



FRANK MIRER, PhD, CIH, is a professor in the CUNY School of Public Health in New York. He can be reached at (212) 396-7782 or fmirer@hunter.cuny.edu.

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The DC Circuit Court Addresses Silica

BY FRANK MIRER

On December 22, the Court of Appeals for the District of Columbia Circuit rejected industry attacks on the OSHA silica standards for general industry and construction. OSHA's explanation of the standards (which appears in the preamble to the agency's final rule on Occupational Exposure to Respirable Crystalline Silica), the record of the court proceedings, and the Court's opinion are authoritative statements on the scientific issues related to silica and the needed public health interventions. These sources should be a starting point for further work on silica. The opinion (PDF, <http://bit.ly/dccircuit16-1105>) and oral argument (MP3, <http://bit.ly/silicaargument>) are instructive reading and listening for practitioners who may be called on to explain where exposure limits come from.

FUTURE REGULATORY BIAS

The lead attorney for the industry was William Wehrum, who was confirmed on November 9 to be EPA's assistant administrator for Air and Radiation. In the audio of the September 26 oral argument before the court, Wehrum says, "People are designed to deal with dust. People are in dusty environments all the time and it doesn't kill them." This statement is contrary to the massive body of health evidence supporting limits on particulate (which are regulated by the EPA office Wehrum now leads) and silica (which is present

in ambient air and potentially regulated). A scientific expert who said what Wehrum said would be considered a "denier" and have no future credibility.

HEALTH RISKS

The DC circuit court's opinion is structured to respond to industry's attack on the standards, and quotes settled law from previous industry challenges to OSHA standards. The judges noted that OSHA has to show a significant risk at the old permissible exposure limit and predicted lower risk at the new PEL to reach the threshold of regulation. The opinion acknowledges that mortality risks for silicosis, lung cancer, and nonmalignant respiratory disease at the old PEL are still significant at the new PEL. The risks of mortality at the new PEL quoted by the court are 7 in 1,000 workers for silicosis, 44 in 1,000 for NMRD (including silicosis), and 5 to 23 deaths per 1,000 for lung cancer. A benchmark for significant risk of disease is 1 in 1,000, although lower risks might be considered significant. Thus, the new PEL is projected to present a significant risk of silicosis (a diagnosis that requires a chest x-ray), but silicosis is only the tip of the disease iceberg; NMRD is the main killer. OSHA's estimates are based on multiple mortality studies in people.

Although not discussed in the opinion, risks would be significant at the action level (25 $\mu\text{g}/\text{m}^3$ as an eight-hour time-weighted average) and even at the

limit of detection by the OSHA standard method (approximately 12 $\mu\text{g}/\text{m}^3$, eight-hour TWA). More sensitive methods for measuring exposure are available.

TECHNICAL AND ECONOMIC FEASIBILITY

The most interesting issue is the feasibility of silica protections in fracking. Industry claimed that limited data and control measures in this sector are evidence that OSHA didn't establish feasibility. Evidence of high exposures—as high as 10 times the new limit—certainly exists (see "Occupational Exposures to Respirable Crystalline Silica During Hydraulic Fracturing" in the July 2013 issue of the *Journal of Occupational and Environmental Hygiene*). "Acknowledging that controls have yet to be widely implemented in the industry," the judges wrote, "OSHA identified controls, some currently available and others under development, that promise to sufficiently reduce exposure." The judges also stated that the agency's evidence is "more than sufficient" to demonstrate the likelihood that devices and strategies for meeting the PEL will be adopted.

MEDICAL CONFIDENTIALITY

OSHA changed the boilerplate for medical surveillance in the silica and beryllium standards from that of older standards. The older framework is contrary to present views of medical ethics, and was adopted at a time when employer retaliation for raising health

and safety issues was less acute.

