U.S. CHEMICAL SAFETY AND HAZARD

INVESTIGATION BOARD

COMBUSTIBLE DUST HAZARDS

PUBLIC MEETING

THURSDAY

NOVEMBER 9, 2006

WASHINGTON, D.C.

The Public Meeting was convened at 9:30 a.m. in the Consulate Room of the Embassy Suites Hotel at 1250 22nd Street, Northwest, Washington, D.C., Carolyn Merritt, Chairman, presiding.

Present:

CAROLYN MERRITT	Chairman
JOHN BRESLAND	Board Member
GARY VISSCHER	Board Member
WILLIAM B. WARK	Board Member
WILLIAM WRIGHT	Board Member
CHRIS WARNER	General Counsel

Staff Present:

JORDAN BARAB
ANGELA BLAIR
BILL HOYLE

Commenters:

DAVE KIRBY
TAMMY MISER
STEVE SALLMAN
JIM FREDERICK
JACKIE NOEL
DAVID CONOVER
RICHARD PRUGH

A-G-E-N-D-A

P-R-O-C-E-E-D-I-N-G-S

9:32 a.m.

CHAIRMAN MERRITT: I don't have a gavel this morning so this will have to subsist for it.

Good morning, everybody, and thank you for coming for this public meeting of the U.S. Chemical Safety and Hazard Investigation Board. I am very happy that so many of you came out this morning. I know you have busy schedules and we appreciate very much your support of the board by your attendance. I'm Carolyn Merritt, Chairman and CEO of the board. With me today are board members Mr. John Bresland to my left, Mr. Gary Visscher on the end.

We are pleased this morning also to have two distinguished additions to the board, our new board member Mr. William Wark and Mr. William Wright. Both have been busy in the past few weeks getting familiar with

the work of the CSB.

There has been quite a lot of activity in the month or so that they've been here. They have been very quick studies. Also joining us this morning is our general counsel Chris Warner, and CSB staff and members whose efforts have facilitated this meeting.

The purpose of today's meeting is to present the final report and recommendations of the CSB's two-year study on combustible dust hazards. Before we begin I would like to point out, however, some safety information. This exist here, as you know, leads out to the lobby. These two doors if you exist you need to turn left and you will find an exit to the outside.

Also, if you would, please mute your phones. I know you won't turn them off so mute your phones so that these proceedings are not disturbed. As soon as I say that, mine goes off. Thank you.

I would like to acknowledge the CSB Combustible Study Hazard Investigation team who will be presenting their draft report to us today. They will be describing their findings on the history of combustible dust fires and explosions in the United States. They will propose new measures for preventing future explosions.

We launched this study after three fatal combustible dust fires and explosions that our agency investigated in 2003. The three accidents resulted in a total of 14 fatalities and numerous injuries. The purpose of this study was to determine the scope of the problem and recommend new safety measures to prevent future catastrophic dust explosions.

In June 2005 we held a day-long public hearing on combustible dust and received extensive testimony from expert panelists and the public. We considered all the information from the public hearing

carefully in drafting our final report.

Combustible dust fires and explosions are devastating, preventable, and often fatal tragedies As we pursued our study our thoughts were never far from the families of those who were killed or terribly injured and the communities that were impacted by these accidents.

I observed first-hand the affect of a combustible dust explosion at West Pharmaceutical Services in Kinston, North Carolina. I saw extreme devastation both in the loss of life and the loss of an important business the night I arrived on the scene.

The adverse impacts on this small community cannot be overstated. Everyone knew of someone who was employed or injured by West. Many expressed worries over the potential loss of one of Kinston's largest employers when they were forced to suspend operations because of the physical destruction that was so severe. Dust explosions often

cause loss of life and terrible economic consequences.

The West facility was eventually rebuilt but production did not resume for over 18 months. I would like to emphasize that this hazard study not only applies to facilities in the chemical industry but also to other industrial facilities that produce or handle combustible dust.

Findings, lessons, and recommendations from the final report are applicable to many industries. While some programs to mitigate dust hazards exist at the state and local levels, it is a patchwork of adapted and adopted voluntary standards that are challenging to enforce.

There is no comprehensive federal program that addresses this program. These and other findings are contained in the draft report now before the board. The process the board uses is the following. Each independent member has had the opportunity to study the

draft report and has come to this meeting with his or her own opinions.

This public meeting is our chance to discuss these opinions and to points of agreement and differences. It is also our opportunity to present potential modifications in the language and perhaps alternate recommendations. This deliberation and voting is important work of the board.

Our objective is to leave here with strong effective recommendations based on the study's findings that will help to prevent these devastating accidents. If anyone in the audience wishes to comment publicly after the investigator's presentation, please sign up at the table in the check-in area and I will call your name at the appropriate time.

The public comment period will occur prior to the board's discussions and voting. We ask that you keep these comments to three minutes or under and that you keep them focused on the topic of this meeting.

Please note that we will have to limit public comments.

I would like to thank the Dust Study Investigation Team for their strong commitment and dedication to this work. I would also like to thank you, the audience, for being proactively interested in the hazards that often are overlooked until it's too late.

I would now like to recognize any other board members for any opening statements.

Mr. Bresland.

MR. BRESLAND: Just a few words, Madam Chairman. I would like to add my words of welcome to our two new board members. This is their first experience of public meeting procedures. I know they are going to find it very interesting and educational and I know they are going to do an excellent job as the years go on during their five years on the board.

I would also add my thanks to the investigation team who has worked very hard for the last two years developing this report and developing their conclusions on the recommendations and I look forward to hearing from them and having some interaction with them.

As Chairman Merritt said, I have also experienced the impact of combustible dust explosions. I was at the West Pharmaceutical facility and saw the damage done there, both the physical damage and human damage that was done there. I was at the CTA facility in Kentucky and again I saw the human damage and the physical damage that was done there.

Certainly we on the board are aware that this is an issue and it is something we need to deal with. I look forward to hearing the presentations from the team today.

CHAIRMAN MERRITT: Was there

anyone else?

Mr. Visscher.

MR. VISSCHER: Thank you, Madam Chair. I, too, want to welcome our two new members, Bill and Bill. Other than the confusion with the names it has been most enjoyable having them here with us for the past few weeks that they have been and we are certainly benefiting from having them. Welcome to certainly all of you who came out this morning. I look forward to the hearing. Thank you.

CHAIRMAN MERRITT: Mr. Wark.

MR. WARK: Thank you, Madam Chairman. I would like to express my sincere gratitude and how much I am honored by the appointment to this position. I especially would like to thank the President and the Senate.

I take this position as a sacred trust. There is no more important responsibility for those of us in Government

than protecting the health and safety of the public, our fellow citizens and the workers.

I, too, would like to thank the staff for all their outstanding work. I look forward to your presentation. I would just wrap up by saying I will work to the best of my ability to honor the trust that has been placed in me. Thank you.

CHAIRMAN MERRITT: Thank you.

Mr. Wright.

MR. WRIGHT: Thank you, Madam Chairman. I am humbled and honored by the fact that the President nominated me for this position. I am grateful to the Senate for their confirmation and my eventual appointment.

Like Bill Wark I, too, feel this is a position of public trust and I intend to exercise all due care and diligence with that position. I bring about 30 years experience in the explosive safety area and I hope to objectively apply all that information in my

assessments and my recommendations that I make as a member of this board.

I would also like to thank the current board members and the chairman for welcoming us to the board. It has been a very, very busy time these past few weeks. For those who were unaware, this is just one study among many events that have taken place there so we have been very busy trying to grasp all the issues and make sense out of all this. I thank you for all your attention and support and conversations and counsel.

I would also like to thank the members of the study for all the hard work and the rest of the staff in welcoming us aboard as well. With that I thank you for your attendance.

Thank you, Madam Chairman.

CHAIRMAN MERRITT: Thank you all of you.

At this time I would like all of you to view a short video which provides

first-hand accounts of individuals whose lives have been irrevocably changed by combustible dust and explosions.

(Video shown.)

CHAIRMAN MERRITT: At this time I'll introduce our Combustible Dust Investigation Team. Bill Hoyle, the first gentleman in the red tie, is an investigative manager with over 20 years of experience in chemical safety and major accident investigation.

He was the lead CSB investigator for the dust explosion at CTA Acoustics. He has experience in incident investigations, process safety management, and occupational safety and health.

Next to him is Mr. Jordan Barab. He is a former special assistant to the Assistant Secretary of Labor for OSHA and has a direct health and safety -- and has directed health and safety programs. He served as the recommendation's manager for this study.

Last but not least is Angela Blair. She is the team lead for this study. She is a chemical engineer and has done extensive work in process safety and is a registered professional engineer in the state of Alabama.

I would now like to ask Ms. Blair to present the draft report and findings.

MS. BLAIR: Thank you, Chairman Merritt. Good morning, members of the board, General Counsel Warner, and to our guests. We are before you today to present the findings and recommendations of the CSB study of combustible dust hazards.

Please allow me to acknowledge the many CSB investigators and staff members who contributed to the dust study and to the report. The investigation team included Jordan Barab, Bill Hoyle, Jennifer Jones, Giby Joseph, Mark Kaszniak, Cheryl McKenzie, Reepa Schroff, and Jeff Wanko.

Today's presentation is organized

as follows. First, I will present some background information and a summary of key findings. I will review a few basic facts about dust explosions and then present case histories and data that illustrate the catastrophic nature of dust explosions and the extent of this hazard in industry.

I will discuss the possible approaches to preventing dust explosions that the study addressed including hazard communication, consensus standards, fire codes, industry initiatives, and OSHA regulations. After I conclude my presentation of the study findings, recommendations manager Jordan Barab will present the proposed recommendations.

I would like to begin by reminding everyone why the CSB undertook this hazard study. As Chairman Merritt told you earlier, we investigated three fatal dust explosions that all occurred in the same year, took the lives of 14 people, and injured 81.

Our involvement in combustible dust began on the afternoon of January 29, 2003, when major news networks broke into coverage with, "Massive dust explosion at a factory in Kinston, North Carolina." The CSB deployed a team to that investigation and weeks later deployed another team to Corbin, Kentucky for a similar explosion.

Later the same year we deployed to our third dust explosion in Huntington, Indiana. Individually, these investigations revealed that although voluntary guidance was available for preventing dust explosions, the facility managers did not seek or follow this guidance.

Furthermore, the investigators found no comprehensive federal safety regulation that addressed preventing these dust explosions. Finally, investigators found in all three investigations that managers, engineers, and regulators were generally unaware of dust explosion hazards. These

common issues and the detailed regulatory analysis were deferred for this much broader hazard study.

As Chairman Merritt mentioned, we held a public hearing on dust explosion issues in June of 2005. Nearly 100 people heard presentations from 16 panelists representing industry, academia, fire services, insurance, and regulators. Panel topics ranged from technical issues and dust explosion prevention to the difficulties of enforcing consensus standards through state fire code inspections.

These are the key most important points of this presentation. First, that dust explosions are a serious threat to the safety of workers and many industries. Second, that existing efforts failed to control the hazard. Finally, that new regulation is necessary to prevent future dust explosions.

