full monitored shift to ensure no tampering occurs and that a true sample of the day to day working conditions is obtained. Miner 3 explained that the mine foreman would come into the bathhouse before the shift to warn about the monitors and instruct the miners to carry out these cheating tactics. He explained, "The miners knew what they were expected to do, to keep their job, is to cheat the sample...I was directly told by my company to do these things."
- Miner 4 is 55 years old and has complicated black lung disease. He worked as an underground coal miner for 30 years and retired in 2014. He was a roof bolting machine operator and remembers wearing a dust monitor every 3-4 months. He admitted that the monitor was sometimes hung in the air intake or hidden under a miner's clothes. He also stated that he would typically clean out the dust collection box of the roof bolter but if the inspector was there, his boss would clean it out and would send him to an area with more flowing air during the process. Miner 4 stated that he thinks that samples won't be accurate until the inspectors remain with the miner that is wearing the monitor for the entire duration of the sampling period.
- Miner 5 worked 28.5 years as a roof bolting machine operator in an underground mine until 2009. He is 56 years old and suffers from complicated black lung disease. He said that he would have to wear the monitor often due to his job. He said that his boss would have him take the monitor closer to the fresh air to have a "clean sample." He admitted that they would often place the monitor down the air intake or the boss would have them work in a "less dusty" area. He said some of his bosses were better and would try to operate the monitors partially in compliance, however, the majority did all they could to ensure that the samples were in compliance and did not have to be repeated again. He said that his bosses would have others empty out his dust collection box, they would place the monitor in the intake, and if the inspector was present in the mine they would hang the curtains for better airflow. He thinks that there should be stricter safety rules for those who currently work in the mines. He said he watched five people die in the mines during his career and then he left the mines with black lung. He also explained that he didn't think that dust masks were the best protection for miners against black lung. He stated, "I knew a guy who wore his mask everyday faithfully but he also got black lung."
- Miner 6 worked 12 years in an underground mine and 3 years on the surface. His last year in mining was 2003. Miner 6 was diagnosed with complicated black lung disease at the age of 36 and is now 48 and waiting for a lung transplant. He said that the dust monitors were placed under people's clothing or in the air intake. He operated a

continuous miner while underground and then worked on the surface of a slope mine. He says a lot of his work on the surface was considered construction rather than "mining" by MSHA so he never had dust sampling completed during his work on the surface. He remembers working 6-7 days a week for 16-18 hours a day breathing in rock dust.

- Miner 7 worked in the mines for 22 years until 2014. He is 46 years old and has complicated black lung. He ran a cutting machine in an underground mine which he said is one of the dustiest jobs in a conventional mine. He said that he often had to wear the dust pumps during sampling and stated that MSHA inspectors have told him what to do in order to get a compliant sample. He also admitted that he was terrified of having to wear the monitor because he knew how difficult it was to have a compliant sample in the mines where he worked. He said that neither the company nor the inspector wanted to have to run the samples for a second time. He stated, "They [MSHA] used to have their own inspector come out and run the dust pump, but you wouldn't see them again until dinner and they would let you do what you had to do to make sure you were running [within] the law and they would tell me when they would be back." He stated that eventually they started hanging curtains to help reduce dust but their main goal was still to mine coal as fast as they could. He said that the dust never stopped but that when he developed breathing difficulties he would take the time to hang the curtains.
- Miner 8 worked in the coal mines for 37.5 years until retiring in 2009. He has complicated black lung disease. He worked as a roof bolting machine operator in an underground mine. He remembers wearing a monitor both for the company's sample and for the inspector visits. He worked as a roof bolter that followed the continuous miner and stated that the dust was so severe that, "[at times]...you couldn't see the light of your buddy at 6 feet away." He said during those moments, they would shut off their machine and crawl out. He described that there were moments during which it was too dusty to bolt, they were choking on the dust, and it was so dry that one couldn't even spit. He said his boss would ask why they had stopped bolting and that his boss would make him crawl back in and continue bolting in the dust. If he refused, he would be fired. He explained that he had to do what he was told to do to ensure his family was provided for, even when the conditions were not safe for him. When the inspector visited, about once every 6 months, they would wear the dust monitor but when they would go out of the mine they would place the monitor down at the air intake or near the power center. He also said that when the inspector was visiting and he was wearing the monitor, someone else would clean out the dust collection box of his bolt machine which was not the typical procedure. Miner 8 said they did try to practice safety precautions by hanging curtains, however, since they worked on the return side of the continuous miner, they provided very little assistance in providing clean air. He explained that he worked at a two miner section, he followed the miner on the return side and, "got all the dust." He acknowledged that if mines were run safely, you would likely have decreased dust production but he assumed that the company would not be profitable.
- Miner 9 worked as an underground coal miner for 37 years until he retired in 2018 due to increasingly severe symptoms from complicated black lung disease. He worked as a roof bolting machine operator for the majority of his career and had to wear the dust monitor often. He says that when the inspector was at the mine taking the samples, the company would have one of the two roof bolters (whoever was wearing the monitor) sit near the intake while they were cutting. He admits that they would only complete the minimum amount of cutting needed to get the sample passed as compliant rather than have the section complete its normal activity. He also said that someone else would empty out his dust collection box when he was wearing the monitor. When the company conducted their sampling, he said the foreman would always cheat on those. He said they would either place them in a dinner bucket or down an air intake. He also admitted that the

