UNITED STATES OF AMERICA

CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

+ + + + +

PUBLIC MEETING

+ + + + +

Tuesday,

July 8, 2003

+ + + + +

The Public Meeting was held at Corbin Civic, Civic Center Drive, Corbin, Kentucky, at 7:00 a.m., Board Member Gerald Poje, presiding.

BOARD MEMBERS PRESENT:

DR. GERALD POJE
JOHN BRESLAND

ALSO PRESENT:

BILL HOYLE
MARK KASZNIAK
STEPHEN J. WALLACE
FRANCISCO ALTAMIRANO
JIM DAHN

I-N-D-E-X

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

(7:00 p.m.)

MEMBER POJE: I'd like to begin this hearing. I want to thank everybody for attending tonight's public hearing regarding the explosion and fire at the CTA Acoustics facility on February 20th of this year.

The US Chemical Safety and Hazard Investigation Board has organized tonight's efforts with the much appreciated assistance of many in this community.

I applaud your commitment towards participatory democracy. That so many in the greater Corbin area have turned out, at this governmental meeting, on a warm July evening, when so many other urgencies compete with your attention, is a tribute to your civic responsibility.

Briefly let me provide some safety orientation to the Corbin Civic Center. There are exits to either end of the rear of this building, as well as the entrance that you came in, directly to my left and behind me.

We also have bathrooms, men and women's rooms directly in back of you. If anyone has any concerns, during our proceedings tonight, please see

Dr. Dan Horowitz, special assistant to the Board.

Dan, if you could please stand up, and identify yourself, straight into the corner over there. Or see Mr. Sandy Gilmour, who also serves as the CSB's media relations officer. Sandy, if you could please stand and identify -- over to the right over here.

So, again, if anybody has any questions during our proceedings, please see either one of those individuals.

Before I go much further let me also disable the ring on my cell phone, and my beeper. Please follow my lead to avoid any noisy interruptions during our meeting.

I'm Dr. Gerald Poje, one of five board members of the Chemical Safety Board. I've served in that capacity since our agency was established in 1998.

As a professional toxicologist I have overseen and approved each and every investigation conducted by the Chemical Safety Board. Last February I participated in the field phase of our investigation, as a board member on scene here in Corbin.

With me this evening is Mr. John Bresland,

to my direct left, a fellow board member. Before joining the Board last summer, John was president of a chemical process safety consulting company, and consultant to the Center for Chemical Process Safety of the American Institute of Chemical Engineers.

He has more than 35 years experience in the process industries, including management of a major chemical production facility. John is no stranger to the state of Kentucky. Earlier this year he led a CSB investigation team to uncover the facts of a tragic event at the Williamson facility in Louisville.

Also present with us this evening is our chief operating officer, Mr. Charles Jeffress. Charles, to my left, standing in the corner there. Charles joined the CSB last year, having served previously as the United States Assistant Secretary of Labor for Occupational Safety and Health, our highest governmental position on work place safety.

Previously he directed North Carolina's state Occupational Safety and Health program. To my left is Mr. Chris Warner, our General Counsel, who has served almost as long as I have at the Chemical Safety Board.

And at the table to my right is CSB's

investigation team, and consultants, and they will be introduced shortly.

Tonight's hearing revisits the explosion and fire that took place on the morning of February 20th, 2003, and that burned for several days thereafter, at the CTA Acoustics facility, just outside of town.

Our purpose here tonight is to provide an interim report to the community about the preliminary findings in CSB's investigation. In addition we are providing an opportunity for community members to comment on matters relevant to the investigation.

Now, let me give some background about the Chemical Safety Board. The CSB is an independent federal agency charged with investigating industrial chemical accidents. We are not a regulatory agency, we do not develop or enforce policies, nor do we assess penalties when violations are discovered. That job is left to other agencies.

Our approach involves detailed examination of chemical processes, and equipment, extensive interviews with witnesses, and other relevant persons, and an in-depth evaluation of management systems, and the public and private safety policies that undergird the system of safety.

At this point in time I would like to offer, to John Bresland, if he has any opening remarks.

MEMBER BRESLAND: Thank you, Dr. Poje. I would just like to make two brief comments this evening before we continue with the rest of the evening's presentation.

Number one, coming to Corbin, Kentucky from Washington, D.C., allows us on the Chemical Safety Board to put a human face on this terrible tragedy, and to see its impact on the community of Corbin.

I also had an opportunity, this afternoon, to take a brief tour of the CTA facility, and it was, for me it was very sobering to see the extent of the damage of that facility.

