

CONSTRUCTION INDUSTRY SAFETY COALITION



February 11, 2014



The Honorable David Michaels
Assistant Secretary of Labor
Occupational Safety and Health Administration
U.S. Department of Labor
Room S-2002
200 Constitution Ave., NW
Washington, DC 20210



Re: Construction Industry Safety Coalition
Hearing Testimony for NPRM on Occupational Exposure to Crystalline Silica
(Docket No. OSHA 2010-0034)



Dear Dr. Michaels:

I write on behalf of the Construction Industry Safety Coalition ("CISC"). CISC respectfully files the enclosed written hearing testimony for the representatives of the CISC at OSHA's informal public hearing on OSHA's Proposed Rule on Occupational Exposure to Crystalline Silica, 78 FR 56274 (Sept. 12, 2013).

Sincerely,

JACKSON LEWIS P.C.

Bradford Hammock
Nickole Winnett



Enclosures



CONSTRUCTION INDUSTRY SAFETY COALITION
Testimony of Bradford T. Hammock
Shareholder, Jackson Lewis P.C.

Thank you for providing me the opportunity to testify. My name is Brad Hammock. I am a shareholder in the Washington, D.C. Region Office of Jackson Lewis P.C. I am here to testify on OSHA's Notice of Proposed Rulemaking on Occupational Exposure to Crystalline Silica on behalf of the Construction Industry Safety Coalition ("CISC").

The CISC is comprised of 25 trade associations representing virtually every aspect of the construction industry. The CISC speaks for small, medium, and large contractors; general contractors; subcontractors; union contractors; etc. The CISC has a strong commitment to worker safety and it recognizes that it is incumbent upon the construction industry to take measures to protect employees from exposure to crystalline silica.

I am representing the CISC throughout OSHA's rulemaking proceedings on this proposed rule. As lead counsel for the CISC, I have reviewed OSHA's data, assumptions, and reasoning with respect to the construction industry and I have provided feedback and analysis to assist the CISC in providing OSHA with thoughtful, data-driven comments on the proposed rule.

By pooling resources and members from the wide range of trades affected by the proposal, the participating construction industry trade associations believe

that they can assist OSHA in better understanding the unique challenges found in the construction industry with respect to crystalline silica. OSHA's proposed crystalline silica rule for construction is potentially the most far-reaching regulatory initiative proposed by OSHA for the industry. Crystalline silica is everywhere on a construction site, and it is found in numerous building materials and a number of job activities result in the release of a certain amount of respirable crystalline silica. To say that this rule will have a significant impact on the construction industry is an understatement.

The CISC and its member associations recognize the hazards posed by crystalline silica at construction worksites and it applauds OSHA's attempts at creating a proposed rule for the construction industry on this matter. However, the CISC believes that the Agency has not met its burden of demonstrating that the proposal is technologically and economically feasible for the construction industry. In addition, OSHA's proposed ancillary provisions – which are very similar to the ancillary requirements included in other OSHA health standards – are unworkable in the construction environment.

The CISC does not believe that OSHA has shown that the proposed PEL can be met by the construction industry in most operations most of the time. OSHA's overall analysis falls short for several reasons:

- OSHA has not identified all of the job categories that could be affected by the proposed rule.
- OSHA's assumption that construction workers have no exposure after the period of time sampled is incorrect and unjustified.
- OSHA's analysis does not consider the broad scope of tasks and environments affected.
- OSHA's assumption about compliance on multi-employer worksites does not account for exposure affects.

Moreover, a detailed examination of each individual assessment of the identified construction activities in the CISC comments shows that – for numerous and varied reasons – OSHA has not met its burden of proving technological feasibility. Ironically, the flaws in OSHA's technological feasibility analysis can best be seen through Table 1. Of the 13 operations included in Table 1, eight of the operations provide for some form of respiratory protection under certain conditions of use. There is no way that the use of respiratory protection in two-thirds of construction operations constitutes reaching the PEL with engineering and work practice controls in most construction operations most of the time.