majority of the time he did not hang curtains because he was trying to keep up with production. Miner 9 had some exposure to the continuous dust monitors and claims they were harder to tamper with given that they were able to track movement. However, he did warn that the foreman always made sure the monitor was only in the mine, the minimum requirement to not risk incompliance. He said the collection would occur in one section for an 8 hour period and then would be brought out to their company safety officer.

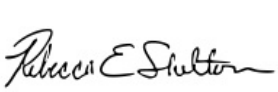
  - Miner 10 from Harlan County, Ky told ACLC that the only time when dust curtains were hung or when the soap was put in the water of the sprayers to depress the dust was when MSHA was sampling (Appendix A). He also said that when MSHA was there with the dust pumps to sample quartz, the MSHA inspectors would leave the pumps with the miners and then go sit at the power center. That was far enough away from the pumps so that the miners could cover the pumps with a rag and keep the dust intake down. It is clear that samples taken during inspection are likely not representative of daily conditions in the mine. Therefore, MSHA must act to develop an improved enforcement program for validating quartz dust field samples.

- An experienced underground coal miner provided our organization with personal calendars spanning more than a decade in which, alongside his personal work notations, he documented how multiple companies he worked for routinely and brazenly cheated on their dust sampling. A brief excerpt of these records attached to our comment. The miner also took some photographs of these illegal acts. *See Attachment A.*

All of the evidence over the past four decades showcases a willing disregard for federal mine safety and dust standards by coal mine operators. If silica dust sampling is left in the hands of operators rather than MSHA directly, the Department of Labor will find itself busy litigating and resampling non-compliant companies. Disturbingly, our conversations with miners reveal that even MSHA inspectors have enabled non-rigorous sampling practices. Ensuring that accurate samples are collected must be a top priority of the agency, and the only way to do so is to have sampling conducted by well-trained MSHA inspectors.

Our comments are largely intended to inform a PEL for silica in coal mining. The nature of silica dust production in coal mining, especially underground coal mining, is very different from many MNM operations in that it can vary widely from day to day or week to week. In addition, the precedent set by existing coal dust sampling regulations and statutes concerning MSHA's mandate to protect coal miners from harm, sets coal mines apart from MNM operations. Thus, we urge MSHA to issue two final rules for silica dust exposure, one for the coal industry and one for the MNM industry. We appreciate your consideration of our comments.