In their deliberations at the conclusion of the CSB's three dust explosion investigations, the board commissioned a

special hazard study charging investigators with determining is this a widespread hazard or did 2003 represent a random peak in dust explosions? If the problem is pervasive throughout industry and history, what is being done to prevent dust explosions? Finally, what additional efforts are needed?

The following are the most significant findings of our study of dust explosions. I will provide more detail on each of these findings a bit later in this presentation. Are investigators confirmed that dust explosions are, indeed, a serious hazard in industrial facilities, in many industries, and involving a wide variety of materials.

The West CTA and Hayes explosions by themselves represent three distinctly different industries. Over 100 workers died because of dust explosions in the past 25 years.

The system for communicating

hazards to employees does not adequately address combustible dust. Material Safety Data Sheets generally do a poor job of informing workers of dust explosion hazards. The OSHA regulation for hazard communication and the guidance for creating material safety data sheets do not address combustible dust.

Voluntary Consensus Standards, published by the National Fire Protection Association, provide guidance on preventing dust explosions but they are not universally adopted as fire codes throughout the United States and they are not adequately enforced at industrial facilities.

Private sector activities do not adequately address dust explosions. We consulted with industry, trade associations, and professional associations and learned that industry guidance is limited in scope and not widely distributed. Our next move was to investigate OSHA's regulations and actions to address combustible dust hazards.

While there are OSHA standards that address extremely limited aspects of dust explosion hazards, there is no comprehensive regulation for preventing dust explosions in general industry.

Before we talk about some of the tragic events that illustrate the devastating power of combustible dust, I'll go over just a few basic facts about dust explosions. For any fire to occur, the three elements of fuel, oxygen, and ignition energy must be present.

Dust explosions require two additional elements. The dust must be disbursed or lofted into the air and ignited inside a building, room, or other enclosure to generate explosive pressures.

Now, I would like to point out the distinction between primary and secondary explosions. A primary dust explosion occurs within a limited area or piece of equipment. If accumulated dust gets suspected and ignited by an initial explosion, a devastating

secondary dust explosion can occur. Secondary dust explosions account for much of the widespread damage in the facilities we looked at.

So how much dust is too much? Even very light accumulations can form an explosive cloud if they are disturbed. The National Fire Protection Association in its standards warns that layers 132nd of an inch thick can constitute a hazardous condition. That is less than the thickness of a U.S. dime. Less than a dime.

What kind of materials present a dust explosion hazard? Any solid material that will burn in air can be a combustible dust if it is divided into small enough particles. This list contains only a few of the hundreds of materials that can be explosive under the right conditions. Some of the items on this list frequently surprise people. They know about grain dust but they are not quite aware that textiles will

explode, for instance.

Now that I've established some of the basics about dust explosions, I'll talk about several catastrophic events that clearly illustrate the nature of this hazard. We begin with the three investigations that CSB investigated, all of which occurred during 2003. Then we will go on to talk about additional explosions that have happened since 1995.

At West Pharmaceutical Services in Kinston, North Carolina, employees who survived the blast on January 29, 2003, described the sound of rolling thunder as secondary dust explosions moved rapidly through the building.

This photograph is from a few hours after the explosion that killed six workers and injured 38 others. Many of the victims were severely burned. After weeks in the hospital they faced long, difficult recoveries including multiple surgeries and

painful rehabilitation.

The explosions occurred when polyethylene powder used to cool and coat rubber sheets had drifted on air currents to accumulate above a suspended ceiling much like this one. It was lofted and ignited by a small initial flash.

Only three weeks after the explosion in North Carolina another deadly blast occurred in Corbin, Kentucky, at the CTA Acoustics facility. Thirty-seven people were injured and seven workers died, some weeks after the explosion from severe burn injuries.

This photo shows one of the many production areas where workers were caught in secondary dust explosions that traveled from one production line to the next. The fuel for this explosion was a phenolic resin used to help form sheets of fiberglass matting into insulation shades for automobiles.

Resin dust had accumulated on floors and other surfaces throughout the

production lines and was ignited when a small cloud of dust encountered flames from an open curing oven.

Later the same year the CSB deployed a third team of investigators to the Hayes Lemmerz Aluminum Foundry in Huntington, Indiana. Two workers were engulfed in flames from an aluminum dust explosion. One of those workers died later that evening. Another spent weeks in the burn unit.

Hayes remelted scrap aluminum in their automotive wheel casting plant. A dust collector attached to the recycling equipment exploded. The explosion propagated through piping to a furnace where the burned employees were working.

Now let's look at four other catastrophic dust explosions that have occurred since 1995 and were investigated by other agencies. The explosion at the Malden Mills factory in Methuen, Massachusetts, occurred on December 11, 1995, where 37 people

were injured in an explosion of nylon fibers.

Even though the facility was completely destroyed, the owner of the company managed to keep the employees on the payroll long after the explosion. The Malden Mills explosion was likely ignited by the static electricity used to make the fibers stand on end where they could be glued to fabric to make fleece.

On February 1, 1999, a natural gas explosion at the power plant for the Ford River Rouge facility near Dearborn, Michigan triggered subsequent secondary explosions of coal dust that had accumulated on surfaces in the plant. Six people died and another 30 were injured. The power plant had to be completely rebuilt.

Nearly three years to the day before the CTA explosion a phenolic resin explosion at the Jahn Foundry in Springfield, Massachusetts resulted in the deaths of three people and injured nine others.

The resin that fueled this explosion was quite similar to and was made by the same company as the resin that exploded at CTA. OSHA and fire investigators determined that the damage was caused by secondary explosions of accumulated resin dust within exhaust duct work throughout the building.

On May 16, 2002, the Rouse Polymerics Rubber Recycling facility in Vicksburg, Mississippi was rocked by an explosion of rubber dust that killed five workers and injured seven. A fire that started on the roof of the building spread to a bagging unit for recycled rubber and triggered secondary explosions in other parts of the building.

The reports of the CSB and other agency investigations for these seven catastrophic explosions reveal that some of the same factors were involved in many of the incidents. The hazard was not recognized. Engineering controls were not adequate to

prevent or lessons the impact of explosions.

Changes were made without sufficient hazard review. Dangerous dust accumulation resulted in devastating secondary explosions in some cases. Poorly designed or maintained dust collectors contributed to the deaths and injuries. These case histories clearly illustrate the devastating nature of dust explosions.

Now I'll go over the extent of those explosions in industry. Our research into the available information on accidents and injuries revealed that there were at least 281 fires or explosions of combustible dust from 1980 to 2005. These events took the lives of 119 people and injured 718 others.

There are also significant economic losses. Many workers lost their jobs and entire communities are affected when a major company is forced to close its doors. I must note that our data do not include incidents in grain elevators or coal mines.

These were not within the scope of this particular study.

There was only one year, 1981, in which we found no fatalities or injuries due to dust fires or explosions. Although the number killed and injured does vary from year to year, this chart provides more evidence that dust explosions are a very serious industrial hazard.

If dust explosions were limited to just a few materials, the problem would be much easier to address. Unfortunately almost any combustible solid can present a dust explosion hazard under the right conditions. This craft shows the diversity of materials involved in the incidents we catalogued.

You can also see from the pie chart that metals, food products, and food products account for over half of the incidents, but the plastics category shown here includes at least a dozen different polymer products.

Likewise, the problem of dust explosions is not confined to a handful of industries. The dust incidents occur in many segments of our industrial economy. To name just a few, electric power generation. That accounts for most of the goal incidents on our chart.

Automotive and aircraft parts, household appliances, vitamins, starches, glues, pigments and coatings, furniture, textiles, electronics and toys. I should note even safety gear was involved in one of the explosions.

So having established that dust explosions are a very serious industrial safety hazard, investigators began to study ways in which this problem could be solved. We looked at hazard communication consensus standards, fire codes, private sector initiatives and OSHA regulations.

One well-known component of hazard prevention is a work force including managers,

engineers, and safety professionals, and line workers that understand the hazards that they face.

The most common tool used to communicate hazards involving processed materials is the material safety data sheet. We found that Material Safety Data Sheets by and large fail to convey dust explosion hazards to the people who need this information.

The MSDSs for the materials that exploded at West and CTA did not communicate the dust explosion hazards at all in one case and not very well in the other. The DSB then studied samples of publicly available MSDSs for known combustible powders. Forty-one percent, which is nearly half of the 140 MSDSs we studied, did not mention the dust explosion hazard. Only seven of those 140 MSDSs referred the reader to the pertinent consensus standards for preventing explosions.

The OSHA Hazard Communications

Standard requires employers to include chemicals that present a physical hazard in a hazard communication program and that manufacturers provide MSDSs for these chemicals.

Although the definition of physical hazard includes combustible liquid, compressed gas, oxidizers, flammability, and five other specific hazards, the definition does not include combustible dust.

We next look to the national and international guidance on hazard communication. The American National Standards Institute, Standard Z400.1, is a voluntary consensus standard that provides a standard format and guidelines for preparing MSDSs. We found that the ANSI standard does not address combustible dust.

The Globally Harmonized System of classification and labeling chemicals is an international standard developed by a committee under the United Nations Economic

Commission for Europe. OSHA published an advanced notice of proposed rulemaking this September in which they announced the intention to change the Hazard Communication Standard to align with the globally harmonized system.

Well, the GHS gives this hazard only passing mention in an annex to the document simply stating that is combustible dust hazards exist they must be addressed and that they should be addressed and a chemical data sheet, which is the GHS version of the material safety data sheet.

Another means of addressing a hazard is through voluntary consensus standards. The National Fire Protection Association, or NFPA, publishes standards and guidelines for fire safety, fire prevention, and mitigation.

Several NFPA standards deal directly with combustible dust fires and explosions. NFPA 484, Standard for

Combustible Metals, and NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, are the most comprehensive and pertain to many industries.

Both NFPA 654 and NFPA 484 provide guidance for designing and managing industrial processes to prevent dust explosions. And both standards also include instructions for hazard identification, inspection, maintenance, housekeeping, and change management.

The CSB found that if West, CTA, and Hayes Lemmerz had adhered to the guidance in the relevant NFPA standards, the deadly explosions in 2003 would likely not have happened, or may have been less devastating.

These standards, or their predecessors, existed for decades before the Occupational Safety and Health Act was passed in 1970. However, they were not included

among the other standards that OSHA adopted as part of their first regulations.

As one panelist at our June 2005 hearing put it, the problem with voluntary standards is that not everyone volunteers. NFPA standards are voluntary unless they are adopted as part of an enforceable law. This is typically accomplished through fire codes.

There are two sets of published fire codes available for states or local jurisdictions. The NFPA publishes the uniform fire code that encompasses many NFPA fire prevention standards including those that pertain to combustible dust.

The International Code Counsel publishes a similar set of fire codes, the International Fire Code, that also references the NFPA standards for combustible dust. About 40 states have adopted one of these two documents as their statewide fire code.