The Occupational Safety and Health Act requires OSHA to address medical surveillance in toxic substance standards. Previous rules require employers to “offer” surveillance exams to employees following a trigger, usually exposure above the action level or reporting of symptoms. The examining physician, selected by the employer, is to provide a written opinion to the employer (and to the employee) disclosing limitations on exposure and health effects related to exposure. Such limitations would likely require transferring the employee to a lower-exposure job (or to the street if the employer deemed low-exposure jobs to be unavailable). The silica standards stipulate that the physician’s written opinion is to be provided to the worker alone, so the worker can decide whether to provide it to the employer. This protection is somewhat compromised by a required disclosure to the employer of limitations on the use of a respirator, which the employer could link to a job qualification, and the need to request the employer to provide a specialist evaluation, which could fast-track the worker to the street.

In coal mining, the exams for black lung disease are conducted by NIOSH, the reports and recommendations for limitation of exposure are given only to the worker, and

it’s illegal for the employer to ask for those reports. If the worker wants removal from exposure, the worker can decide to provide the report to management, which must adhere to the recommendation.

MEDICAL REMOVAL PROTECTION

Having disposed of industry’s challenges, the judges, in response to the union challenge, remanded to OSHA for more explanation of the standards’ failure to provide for Medical Removal Protection—that is, protection of pay, promotion, and seniority of workers removed from a silica-exposed job as a result of participation in the mandated medical surveillance program. MRP was first included in the lead standard in 1978, championed by the Steelworkers. The logic of MRP was that employees wouldn’t participate in exams if their jobs were in jeopardy.

OSHA previously included MRP and attendant Multiple Physician Review (MPR) in the lead, cadmium, benzene, formaldehyde, and methylene chloride standards. Recently, OSHA required MRP in the beryllium standard promulgated after silica. The initial formaldehyde standard omitted MRP-MPR; the United Auto Workers and Amalgamated Clothing and Textile workers challenged the rule for this omission, and got industry to agree to include an MRP-MPR provision during settlement

negotiations with OSHA (along with a reduction in the PEL). The UAW also sued OSHA when the methylene chloride rule was initially promulgated, and negotiated MRP-MPR in settlement discussions.

The importance of lead-in-blood tests in the lead standard (and other biological testing for cadmium and benzene) actually weakens the argument for MRP for lead, since most removals were triggered by lead in blood. But MRP is necessary to remove the threat of job loss as a barrier to workers revealing symptoms in medical surveillance exams.

For silica, the largest predicted cause of death is chronic obstructive pulmonary disease, not x-ray-diagnosed silicosis. This risk is overwhelmingly significant at the PEL (as well as at the AL and even at the limit of detection). Early disclosure of symptoms is most important for secondary prevention. The judges agreed with this argument, although rules of engagement limited their response to demanding OSHA justify omitting MRP.


TAKEAWAYS

The main conclusions for industrial hygienists stemming from the DC circuit court’s decision are that the risks for COPD, lung cancer, and silicosis are significant at the new PEL, as well as at the AL (and TLV). COPD risks are much higher than lung

cancer risks. The PEL is feasibility trapped—that is, it can’t be lowered unless OSHA demonstrates the feasibility of more protective controls. Primary prevention would be to limit exposure, but for silica, secondary prevention is especially important.

The court ruled that OSHA’s protective conclusions on the need for a new PEL, feasibility, and confidentiality of medical surveillance results met the requirements of law and legal review.

The absence of MRP in the standard is a serious defect, since effects of silica could be limited by disclosure of symptoms, and there is a significant risk well below the PEL.

Practicing IHs should use more sensitive methods than the OSHA method to measure silica exposure to levels below the AL and use these results to communicate risk to employees and employers. Ultimately, our profession has to find workarounds for bias against protection by heads of regulatory agencies. As IHs, we depend on authoritative exposure limits; we have to identify sources for these limits and ways to use them. 

RESOURCE

United States Court of Appeals, District of Columbia Circuit: North America’s Building Trades Unions v. OSHA, <http://bit.ly/dccircuit16-1105> (PDF, December 2017).