Sincerely,



Wes Addington
Executive Director

Rebecca Shelton
Director of Policy

FEBRUARY 1995

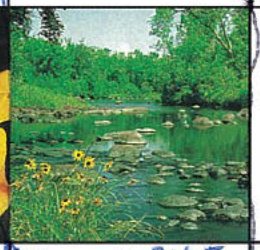
ORDERS FROM OUTSIDE
FROM [redacted]
Bake ~~[scribbled out]~~ WILLIES did
THEY SAID HE HAD BETTER NOT
GET A BAD DUST SAMPLE

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JANUARY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MARCH 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		1 work	2 Bake Sale nursin home work cont 185.00 Groundhog Day	3 work	4 X off
5	6 work	7 work FIRST QUARTER	8 work	9 work	10 work	11 work
12 + Abraham Lincoln, 1809	13 work	14 work St. Valentine's Day	15 work FULL MOON	16 work	17 work	18 X
19 55.00 cont	20 work President's Day	21 work	22 work LAST QUARTER George Washington, 1732	23 work DUST PUMPS IN DORCHESTER MINES SET AT POWER CENTER CUT OFF 1/2 DAY	24 work	25 work
26 +	27 work	28 work				

JUNE 1995

order from [redacted] to cut dust pumps off in 1 day

Paul Porter brought 5 dust pumps in Dorchester Mines at 8:30 AM
Paul Porter come in mines at 8:30
He left about 9:30 a.m dust pumps was took outside at 11:30 AM
6-14-95

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1995 F S 5 6 12 13 19 20 26 27	JULY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1 work	2 work	3 work
	5 work Dust pump in Dorchester Mines cut off 1 day 1 set at power center	6 Dust pump in Dorchester Mines cut off 1 day set on power center 1 day FIRST QUARTER D-Day-Anniversary	7 Dust pump in Dorchester Mines cut off 1 day set on power center 1 day	8 Work 1000.00 cont.	9 work	10
	12 work	13 work FULL MOON	14 work Flag Day	15 work	16 work	17 work
	19 work LAST QUARTER	20 work	21 work Summer Begins	22 work	23 work	24 work Birth of St. John the Baptist (Canada)
	26 work [redacted] Gale safety talk I told him about his suttle car	27 work	28 work NEW MOON	29 Flying at Roanoke 2 nights work	30 convention 30-July 2 2-night	

THE 11-12 1998
2 DUST PUMPS IN BEVERLY HILLS MINES ON B.CREW
1 PUMP WAS PUT ON BELT LINE CHECK CURTIAN WAS HUNG DUST PUMP WAS PUT ON BACK SIDE OF CURTIAN AWAY FROM DUST AN WAS LET RUN ALL DAY THE OTHER ONE WAS PUT ON ROOF BOLTER AN WAS CUTOFF ALL DAY [redacted] RUN SUTTLE CAR ALL WEEK

NOTE 11-12-1998

NOVEMBER 1998

ighly endangered coastal bird is
sider it the best measure of the
rotection it enjoys in places
insky Photo Associates.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
2 work 9hr	3 work 9hr. 45min Election Day	4 work 9hr	5 work 9hr.	6 work 5hr. miner broke down	7 X
9 work 8hr	10 work 8hr. DUST PUMP IN BEVERLY HILL MINES BCREW	11 WORK DUST PUMP IN BEVERLY HILL MINES BCREW Veterans' Day	12 work 8hr. 2 DUST PUMPS IN BEVERLY HILLS MINES SEE NOTE	13 work 8hr.	14 X
15 X	16 work 8hr evening	17 work 8hr evening	18 work 8hr. evening DUST PUMP IN BEVERLY HILLS MINES RUN ALL NIGHT ON BACK OF ROOFBOLTER (ILLAGE)	19 work 8hr. evening 35.6°	20 work 8hr evening	21 X
22 +	23 +	24 +	25 +	26 X Thanksgiving Day	27 +	28 +
29	30 work 8hr evening				

POWER OFF AT 9:30 WENT OUTSIDE UNTIL 10:30 DUST PUMP WAS CUT OFF

WENT BACK INSIDE DUST PUMP WAS LEFT AT POWER CENTER RUNNING THE REST OF THE DAY 11-11 1998

… wetlands, and ill-conceived flood control and drainage projects have disrupted the region's ecological balance.

