Chairman McKeon and Members of the Committee, thank you for inviting me to submit testimony on the use of non-consensus standards in workplace safety and health regulation. I am a professor of law and an economist with over forty published articles and book chapters, largely on regulatory issues. I have recently researched the use of non-consensus standards in OSHA rulemaking for a forthcoming article in the Administrative Law Review (Spring 2006), with coauthor, Susan Dudley, Director of the Regulatory Studies Program at the Mercatus Center at George Mason University. I have attached a draft of that article, “Defining What to Regulate: Silica & the Problem of Regulatory Categorization,” for the record.

Many current Occupational Safety and Health Administration standards are based on consensus standards developed by the American Conference of Governmental Industrial Hygienists (ACGIH). A historical review of how the ACGIH consensus standards became so influential is interesting and enlightening for the current debate.¹

Initially organized in 1936 as the Temporary Conference of Official Industrial Hygienists, the ACGIH soon became the National Conference of Governmental Industrial Hygienists (NCGIH) and in 1946, adopted its current name. Its influence grew after World War II, in part because organized labor focused its efforts mainly on wages, rather than workplace issues like industrial diseases. The private sector lead improvements in workplace health after the war, and industry turned to the industrial hygienists’ trade organization for standards. The ACGIH, which had expanded its membership criteria to offset the decline in government activity after the war, began to receive requests from firms for standards governing workplace exposure. The organization formed the Committee on Industrial Hygiene Codes, and it created a table of “maximum allowable concentrations” (MACs) as a first step toward a comprehensive industrial hygiene code in 1946. A separate Technical Standards Committee also considered the issues and took over the project. The organization also took advantage of increased interest in the subject during the war “to organize and develop industrial hygiene agencies where they had not previously existed. By the end of the war a network of units had been established in nearly every state and many large industrial cities.”

ACGIH then published its maximum allowable concentrations as “Threshold Limit Values.” The organization insisted that the TLVs were merely guides and not “fine lines between safe and dangerous concentrations.” Despite regular repetition of such warnings, however, many states used TLVs as legal limits in state-level workplace regulatory schemes, and they continue in widespread use around the world. The TLVs offered firms a focal point around which to structure their workplace safety campaigns, without requiring the firms to invest individually in the research necessary to set them. And firms could point to their compliance with “industry standards” if questions were raised about particular substances. The range of substances to which employees were exposed grew with the post-war explosion in the chemical industry, but there was no increase in dust exposures comparable to that introduced by the industrial revolution.

Between 1961 and 1970, it issued 220 TLVs, bringing the total to 500. ACGIH, and the TLV committees within ACGIH, had considerable autonomy. The organization rejected the consensus approach of the American Standards Association because its members asserted that experts should set the health standards without interference from outsiders and that ACGIH members’ governmental employment freed them from conflicts of interest. But, public choice theory raises the question, what were ACGIH’s and others’ interests in the regulatory adoption of the TLVs?

First, the organization delivered professional status to its members, allowing them to both improve their status within firms and bureaucracies and to raise the profession as a whole. The ACGIH’s role in setting standards adopted by state governments, and eventually the federal government, enhanced that status. Second, the adoptions gave the organization influence: Firms followed its recommendations, and government agencies adopted its TLVs. Strong evidence that the organization derived some benefit from their

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3. See Corn at 60 (quoting the Committee on Threshold Limits).
The ACGIH also played an important role for large firms, which, in turn, assumed key roles in creating and determining the TLVs. As one study noted, “It is easy to document the influence of industry, and of industry consultants in ACGIH,” especially since unions generally did not participate in the TLV process and the ACGIH developed TLVs largely in response to industry requests. Large firms thus obtained standardized TLVs around which state regulations, and eventually federal regulations, coalesced, helping prevent inconsistent standards. The process gave the firms influence over both the substances included and the levels set— influence they would find much harder to exercise over government regulatory bodies. ACGIH thus played a larger part than the Baptists (to large firms “Bootleggers”) in a “Bootleggers and Baptists” regulatory coalition. It was a priestly caste in a theocracy.