Furthermore, OSHA's economic feasibility analysis understates by significant margins the true cost and impacts of the proposal on the construction

sector. Stuart Sessions of Environomics will discuss the significant problems with OSHA's economic analysis later today.

In addition, the CISC believes that the ancillary provisions of the proposal are unnecessary and not workable in the construction industry. For example, the exposure monitoring provisions, which are based on other health standards, are unworkable given the range of exposure conditions, environments, operations, materials, and so on. The establishment of regulated areas or written access control plans, while well-meaning, also does not work on most construction sites due to multiple operations and environmental conditions that are constantly shifting and changing. OSHA's prohibition on dry sweeping is unsupported by evidence showing that such a practice significantly contributes to silica-related disease. Kevin Turner with Hunt Construction Group will discuss in more detail the issues found with respect to these and other ancillary provisions.

CISC appreciates OSHA's attempts to make compliance simple in construction with Table 1. Having said this, the CISC believes that Table 1 as proposed misses the mark for several reasons, but primarily due to the notes included in the "Engineering and work practice control methods" section of the Table. In the view of member companies, these notes will prevent Table 1 from being utilized as a compliance option. Kellie Vasquez from Holes, Inc. will testify regarding the problems found with the current proposed Table 1.

The CISC recognizes that it is “easy to criticize” but harder to come up with alternatives and the CISC appreciates that OSHA has put forward a number of alternatives for stakeholder consideration and comment. The CISC believes that OSHA needs to rethink the way it regulates health standards in the construction industry in order to devise a workable rule for crystalline silica. Relying on approaches used in previous health standards does not work here, given how ubiquitous silica is on construction worksites. Because virtually all of the Regulatory Alternatives keep OSHA’s historical approach, in the CISC’s view none address the concerns raised in the construction environment.

The CISC respectfully requests that OSHA withdraw its proposed rule until it can put forth a proposal that addresses the concerns that we will discuss in more detail today. OSHA must first demonstrate that a lower PEL is needed and that whatever PEL is adopted is both technologically and economically feasible. OSHA’s requirements also must be workable in the field. The CISC is prepared to – and welcomes the opportunity to – sit down with the Agency and engage in a dialogue as to what would be an appropriate approach to dealing with the hazards of crystalline silica on construction worksites.

Thank you.

CONSTRUCTION INDUSTRY SAFETY COALITION
Testimony of Kellie Vasquez
Vice President of Holes, Inc.

Thank you for providing me the opportunity to testify today. My name is Kellie Vasquez. I am the Vice President of Holes, Inc. and a member of the Concrete Sawing & Drilling Association. I am here to testify on OSHA's Notice of Proposed Rulemaking on Occupational Exposure to Crystalline Silica on behalf of the Construction Industry Safety Coalition ("CISC").

Before I discuss the proposal, I want to tell you a little bit about my company and my experience. Holes, Inc. is a family-owned business that was started by my father 42 years ago when he decided, after years of being a saw cutter, to go into business for himself. Our employees perform an array of concrete cutting, wall and slab sawing, core drilling, and removal and demolition work. The average employee has been with our company for 14 years and we have several employees who have been with us for over 30 years. We recognize that our employees are our number one asset. We simply could not do the work without them and we consider them a part of our family.

As the Vice President of Holes, Inc., I am responsible for supervising our field operators and overseeing the Safety Department. Over the last ten years, I have had the honor of being involved in various initiatives that have addressed exposure to respirable crystalline silica. I was a SBREFA Panelist in 2003 for this

rule and a member of the Silica Task Force from 2003-2006. I also contributed and provided guidance for the ASTM standard on the Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica for Construction and Demolition Activities. In addition, I have been a member of the Board of Directors of the Concrete Sawing & Drilling Association since 2009 and have actively participated in several committees. As part of my membership with the Concrete Sawing & Drilling Association, I provided guidance and feedback on OSHA's proposed rule as part of the CISC.