Second I would like to reiterate the Chemical Safety Board's resolve to conclude its investigation as soon as possible, and to develop recommendations that will help prevent incidents like this, in the future, either here or elsewhere in the United States.

Thank you, Dr. Poje, for this opportunity to make some comments.

MEMBER POJE: Thank you, John. On the

morning of February 20th the Board mobilized an expert team of engineers, safety professionals, and special support personnel from around the country to investigate the CTA accident.

They have spent many weeks here in Corbin during the field phase of the investigation. And in the last several months their efforts have expanded to encompass laboratory evaluations, and extensive research and analysis.

Some of that information will be shared with you this evening. Our Board sees a special urgency in preventing dust explosions. Little more than two weeks ago our Chairman, Carolyn Merritt, and Board Member Dr. Andrea Taylor, presided over a similar public Hearing in Kingston, North Carolina.

On January 29th, 2003, less than a month before the CTA accident, a dust explosion and fire killed six workers, injured scores, and destroyed a pharmaceutical device manufacturing facility, in that small community.

After presentations by our investigators, and their expert consultants, we hope to hear from you during the public comment portion of the proceedings. If you have not already done so, please consider signing up at the table to the left of this podium.

That will help us organize the hearing process. We have provided a microphone in the center aisle, here, to ensure that all -- that we all can hear your remarks. I also ask that you limit your spoken remarks to three minutes, to allow all who might wish to speak, to be heard.

Now, this is not a press conference, so members of the press please see Sandy Gilmour to assist you with access to the appropriate staff and board members for your work.

At this time I would also like to recognize that attending these meeting tonight are many who play prominent roles in the community life here in this part of Kentucky.

We have Mr. Elmer Cuningold, who is a county attorney; Barry McDonald, who is the chief of the West Knox fire department, very much involved in the emergency response. His two battalion chiefs, Bryan Jenkins, and Jack Purtin, as well as the assistant chief of the West Know fire department, Mr. Darrell Baker.

Many other important members of that fire team are with us in the audience. I would also like to recognize Mr. Amos Miller, and Mr. Phil Gregory with the Corbin City Commissioners. And we also have

with us Mr. Steve Oglesby from the Kentucky Emergency Management Agency, and Mr. Bob Terrell, director of economic development.

I apologize to anyone in the audience that my staff or I may have overlooked in this recognition.

Every investigation by the Chemical Safety Board is an act of faith that the lessons learned will help prevent recurrence of tragedy at similar facilities throughout America. We honor those who have borne the brunt of the incident by committing our time, talent, and resources to this task.

The explosion and fire at the CTA Acoustics facility was particularly tragic. Seven workers and members of this community were killed. I ask your indulgence in a moment of silence, as I read their names.

Clarence Davis, David J. Hamilton, Jimmy D. Lemmings, David E. Messer, Paul Newman, Arnold G. Peters, and Michael A. Reeves.

(Pause.)

MEMBER POJE: Thank you. Five others from the community needed extensive treatment in critical care units. Thankfully they are on the road to recovery this evening. Thirty two others required medical care.

The community at large experienced the anxiety of the upset of that February day. Many of you were evacuated to this very building. Route 75 was blocked for a short while.

The long term anxieties of the economic impacts in Corbin have been particularly stressful. Thankfully CTA Acoustics is committed to rebuilding in this community. And the state of Kentucky has extended a funding partnership to make that a reality.

I must also note that the economic impacts were larger. CTA customers, who relied upon acoustic foam molded in Corbin, temporarily shut down production facilities, idling 10,000 workers in Georgia, Michigan, and in provinces of Canada.

So what has the Chemical Safety Board learned so far? And what remains to be investigated? Now let me introduce our lead investigator, Mr. William Hoyle, to my immediate right, who will provide an overview of our investigation, and direct the additional experts in providing to you the preliminary findings.

Bill has been a senior investigator with the CSB since 1998. He has directed most of the Board's investigations. Prior to joining us he had more than 20 years experience in process safety, and

incident investigations in the petroleum refining industry.

Now, I will turn it over to you, Bill.

MR. HOYLE: Thank you, Dr. Poje. I've been very fortunate to work with a team of talented investigators who have extensive experience in industrial safety.

I want to introduce the members of the staff team, each of whom will present a portion of the presentation this evening. They are Mark Kaszniak, Francisco Altamirano, and Steve Wallace.

Also this evening we will have one of our expert consultants discussing how, under certain conditions, dust can explode. I haven't acknowledged Jim Dahn.

