

**Testimony of the Honorable William E. Wright  
Board Member and Interim Executive  
U.S. Chemical Safety Board  
Before the U.S. House of Representatives  
Committee on Education and Labor  
March 12, 2008**

Thank you, Chairman Miller, Ranking Member McKeon, and distinguished members of the Committee. I am William E. Wright, board member and interim executive of the U.S. Chemical Safety Board.

The CSB is an independent federal agency that investigates and determines the causes of major chemical accidents, conducts studies, and develops safety recommendations and outreach materials to prevent future accidents.

I present my testimony today on behalf of the full board, including Members William Wark and Gary Visscher.

I commend you for convening today's hearing and for your leadership on this issue. On behalf of everyone at the agency, I extend my deepest condolences to the families of the victims in Port Wentworth and our prayers for the recovery of the injured.

Mr. Chairman, the disastrous accident at Imperial Sugar is but the latest in a long series of tragic dust explosions at U.S. industrial facilities stretching back over decades.

Combustible dust can pose a serious fire and explosion hazard at thousands of U.S. industrial facilities. Dust explosions kill and injure American workers, destroy jobs and productive enterprises, and shatter communities.

These accidents are particularly sad because they leave behind a trail of broken lives. Often, even the most advanced medical care cannot cure the severe burn injuries caused by combustible dust explosions. Those who survive are often left badly disabled and disfigured, facing a lifetime of struggle and pain.

No one knows that better than Tammy Miser, who is sitting at the witness table today. After losing her 33-year-old brother Shawn to a dust explosion in Indiana four years ago, Tammy has courageously dedicated her life to drawing attention to this deadly hazard.

Mr. Chairman, these tragedies are preventable. The key to avoiding the most devastating accidents is to eliminate the basic fuel, the combustible dust that accumulates over time inside plants and awaits some event to trigger a massive explosion.

Without accumulated fuel, the most catastrophic type of dust explosion can not and will not occur.

Our investigation to determine the causes of the tragedy at Imperial Sugar is ongoing. The CSB field team remains in Georgia, overseeing what we expect will be several months of painstaking work to dismantle and examine the heavily damaged sections of the refinery.

However, the investigation team has made some preliminary findings. Like many catastrophic dust explosions, this was a multi-stage event. There was a primary event, the nature of which remains unknown. The primary event most likely dislodged sugar dust that had accumulated over a long period on surfaces around the facility. This dislodged dust was the fuel for additional explosions.

Devastating explosions propagated through a large section of the refinery, destroying the sugar packaging plant and causing catastrophic injuries to multiple employees and contractors.

Eight people died in the refinery, and four others died later in the hospital of severe burn injuries. Approximately 35 others were injured. Eight remain critically ill in an Augusta burn center, facing a difficult and uncertain future.

This facility was decades old and had many horizontal surfaces where dust could collect. These included overhead floor joists, rafters, ductwork, piping, and equipment. Witnesses have described substantial, snow-like accumulations of sugar dust on these surfaces.

Most employees and contractors had received little training on the explosion hazard from the accumulated dust.

No witnesses have indicated that the facility had a program to fully implement NFPA standards for combustible dust.

While there is much still to be determined about the tragedy at Imperial Sugar, the findings to date clearly link this accident to many earlier dust explosions investigated by the CSB and others.

In November 2006, the CSB completed a comprehensive study of the problem of combustible dust. We began this study out of necessity, after having to investigate three fatal dust explosions in 2003 alone that caused 14 deaths.

The CSB study identified 281 dust fires and explosions that occurred at U.S. businesses between 1980 and 2005 – not including primary grain handling or underground coal dust explosions.

Dust explosions afflict many industries, including food products, plastics, automotive parts, drugs, chemicals, and electric utilities. A wide range of combustible materials can explode in finely powdered form, including coal, wood, flour, sugar, and many chemicals, plastics, and metals.

These accidents caused 119 deaths and more than 718 injuries. In the two years since we compiled the data for the study, media reports indicate that approximately 67 additional dust fires and explosions have occurred. A number of these reportedly caused moderate to severe facility damage. Our information on these incidents does not tell us how many of these were primary dust explosions, such as may occur in a dust collection system, and secondary explosions which typically involve accumulated dust and are often the more destructive dust explosions.

Our investigation found that good engineering and safety practices to prevent dust explosions have existed for decades. Current good practices are contained in National Fire Protection Association (NFPA) standards, such as NFPA 654 and NFPA 484. These standards are cited in the Miller-Barrow legislation now before the committee.

Some state and local governments have adopted NFPA standards as part of their fire codes, but many have not. Our study also found that enforcement of these codes at industrial facilities is, at best, uneven.

Code enforcement agencies heavily emphasize the inspection of high occupancy establishments such as hotels, schools, and nursing homes – not industrial facilities. These agencies often lack the training or staffing to inspect industrial sites or enforce technical standards for combustible dust. Because hundreds of different state and local jurisdictions are involved in code enforcement across the country, there is no straightforward way to improve this system.

In the 1970s and 1980s, the U.S. experienced a series of grain dust explosions that caused a number of deaths. OSHA responded in 1987 by issuing a comprehensive grain dust standard. This standard requires preventive maintenance, worker training, safe operating procedures, emergency planning, and formal dust cleaning programs.

According to OSHA's own review in 2003, this standard has cut deaths and injuries from grain dust explosions and fires by 60%. And as noted in the CSB study, the grain industry itself now credits the standard with helping to make the design of grain handling facilities safer.

The CSB study on combustible dust made five specific safety recommendations to OSHA. We called for a comprehensive regulatory standard for dust explosions in general industry, improved training of OSHA inspectors to recognize dust hazards, better communication of dust hazards to workers using Material Safety Data Sheets (MSDSs), and asked OSHA to alert the United Nations Economic Commission for Europe of the need to amend the Globally Harmonized System to address combustible dust hazards.