The CISC has several concerns with respect to Table 1 that I would like to address today. While the CISC appreciates OSHA's attempt with Table 1 to craft a performance-based tool for use in the construction industry that would in theory make compliance simpler, we believe that Table 1 as proposed misses the mark for several reasons.

First and foremost, as currently drafted Table 1 is unworkable for most construction employers. Primarily, this is due to the "Notes" included in the "Engineering and work practice control methods" section of the Table. These Notes were not included in the SBREFA draft published over a decade ago, were not included in the draft given to ACCSH a few years ago, and are such that compliance with Table 1 becomes impossible.

The primary obstacle to compliance in the Notes relates to the requirement that there be “no visible dust” emitted from a process after the introduction of the engineering control methods. While “no visible dust” is a lofty goal, it has no basis in reality in the construction environment. Rarely – if ever – will there be absolutely no visible dust emitted from a silica generating activity with the use of wet methods or other engineering controls.

For certain types of tools, such as grinders and other hand-held pieces of equipment, it is impossible to perform the work with the tool flush against the surface being impacted. At times, there must be a gap and this will mean some visible dust is emitted, even when local exhaust ventilation or wet methods are utilized.

For employers using wet methods, even attempting to meet this “no visible dust” standard will require a tremendous amount of water – many studies discussed in the technological feasibility analysis certainly support this notion. Such large amounts of water run counter to OSHA’s contractor’s assessment that “minimal” water should be used to avoid environmental contamination issues. The Agency contends that construction employers can mitigate any environmental concerns by utilizing as little water as possible to prevent accumulations from occurring or potentially damaging residential or commercial buildings. Even if utilizing only a

little water will effectively reduce exposures to below the proposed PEL, the CISC has significant concerns that it will prevent *all* visible dust from being emitted.

Even if there were times where a process could be controlled such that no visible dust could be emitted, the requirement is so stringent that the CISC does not believe any construction employer will run the risk of relying on Table 1 for compliance. There are so many variables involved in controlling silica-generating activity that, on any given day, an employer could not guarantee that an activity will not generate at least a little visible dust.

Compliance with this specification is also made very difficult on a multi-employer worksite, where other employers are performing silica-generating activities. If one employer is conducting operations where visible dust is being emitted, perhaps because the employer has opted not to follow Table 1, it will be a significant challenge for an employer conducting operations alongside to demonstrate that its dust control measures did not emit any visible dust.

The CISC is also confused with this specification as it relates to another requirement found in some operations in the Table. OSHA has proposed for the conduct of certain operations indoors, that employers following Table 1 “provide sufficient ventilation to prevent build-up of visible airborne dust.” This requirement seems superfluous since in all situations visible dust must not be emitted from the process.

There are other ambiguities and vague terms used throughout the Table that the CISC respectfully asserts will eliminate Table 1 as a realistic compliance option:

- “Change water frequently to avoid silt build-up in water.” This specification provides no guidance on how frequently water should be changed or what level of “silt build-up” is acceptable.
- “Ensure saw blade is not excessively worn.” This specification provides no guidance on what “excessively” means.
- “Cab is maintained as free as practicable from settled dust.” This specification provides no guidance regarding the terms “as free as practicable.”
- “Cab is air conditioned and positive pressure is maintained.” This specification does not account for the fact that few machines are equipped with cabs with these specifications and enclosed cabs could create problems with verbal communication and visual obstructions.
- “Commercially available shrouds and dust collection system.” This specification eliminates specialty manufactured products that may be equally effective.

- “Prevent wet slurry from accumulating.” This specification does not define what it means by accumulation.

With the specifications included in Table 1 and the ambiguity that goes along with it, OSHA has unfortunately created a compliance option that no construction employer will follow. Even if an employer, for example, developed a protocol for replacing blades with excessive wear, it could still be subject to citation from a compliance officer if the compliance officer happened to hold a different view of the definition of the word “excessive.” And this reality applies to all of the ambiguous terms included in the specifications in Table 1 of the proposal.