We also had, on our team, two other experts consultants who, like Jim and the rest of the team, spent significant time examining the facility at CTA Acoustics.

Before I go further in my remarks, I need to acknowledge my appreciation for some organizations that were very helpful to our investigation. First I would like to thank the cooperation of the Bureau of Alcohol Tobacco and Firearms, often known as ATF, for their cooperation.

And also the Kentucky Division of Occupational Safety and Health Compliance for their assistance. I also want to thank CTA Acoustics for their cooperation throughout this investigation.

And, lastly, I would like to extend my appreciation to the incident commander, during the emergency response to the incident, Brian Reems, for his coordination during that phase of the incident.

The incident occurred at about 7:30 a.m. on February 20th, about 44 people were injured, 12 were flown to hospital burn units, 7 of those died. The neighborhood near the plant was evacuated, and interstate 75 was closed for a short time.

The fire smoldered for several days, and members, local fire fighters, put out a number of flareups during that time. The CSB team arrived in Corbin late in the day of February 20th.

Air monitoring was conducted the next morning, and it was determined that it was safe to enter the plant. We inspected the incident scene, along with ATF, and representatives of the Kentucky State Fire Marshall's office.

Our investigators took extensive photographs and video of the scene. We collected samples of both raw materials and debris found

throughout the facility, and arrangements were made to preserve the scene as it was found.

CSB investigators conducted interviews with employees, supervisors, managers, and hourly personnel. There were numerous individuals who witnessed the first portion of the fire and explosion. We also requested, and received, numerous documents from CTA Acoustics, and we studied these.

This included equipment drawings, operating manuals, production logs, as well as training and maintenance records. Also agreements were reached with CTA Acoustics, and other investigative groups, to control access to the incident scene, and to preserve equipment, so that it could be tested as needed.

Our investigation team documented the damage caused by the fire and explosion, as well as fire patterns. Analysis of physical evidence has supported our preliminary conclusions drawn from interview testimony. We conducted more than 60 interviews.

The scope of our investigation includes the examination of off-site impacts. We attended a large debriefing meeting that involved numerous organizations involved in responding to the incident.

We have also talked to a sampling of residents who live in apartment buildings, and a trailer park, located in close proximity to the plant. Our discussions with these residents have not generated, to date, any significant problems with the evacuation or health concerns.

I'm now going to turn over this presentation to Mark Kaszniak, who is going to describe the plant production process. But first let me tell you something about Mark.

Mark Kaszniak joined the Chemical Safety Board after a 20 year career in professional safety activity. He was director of health and safety for IMC Corporation, IMC Global more precisely. Also a safety official with Vigoro Corporation, and Morton International.

He received his BS in chemical engineering from the University of Illinois. Mark?

MR. KASZNIAK: Thank you, Bill. My job tonight is to explain to those of you who may be unfamiliar with the CTA Acoustics facility a little bit about the plant, and its products.

The CTA Acoustics facility is a manufacturing plant in Corbin, Kentucky. It was acquired by CTA Acoustics in 1992, but the facility

was built in 1972 by Certainteed Corporation.

It is a fairly large facility, encompassing some 302,000 square feet under the roof. And at the time of the incident there were 561 employees at the facility.

CTA's main product at this facility is an automotive acoustical and thermal padding product that is used primarily in automobiles. As you can see from the photo shown on the screen, some of these products are molded into shape for specific locations inside automobiles.

You will normally find them in fenders, under the hood, under the roof, and surrounding the engine compartment, and exhaust components of typical automobiles. They are used to prevent sound transmission throughout the body, and to protect the occupants of the vehicle from heat generated by the motor, and other exhaust components of the vehicle.

The CTA Acoustics plant is a rather large facility that is laid out into several areas. I'm briefly going to describe what is known as the process flow through the plant.

As you can see in the southeast corner of the plant there is a general receiving area. This is where raw materials are received by CTA Acoustics, and

are then stored in the south end of the plant, in the raw materials area.

From there the raw materials will go to one of several product processing lines. Lines 401 and 402 produce a product known as HVAC duct insulation. It is used primarily for heating, ventilating, and air conditioning systems.

And it is further processed in line 416, where it is then stored in the roll storage areas. However, the area that we are going to be focusing on tonight are the areas around lines 403 and 405. Those are the -- what are known as the semi-cure product area, where the automotive padding and acoustical products are made.

Once those products are made, and they come off the line, and are what are known as pelts, cut to size and stored in racks, they are placed in the pelt storage area, where upon demand they are sent to the molding department, where they are molded into specific shapes for the various car models that CTA has contracts with the auto producer.