On an interim basis, while a new standard was being developed, we recommended that OSHA establish a national emphasis program to better enforce existing standards. The Board saw this as only an interim measure because existing standards do not adequately regulate dust hazards.

In response, OSHA indicated that it would evaluate all of the recommendations, and that it was preparing to launch a National Emphasis Program on combustible dust. OSHA publicly announced its emphasis program for dust in October 2007.

We commend OSHA for this positive step.

OSHA's existing requirements – including the general duty clause and the housekeeping standard – apply to combustible dust hazards. However, a specific and comprehensive standard addressing combustible dust would focus both employers' and inspectors' attention on this hazard and the steps that should be taken to prevent dust explosions and fires. And this standard would be more effective in reducing combustible dust explosions and hazards.

OSHA's general housekeeping standard (29 CFR 1910.22) requires that "all places of employment be kept clean and orderly and in a sanitary condition" but does not mention combustible dust or impose any specific enforceable limitations, engineering controls, procedures, or training requirements.

By contrast, the housekeeping requirements of the OSHA grain dust standard (29 CFR 1910.272) are much more prescriptive. The requirements include a formal written housekeeping program with cleaning schedules, identification of priority housekeeping areas where combustible dusts are most likely to be present, a requirement to immediately remove any dust accumulations of more than an eighth of an inch, and a prohibition against using compressed air for cleaning.

However, these requirements only apply in grain handling facilities, not in other industrial establishments.

NFPA 654 likewise contains much more detailed housekeeping provisions than does the OSHA general housekeeping standard.

Absent a comprehensive OSHA standard for combustible dust, no one can be confident that dust hazards will be cited and corrected prior to the occurrence of additional accidents.

In 2003, the CSB investigated three catastrophic dust explosions in North Carolina, Kentucky, and Indiana, that caused a total of 14 deaths and dozens of injuries. All three facilities had longstanding dust hazards.

In all three cases, we found that state OSHA officers had inspected the facilities prior to the accidents, but the dust hazards were never recognized or cited.

Furthermore, the CSB determined that all three explosions could likely have been prevented if the facilities had complied with the good safety and engineering practices contained in NFPA 484 and NFPA 654.

In two of the fatal explosions we investigated in 2003, MSDSs failed to warn workers about the potentially explosive properties of powdered combustible materials. In our 2006 dust

study, we examined 141 different MSDSs for known combustible powders and found that less than half contained any form of warning that the material could pose a dust explosion hazard. Only a handful referenced the relevant NFPA standards.

The OSHA standard for hazard communication does not specifically include combustibility of dust among the hazards that require an MSDS, and OSHA provides no guidance for communicating dust explosion hazards.

Therefore, we also made a recommendation to OSHA to amend the hazard communication standard to clearly require MSDSs for materials that are or could form combustible dust during processing or handling.

There are complexities in developing a comprehensive dust standard, but the NFPA standards form a sound and widely respected technical basis for developing a nationwide rule. They include key requirements for hazard assessment, engineering controls, housekeeping, building design, explosion protection, operating procedures, worker training, and the safe design and maintenance of dust collection systems. In addition, the use of industry consensus standards as the basis for regulation is consistent with existing federal policies.

Regular cleaning and removal of accumulated dust, using safe and proper methods – commonly referred to as housekeeping – is important for reducing the likelihood of dust explosions.

In fact, prior to the explosion Imperial Sugar had a regular housekeeping and cleanliness program to maintain food quality and safety and to protect workers from slips and other injuries.

Facilities need to be examining a variety of other steps, such as designing and maintaining their process and dust control equipment to reduce dust releases into the air. Safe design features should be incorporated into buildings where combustible dust is present, such as minimizing horizontal surfaces, sealing off partitions to prevent the spread of dust, and including features to mitigate explosions.

Ignition sources need to be carefully controlled, including not just electrical sources of ignition (which are currently regulated) but also thermal sources of ignition such as ovens, frictionally heated surfaces, and welding and cutting operations.

Equipment should be designed to safely control and vent primary dust explosions – those that can occur inside dust collectors, grinders, and mixers – in order to avert catastrophic secondary dust explosions.

Finally, workers must be made aware of the hazards of combustible dust and trained on safe methods for working in dust environments and for handling and removing dust accumulations.

The NFPA combustible dust codes contain good practice recommendations on all these topics. However, these critical safeguards cannot be required at facilities simply by using existing authorities such as the OSHA general duty clause or the housekeeping standard.

Like other voluntary consensus standards, the NFPA dust codes will need to be carefully reviewed and adapted to create enforceable regulations. That is the purpose of the rulemaking process, in which business, labor, and fire prevention organizations can all participate. It is important that there be sufficient opportunity to assure that a standard is reasonable and appropriate for the wide variety of industries and workplaces in which potential combustible dust hazards may be found.

The time to begin this important work is right away. In the past five years, from 2003 to 2008, we have been notified of ten fatal dust explosions that have caused approximately 32 deaths and 138 injuries. The problem shows no sign of diminishing, and in fact the Imperial accident last month is the deadliest industrial dust explosion in the U.S. since 1980.

The State of Georgia has recognized the urgency of the situation and late last week announced emergency regulations intended to reduce dust explosion hazards. I commend State Fire and Insurance Commissioner John Oxendine and State Fire Marshal Alan Shuman for taking prompt action.

I urge similarly prompt action at the federal level. We need to develop sound federal regulations that businesses can implement and that will protect American workers.

Put simply, a comprehensive dust standard will save lives.

It will also protect U.S. jobs, businesses, and communities that will otherwise be harmed or lost from deadly dust explosions.

Thank you for the opportunity to testify to today.