Much of Table 1 requires employers to implement either wet methods or local exhaust ventilation to be in compliance with its provisions. There are times, however, where the nature of the work or the environmental conditions make use of these control measures impossible. There are difficulties associated with cold temperatures and introducing water into a construction environment. OSHA recognizes that water may not be able to be used in certain interior work. Introducing water can also create other hazards, such as cutting tile on roofs. CISC participating association members have identified other situations where the use of wet methods or LEV will not work:

- Selective demolition around or near operating electrical or other sensitive equipment such as “clean rooms” for computer operations.
- Specifications for cleaning/sealing concrete joints often require that no water be introduced to control the dust.
- Work when compacting pavers prevents the use of wet methods or vacuum systems.
- Grinding existing striping to be repainted on roadways.
- Drilling anchor bolts into a vertical face of a concrete surface.
- Removal of fire proofing on columns in refineries.

When a problem with complying with Table 1 arises, the CISC questions precisely how the standard applies. The proposed standard seems designed to have employers “pick” their compliance option up front and then presumably stick with that option. So, an employer would not conduct exposure monitoring if the employer made the decision to choose Table 1. But if a few months down the road, the employer encounters a worksite where Table 1 is not capable of being used, what is that employer’s responsibility with respect to exposure monitoring?

There is also concern regarding the practical implementation of the “4-hour” specification in the Table. While the CISC appreciates what OSHA is trying to do by bifurcating the table by time spent on an activity, the reality is that contractors will be unable to keep precise track of the amount of time each worker has spent

performing a particular task or tasks, such that compliance with Table 1 becomes a realistic option. Contractors currently do not – and the CISC believes will not – embark on complicated time-tracking of tasks to devise when a respirator is needed or when a respirator is not needed, particularly for workers who perform multiple different tasks included in Table 1 throughout the day. This just will not happen.

In addition to the above, OSHA has decided to propose an extremely narrow “use” for Table 1. Table 1 is not a safe harbor for construction employers by any stretch. It is only utilized in lieu of exposure monitoring requirements. A construction employer who opts to utilize Table 1 still is required to ensure that all exposures are below the proposed PEL. In addition, OSHA asserts that the employers must assume that employees are exposed above the PEL if they are using Table 1, resulting in medical surveillance for all employees and regulated areas or a written access control plan on all jobs.

Perhaps the unworkability of OSHA’s exposure assessment provisions in the construction environment will end up ultimately forcing construction employers to utilize Table 1. For this to happen, though, OSHA has to go back to the drawing board and create a new Table 1 with the following concepts in mind:

- Expand Table 1 to include other tasks. In many ways, OSHA has mirrored Table 1 to its technological feasibility analysis. Very broad tasks are set out, along with the engineering and work

practice controls and respiratory protection. In the CISC's view, it is acceptable to put forth some broad tasks, but it also would be helpful to include more specifically-defined tasks in a revised Table. For example, the following would be specific tasks in specific circumstances that, if included in a table, could increase compliance: "concrete slab sawing (indoors)"; "concrete dowel drilling (outdoors)"; "sawing joints in concrete (outdoors)"; "overhead drilling"; and so forth.

- Eliminate the heavy use of respiratory protection. As described above, OSHA's reliance on respiratory protection is analytically inconsistent with its position that it is technologically feasible to reach the proposed PEL in most construction operations most of the time. Requiring such heavy use of respirators in Table 1 will serve as a significant barrier to effective use of same. As OSHA recognizes, wearing respirators, particularly for long periods of time, is uncomfortable for employees. While the CISC appreciates that OSHA is taking a conservative approach with respect to employee protection here, the CISC respectfully asserts that in this situation OSHA has created a tool that will not be used by employers.