Adoption is not uniform, however. States can and have exempted, removed, or

replaced certain provisions of the codes. In some states local jurisdictions have adopted fire codes that differ from the statewide fire code. Therefore, instead of one code to prevent dust explosions, we have two fire codes, at least 40 state laws, and many local laws in cities like New York, Houston, Baltimore, and Detroit.

North Carolina, Kentucky, and Indiana had all adopted a statewide fire code that included an NFPA 484 and NFPA 654 but none of these states effectively enforced the combustible dust provisions in industrial facilities before the 2003 explosions.

To better understand this issue, investigators surveyed the fire marshals in nine additional states. We learned that fire code authorities rarely inspect industrial facilities and when they do, the inspections are typically limited to basic fire safety issues such as exit pathways and fire extinguishers.

Most fire inspectors do not receive training on how to recognize and address dust explosion hazards. Finally, we learned that the responsibility for fire code enforcement is inconsistent among states and local jurisdictions.

The private sector has at times addressed common hazards through voluntary initiatives and guidelines. We learned through our research that there are very few voluntary industry driven programs for preventing dust explosions. The Center for Chemical Process Safety, or CCPS, published a comprehensive technical guidelines book on dust hazards management in 2005.

Although the book contains extensive guidance for preventing health and explosion hazards associated with dust, it has relatively limited circulation. The Aluminum Association provides publications and guidance to its members on recognizing and preventing aluminum dust explosions. This information is

not widely promoted outside the organization's membership.

Leading drug manufacturers pay particularly attention to dust hazards but investigators learned that the high attention to dust may be driven as much by product toxicity and cost as by explosion prevention. Finally, we look to federal OSHA regulations for combustible dust coverage. We will start by looking at an example of a standard that was aimed directly at preventing dust explosions.

OSHA issued the Grain Handling Facility Standard in response to a series of catastrophic grain elevator explosions that began in the 1970s. In one month alone, December of 1977, grain dust explosions killed 59 workers and injured 49. OSHA first tried outreach and education to reduce grain dust explosions. They issued a hazard alert in the late 1970s. Although grain explosions decreased for a few years, the affect of this

outreach was short-lived, even in this focused industry.

Grain explosions began to increase again in 1980 and 1981 and OSHA determined that a regulation was needed to address the hazard. In 2003 OSHA commissioned a retrospective analysis of the Grain Handling Facility Standard. That study credited the standard with reducing grain dust explosions by 42 percent, reducing injuries by 60 percent, and fatalities by 70 percent.

The Grain Handling Facility Standard addresses general safety, housekeeping, hot work, and entry into silos, but it only applies to grain elevators, grain mills, and other similar agricultural processing facilities.

While the Grain Standard has been effective in the narrow range of industries that it covers, there is no OSHA standard that comprehensively addresses preventing dust explosions in general industry. Various other

regulations such as the Electrical Standard and the housekeeping subparagraph of the Walking and Working Surfaces Standard address limited aspects of dust hazards.

The Electrical Standard only addresses preventing dust explosions ignited by electrical equipment. There are many other possible ignition sources such as static electricity and metal-to-metal sparking that are not addressed.

Mere adherence to the housekeeping requirements, which only states in basic language that good housekeeping conditions shall be maintained, will not prevent all secondary dust explosions such as the ones that occurred at West Pharmaceutical.

Finally, we also found that OSHA inspectors are generally not trained on recognition and prevention of dust explosion hazards and that could be, in part, because there is no course at the OSHA training institute.

The General Duty Clause of the Occupational Safety and Health Act requires that employers provide work places that are free from known and recognized hazards that are causing or likely to cause death or serious physical harm to the employees.

Lacking a comprehensive general industry Dust Explosion Prevention Standard, OSHA can and has used the NFPA standards as evidence of recognized hazards to cite employers for dust explosion hazards. This would be done under the General Duty Clause.

However, these citations are nearly always reactive or coming after an accident has occurred or a complaint has been filed. Therefore, the General Duty Clause is not an effective prevention tool.

Furthermore, in order to apply the General Duty Clause to a dust explosion hazard, the OSHA inspector must be quite knowledgeable about the hazards and the requirements of the NFPA standards.

OSHA also has Special Emphasis Programs that are mainly used to target specific industries or facilities for general health and safety inspections. Sometimes, as in the case of the Grain Handling Standard, an SEP helps address a known hazard until OSHA issued a regulation. In these cases, the General Duty Clause is often the basis for citations.

OSHA conducts Special Emphasis Programs on both a national and local scale. Investigators learned of only one SEP targeted at preventing dust explosions in general industry. This was a local SEP conducted by an OSHA area office whose jurisdiction includes portions of Pennsylvania.

Following an opportunity for board member questions, I will be handing the podium over to my colleague, Jordan Barab, who will present the proposed recommendations for preventing future dust explosions.

Let me conclude my portion of this

presentation by summarizing the key findings of this hazard investigation. Combustible dust explosions are a serious hazard in general industry. MSDSs and the standards related to them do not effectively address combustible dust.

Private sector activities are limited. NFPA standards address the hazards but are not uniformly adopted or rigorously enforced. OSHA standards do not currently comprehensively address the hazards of combustible dust.

As this point, Chairman Merritt, my colleagues and I are happy to answer questions you have pertaining to the study findings.

CHAIRMAN MERRITT: Thank you, Ms. Blair. We appreciate your presentation. At this time I would open it to the board members for questions that you might have if you would allow me to recognize you. Do we have any questions from the board?

Mr. Wright.

MR. WRIGHT: Thank you, Chairman Merritt. First of all, I would like to thank you for your hard work and effort in this area. I think it was a substantial report. I do have a question regarding why you don't think it would be adequate for a Special Emphasis Program from OSHA to address this situation versus recommendations.

MR. BARAB: Thanks for the question, Mr. Wright. I think if you don't mind we would rather save that for after we present the recommendations and then we would be glad to answer that question.

MR. WRIGHT: Very well.

CHAIRMAN MERRITT: Mr. Visscher.

MR. VISSCHER: Thank you, Madam Chair. Just a couple of questions. In terms of the information that we talked about not having information on the material safety data sheet, what information would you think should be included?

I mean, I guess there is a variety of things you can talk about in terms of the characteristics of the material and what would make it more or less prone to explosion. Is it necessary, do you think, that all the information be -- that all that be included or just simply mention of the fact if this is in dust form it may be explosive?

MS. BLAIR: It can be a complicated issue but it doesn't have to be. We would be happy if all the MSDSs that could produce combustible powders would simply state, "Caution, there is a dust explosion hazard. Consult NFPA 654 or 484." If they simply did that, then at least facility managers would be directed to the place where the guidance of it is available.

For some combustible powders there is already a lot of data out there in available publications including NFPA, I think, 68 on explosion protection. There are tables in the annex that list properties like

explosive constant, the maximum explosive pressure, ignition energy, that sort of thing, for many of the common powders.

Therefore, for those kind of materials the manufacturer wouldn't have to do any additional research. They could simply refer to that document in that table. For other materials for which the information is not currently available, it would be helpful if they would include information like the explosibility constant under certain circumstances.

It's kind of like vapor pressure for a flammable gas or flammable liquid. It's only accurate for a certain set of conditions and it is even worse for dust. If a manufacturer would just tell me, "Look, at this particle size and this moisture content, this is what kind of explosion we got out of this," then I can put it into perspective with other materials.

To answer your question in the

simple terms, some information and a point to the standard would be great. If it's not otherwise available, some kind of data to say relatively speaking how bad is this stuff would be helpful also.

MR. VISSCHER: The tables in NFPA 68 use some fair standardized so that you're talking about comparable conditions?

MS. BLAIR: Right. And not only do NFPA standardize the data but they also take that explosibility constant for dust explosions and then put them into three categories. They call them ST classes. There is ST 1 which is the stuff that, yeah, it will explode but we're not real, real worried about it, and ST 2 which can explode with some vigor, and ST 3 which is, you know, you would rather not handle this stuff but if you have to, you must exercise extreme caution. Aluminum powder, for instance, is an ST 3 class dust under some circumstances. The polyethylene at West was a Class 2.

MR. VISSCHER: The other question I had was on the chart with the numbers. I guess the chart showed the numbers of injuries and fatalities and had a total number of incidents. Do we know what share of those?

I've seen some mention elsewhere that a significant share are in dust collectors themselves. That is sort of like why rob a bank? That's where the money is. Why do we have explosions in dust collectors? Because that's where the dust is, I guess.

Do we know what the numbers would be in terms of all those incidents that we have been able to find were at least initiated in the dust collector or the dust collector system?

Also, and probably more importantly, the two NFPA standards that were mentioned, 654 and 484, you mentioned some of the things that they address. Do they address kind of location and other conditions of the dust collector itself? I think in the one

that we investigated more thoroughly, the Hayes incident, there was an issue of location of the dust collector.

MS. BLAIR: That is correct, Mr. Visscher. In the Hayes Lemmerz investigation we found that NFPA 484 gives some pretty clear guidance to locate aluminum dust collectors a certain distance away from occupied buildings.

There are also things you can do like explosion isolation or venting that help keep that explosion from spreading. With aluminum that's a problem. If you will recall, the board recommended to do some additional study and NFPA is moving forward with that.

Unfortunately the data that we have to pull from are not very great. We have Reepa Shroff and Jennifer Jones and some of the other staff members that work very hard to go back and pull as much information as we could about each of these 281 accidents.

We only have origin information on about a

third of them but in the ones where we do know where it started, yes, dust collectors to prove to be a frequent cause.

In fact, in the CCPS guidelines that committee cites some data that are available internationally where dust collectors are far and away the single most frequently initiated piece of equipment but it's not like 75 or 80 percent. I don't remember the exact data but it's something like 40 percent and then there's a whole bunch of other equipment that causes the rest of them.

MR. VISSCHER: Thank you, Madam Chair.

CHAIRMAN MERRITT: Mr. Bresland.

MR. BRESLAND: Let me get a little closer to the microphone here. You have talked about NFPA 654 and 484. In your opinion are they adequate for the job of preventing dust explosions?

MS. BLAIR: Yes, they are. I have

to say I have a lot of faith in the Technical Steering Committee that works on those standards because it is a very strong consensus building process. We have members from industry, regulators, insurance companies, all different interested parties that are working through some pretty contentious meetings to hammer out those guidelines.

We had a chance to go visit one of their committee meetings early in this process and see the deliberation actually at work. Not only did we find that our three investigations could have been directly either prevented or much greatly minimized by the NFPA standards.

We also found that they contain extremely detailed guidance for housekeeping not only to keep it clean but how to clean it up because you don't want to do like they were doing at CTA and go around and sweep your dust into big explosive clouds.

You want to use a vacuum cleaner and you want to use the right vacuum cleaner because you don't want to be blowing that up either. A lot of information about dust collectors, how to build them, how to vent them, where to locate them, how to ground them.

MR. BRESLAND: I'm following up on that question about the NFPA code. You said, and correct me if I'm quoting you incorrectly, that there is a variation around the country in the level of knowledge enforcement with code officials regarding NFPA 654 and 484.

It's my sense that picking those two particular codes and if you studied other fire codes as well, fire codes written by the fire code specialists like NFPA or ICC, you would find the same situation for a lot of other codes.