From there materials go into the finished goods storage area for shipping out upon demand of their customers. There are two support facilities in the plant. One is a maintenance department, which

generally repairs the machinery at the plant, and the other one is general offices, which deals with the clerical functions at the facility.

We are now going to bring you into a more focused view of what is known as the semi-cure process line. It is called semi-cure because in the acoustical and thermal padding products used for automobiles, it is a two-step process.

The first step of the process is to put it through the manufacturing line, the second step, where it is semi-cured, partially cured, and then moved over to the mold press area where it is molded into shape, and finally cured.

As you can see the two process lines here are surrounded by walls on the south and east sides. These are cinder block walls, and I draw your attention to them, because they play significantly in terms of confinement in the facility, which will be discussed in our preliminary findings, regarding how the dust explosion happened.

You will also notice in this area that part of the process lines are semi-enclosed. They are enclosures which at the raw material end of the process lines, they are totally enclosed parts of the process. Again, this provides confinement at the

facility.

The raw materials used in making CTA's products are primarily three types. One is a fiberglass material. Fiberglass is a very familiar material for people that use in their homes, for insulation. This is very similar to that, it comes to CTA as baled material, and it has, and is glass fibers with a plastic or a starch additive.

An example of the types of fiberglass that CTA gets are shown in the upper photo. There you will see a bale of fiberglass, as it is being fed into a conveyor, which is going into a feeder on the process line.

Another material used by CTA is what is known as facing. It is supplied to CTA in rolls, and it is a plastic material that is generally non-hazardous, unless it gets involved in a fire where it will emit toxic vapors.

The third material, which is the one that is used to bind all these other materials together, in the CTA products, is known as the phenolic resin. Phenolic resin is a plastic material, although it comes to CTA in a powder form, in a dry, fine powder.

Upon being heated and then cured, it ends up being a hard plastic-like material. The first

phenolic resin that was ever produced is a material known as bake-lite, which was very popular in the '50s. That is the consistency of some of the products in the final finished product.

The dry fine powder comes in what are known as bulk bags that hold 2,000 pounds each, and it is very fine, much the consistency of talcum powder. The material is classified by the manufacturer as a combustible dust.

What that means is that the material, if suspended in air and ignited, it will burn, or cause a fire, or cause an explosion, depending on the degree of confinement.

There are two types of resin being used at the CTA facility, a natural type that is used in the acoustical roll product, and a type that contains carbon black, which is just merely a coloring agent being used by CTA because they prefer their colors to be black in color, because of the areas where they are used inside of automobiles.

What I would like to do now is briefly explain how the semi-cure product is manufactured. Number one, the fiberglass is fed in through a series of feeders, on the front end of the line. These feeders take the fiberglass and put it into a

conveyor.

From the conveyor the fiberglass goes through a picker. The pickers job is to open up the fiberglass, exposing more surface area. From there the binder feeder, which uses the phenolic resin, is distributed on top of the fiberglass in a measured amount.

This composite material of fiberglass and binder then goes into a machine known as a mat former. The purpose of the mat former is to apply a suction underneath the fiberglass to draw the phenolic resin throughout the fiberglass, to put it into a sandwich construction, along with the fiberglass.

Of course, excess resin is then drawn out from the bottom of the mat former, and goes up through a tube, to the roof, where it goes into a bag house, where it is collected. The purpose of the bag house is to prevent the dust from being emitted to the atmosphere, and in accordance with EPA dust regulations.

At this point the facing is applied to the top and bottom of the fiberglass resin composite, creating a sandwich construction of facing material, the fiberglass resin combination, followed by another sheet of facing material.

This sandwich, then, goes into what is known as the oven. The oven is heated to a hot temperature, allows the phenolic resin to cure, semi-cure in this case, where it becomes hard. It goes from a powder form to a plastic type material, and then it binds the other components, namely the facing, and the fiberglass, together into a solid construction.

From the oven the material goes on to a cooling chain, where it is air cooled, and finally to a series of slitters. The material is slit to size for both width and length, and what comes out of the process is a pelt.

The pelt is then taken off the line manually, stored in a rack, and will be used later in the molding department, to make the finished product.

Semi-cure operation involves a crew of some five persons. This crew works a 12 hour shift, normally starts at 7 o'clock in the morning. You will notice that the accident occurred at 7:30, so it was relatively early into the day of the workshift, on February 20th, when the incident occurred.

Of the crew members, there was a crew leader who was responsible for processing the orders on the line, and making sure that everything is

running correctly. There is an oven tender, a person who goes and takes the pelts off of the line, and places them into the rack.