- Eliminate the “Notes” in the Table. The “Notes” that are included in the Table are ambiguous, unworkable, and ultimately unnecessary. The CISC has described its concerns with the “Notes” and, as currently drafted, believes they will cause employers *not* to select Table 1 as a compliance option.
- Eliminate specificity regarding wet methods. Throughout the Table, OSHA relies heavily on the use of wet methods. Depending upon the task described, the method of water delivery differs. Thus, if a construction employer is using Stationary Masonry Saws, the employer must use a saw with an integrated water delivery system. If a construction employer is using a hand-operated grinder, the employer must use a “water-fed” grinder that continuously feeds water. The CISC believes that limiting the delivery of wet methods in this way may reduce the ability of certain contractors to utilize Table 1. If a construction employer finds a way to effectively deliver water through another mechanism, in the CISC’s view that should be encouraged. In addition, the CISC is concerned that certain tools equipped with a water delivery system are so designed to cool the saw blades and not control dust emission.

- Exempt Tasks of Short Duration. OSHA only provides two time frames for compliance under Table 1 – when those tasks are performed under four hours and when those tasks are performed over four hours. The ASTM Standard (Section 4.4.1.3), on the other hand, specifically exempts controls provided for in its Tables 1-5 when employees are engaged in those tasks for 90 minutes or less.

Many of these suggestions go to a fundamental issue for the CISC – Table 1 must be simple and user-friendly or it will not be used. In the CISC’s view, the more “Notes” that are included in the Table the fewer contractors will utilize it. Having a Table that no one can or will use, does little to protect the safety and health of construction workers. Moreover, Table 1 must be a safe harbor for employers in order for Table 1 to be a viable option for those in the construction industry.

Because of the numerous issues discussed above and in the CISC’s comments to the proposed rule, CISC urges OSHA to reevaluate Table 1 as currently proposed.

Thank you.

CONSTRUCTION INDUSTRY SAFETY COALITION
Testimony of Kevin Turner, CSP, CHST, CRIS
Director of Safety - East Division at Hunt Construction Group

Thank you for allowing me the opportunity to testify. My name is Kevin Turner. I am the Director of Safety - East Division at Hunt Construction Group and a member of the Associated General Contractors. I am here to testify on OSHA's Notice of Proposed Rulemaking on Occupational Exposure to Crystalline Silica on behalf of the Construction Industry Safety Coalition ("CISC").

Before I discuss the proposal, I want to tell you a little bit about my company and my experience. Hunt Construction Group is a construction management firm based in Indianapolis, Indiana that handles many large and complex construction projects throughout the United States, including sports arenas, government and education buildings, aviation complexes, and health care facilities. As a construction management firm, we work with a number of construction trades and employers who will be affected by this rule and we know firsthand the challenges that employers face in this competitive market.

I have more than 16 years of experience in the construction industry and have been a longstanding member of the Associated General Contractors ("AGC"). As the Director of Safety, I am responsible for the environment, safety and health programs and training initiatives for the East Division. I am a Certified Safety Professional and I have numerous certifications related to safety and health,

including Construction Health and Safety Technician and OSHA 500 Construction Outreach Trainer.

Based on my numerous years of experience in the construction industry, I have become aware of the issues concerning occupational exposure to respirable crystalline silica and I recently provided guidance and feedback on OSHA's proposed rule as part of the CISC.

The CISC has several concerns with respect to regulated areas and housekeeping requirements that I would like to address today. First, OSHA requires the use of regulated areas or a written access control plan wherever an employee's exposure to respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL. It is not clear how the two options are different. Both provisions require work areas be demarcated and access to said areas be limited to essential personal or designated employee representatives. Both provisions also require that employers provide protective clothing when there is a potential for employees' work clothing to become grossly contaminated. The only difference between the two appears to be that respirators are not absolutely required under a written access control plan but need only be provided and used where respirable crystalline silica exposures may exceed the PEL. OSHA needs to better explain the differences between the two options.