NPCA founded the Everglades Coalition, which is working to restore the Everglades and the larger south Florida ecosystem. NPCA has also supported legislation to end federal subsidies to Florida's sugar industry, the region's largest polluter.

NATIONAL PARKS ESTABLISHED IN NOVEMBER:

Arches	Nov. 12, 1971

DUST PUMP IN BEVERLY HILL MINES ON 11-10-1998 MINER MAN CARRIED IT ALL DAY OUT OFF THE OTHER ½ OF THE DAY IT SIT AT POWER CENTER [redacted] RUNNING

APRIL 1999

MAR 1999

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

MAY 1999

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			*Ring-Tailed Lemurs*	1 Work 9½ hr. 3 DUST PUMPS IN MARKER MINES SEE NOTE First Day of Passover April Fool's Day	2 2 DUST PUMPS IN MARKER MINES SEE NOTE Good Friday 8hr.	3 X
4 X Easter Sunday Daylight Saving Time Begins	5 work 8hr. Easter Monday (Canada)	6 work 8hr. 1 DUST PUMP IN MARKER MINES IT RUN ONLY 4 HR ILLEGAL	7 WORK 8hr. 1 DUST PUMP IN MARKER MINES RUN 4 HR THIS IS ILLEGAL SEE NOTE	8		10
11 X 2000 Cont.	12 work 8hr.	13 work 8hr.	14 work 8hr.	15		
18	19 work 9hr. [redacted]	20 work 8hr.	21 work 8hr. 2 DUST PUMPS IN MARKER MINES RUN ILLEGAL CUTOFF Secretaries Day	Earth Day		
25	26 work evening 8hr.	27 work 8hr. evening	28 work 8hr. evening	29 work evening 6 1/2 hr.	30 work evening National Arbor Day	

4-2-1999
2 DUST PUMPS IN MARKER MINES BOTH RUN ALL DAY ONE HAD THE ~~PASS~~ DUST HOSE BROKE OFF OF THE TOP SAME AS YESTERDAY NO BLOCK CURTAINS WERE HUNG ILLEGAL

4-1-1999
3 DUST PUMPS WERE IN MARKER MINES 2 WERE RUN LEGAL THE ONE THAT WAS ON MINER HAD DUST HOSE BROKE OFF IN THE PUMP WAS CUT OFF AND DID NOT RUN ALL DAY IF IT PASSED IT WAS ILLEGAL

THE COMPANY GLAMORGAN HAS BEEN TRYING TO GET A 30 FOOT CUT PLAN

Unlike other great apes, **orangutans** *(Pogo pygmaeus)* are solitary creatures except for playful juveniles and mothers with babies. Orangutans feed mainly on fruit and are arboreal, rarely descending to the ground. An endangered species, the orangutan lives in

the babies are born in tree nests, ring-tailed lemurs actually prefer to be on the ground. Babies nurse until they learn to forage for fruits, seeds, and leaves, at five to seven months of age. Madagascar, a large island east of the African continent, is the native home of all species of lemurs.

WWF

Saving Life on Earth

Visit our web site: WWW.WORLDWILDLIFE.ORG

Ring-Tailed Lemurs © Gerry Ellis
Douc Langur Monkey © Art Wolfe

JUNE

The Nature Conservancy®
Saving the Last Great Places

6-13-00
INSPECTOR WAS AT MINES WITH DUST PUMPS HE MADE US WATER DOWN HALLWAYS SOMETHING THAT WE DONT NEVER DO WE ONLY RUN 5 CUTS OF COAL WE NORMAL RUN 10 TO 12 CUTS OF COAL SO THESE DUST PUMPS CAN NOT BE BASED ON A NORMAL DAYS WORK