I guess I'm asking is the code situation with NFPA 654, 484 any different from the code situation with other fire codes

in terms of the spottiness of their applicability around the country?

MS. BLAIR: We had the direct communication, a lot of communication with the fire code officials in Indiana, Kentucky, and North Carolina. Then we also surveyed the fire marshals in nine other states. That ended up meaning we talked to a lot of staff members within each of those offices.

I think I personally called five of them and it turned out to be very much an educational process for them. The issue was not being aware very much of dust explosion hazards and any general knowledge. I would not expect a fire marshall or a fire inspector to be really well informed on the jot and tittle of any particular specific technical fire prevention code.

But if they were at least knowledgeable enough that dust can explode, there is a lot of dust in this place and there is a standard that addresses this, then they

can go back and study that standard and learn what it requires. We also found, though, that certain things like flammable liquids storage in NFPA 30 is very well understood by the fire enforcement authorities.

MR. BARAB: Let me just add, again, from our survey and from our investigations we found that fire code enforcement authorities are very good at what they do frequently and what they mostly do is, in fact, investigations and inspections that deal with so-called life safety issues, fire extinguishers, means of egress, sprinklers, that type of thing.

They aren't nearly as well versed nor do they do as many inspections in industrial facilities with so-called industrial hazards. Generally we found OSHA has more familiarity with them than fire code inspectors.

MR. BRESLAND: Just following up on my question, maybe I didn't express it all

that well. I'm really asking about the adoption of fire codes in various either states or local municipalities. Do you sense that there's a difference between the adoption of the dust codes in terms of the amount of locality states that have adopted versus the other fire codes? I guess I'm just asking is there a difference between the dust codes and the rest of the codes in their adoption?

MS. BLAIR: No. What the states will do is they will either adopt NFPA 1 or the International Fire Code and that brings with them -- either of those two codes brings with them an inclusion of the standards particular to dust.

One of the things that makes dust a little different is that there is a provision in the general coverage section of the International Fire Code that requires a permit for any facility that handles more than 600 pounds of combustible dust. What we have seen, and this was specifically the case in

North Carolina and Indiana, they adopted the International Fire Code but then they wrote a codicil that says, "We delete paragraph number such and such," which was the requirement for permits.

MR. BRESLAND: One final question. In talking about the traffic accident at West Pharmaceutical, and that involved dust that had settled in the false ceiling, in a perfect world what would have prevented that from happening? When I talk about a perfect world I'm talking about either the NFPA codes or an OSHA regulation or something else. What really would have stopped that from happening without the knowledge of the hazards by the facility managers?

MS. BLAIR: Well, I don't know if you could prevent it without the facility managers being aware of the hazards but if they consulted -- if the guys who designed the building for them -- West did not design the building. They hired an engineering

contractor to design the building.

If they had told the engineering contractor, "This is the material we are handling," and that contractor had consulted in NFPA 654, one of the things that would have jumped right out at them, because it did us, was that you do not put a suspended ceiling above a processing area where you are handling dust.

If the Material Safety Data Sheet had included a warning on it, then we believe perhaps the employees who routinely went above that ceiling and saw the dust there could have known that this might be a problem, "Let me call it to somebody's attention and let's clean it up or do something."

They cleaned this place constantly. They just never cleaned above the ceiling tiles. All they did was replace them when they look dingy. They were really concerned with what was below the ceiling looking pristine and clean.

MR. BRESLAND: Okay. Thank you.

MS. BLAIR: One question that I have is you mentioned that when OSHA was created it adopted many of the NFPA standards and other voluntary standards at the time. Why didn't they adopt the combustible dust standard at that time. I would like to ask Mr. Hoyle to answer that question.

MR. HOYLE: Well, it was a long time ago and we don't have specific information other than that the fact is that the majority of the regulations adopted by OSHA when they were first created were, in fact, consensus codes just like NFPA 484 and 654. In fact, a great deal of those still exist today and make up a big chunk of the safety rules in the country. Our findings are that these did exist at that time or their predecessors.

They are very mature codes. Well understood and widely universally recognized as constituting good practice and a standard

of care. However, while OSHA has adopted many NFPA and other consensus codes, they just haven't adopted these. That is the extent of our findings.

CHAIRMAN MERRITT: Thank you. Anybody else have a question? Okay. Thank you very much, panel. I appreciate that. Do we want to take a break or move on? Let's go ahead and move on. If I would I would like to call on Mr. Barab to report on the recommendations being presented.

MR. BARAB: Thank you, Madam Chairman, board members, Mr. Warner. I will now present proposed recommendations. CSB recommendations are based on the findings of our investigations. They are the primary tools used by the board to improve safety and prevent similar incidents that can endanger lives, communities, or the environment.

CSB recommendations may be directed to businesses, trade associations, safety organizations, labor unions, Government

agencies, or other affected parties.

As Ms. Blair described in her presentation, the report found that inadequate controls in environments where combustible dusk exist are responsible for a significant number of deaths and injuries as well as property damage and job loss around the country.

CSB investigators have concluded that combustible dust explosions pose a serious problem and that existing mechanisms are not adequate to address these problems on a national scale. To address these issues this report contains recommendations that if thoroughly implemented will have a significant impact on combustible dust hazards throughout this country.

I will now explain and read the recommendations. The study's most significant recommendations, those which we expect to have the broadest impact in preventing similar incidents, are addressed to the Occupational

Safety and Health Administration, or OSHA.

The first recommendation that OSHA derives from five key findings which I would like to take a moment to explain. First, dust explosions are a serious hazard in American industry. Second, that although NFPA standards are widely recognized as effective and have been widely, although not universally adopted by most states and localities, they are seldom enforced by state and local fire officials in industrial settings.

Third, there is no national fire code and there is no federal agency with the authority to mandate the adoption of fire codes where they do not currently exist, nor the enforcement of those codes where they are not currently being enforced.

Fourth, OSHA is the only federal agency that has the authority to set and enforce national work place safety standards that will protect employees from the hazards of combustible dust. Finally, that no

comprehensive federal regulations currently exist that directly empower OSHA to enforce the requirements of the voluntary consensus standards issued by NFPA to prevent combustible dust explosions in general industry.

Therefore, in order to have the maximum national impact on combustible dust hazards, this report recommends the Occupational Safety and Health Administration issue a standard designed to prevent combustible dust fires and explosions in general industry.

Base this standard on current National Fire Protection Association Dust explosion standards including NFPA 654 and NFPA 484 and include at least the following: hazard assessment, engineering controls, housekeeping, building design, explosion protection, operating procedures, and worker training.

The second proposed recommendation

to OSHA addresses hazard communication. Material Safety Data Sheets are a key tool for managers and workers to learn about the hazards of the materials they work with.

The CSB incident investigation and survey found that OSHA's Hazard Communication Standard does not adequately or clearly address combustible dust hazards and that MSDSs generally do not adequately warn about dust explosion hazards. Nor do they provide sufficient information about safe work practices or reference appropriate guidance documents.

This report, therefore, recommends that OSHA revise the Hazard Communication Standard 1910.1200, to clarify the Hazard Communication Standard covers combustible dust including those materials that may reasonably be anticipated to generate combustible dust through downstream processing or handling.

And that OSHA require Material Safety Data Sheets to include the hazards and

the physical properties of combustible dust as well as clear information on safe handling practices and references to consensus standards.

The third proposed recommendation to OSHA addresses shortcomings in the globally harmonized system of classification and labeling of chemicals, or GHS, which is intended to address the uniformity of chemical hazard communication.

The GHS is led by the United Nations Economic Commission of Europe. OSHA serves as the official U.S. representative to the GHS. As we heard according to the findings of this investigation, the globally harmonized system like the Hazard Communication Standard, does not adequately address the explosion potential of combustible dust.

The report, therefore, recommends that OSHA communicate to the United Nations Economic Commission for Europe the need to

amend the globally harmonized system to address combustible dust hazards by defining combustible dust specifying the hazards that must be addressed in chemical information sheets and addressing the physical properties that must be included on a chemical information sheet pertinent to combustible dust.

The fourth recommendation, proposed recommendation to OSHA, addresses the training of OSHA personnel. Enforcement of standards or safe work practices requires educators inspectors.

The report found that OSHA personnel are generally not sufficiently aware of the hazards of combustible dust and that the OSHA training institute, which is responsible for providing training to OSHA inspectors, does not currently offer courses in preventing combustible dust hazards.

The fourth proposed recommendation to OSHA, therefore, requests that the agency

provide training through the OSHA training institute that addresses the recognition and prevention of combustible dust hazards.

Now, the OSHA rulemaking process is lengthy, yet the deadly hazards of combustible dust continue to threaten workers today. We know how to prevent these hazards now and interim steps are needed while an OSHA standard is being developed.

Although OSHA has prepared a very thorough information bulletin about the hazards of combustible dust, the agency has conducted no outreach based on this publication. OSHA has a tool, however, from the Special Emphasis Program, that the agency can use on an interim basis to educate businesses at risk and where necessary to enforce existing OSHA standards or other recognized best practices.

The final recommendation to OSHA request that during the period that a combustible dust standard is being developed

identify manufacturing industries at risk and develop and implement a national Special Emphasis Program on combustible dust hazards in general industry.

Include in the Special Emphasis Program an outreach program focused around information contained in OSHA Safety and Health Information Bulletin, Combustible Dust and Industry, Preventing and Mitigating the Effects of Fires and Explosions.

Finally, the report makes one recommendation to the American National Standards Institute Z400.1 Committee which develops voluntary consensus standards to chemical manufacturers used in the development of Material Safety Data Sheets.

Similar to the report's findings regarding OSHA's Hazard Communication Standard the report found that the ANSI standard does not adequately address the hazards of combustible dust. The report, therefore, recommends that the ANSI committee modify ANSI

Z400.1, American National Standard for Hazardous Industrial Chemicals Material Safety Data Sheets, to recommend that MSDSs include information on combustible dust hazards, safe handling practices, and references to relevant buyer codes.

Also, hazard information about the by-products of materials that may generate combustible dust due to processing or handling, and identification of combustible dust hazards and selection of physical properties to include Material Safety Data Sheets.

Madam Chairman and board members, this concludes my presentation of the report's proposed recommendations. Thank you for your consideration and I would be happy to answer any questions.

CHAIRMAN MERRITT: Thank you, Mr. Barab.

Mr. Wright, do you have a question?

MR. WRIGHT: Yes, Madam Chairman. I think this is a more appropriate time for my question since you have now discussed the recommendations. I was probably ahead of myself earlier.

Can you please explain why you think that an OSHA Special Emphasis Program would not be adequate to address this issue versus rule making standard?

MR. BARAB: Yeah, we looked at that in some depth. OSHA Special Emphasis Programs are certainly useful, particularly in situations -- and this is where they have mostly been used -- particularly in situations where you have an OSHA standard already that is not being well enforced.

Where OSHA has detected a high number of injuries or fatalities, they will often engage in a special emphasis program which is really a targeted inspection program plus targeted outreach.