In addition, OSHA has not defined what “reasonably expected” means or otherwise provided any clarity on when an employer should reasonably expect for an employee to be exposed over the PEL. Such subjective language is not enforceable and it will be fraught with compliance problems and, as a result, an employer will feel compelled to set up a regulated area or written access control plan in nearly all instances.

Enforcing regulated areas is incredibly difficult on a multi-employer construction worksite, because not every individual or employee is under the control of the contractor putting up the regulated area and a general contractor may not be onsite at all times during the project.

Moreover, weather and wind can change silica exposure in many instances, requiring the employer to continuously evaluate the conditions in order to determine if the regulated area is properly designated or adjust the area to account for the changed conditions. An employer may need to change the regulated area every time the wind blows in a different direction because the boundaries of the area have changed. Employers simply will not be able to do this.

OSHA’s requirement that the employer must provide each employee and the employee’s designated representative entering a regulated area with an appropriate respirator and require that they use the respirator while in the regulated area is unworkable. Under this requirement, OSHA is requiring the use of respirators

even if an employee or a designated representative will not have exposures above the PEL simply because a regulated area has been designated. Not everyone who enters a regulated area will be exposed to respirable crystalline silica much less have exposures above the PEL. Persons who occasionally come in that work area should not be required to wear a respirator unless their own exposure may exceed the PEL. Moreover, OSHA needs to explain why respirators are required simply because an individual is observing the exposure monitoring once or a handful of times when the risk assessment is based upon a 45-year working life and not intermittent exposures.

Requiring protective work clothing when there is the potential for employees' work clothing to become grossly contaminated with finely divided material containing crystalline silica is confusing and OSHA has not adequately described how it will protect workers. OSHA does not provide any clarity on when there is a "potential" for the employee's work clothing to become grossly contaminated with crystalline silica. The potential that employees' work clothes will become grossly contaminated exists for nearly every job and every worksite. So, in practicality, employers will be required to provide protective clothing in nearly all circumstances.

OSHA asserts that "[g]ross contamination" refers to a substantial accumulation of dust on clothing worn by an employee working in a regulated area

such that movement by the individual results in the release of dust from the clothing.” On a construction worksite, clothes will naturally become dirty and covered in dust. Not all dust will be silica dust and visible dust on clothing is very unlikely to be respirable and would not be “finely divided materials.” OSHA has made virtually no connection between visible dust on clothing and respirable silica exposures and there is no literature or studies to show that visible dust on clothing will significantly increase an employee’s respirable silica exposure to a harmful level. OSHA has simply not explained why such a provision is necessary or likely to protect workers. Moreover, there are also circumstances where an employer may not be able to provide protective clothing – something that OSHA does not recognize or address in the proposed rule. For example, employees are not able to wear anything over fire retardant clothing.

OSHA asserts that the purpose of regulated areas is to ensure that the employer makes employees aware of the presence of respirable crystalline silica at levels above the PEL. In the CISC’s view, providing required training of all employees potentially exposed to silica would be equally effective in making employees aware of the presence of respirable crystalline silica without all of the issues associated with regulated areas. The training would cover tasks where employees are likely to be exposed to silica as well as good housekeeping

instruction to reduce risk, such as staying away from silica-generating tasks unless absolutely necessary and positioning one's body away from clouds of dust.

Construction employers are unlikely to create a written access control plan. A different access control plan would need to be created for each worksite and project because of the variable nature of the construction industry. A one-size-fits-all approach to the written access control plan would simply not work because each project is different, the materials and locations or the work are different, and the silica-generating tasks may be different. Simply put, the competent person will need to visit each worksite and come up with a different plan for each project and, then, he or she would need to put the plan in writing. This will take a significant amount of time and create additional costs for each job.