Moreover, the eventual expansion of the federal role in occupational health and safety was foreseeable long before the creation of OSHA in 1970. The role of the ACGIH TLVs

4. TLVs for about 400 substances were incorporated into OSHA consensus standards via their earlier use under the Walsh-Healey Act standards, although some were “based on inadequate documentation.” See CORN at 91 (describing OSHA’s congressional authority to bypass rulemaking procedures and establish “start-up” standards). ACGIH did not attempt to stop OSHA’s inappropriate use of the TLVs. See CORN at 92 (clarifying that the TLVs were not meant to be standards). According to Corn, “ACGIH seemed to have mixed emotions about use of the TLVs. They wanted to contribute to the new federal effort to bring about a healthy and safe workplace, and they were proud of the TLVs. Very little discussion can be found about this issue.” CORN at 92. In the one discussion recorded in the minutes, ACGIH seems to have resigned to OSHA’s inappropriate use of the TLVs. See CORN at 92 (elaborating that, although the ACGIH was displeased with the Labor Department for misusing the TLVs, it felt that if the Labor Department was going to use TLVs for that purpose it might as well use ACGIH’s TLVs). The board responded to a question from the floor by saying: “There is nothing in my opinion, that ACGIH can do to prevent or stop anyone, any state or federal agency, from using our ACGIH TLVs in standards.” CORN at 92-93. One participant recalled that, despite the language in the TLV publications warning against treating them as standards, the group “was rather tickled with themselves that the TLVs were being used that way.” Interview with Leonard J. Goldwater, in CORN at 145. Goldwater also noted that the ACGIH “took no measures, whatsoever, to dissociate themselves from [OSHA’s use of the TLVs] after it was made, after these things were adopted.” CORN at 144. ACGIH standards were technically “not consensus standards, but the legislation establishing OSHA required that only consensus standards be adopted.” SALTER, at 42. As one informant [to the study] suggested:

   Section 5(a) of the OSHAct mandates the Secretary of Labor to adopt, without dealing with title 5 of the Administrative Procedures Act, as soon as practicable, any of the consensus standards already established in federal regulations. . . . Some argue that the Secretary had discussions (before adopting the standards). Others argue that the adoption was automatic because the big employers were already using these standards. CORN.

   In addition, “There was some discussion in ACGIH about whether to adopt a consensus method, but ACGIH did not do so.” CORN. As one person described the situation:

   Stokinger saw the legislation (OSHAct) required consensus standards from that point on (for the purpose of their being adopted as OSHA regulations.) So he looked around and appointed industry and union representatives on the TLV committee for the first time. I don’t think this is appreciated. Stokinger was wrong, but he thought he could make the TLV committee (into) a consensus body if there were industry and union representatives. CORN

5. CORN. at 59. ACGIH and its members, however, deny that they are biased toward industry. Id. (explaining that many ACGIH members view the organization as an “industry watchdog”).


7. The bootleggers and Baptists theory of regulation suggests that two different groups often work together to achieve political goals. See Bruce Yandle, Bootleggers and Baptists: The Education of a Regulatory Economist, AEI J. GOV’T & SOCIETY 13 (May/June 1983), available at http://www.mercatus.org/pdf/materials/560.pdf. Like the bootleggers in the early twentieth-century South, who benefited from laws that banned the sale of liquor on Sundays, special interests need to justify their efforts to obtain special favors with public interest stories. The Baptists, who supported the Sunday ban on moral grounds, provided that public interest support. While the Baptists vocally endorsed the ban on Sunday sales, the bootleggers worked behind the scenes and quietly rewarded the politicians with a portion of their Sunday liquor sale profits. Id.
was also foreseeable. One ACGIH member and government agency employee described the use of TLVs by OSHA to a researcher as follows:

“I don’t think it was accidental. There had been several attempts over the preceding years to promulgate an OSHAct . . . and it was just a question of time as to when there would be a national occupational health and safety program. The language of the OSHAct specifically provided for the Secretary of Labor to promulgate as interim or start-up standards, national consensus standards, that had already been promulgated under certain Acts including the Walsh-Healy Act. Now the people in the Bureau of Labor Standards who were responsible for promulgating those standards were the same people who were going to be responsible under OSHA for setting the interim standards. Many of these people were ACGIH members but that doesn’t make it an ACGIH decision. These people knew what was coming down the road and that they would have a job to do. If you had that responsibility, what would you use?”

The expansion of ACGIH’s TLVs during the 1960s, and their “inappropriate” use in state, and eventually federal, regulations served not only the interests of the members, the organization, and the large firms, but also politicians. President Nixon supported initiatives like environmental legislation, at least in part for political advantage, but he also wanted to keep these initiatives carefully constrained to avoid incurring economic penalties or alienating his business supporters. Adopting the consensus standards, already in use at many large businesses, both satisfied his political need to appear to be doing something and minimized the economic effects and potential decline in support from business.