The second place that OSHA's

Special Emphasis Programs have been successful is where OSHA is in the process of developing a standard. For example, they had a highly successful Special Emphasis Program while they were developing the standard that covers blood-born pathogens. They also had a Special Emphasis Program while they were developing the Process Safety Management Standard.

Again, as I've said, we feel that an OSHA standard is the best solution here but that in the interim it would certainly be appropriate and very useful and necessary for a special emphasis program to be conducted.

CHAIRMAN MERRITT: How would a Special Emphasis Program differ from, say, just an outreach program?

MR. BARAB: Well, OSHA does -- you mean an outreach program from OSHA specifically?

CHAIRMAN MERRITT: Yes.

MR. BARAB: I suppose OSHA's Outreach Programs, for example, OSHA has quite

a few outreach programs and sometimes they are housed in alliances and things like that. Those are mostly focused on getting information out to the targeted industries, the industries at risk through fact sheets, through information either from OSHA or private associations.

I think the Special Emphasis Program differs in that it also gets information out there but it also has an enforcement component. Inspectors are basically instructed to identify and target specific companies that may be at risk and to then do inspections and where necessary to enforce whatever best practices or, in some cases, standards exist.

CHAIRMAN MERRITT: Thank you.

Mr. Wark.

MR. WARK: Yes. How does the dust problem rank in priority with other types of work place issues that OSHA is dealing with?

MR. BARAB: That wasn't really

within the scope of our commission to determine exactly where the dust problem rated in terms of either the concerns of OSHA. Nor did we really look at this as trying to identify the greatest health and safety problem facing American workers today.

The staff was tasked with looking at the combustible dust hazard problem and trying to determine whether it was, in fact, a significant problem in American industry and whether there reasonable ways to address this problem. Again, through two years of study we found yes to both questions.

It was, in fact, a serious problem and there was a reasonable way to address the problem without too much burden either on OSHA or on industry. Again, it really wasn't a matter of us really trying to scope this within OSHA's priorities. OSHA will do that and OSHA do that. We, again, determined that it is, in fact, a serious problem that can be relatively easily prevented and certain

measures need to be taken in order for that to happen.

CHAIRMAN MERRITT: Mr. Bresland.

MR. BRESLAND: If OSHA accepts our recommendation on the Special Emphasis Program, do they have the resources to get out and look at the multitude of facilities that may have potential for a combustible dust explosion?

MR. BARAB: It's certainly -- I mean, personally you would have to ask OSHA that but it is certainly is a difficult problem for I think any agency or any association, for that matter, to comprehensibly cover all entities at risk.

As Ms. Blair identified, there is an enormous diverse variety of both materials and industries that are at risk. It would require a considerable amount of resources to really address that.

OSHA has done a small special emphasis program in one area in Pennsylvania,

one area office in Pennsylvania. It required an enormous amount of resources. They not only had to identify all the companies involved at risk. They also had to get extra training outside of OSHA in order to do that properly.

It would be kind of a heavy lift for OSHA. It would certainly be a heavy lift over a long period of time. That is part of the reason why we identified it and recommended it as an interim program while a permanent standard is being developed.

MR. BRESLAND: I guess this follows up on Mr. Wark's question. Without detracting from the tragedies that we've seen and we have discussed here, my recollection is that work place fatalities run around 6,000 per year. I think that number is approximately correct. If that number is correct, where do you think OSHA would place their priority in terms of this particular recommendation?

MR. BARAB: Well, again, we didn't look at that, nor were we tasked with figuring out what OSHA's priorities were. OSHA has issued many standards that don't necessarily affect a large number of workers throughout society. Again, OSHA, just as we were tasked, they look at whether there are problems that can be easily eliminated or minimized.

In this case we feel that given that there is a problem out there, given that you have these NFPA codes, which technically are very good and well recognized, they are just not being enforced, it would not be a heavy lift for OSHA to adopt those NFPA codes as enforceable standards.

OSHA has many issues it needs to deal with and it needs to figure out its priorities but this is definitely a problem in American industry and it is a problem that can be relatively easily addressed.

MR. HOYLE: If I may, let me add to that, Board Member Bresland. One of the --

there are two things going on that OSHA and the Chemical Safety Board have to focus on in accident prevention. There are two kind of accidents. There is the frequent accidents, the injured workers. Sometimes they are called slips, trips, and falls.

There is a very different kind of accident which is typically the ones we examine at the Chemical Safety Board. These are low-frequency high-consequence events. If we want to -- it depends what measuring stick we use. If we use the frequency measuring stick, we'll get one result.

If we use the potential for catastrophic results, which I think have been described in detail here today, I think we get a very different answer that the insidious nature of secondary dust explosions, which have demonstrated that they destroy entire manufacturing facilities, often with loss of jobs, companies going out of business, as well as death and injuries, I think we get a

different answer to the question. It's what measuring stick we use.

MS. BLAIR: Also I would like to add one other point since we've had three questions now directed at the comparative risk issue. In its preamble to the promulgation of the Grain Handling Facility Standard, OSHA cited some statistics on incident numbers and deaths and injuries.

If you look at the relatively -- we did not do a normalization of our data based on the number of facilities covered because, frankly, we don't know how many facilities are covered. We know there are many.

If you compare just what they issued themselves in the Grain Standard on preamble to the incidents and injuries and fatalities we report, they are pretty similar if there is a case where OSHA did promulgate a standard based on a fairly similar frequency and impact.

MR. BRESLAND: One final question for Mr. Barab. You talked about NFPA 654 and 484 being used as a model for regulation. How difficult is it for OSHA to take those standards and just put them into their regulatory book and say, "Here it is?"

MR. BARAB: Well, they can't just plop it in over night. First of all, OSHA has quite a bit of experience with adopting NFPA standards. Again, as Mr. Hoyle mentioned earlier, a good number of -- probably a majority of OSHA standards did come from NFPA or other standard making associations like NFPA.

Secondly, OSHA has a very extensive public comment period before any standard. There are a number of issues, scope and coverage and things that OSHA would have to determine that aren't necessarily well determined, well defined in the NFPA standard.

Again, OSHA's got a very extensive public comment period where they take comments

from the public, from experts, and the OSHA staff looks at those comments. They study those comments and they determine how to write the standard. This is something that OSHA has done and has to do for every standard. Again, they are pretty good at doing that, at defining those terms.

CHAIRMAN MERRITT: Are there other questions from the board? Thank you very much, Mr. Barab.

If there are no other questions from board members, what I would like to do is open the floor for questions -- not questions, not questions, comments from the public. We would ask that the public not question the board or the staff but to make comments about the report that has been presented.

Please state your name and spell your name so that we can get it for the record.

Yes, sir. I don't have a list. Do I have a list of names? Here it comes now.

We'll go ahead and take this gentleman and then I'll go by the list. Thank you.

MR. KIRBY: Thank you, Madam Chairman and board. I'm Dave Kirby of Baker Risk. As you can tell I've been around a long time. I'm a member of 654 committee and have been for some 20 years. Also a member of NFPA 68 and 69 committee for some 20 years, 25. I was chairman of that committee for 10 years.

I'm also, not much to do with this issue, but a member of NFPA 30 Flammable Combustible Liquids Code. I worked 22 years for Factory Mutual primarily as a field inspector and 20 years for Union Carbide. Retired from Union Carbide now.

I've seen a lot of plants, good and bad. I've investigated several explosions, some unfortunately with fatalities. It does make an impact. I've been a consultant on all of these horrible losses that were showing up here.

But jumping back to NFPA 654, when

you leave out of this room, please look upwards to the high bay area of this building and look up at the rafters which are probably over 100 feet up there. I was recently in a plant where the roof was approximately 200 feet. Well, it's 118 feet actually from floor to ceiling.

The plant had a citation for poor housekeeping in the rafters joists and they were trying to enforce NFPA 654, corrected for bulk density. You know, 654 says 132nd of an inch with 75 pounds per cubic foot bulk density and then you can correct a thicker layer, thicker accumulation. Turns out it calculates to be 116th of an inch up some 120 feet above grade.

There was an interesting book out a few years ago called "The Death of Common Sense." I think Phillips was the writer. Maybe some of you have read that book, but trying to enforce a 116th of an inch dust accumulation as being hazardous which is 118

feet above the floor is, to me, the death of common sense.

We did not intend that number we have in NFPA 654 to address those extremely high ceilings. Also, in 654 this bulk density issue I thought we only worried about it down to about 15 pounds per cubic foot. I recently was made aware of a situation where the dust or the lint or whatever it is has a bulk density of about five pounds per cubic foot.

Now, in those instances, even though I've had a lot of experience, you ask me how much is too much up 118 feet, I really don't know. No large-scale tests have been done. How low does the bulk density apply? At some point the heat of combustion is so low that it is primarily a flash fire situation. If the ceiling is fairly high, it's not going to hurt anybody. Might not do anything more than open a few sprinklers.

My point is that in the enforcement of 654, and we have to work on

654. We have to address some of these issues. We do have it mostly in the appendix now. That means that you use judgment in applying it. My concern is that if OSHA gets the bid in their mount and runs with this, they will try to enforce it at the limits of the death of common sense.

CHAIRMAN MERRITT: Thank you, Mr. Kirby.

At this time I would like to call Tammy Miser.

MS. MISER: Hi. I'm Tammy Miser, T-A-M-M-Y M-I-S-E-R. I'm not quite as good a speaker as he is and you've heard everything that I got ready to say but I would just like to enforce how important it is for these regulations and I am here to represent the 14 families that lost a loved one and also the 81 that are still dealing with their injuries.

I basically feel that -- I'm nervous so you'll have to excuse me. You pretty much heard everything. We also know

that the NFPA standards are there and they are really good standards. I read through them and don't understand everything but did my best. The facts are that the employers are following these standards so we have to do something to get them to do it.

I think the only way is for you guys to help us out by making recommendations to OSHA so that we can have some really good regulations for this. It's just basically I know that you guys have discussed numbers of people.

This affects more than just one family. It affects generations of families. We are just asking you to help us, to help restore our faith in governmental humanity and help us to ensure that we are not going to lose other family members and have these types of injuries.

CHAIRMAN MERRITT: Thank you, Ms. Miser.

Steve Sallman. Maybe we should

have ordered these by height.

MR. SALLMAN: Thank you and good morning everyone. Thank you for the opportunity to be here. My name is Steve Sallman. My last name is spelled S-A-L-L-M-A-N. I appear before you this morning on the issue of combustible dust hazards in the work place.

I'm a safety and health specialist for the United Steel Workers. I have spent part of my 14-year career dealing with combustible dust issues. USW has approximately 850,000 members in the United States, Canada, and the Caribbean.

We represent members in virtually every type of industry which includes steel, paper, forestry, rubber, energy, mining, aluminum, and other non-ferrous metals, chemicals, plastic, glass, healthcare services, and even public employment.

We come here today to reinforce the need for an OSHA standard on combustible

dust. Let me explain why. First, combustible dust is a real serious problem in all of general industry. Secondly, voluntary compliance with consensus standards. As you have just heard from the board's members, or from the investigator's team, it's just simply not working.