The concept behind the use of regulated areas or a written access control plan is fundamentally flawed. These provisions restrict access to what OSHA believes are hazardous areas and not to hazardous exposures. These provisions should focus on reducing personal exposures to respirable crystalline silica. OSHA has not made the connection that restricting access to an entire regulated area is necessary to protect employees from personal exposures to respirable crystalline silica above the PEL. In lieu of regulated areas and a written access control plan, employers can instruct employees to stay out of work areas where dust is generated unless their presence is necessary and, if employees are required

to work in areas where respirable silica dust may be generated, then employers could instruct employees to stay away from the clouds of dusts to the extent possible.

Because of the numerous problems with this provision, the CISC cannot support the use of regulated areas or a written access control plan as currently proposed.

The CISC also does not support several of the housekeeping requirements provided in the proposed rule. OSHA is prohibiting employers from using compressed air, dry sweeping, and dry brushing to clean clothing or surfaces contaminated with crystalline silica, where such activities could contribute to employee exposure to respirable crystalline silica above the PEL.

OSHA does not explain or provide any clarity on when dry sweeping or dry brushing could contribute to employee exposures to respirable crystalline silica that exceeds the PEL. The ASTM Standard (Section 4.4.3.2) certainly does not prevent the use of dry sweeping or dry brushing.

OSHA's alternative to dry sweeping appears to be using vacuums equipped with a HEPA filter. A HEPA-filter vacuum will not be able to pick up anything beyond small dirt or dust particles and thus would be completely ineffective at picking up electrical wires, pieces of drywall, and other debris often found throughout a construction worksite.

Some projects also may not have access to an electrical source in order to run the vacuum and the HEPA-filters would need to be changed frequently in order for the vacuum to remain effective. Depending upon the size of the project and the location of silica-generating tasks, an employer may need to provide more than one vacuum. But more importantly, OSHA has not shown that these prohibitions will in fact reduce exposure to respirable silica.

Thank you.

CONSTRUCTION INDUSTRY SAFETY COALITION
Testimony of Stuart Sessions
Environomics, Inc.

Thank you for providing me the opportunity to testify. My name is Stuart Sessions. I am the President of Environomics, Inc. I am here to testify on OSHA's Notice of Proposed Rulemaking on Occupational Exposure to Crystalline Silica on behalf of the Construction Industry Safety Coalition ("CISC").

I was asked to review OSHA's economic data and assumptions with respect to the construction industry and provide feedback and analysis to the CISC. I am an economist with more than 30 years of experience in analysis of environmental, safety, and health regulatory issues. Prior to my time at Environomics, I was an analyst with the Office of Management and Budget, a staff member of the Carter White House, and a manager in several policy analysis positions at the Environmental Protection Agency ("EPA"), including the Director of the Regulatory Policy Division.

As more fully developed in the CISC's comments and attached appendices, OSHA's economic feasibility analysis understates by significant margins the true cost and impacts of the proposal on the construction sector.

First, OSHA has omitted 1.5 million workers in the construction industry who routinely perform dusty tasks on silica-containing materials from its analysis of the economic costs and impacts of the proposed rule. These workers -- members

of large construction trades such as plumbers and plumber helpers, roofers, electricians, and electrician helpers and including specialty trades such as plasterers and stucco masons and helpers and tile and marble setters – perform tasks nearly identical to those performed by occupations included by OSHA such as cement masons, plasterers and ceiling tilers. Together, the additional occupations increase OSHA's base estimate of the affected construction workforce by approximately 50 percent.

The substantial increase in the number of the construction workers resulting from the addition of these occupations profoundly affects the estimated control costs and “productivity penalties” when these additional workers perform silica-generating tasks. Moreover, the numbers also result in proportional increases in the costs associated with the proposed program's ancillary requirements, which are driven largely by the size of the affected construction workforce.