The passage of the OSH Act dramatically changed the institutional environment, and enhanced ACGIH’s influence. The statute separated standard-setting and enforcement from the development of technical knowledge about workplace hazards, locating the former in OSHA and the latter in NIOSH. It required the agencies to act quickly to create a base of federal standards. OSHA had only two years to convert existing consensus standards into legally binding ones unless the agency found that doing so would not improve safety and health. This provision led to OSHA’s wholesale adoption of things like the ACGIH TLVs as standards. Shortly after Congress established OSHA in 1971, the agency issued more than 4,000 general industry standards, based on national consensus standards of the American National Standards Institute and the National Fire Protection Association.

8. Salter at 42.
9. Under the OSH Act, when NIOSH recommends that OSHA promulgate a health standard, the Secretary of Labor must, within 60 days after receipt thereof, refer such recommendation to an advisory committee pursuant to this paragraph, or publish such as a proposed rule pursuant to paragraph (2), or publish in the Federal Register his determination not to do so, and his reasons therefor. The Secretary shall be required to request the recommendations of an advisory committee appointed under section 812(c) of this title if the rule to be promulgated is, in the discretion of the Secretary which shall be final, new in effect or application and has significant economic impact. 30 U.S.C. § 811(a)(1) (2000).
10. This was supplemented by a general duty provision. The Act established a general duty on the part of employers to “furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees; and [to] comply with occupational safety and health standards promulgated under this chapter.” 29 U.S.C. § 654(a)(1)-(2) (2000).
Protection Association, as well as existing federal maritime safety standards. In just four months, OSHA took more than 400 pages of standards from a variety of prior programs and voluntary organizations and converted them into regulations. This had the effect of converting a set of largely discretionary industry guidelines into mandatory workplace design standards and, as noted below, changed the role of other agents in the market for health and safety.

Some have criticized OSHA for not attempting to “sort through the existing standards to weed out those that were obviously silly and outdated.” Salter’s study and Corn’s institutional biography both suggest, however, that because ACGIH members in their capacity as bureaucrats were involved in the process the explanation may not lie in a lack of knowledge about whether particular provisions were “silly or outdated” but rather in a wholesale acceptance of a broader role for TLVs than had ever been officially acknowledged as a goal by ACGIH. Reinforcing this interpretation is the recollection of an ACGIH member, who described the situation to Professor Salter as follows:

At the time of OSHA’s creation, there was a lot of soul searching at ACGIH. We wondered whether we should just fold up our tent and go home. There was a lot of encouragement in that direction coming from NIOSH. NIOSH felt that now it had legal responsibility for establishing criteria for standards, that ACGIH’s TLV committee had done its job well, but that now we were in a new era and NIOSH superseded us. There were a lot of people at NIOSH who felt that way and weren’t afraid to express it to the TLV committee and ACGIH itself. I was on the Board of Directors, but I think even more discussion was taking place in the TLV committees. It ended up with a wait and see attitude for a couple of years. By the mid-1970s, there was a realization that the new system was not going to be responsive to current problems. Converting the TLVs into standards served the interests of the ACGIH by giving it a rationale for continuing its work and served the interests of OSHA in getting regulations on the book quickly.

Moreover, OSHA standards did not come into existence in a vacuum. Before OSHA, there were state and local regulatory efforts as well as voluntary standards like the ACGIH TLVs. Large firms operating across jurisdictions benefited from nationalizing regulations, getting rid of conflicting local standards, and shifting the regulatory focus to Washington where they could afford to maintain lobbyists and lawyers. Indeed, the threat of conflicting state and local regulation remains a potent one. When the new Reagan Administration stopped work on a Carter Administration proposal for “right to know” rules, for example, unions began lobbying for state and local versions. Worried about a patchwork of inconsistent rules, industries then sought federal rules that would preempt

12. SALTER at 41.
local standards. Adopting the ACGIH TLVs, with which they were already familiar, gave larger firms an advantage and forced their smaller competitors to incur additional costs.