It will not take much time for me to speak about particularly what's happening in an industry today as I have a fellow brother, Jim Frederick, who will be speaking about that later.

But attached to my comments that I will present are citations that were issued by Kentucky OSHA for two separate flash fires that took place on February 25th and September 21st of 2005. Both of these flash fires took place at the Continental General Tire Plant in Mayfield, Kentucky, and it involved phenolic resin that you heard here today.

This brings me to what I would like to speak mostly about today which is why

OSHA needs a combustible dust standard. Today OSHA relies upon the General Duty Clause which essentially states that the employer has to provide a safe work place free from recognized hazards. If this is not a recognized hazard, I don't know what is.

Unless you work in a grain handling facility -- I came from the state of Iowa. I know about a grain hazard. That is covered specifically by 1910.272 under OSHA standard. OSHA recognizes industry needed a standard to address combustible grain dust. The standard came just like the rest of OSHA's standards, lives were lost and blood was shed.

The standard requires specific housekeeping and preventative maintenance. It also requires employers to immediately remove fugitive grain dust accumulations. The problem with today's approach with OSHA it needs to back up a general duty citation with some type of a consensus standard as we heard about here today, 654 and so on.

Although the standard is a good guideline, it is simply that, just a guideline. Employers and employees and their representatives also need to be made aware that this guideline even exist and what does it consist of.

Even more troubling is that you simply cannot go to OSHA's webpage or standards book for this guideline because you need to know that you have to purchase this from NFPA. This sets up hurdles for failure. If you are in the grain handling industry you can refer to OSHA's webpage and the standards book for the regulation.

Unfortunately, when it comes to combustible dust, all OSHA has in the general industry is the housekeeping standard under 22(a)(1) which essentially says that they have to keep the work place clean and sanitary.

Unlike the Grain Handling Standard which I specifically mentioned, to make matters worse OSHA inspectors rarely receive

any training on NFPA's Combustible Dust Standard. When OSHA has a standard, employers go to greater lengths to understand the requirements and resources are provided by the employer to make sure that they achieve compliance.

Without a standard, upper management will typically not commit the resources to achieve compliance but more importantly to protect their employees.

Today we ask for everyone's commitment on the board to support an OSHA standard on combustible dust. We cannot have another tragedy like the one that injured seven employees at CTA Acoustics Manufacturing Plant in Corbin, Kentucky. Thank you very much.

CHAIRMAN MERRITT: Thank you, Mr. Sallman.

Next is Mr. Jim Frederick.

MR. FREDERICK: Good morning and thank you. I'm Jim Frederick, F-R-E-D-E-R-I-

C-K. I like Steve Sallman work with the United Steel Workers Health and Safety Environment Department in Pittsburgh, Pennsylvania.

Just to add a few words to what Mr. Sallman had to say, again, thank you to the board for the opportunity to speak this morning on this important topic. The leadership of our union as well as our members greatly appreciate the existence of the board in helping us achieve our goals of work place health and safety, as well as a safe environment for the families of our members.

Each day our members go to work in a significant number of work places that have seen CSB investigations so we know the importance of the work that is done by the board and the staff. We know that the efforts from the CSB have helped to contribute to improvements made in the work places that have had these tragedies. For that we give you a thank you.

We also know that the work continues. Just this past weekend an incident occurred in South Carolina that at least one investigator as well as some of our staff are at today. Unfortunately it's in a work place where the employer is not cooperating with the union in our investigation.

It's severe chemical exposure. We really applaud the efforts of the Safety Board to continue to help us with that investigation as we are having a difficult time finding out the root causes ourselves.

Regardless of the work place, our members face a multitude of health and safety hazards. As you have indicated, we have about 850,000 members in North America. That is about 8,000 work places where we represent workers and there is a large array of hazards including the hazard of combustible explosive dust.

I would like to read you an excerpt of an accident investigation report

from the USW related incident earlier this year. At approximately 8:35 a.m. on June 22, 2006, Clay Armstrong, Jim English, and Nancy Gordon were on their way from a manlift to apply their lock-out locks to a job lock box.

As Clay and Jim passed by waste wood feed chute No. 2 furnish, an explosion in the system blew the door open and flames erupted onto the deck. Nancy was partially through the floor on the manlift and was only moderately exposed resulting in burns to her arms and face. She had gloves on at the time.

Jim was past the door on the chute and Clay was directly in front of it and was engulfed in flames. Jim managed to stop, drop, and roll and tried to get back to help Clay but could not see him through the smoke.

John Smith was the first person to reach Clay and put water on him to extinguish the fire. Plant rescue responded packaging Clay and transporting him to the hospital in the company ambulance. This is one example of

a dust exposure and subsequent incident that our union has experienced in recent months.

Our union works diligently with our local unions and our employers to implement a variety of health and safety programs to address work place health and safety hazards that exist. In virtually all of the work places that we represent the union has jointly engaged to some extent with the employer to address work place health and safety.

In the U.S. the joint efforts are largely because of language that the union has negotiated in collective bargaining agreements with those facilities. These joint programs can range from a joint health and safety committee that meets periodically to collectively review concerns to very complex and systematic approaches to jointly address work place health and safety that involved the union in almost all aspects of work place health and safety.

The union also utilizes a union only mechanism to ensure that the interests of our members are properly represented in these work places when it comes to health and safety.

Our efforts are great but sadly the union continues to experience far too many members still at work because of exposure to health and safety hazards. Our records indicate that one member of our union is a victim of a fatality approximately every 12 days.

About 30 works per year arrive at work like any other day but because of exposure to unsafe conditions do not return home. Each of these incidents is a tragedy on many levels.

In addition to the fatalities our members also, of course, experience severe injuries, illnesses, and many, many near misses to these hazardous situations. In recent months we have experienced combustible

dust injuries and several near-miss events.

Our union investigates almost every fatality to one of our members. Through these investigations we found that in the majority of cases a direct violation of an OSHA standard was not the primary causal factor for the incident. It's not that the hazards that are addressed by OSHA standard don't exist in these work places, but rather that the existence of the end enforcement of OSHA standards work.

There are many, many more health and safety hazards than there are OSHA standards. In many cases there are voluntary consensus standards or other voluntary tools available for employers to address those hazards.

Several years ago OSHA convened a Standards Advisory Committee to address one such hazard of worker exposure to metal-working fluids. Through two plus years of deliberations and investigation the Standards

Advisory Committee recommended that OSHA move forward with the standard. OSHA has chosen not to but there are many voluntary tools available to employers to utilize.

Unfortunately, in work place after work place that we represent workers, these voluntary standards are not known by the employer or by the workers and, thus, there is no opportunity for us to protect our members from those.

In work places where they are known, employers often say to us that there is no problem and they are not required to follow any of these voluntary rules. If there were a problem, there would be an OSHA standard.

Certainly some employers do comply with voluntary recommendations. We have first hand experience with many of these instances where employers do try to follow the voluntary recommendations. Often those employers say to us that this puts them at a competitive disadvantage because of the resources that

they expend complying with the voluntary consensus standards that other employers choose not to.

Thank you again for the opportunity to share these brief remarks. The USW is happy to work with the Chemical Safety Board on this and other issues and look forward to further deliberations on this issue.

It is our sincere hope that the members of the CSB agree that work place exposure to combustible dust hazards exist and that you move forward with the recommendations for OSHA to initiate rulemaking to protect workers like Clay Armstrong, Jim English, and Nancy Gordon. Thank you.

CHAIRMAN MERRITT: Thank you, Mr. Frederick.

Last I have Jackie Noel.

MS. NOEL: Thank you and good morning. Where is my technical assistant here? That's great. Thank you so much.

It is a pleasure to be here this morning. I do welcome the opportunity to speak to the Chemical Safety Board. I am the Safety Director at the United Food and Commercial Workers International Union based here in Washington, D.C. We represent about 1.4 million workers in the U.S. and Canada.

I am here today to talk about approximately 87,000 workers in more than a dozen diverse food industries. I actually had our research folks print out those 87,000 workers and the stack, as you can see, is fairly thick.

I would also contend that this is representative of tens of thousands of more workers who are not in unions who are in these diverse food industries where combustible dust can be and is a severe safety and health problem.

Let me give you a taste of some of this listing here. Animal feeds manufacturing, flour milling, a couple

companies on the list are ADM and MPG in Cargill. I actually have walked through that MPG plant which is in Atchison, Kansas.

It's a distilling fermenting plant that had recently -- this was in 2003 -- acquired a flour plant, a flour mill as well. It was my first opportunity to be on a manlift. I now know what that is.

Flour was everywhere. This is an old plant. Walking up the stairs flour dust just coated everything. In 2003 they had two explosions. One actually while OSHA was there investigating. Four were injured and one seriously.

I think another aspect of this is to of those workers who were injured were outside contractors so not only do you have the employees of the host employer but you have contractors on site often doing the work that could either lead to an explosion or they are in harms way when this happens.

I'll just read to you from the

citation. This was a 5(a)(1) citation as your investigators very pointedly pointed out. "While we have a grain standard that covers grain elevators and mills, clearly this one was not covered in 2003 because they used the 5(a)(1).

Employees working on track 753 of the gluten starch department receiving area were exposed to fire explosion hazard. Adequate means were not taken to prevent static electricity. During the transfer process ignition of flour dust occurred resulting in an explosion." I am happy to put anything in the record that is necessary for folks to investigate this explosion as well.

We also process soy beans. We make and refine oils. We make breakfast cereals and we represent commercial bakeries, breweries, and distilleries. Our workers bread fish. They work in areas that dry bone and blood in the rendering department of meat slaughter plants. They dry and dehydrate food

and they manufacture pasta.

We learned a lot from the grain elevator explosions and subsequent standard making. In 1988, as was referred to here, the 1910.272 standard for grain dust, was passed. It covered 2 million farm workers in grain elevators.

In terms of would a voluntary standard work, I wish I had brought it. I like show and tell. I found a book in our file getting ready for this that was about this thick that was published in 1971 by the grain elevator operators, by the trade group, that laid out clearly in much detail how to control for explosions. Yet, it wasn't followed.

We know we had hundreds of deaths in grain elevators. When the standard passed those went away essentially. I mean, your figures show that. In terms of voluntary standards, it seems that the fire prevention standards are out there. They are not being

utilized.

I think Steve from the Teamsters well illustrated that employers if they know about them will go by voluntary standards. If they have time they will go look up these kind of voluntary standards. If their trade groups are on top of it, they may very well know quite a bit about what is going on.

If not forced, many employers will not control dust as the MPG explosion shows. I urge and am pleased that the Chemical Safety Board, a very prestigious board, has done all of this work that OSHA can take great pleasure in.

You have done the background for this for OSHA. This is fabulous work over these two years. Your recommendation that OSHA do a standard on this, I believe, should carry a lot of weight and we really want to support that recommendation so thank you.

CHAIRMAN MERRITT: Thank you very much.

At this time if there are no other -- there is another? How many others do we have? Two? If you would please say your name and who you are affiliated with.