In addition, by relying on highly unrealistic assumptions about control equipment deployment and use in the construction industry, OSHA grossly underestimates the costs of complying with the engineering requirements of its proposed rule. According to the Agency, engineering control costs are incurred only while workers are actively engaged in dusty tasks, estimated by OSHA to average less than 20 percent of the time construction workers spend on the job. The reality is construction crews who routinely engage in dusty tasks will need to

have appropriately controlled equipment on hand and available virtually all the time, whenever there is a possibility that they might perform the dusty task. Thus, the cost of engineering controls will average much closer to 100 percent of the time construction workers spend on the job than OSHA has accounted for. The effect of this alternate, more realistic, assumption is a significant increase in the costs of deploying engineering controls.

Third, OSHA's estimates of the percentage losses in time, or productivity penalties, involved in conducting a task with controls (e.g., LEV or wet methods) relative to conducting the task without controls are understated and only relate to productivity losses for labor, but not for equipment. OSHA's method of estimating productivity penalties, i.e., multiplying the time spent on the silica-generating task by its productivity penalty percentage strongly suggests that OSHA did not consider fixed component costs, which include the cost of activities such as initial set-up and final clean-up of the control equipment. The actual percentage of time spent engaged in fixed component activities will depend on the duration of the job, or the number of set-up/clean-up/break down cycles required over the duration of the job. Set-up/clean-up/break down activities may take upwards of 30 to 60 minutes per day. When incurred daily, a 30 minute activity represents a productivity penalty of six percent, and that figure does not include the additional penalty incurred while the control equipment is in use.

Moreover, OSHA estimates such productivity losses only for labor, and not also for equipment. OSHA overlooks the fundamental production relationship between workers and the equipment they use in their work. Simply put, a productivity penalty for labor will translate to a productivity penalty for equipment. For example, if due to a labor productivity loss, the labor time required to complete a job increases from eight hours to eight hours and 15 minutes, the equipment time required for job completion will also increase to eight hours and 15 minutes. Additional equipment rental costs will be incurred for the additional 15 minutes, or equipment owned by the employer will be delayed for use on another job by 15 minutes. In this case the employer will have experienced a productivity loss equal to the productivity penalty multiplied by the Total Daily Project Value, not just Daily Labor Value. As a result of these fundamental flaws in the analysis, OSHA is underestimating productivity losses associated with performing tasks using the prescribed controls by an amount roughly equal to the average equipment intensity of about 42 percent.

And OSHA has incorrectly estimated costs for engineering controls assuming a more limited number of at-risk workers, then will be truly affected by any final rule. Essentially, because an employer cannot be certain in advance of an employee's work shift whether the employee is likely to be overexposed or not, the prudent employer and the prudent employee will want to use the exposure-

reducing controls in all instances when the at-risk task is performed and overexposures could perhaps result if controls were not to be used. Indeed, this is the presumption inherent in Table 1.

As such, OSHA should recalculate the costs for engineering controls for the construction industry based upon a more realistic assumption that employers will need to adopt controls for all workers when they perform any of the construction tasks that OSHA identifies in Table 1. Extending engineering controls to all workers performing at-risk tasks instead of only to the half that end up being overexposed relative to OSHA's exposure profile results in a roughly doubling of OSHA's cost estimates for engineering controls for the industry.

Finally, OSHA has underestimated the costs of the ancillary provisions for several reasons. First, the number of construction workers to whom the provisions will apply will be much higher than OSHA estimates. Second, OSHA has underestimated the unit costs for activities associated with many of the ancillary provisions in comparison to the cost experience that construction and other businesses have reported in the various industry surveys that have been conducted relating to this proposed rule. Third, OSHA's cost estimating methodologies do not, in some important respects, appear to match the specific requirements of the proposed regulation. One such example is the requirement for reassessing workers' exposure whenever a "change in the production, process, control

equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level”, when read in the context of frequently varying construction work sites and durations for performing dusty tasks, would appear to require far more exposure assessments than those for which OSHA estimates costs.

All told, the CISC estimates that the costs of the proposed rule are understated by a factor of at least four.

Thank you.