	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	Bison and prairies have evolved together over the past 14,000 years. When huge herds of buffalo were reduced to a handful, an important ecological balance was disrupted on the Great Plains. In spite of this, The Nature Conservancy's 56,000-acre Niobrara Valley Preserve has managed to sustain native grassland biodiversity and is now home again to some 250 bison. A second herd is being funded through Nebraska's *Buy Stock in Bison* program in order to increase genetic diversity. For information on this program, contact the Nebraska Field Office at (402) 342-0282.		1	● 2	3
	6 DUST PUMPS IN MEADOW MINES INSPECTOR CHARLIE REECE WAS THERE SEE NOTE	7	8	◐ 9	10
11	W 8 hr 12	13 DUST PUMPS IN MEADOW MINES W/ 8 hr INSPECTOR [redacted] WAS THERE SEE NOTE	W 8 hr 14 FLAG DAY	WORK 8 hr 15	○ 16	17
18 FATHER'S DAY	19	20	21 SUMMER SOLSTICE	22	23	◑ 24
25	26	27	28	29	30	

www.tnc.org

Bison in Tallgrass Prairie, NE © *Frank Oberle, TNC Member*

Attachment A
Page 5 of 12

March

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
NOTES				FEBRUARY 2003
2	3 TOOK SUPPLYS TO SECTION DUST PUMPS WERE hANGING ON A ROOF BOLT IN INTAKE AIR (MINER MAN WAS SUPPOSE TO WEARE IT New Moon	[redacted] 4 FED INSPECTOR RUN ONE DUST PUMP ONE BREAK UNDER GROUND BETWEEN AIR LOCK DOORS	INSPECTOR RUN 5 DUST PUMPS TODAY PUT 2 IN MY TRAVEL WAY I WAS NOT ALLOWED TO TAKE SUPPLYS IN UNTIL AFTER THEY LEFT Ash Wednesday	DUST PUMPS 6 WERE HANGING ON ROOF BOLT IN INTAKE AIR
9	10 Orthodox Lent begins	11 First Quarter	12	13
16	17 TOOK SUPPLYS TO SECTION TODAY DUST PUMPS WERE hANGING ON ROOF BOLT IN INTAKE AIR St. Patrick's Day	18 TOOK SUPPLYS TO SECTION Full Moon TODAY DUST PUMPS WERE SITTING ON POWER CENTER Erev Purim	19 Purim	20
23	24	25 Last Quarter	26 TOOK SUPPLYS TO SECTION TODAY DUST PUMPS WERE IN A BOX ON POWER CENTER	27 TOOK SUPPLYS TO SECTION DUST PUMPS WERE IN A BOX ON POWER CENTER
30	TOOK SUPPLYS TO 31 SECTION DUST PUMPS WERE SITTING ON POWER CENTER			

FEBRUARY 2003

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

2004 May

APRIL 2004

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JUNE 2004

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3 DUST PUMPS IN ENTERPRISE AS THEY WERE RUN RIGHT TODAY	4 DUST PUMPS IN ENTERPRISE MINES AS MINER MEN WORE THEM UNDER THEIR COVER ALLS Full Moon	5 DUST PUMPS IN ENTERPRISE AS I DID NOT MAKE IT UP TOO CAR RIVERS + MINER DO NOT KNOW IF PUMPS WERE RUN RIGHT	6 DUST PUMPS IN ENTERPRISE MINES AS ROOFBOLTER MEN HAD THEIR PUMPS IN A BUCKET WITH A RAG OVER IT	7 DUST PUMPS IN ENTERPRISE MINES AS DUST PUMPS WERE PUT IN A BIT BUCKET WITH A RAG OVER IT	8
9  Mother's Day	10 DUST PUMPS IN ENTERPRISE MINES AS DUST PUMPS WERE PUT IN A BIT BUCKET WITH A RAG OVER IT	11 Last Quarter	12	13	14	15
16	17	18	19 New Moon	20	21	22
23	24	25	26	27 First Quarter	28	29
30	31  Memorial Day					