MR. CONOVER: My name is David Conover, C-O-N-O-V-E-R. I'm with the International Code Council. I didn't plan to make any comments but when I heard the excellent presentation this morning from the staff and the board, I had a couple of remarks I would like to make specifically with respect to recommendation six which deals with taking information to ANSI and in discussions we've had with the board staff.

Again, I would like to commend them for the work they have done and the presentation they have made. It is important to point out that just making a recommendation to ANSI or NFPA or any other developer that says, "You ought to do this," you have to be proactive in taking charge to those entities.

Whether it's the board staff or

the board itself or individuals affiliated with the board, they would literally have to go to those activities, write proposed changes, prepare the documentation, etc.

To point one, or recommendation No. 1, dealing with OSHA and our focus at ICC, is public safety. I know you heard a lot about NFPA documents, ours, state and local government enforcement. I'll just make a comment that I think public safety is a shared responsibility.

It is a shared responsibility by everybody. Why I don't disagree with recommendation one dealing with an OSHA regulation, I think the board needs to consider how that is conveyed to OSHA in terms of its preemptive nature to state and local regulations.

I think you saw from the presentation that there are generally some states that may have nothing and may not enforce anything. I think generally you would

find that there are other states that have, in fact, adopted effective state-wide codes dealing with this issue and may, in fact, we doing a fairly good job with permitting and inspection.

Where I'm leading is there can be, and has been in the past situations, where when the Federal Government steps in and says, "Here is this preemptive regulations. We are going to take care of this. States that aren't doing anything are no worse off." States that are may say, "We are budget strapped. Geez, if the Federal Government wants to take care of this, we'll let them go ahead."

When I'm talking about shared responsibility, I think it's important that that recommendation to OSHA be that they need to do it in conjunction with and build upon state and local regulations and those that are, in effect, being effectively adopted, implemented and enforced can be reinforced

with OSHA rather than preempted.

An additional point to make is those codes may deal with not only the operation and maintenance of the structures, but also their design and construction. As you saw today with the location of a dust collection system, that is an issue that is dealt with in permitting and the design and construction of that facility and those clearances.

I question whether OSHA would, in fact, be dealing with that or just dealing with the ONM issues. Again, to summarize, I think that recommendation one is a good one but it needs to be ensured that there is continued share responsibility that works on top of and effectively with state and local programs. Thank you.

CHAIRMAN MERRITT: Thank you.

MR. ORTHEY: Thank you, Madam Chairman, members of the board, everyone. Especially to Dan Horowitz for inviting me to

this meeting. My name is Scott Orthey spelled O-R-T-H-E-Y. I'm the staff manager of the ASTM Committee on Hazard Potential of Chemicals.

It's ASTM Committee E27. Since 1967 ASTM Committee E27 on Hazard Potential of Chemicals has developed consensus standards for diverse testing and predictive procedures widely used to obtain relevant chemical hazard properties. Such data form the corner stone of procedures that assess the hazard associated with commercial chemical production and use.

Among the standards being written by Committee E27 are the standard test method for pressure and rate of pressure rise for combustible dust, standard test method for minimum auto-ignition temperature of dust clouds, standard test method for minimum explosable concentration of combustible dust, standard test method for minimum ignition energy of dust cloud in air, and a new

standard test method for eliminating oxygen concentration of combustible dust clouds.

All these standards are written within the subcommittee on dust. Today we also have with us the chairman of the subcommittee whose is with the Pittsburgh Research Lab with NIOSH, Ken Cashdollar, meeting with the committee next week in Atlanta, Georgia, and we look forward to creating a dialogue and working with you towards your goals. Thank you very much.

CHAIRMAN MERRITT: Thank you. Do I have one more? Yes, sir.

MR. PRUGH: Richard Prugh, Chilworth Technology, P-R-U-G-H. May I respond to a couple of questions by Mr. Bresland? In response to your question about the adequacy of NFPA 484, 654.

It should be recognized that the NFPA codes and standards are consensus documents. NFPA committee members may have conflicting agendas. The NFPA guidelines

should be considered to be minimal codes and standards. Other private sector organizations such as Factory Mutual and Industrial Risk Insurers have greater loss prevention agendas and they have and require significantly higher standards for their clients.

Secondly, an NFPA Ventilation Standard states that spaces above false ceilings are not to be used as return air ducts. If West Pharmaceutical used this space for return air as is frequently done, then this could have lead to heavy deposits of polyethylene dust above the false ceiling that led to secondary explosions.

A couple of suggestions for the board's report. Include a brief precaution concerning hybrid mixtures of combustible dust and flammable vapors. Second, include a brief discussion to precautions for combustible fibers and flyings of class 3 materials which are not now very well covered in NFPA standards.

CHAIRMAN MERRITT: Thank you very much. At this time I would like to open the floor. We have heard the report, heard the recommendations. Before we have discussions I would need a motion concerning this report.

MR. WRIGHT: Madam Chairman, I would propose a motion to approve the staff investigative report, Combustible Dust Hazard Study, Report No. 2006(h)(1) and all recommendations contained therein.

CHAIRMAN MERRITT: And if I have a second, please.

MR. WARK: Second.

CHAIRMAN MERRITT: Mr. Wark has seconded that. Thank you. We have a motion on the floor to approve the staff investigative report, Combustible Dust Hazard Study Report No. 2006(h)(1) and all recommendations contained therein.

At this time I would like to open the floor for discussion.

MR. BRESLAND: I would like to

make a few points about the motion. No. 1, I recognize that there is an issue with dust explosions with the physical damage that they do. The dust study team I certainly commend them on the excellent work that they have done on presenting this issue to us.

However, my issue with the recommendation is I believe my sense is that the main issue here is not necessarily one of regulation but one of awareness, education of the civilities involved. There's lots of educational information available on the dangers and prevention of combustible dust explosions.

We have the CPS book, the Center for Chemical Process book. I know at least two of the people who were involved in the writing of that book are in the audience today. We have Professor Rolf Eckhoff's book on dust explosions. Certainly last but not least we have NFPA 654.

My sense is that if we want to

make fast headway on this issue of people getting killed, facilities getting destroyed. If we want to make fast headway, I think we need to act quickly. OSHA needs to act quickly with an awareness and an educational program.

If we wait for a regulation to be written, my sense is it is going to be many years before that regulation is written. What do we do in the meantime? What do we do over the next five years as we wait for OSHA to develop and write a regulation?

That is why I'm proposing an amendment to the original notion. My amendment will state as follows: To table the motion to approve the draft Combustible Dust Hazard Study Report and further to defer additional board consideration of the report until recommendation No. 1 to the Occupational Safety and Health Administration requesting the development of a new regulatory standard is struck in its entirety and the following

new language is inserted:

To the Occupational Safety and Health Administration, OSHA. As part of the OSHA alliance program form an alliance with appropriate organizations to raise awareness in industry on the hazards of combustible dust and appropriate measures to prevent combustible dust explosions.

Suggested members of such an alliance could include the Center for Chemical Process Safety of the American Institute of Chemical Engineers, the National Fire Protection Association, National Association of State Fire Marshalls, insurance companies, manufacturing companies, appropriate trade organizations, and labor unions.

No. 2, recommendation No. 5 to OSHA requesting the development of an emphasis program is amended by striking the words "while a standard is being developed."

No. 3, the draft report as modified to include greater discussion of the

potential benefits of better hazard awareness, training, and industry and Government partnership programs in preventing major combustible dust accidents. No. 4, the CSB has briefed relevant parties on the revised recommendations.

That's the end of my revised motion.

CHAIRMAN MERRITT: If this is a motion to table, it would take precedence and I would call for a second.

MR. VISSCHER: I second the motion.

CHAIRMAN MERRITT: Seconded by Mr. Visscher.

At this time the floor is open for discussion on this amendment.

MR. WRIGHT: Madam Chairman, if I may.

CHAIRMAN MERRITT: Mr. Wright.

MR. WRIGHT: I'm not certain that our responsibility, mission, and/or actions

are necessarily predicated on the immediacy of word getting out to industry. I think that has been accomplished in a small measure by the incidents that have occurred.

I also believe that the recommendations that I had proposed in my motion include outreach programs. They may not be to the extent and the depth and breadth that Mr. Bresland has proposed.

Further, if I may comment on some of the public comments that were made here earlier in deference to Dave Kirby's comment with respect to OSHA development of a standard based upon the NFPA 654. I, too, would hope that common sense would be part and parcel to that process and I believe it will be as that any OSHA standard requires a public notification and comment period.

I would encourage him to raise those comments with OSHA. I think our responsibility here is to improve the safety and prevent accidents like this in the future.

I believe the current study, although limited in scope and limited resources, has brought us to this point.

I don't think we have the wherewithal nor the desire to expand this study any further, at least from my perspective. I think we have identified a hazard in industry that needs to be addressed and that we should do so. That's all I have to say. Thank you, ma'am.

CHAIRMAN MERRITT: Okay. Thank you. I have a question for staff. Mr. Bresland has raised the possibility of doing an alliance program as an emphasis program for making industry more aware of the hazards out there. I think the original recommendation poses a special emphasis program. Could you comment on those two things and the relative effectiveness of them?

MR. BARAB: Thank you, Madam Chairman. We didn't study specifically OSHA's alliance program but we did look at several

alternatives to regulation including compliance assistance which is essentially what OSHA's alliance program is. It is arrangements with companies or associations that develop compliance assistance materials and share that information among other businesses at risk.

We looked at several different areas. We looked first at the potential for doing compliance assistance outreach to and by industry associations. That type of outreach works very well. Well, it works better, let me put it this way, when you have narrowly defined industry sectors that you can actually define and reach out to.

Here, as Ms. Blair described, we have a wide variety of different industry sectors pretty much encompassing -- practically almost every industry you can think of has the potential for combustible dust explosions as well as a huge diversity of materials.

Secondly, we also looked at the possibility of doing outreach, for example, to fire code enforcement authorities. Now, that is also a problem. First of all, you've got 50 states that run their own fire codes and have their own enforcement mechanisms.

Again, as Ms. Blair described, we also have potentially hundreds or more of counties and cities that may run their own fire codes and certainly run their own enforcement. Many of these staff are volunteers.

Most of these -- in fact, hardly any of these actually inspect industrial facilities. They are just not staffed or researched to do this. Nor is there any central agency that we can look to to effectively do this kind of outreach.

We looked at some of the different organizations that address fire codes. The National Association of State Fire Marshalls which we will be reaching out to and can be

very helpful in this area.

But if you look at their webpage, they focus primarily on residential fires, catastrophic fires in public places, large retail stores, hotels, and that type of thing. They are also not staffed or resourced really to go out to industrial work places. Again, there is no federal authority that can impose that either.

Again, we looked at that. We felt it certainly is something we will work on. In fact, as you well know, after every investigation we do a fairly aggressive outreach program to all interested parties and we will certainly conduct that. But we are looking for something that is not only fast, we are looking for something that is permanent.

Although we can certainly do that outreach and we have recommended that OSHA, for example, do a focus program, we also want something permanent that will last beyond

whatever programs happen to be happening after catastrophic incidents and that is why we felt that a standard is superior to just doing outreach.