The creation of NIOSH and OSHA led to “an enormous growth of professionals” in industrial hygiene: ACGIH membership boomed, and for the first time, a majority of ACGIH employees came from federal agencies. Membership soared from approximately 1,000 in 1968, to over 1,500 in 1973, to almost 2,500 in 1983.\textsuperscript{13} An organization that began in 1938 primarily consisting of 76 employees, almost all state and local agency employees, grew to 3,720 members, with a substantial federal contingent, by 1988.\textsuperscript{14}

In the case of crystalline silica, the subject of my research, knowledge of health effects grew after World War II largely through a combination of public and private investment. NIOSH and the International Agency for Research on Cancer (IARC) both pulled together a great deal of research on silica, but that research came from a mixture of private, nonprofit, and public sector funded researchers. Post-war problems with silica stem largely from OSHA’s involvement. By ossifying the ACGIH standard, OSHA eliminated the flexibility of the ACGIH process without adding any compensating benefits (such as more comprehensive analysis) to the near universal acceptance of the TLV. OSHA’s failure to respond to NIOSH and IARC since NIOSH first warned of the existing standard in 1974 is a textbook example of government failure.

The regulatory history of silica shows not only that our understanding of health effects is constantly evolving, but that knowledge about hazards is endogenous—it arises in response to outside events, regulations, and interest groups. Accepting particular states of knowledge as definitive is thus a mistake, as is failing to consider the incentives for knowledge production created by regulatory measures.

Recognizing what Frederic Hayek called “the knowledge problem” is essential when it comes to understanding the appropriate role of organizations such as ACGIH, and occupational health issues generally.\textsuperscript{15} First, before issuing new regulations, OSHA should clearly define what market failures, if any, impede efficient solutions to address health risks. Both employers and employees have incentives to protect health and safety in the workplace. Lack of information, particularly due to the long latency period for many occupational diseases, may dampen these incentives. If the problem is a lack of information on risks and remedies, OSHA, and its research counterpart NIOSH, should focus on generating and dispensing better information. Although occupational health is not a field in which market forces are trusted, the serious problems with the current system cannot be solved without recognition of the important role played by the Hayekian knowledge problem.

\textsuperscript{13} Salter at xi.
\textsuperscript{14} Salter at x.
\textsuperscript{15} See generally Friedrich A. Hayek, The Use of Knowledge in Society, 35 Am. Econ. Rev. 519 (1945) (discussing problems with economic theory and the refinements needed to resolve those problems). Hayek’s central point was that decentralized markets focus dispersed information—information that no one individual (not even a regulator) can obtain—and convey it efficiently to market participants.
The federal government can play two important roles in this information marketplace. It can be a supplier. Through entities like NIOSH, the government can sponsor and conduct research that will influence standards. It can be a consumer. Just as it did under the Walsh-Healey Act before OSHA’s creation in 1970, the government can demand that its information suppliers meet standards the government believes are effective.

Further, any regulatory action must recognize the diversity in exposure and response across the varied workplaces. Heeding the lessons we’ve learned from the history of silica in the workplace, it is important to contrast the interest group incentives provided by a regulatory effort aimed at developing a uniform standard with those of a policy aimed at generating and disseminating information. The uniform standard provides incentives to interest groups to invest resources in influencing the standard to suit private goals (for example, gain advantage over competitors). In contrast, a focus on information provides incentives for interest groups to compete to develop and provide better information in support of their views of the risks and remedies.

The “market” for standards that existed before OSHA consisted of groups like the ACGIH, unions, trade associations, and others. NIOSH’s entry into this market changed the dynamics, primarily because of the influence of NIOSH criteria documents in initiating OSHA standards. Encouraging the development of competing standards for occupational health would create market pressure for increasing knowledge about harms. Competitive standards have operated successfully in a number of areas, including organic food certification and kosher labeling, and have successfully improved quality in a number of areas.

In contrast to flexible standards that respond to different information, a uniform standard proves hard to adjust as new information becomes available, as is evidenced by the current OSHA exposure limit of 0.10 mg/m$^3$. Knowledge is dynamic, and uniform standards necessarily lock in expectations based on the level of knowledge available at a given time. In particular, regulations that specify which remedies are acceptable or unacceptable discourage innovation into better solutions.

Economics teaches us that people respond to incentives and groups such as the ACGIH are no exception. A legitimate concern is that this could result in the “capture” of an organization by a set of interest groups. The best solution to this problem is to encourage competition among various organizations for evaluating health risks and developing standards. Competition would encourage exposure of inappropriate behavior, force organizations to justify their work product to win acceptance of their standards, and provide a marketplace of ideas about the most appropriate response. The problem we thus face is not that private organizations like ACGIH produce standards but that those standards sometimes become ossified through their adoption by government agencies, limiting the incentive to produce competing standards that could develop new solutions.