CHAIRMAN MERRITT: We have a recommendation to OSHA with regard to reactives in which they initiated an alliance program. Can you tell me do you know whether or not that alliance has been effective?

MR. BARAB: Yeah. Just to familiarize the audience here, the board issued a recommendation to OSHA that they revise the Process Safety Management Standard in the fall of 2002. OSHA has not responded whether or not they actually will do that, although they have not initiated regulatory action.

OSHA did establish an alliance. They put up a fairly impressive wedpage on the OSHA webpage. But the sum total of activities of this alliance has been -- I was just looking at this the other day. I attend the

alliance meetings as an observer. They have done six presentations. They have staffed a couple of booths.

They have done one table top display and they have had two workshops. Twenty people attended one workshop and it was unclear how many attended the other workshop. That, again, is the sum total of this specific alliance's activities.

CHAIRMAN MERRITT: Thank you. Are there any other discussion amongst the board members?

MR. VISSCHER: Yes.

CHAIRMAN MERRITT: Mr. Visscher.

MR. VISSCHER: Thank you, Madam Chair. I think this is a good motion and I certainly support it. What we have heard and I think we have seen in all the incidents is that the issue is generally the awareness of the hazard. Once there is an awareness there's a hazard, there is no shortage of regulations. There have been plenty of fines.

I think if you look at the list of where there have been incidents and where the state OSHAs have come in, there hasn't been an issue of lack of regulation. The issue has been consistently lack of awareness. How do you do that? I think what Mr. Bresland has offered is a good idea in terms of an alliance.

Get everybody working together. We heard it from one of the speakers as well of a shared responsibility of getting national organizations, the state fire marshalls, working with the fire chiefs in the states, working with all the players and actors, national associations, trade associations, labor unions all helping to raise awareness.

I think what Mr. Barab has described in terms of outreach is kind of an old fashioned view of what outreach used to be at OSHA. That is not what an alliance is. An alliance is working together. Jointly work together and spread the word amongst members

which is often more effective than having a Government agency issue things and not have an effective way of getting it out there.

I think it is a good approach to take. The suggestion that an NFPA standard could be easily adopted as not heavy lifting I think is the term. I think if anybody has gone through the OSHA regulatory process, I'm looking at Mr. Jeffers here, have gone through that knows there is no such thing as not heavy lifting standard setting process at OSHA and I'm not sure that there should be.

It is a long process, certainly one that would involve dozens of industries as has been mentioned. You would have to come up with risk levels and so on in terms of all these different materials.

I think it is also relevant to consider is when my colleagues ask the question, we have established the hazard and it is certainly one that we need to respond to, we working with OSHA, working with NFPA,

working with the states, and working with private sector in terms of industries where this is an issue, again, to raise awareness of the hazard and certainly one we need to respond to the hazard.

We don't know yet what the extent of the risk is, however. When OSHA looks at this they have to look at this in terms of the extent of the risk. I think these questions about where this fits is not relevant to this question. Certainly one that is a priority and where those incidents have occurred we need to address those.

I think if we put ourselves in the recipient's place, that is not in your relevant consideration. I think we can be effective, far more effective with the direction of the motion, of working together with all these other players. We can do things now instead of waiting years and years. We can be effective working with all these other organizations and I certainly on that

basis support the motion. Thank you.

CHAIRMAN MERRITT: Are there any other comments?

MR. BRESLAND: I would just like to reemphasize the major point that I am trying to make and that is realizing and recognizing that there is a hazard right now and we have certainly seen that with the dust explosions that have taken place.

We, OSHA, the industry, trade organizations, need to be doing something today. We don't need to be waiting for five years for a regulation to be published. We need to get out there today and start educating people on this to make sure that the sort of tragedies that we've seen don't happen again.

CHAIRMAN MERRITT: Thank you. I think from my perspective, I thank the board members for their thought and consideration in this. I think the board -- I know I, myself, have probably been out on a hundred

presentations this year trying to raise awareness on issues.

Although I'm racking up wonderful frequent flyer miles, I'm pretty tired and I don't know that we have the resources to do some of the things that I think if we were a larger agency we might be able to do. I would hope with a recommendation like this that OSHA would be able to take it and ask for more funding and resources to do some of the things that need to be done with regard to this particular issue.

I think by -- I think an alliance or an outreach program or, as recommended in the first recommend, that they so a special emphasis program. None of that is excluded by adopting the recommendation as it was presented by staff.

I think all of that certainly is still possible and we would certainly encourage that as an agency and as a board to enhance the outreach and the information that

needed to be communicated concerning these issues.

I think the issue with regard to material safety data sheets is extremely important and not including that in a recommendation would be, I think, a misjustice. Those are my comments from the Chair. I have the right to do that as well. Are there any other comments?

Mr. Wright.

MR. WRIGHT: Thank you, Madam Chairman. I would just like to echo your statement with respect to the fact that these recommendations are not mutually exclusive and that they can be taken in totality to address both immediate, if you will, the SEPs and long-term standing requirements as far as a standard. Thank you.

CHAIRMAN MERRITT: Thank you. Are there any other comments?

Mr. Wark.

MR. WARK: Yes. I, too, would

like to echo what you said, Madam Chair, with respect to this recommendation. One of the things that keeps going through my mind is the idea of what the facility management or industry knows and when they know it.

The dual track of a regulation, a standard plus the outreach program, I think, is the way to go on this.

I also think that due to the insidious nature of this hazard, which doesn't seem to be the case in a lot of other areas, that I would think that industry would be taking more of an interest in addressing the hazard instead of their buildings blowing up, their facilities blowing up, and the loss prevention in conjunction with adhering to a standard. That's all.

CHAIRMAN MERRITT: Thank you. Are there any other comments? If there are no other comments, then the first thing we do is to vote on the motion to table and the recommendations that are included therein. I

will read that to you again before we take a voice vote.

The motion by Mr. Bresland, seconded by Mr. Visscher, is to table the motion to approve the draft Combustible Dust Hazard Study Report and further to defer additional board consideration of the report until, recommendation No. 1 to the Occupational Safety and Health Administration requesting the development of the new regulatory standard if struck in its entirety and the following new language is inserted.

To the Occupational Safety and Health Administration, OSHA. As part of the OSHA alliance program form an alliance with appropriate organizations to raise awareness in industry on the hazards of combustible dust and on appropriate measures to prevent combustible dust explosions.

Suggested members in such an alliance could include the Center for Chemical Process Safety of the American Institute of

Chemical Engineers, the National Fire Protection Association, National Association of State Fire Marshalls, insurance companies, manufacturing companies, appropriate trade organizations, and labor unions.

No. 2, recommendation No. 5 to OSHA requesting the development of an emphasis program is amended by striking the words "while a standard is being developed."

No. 3, the draft report as modified to include greater discussion of the potential benefits of better hazard awareness, training, and industry and Government partnership programs in preventing major combustible dust accidents. No. 4, the CSB has briefed relevant parties on the revised recommendations.

Having read this report, I would now -- this amendment I would now take a voice vote.

Mr. Wark.

MR. WARK: No.

CHAIRMAN MERRITT: Mr. Wright.

MR. WRIGHT: No.

CHAIRMAN MERRITT: Mr. Visscher.

MR. VISSCHER: Yes.

CHAIRMAN MERRITT: Mr. Bresland.

MR. BRESLAND: Yes.

CHAIRMAN MERRITT: And I vote no. That motion then does not carry and we go to the original motion which is on the floor, and that is -- I would read that.

To approve the staff investigation report, Combustible Dust Hazard Study, Report No. 2006(h)(1) and all recommendations contained therein. Is there any discussion on this motion as this one now is one the floor. Mr. Visscher?

MR. VISSCHER: Thank you, Madam Chair. I don't want my -- I am going to oppose the approval of the report. I want to explain it and say that I appreciate very much the hard work that the staff has put into this. We've been through a lot of work on it

and they have been both helpful to the board members and have done a lot of work so I want to say that I appreciate that.

Not only do I disagree with the recommendation on a standard because I think there is a more effective way to go, but there are a number of other conclusions in the report that I am not comfortable with. If I approve of it, I'm saying I approve of these inclusions that I'm just not comfortable with. I didn't want my no vote to be in any way suggestive that I didn't appreciate the hard work that you put into it. Thank you.

CHAIRMAN MERRITT: Thank you, Mr. Visscher.

Is there any other discussion on this matter?

MR. BRESLAND: Yes. Can we -- I'm trying to think if there is a way to work this issue and get both sides of the story. My real concern is if we go with this motion as it's currently written that we are going to

wait for OSHA to develop a regulation and that's going to take a long time. In the meantime facilities and people are at risk and we need to figure out a way to get the information. I am very uncomfortable with just leaving this motion the way it is without a real emphasis on outreach and getting the word out to the public and getting the word out to affected facilities.

CHAIRMAN MERRITT: Thank you. Are there any other questions? Any other discussion?

MR. WRIGHT: I just had one further comment, Madam Chair.

CHAIRMAN MERRITT: Mr. Wright.

MR. WRIGHT: I don't believe that the recommendation as drafted eliminates or overlooks or disregards any immediacy in terms of the special emphasis program that is cited as one of the recommendations.

Unfortunately, I don't have the wherewithal to know how fast OSHA takes an SEP

program from start to finish and how fast that outreach would be. Nor do I have any appreciation for how fast your alliance process would be in comparison to an SEP. I think the recommendations as drafted try to meet both sides of the isle here as it were. Thank you.

CHAIRMAN MERRITT: Thank you, Mr. Wright.

If there is no other discussion, then I would like to call for a vote. This, again, would be an oral vote.

Mr. Wark.

MR. WARK: Approve.

CHAIRMAN MERRITT: Mr. Wright.

MR. WRIGHT: Yes.

CHAIRMAN MERRITT: Mr. Visscher.

MR. VISSCHER: No.

CHAIRMAN MERRITT: Mr. Bresland.

MR. BRESLAND: No.

CHAIRMAN MERRITT: And I vote to approve the report and the recommendation.

Therefore, the motion is carried and the report and recommendations are adopted. I want to thank all of our panel and the board members for the deliberation that has gone into this.

It is not always easy. We have one mission and that is to promote prevention. We all are working towards that. I appreciate all of your thoughts, work, and consideration. Thank you for your attendance at this combustible dust public meeting today. This has been very insightful and stimulating.

Our investigative team has provided us with new information about combustible dust hazards that is applicable to all industries. I thank them again for their dedication to this project for the past two years. I also want to thank each of the board members for their comments and their spirited debate here today. All of us share a strong interest in preventing these tragic

explosions in the future and we will be working together now and with the staff to see that the important recommendations adopted today will be swiftly implemented.

In the case of recommendation to OSHA, the Clean Air Act provides 180-day period for the secretary to respond to what the board has recommended. We are confident that once the OSHA leadership has had the opportunity to review the full report and recommendations, that they will also see the importance of acting to control this hazard.

We will be eagerly awaiting their response. I would again like to thank all of today's participants, the members of the public, and the staff for all of your attention.

With that, this meeting is adjourned.

(Whereupon, at 12:05 p.m. the meeting was adjourned.)

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