There is an inspector that makes sure that the quality of the product coming off the rack meets the stringent quality control requirements required for the product. And then there are two line operators who are feeding raw materials into the product, namely making sure there is enough resin, and enough fiberglass, and other facing materials, to be able to make the products.

Normal operation of the wine involves running batches of material through it. These batches, or orders for pelts, for the molding department, are normally run between one and three hours in length, and then they change to a different batch with a different consistency, depending on the product being made.

During each shift a cleaning process is conducted. These cleanings normally take anywhere from a half hour to an hour, and they are performed on a daily basis. The crew, who normally runs the line, does the cleaning, and during the cleaning process, the line is only partially shut down.

This means that the flow of the line is

stopped, but the oven is still at temperature, and is ready for additional product. During the cleaning process two main areas of the line are cleaned out.

One is the area known as the mat former, which I discussed previously, of which there is a picture here, showing the tubes going to the roof, as well as the boxes that are opened up, and the crew uses shovels, as well as chimney sweeps, and other materials, to clean the process during, and bring the excess dust out of this process, onto the floor, where it will be scooped into a dumpster for disposal later on.

The other material, the other primary component that is cleaned is the bag house. As the bag house gathers dust, the bags inside the bag house, which prevent the dust from leaking into the atmosphere, become coated with dust and they don't work as efficiently.

The process involves opening up the bag house and manually beating the bags to beat the dust off them, so that the bag house will work properly. The reason why we are spending so much time talking about the cleaning process is because, as you will see, during the next portion of this presentation, it was during the cleaning process that the incident

happened.

Finally there is a preventative maintenance cycle that is done on the lines. It is done on regular periodic periods, where the entire line is shut down at varying lengths, so that the material can be cleaned, the oven can be cleaned of excess material, and major worn out parts on the line can be replaced.

It is now my pleasure to introduce Mr. Stephen Wallace. Prior to joining the CSB Steve was a process safety consultant, and also a safety manager at two OSHA VPP, or voluntary protection program facilities, which have exemplary health and safety programs.

Steve is a registered professional engineer in the state of Tennessee, and received his bachelor of science in chemical engineering from the university of Kentucky at Lexington, and also is a certified safety professional.

MR. WALLACE: Thank you, Mark. Mr. Hoyle spent some time discussing the incident, and the CSB's initial response to the incident. Mr. Kaszniak just described plant operation.

What I would like to do is take a few moments and discuss what we know, at this point,

conclusions that we have at this point, and also areas that we are continuing to focus on.

I do want to stress that these are preliminary findings. Our investigation is ongoing, we do thorough investigations, but we felt it was important to come to you at this point, in our investigation, and let you know what we have been able to determine, and again, what we continue to explore.

A dust explosion originated at line 405 near the oven, as was discussed by Mark a minute ago. Combustible phenolic resin dust was likely the fuel for the explosion and fire, for the initial explosion.

Line cleaning that was occurring at the time actually dispersed the dust into the area. And you can see a picture of the area around 405, where the initial explosion occurred.

We have determined that there was a history of small fires in the ovens in the process lines. Those would typically be put out by individuals at the time that this incident occurred. However, there was no one in the immediate area, where we believe the fire, and the explosion originated.

We have also determined the scheduled preventive maintenance for line 405 had actually been delayed. To help better understand the phenomenon of

a dust explosion I would like to talk a little bit about what is required to actually have a dust explosion.

Some of you may be familiar with the fire triangle. To get a fire you will need an ignition source, you will need fuel, and a dust explosion you actually have five sides to that, similar to a fire, you will need fuel, you will need oxygen.

However, with a fire you will need dispersion as well; you will need an ignition source like you will with a fire, but you will also need confinement. And I would like to discuss how the dust was confined in such a manner as to allow the explosion.

The actual mechanism for a dust explosion typically is the following. Dust will settle on flat surfaces. If you are in a dusty area it will settle on flat surfaces.

Some event will disturb the settled dust and fluff it into a cloud. It will become a cloud at that point. The dust cloud is then ignited and explodes. So you can see a series of events that occur and line up in order to allow a dust explosion to occur.

The first of these is that you have to

have dust settled on flat surfaces. I mentioned that confinement is one of the important things you must have to have a dust explosion. The dust in this particular case was confined in this area by the process line and exhaust hoods that were around the line, and walls and ceilings that were around this process, around line 405.

You can see a picture of some of the damaged walls, and the ceiling, after the incident occurred, on the screen.

You also need an ignition source. The oven was most likely the ignition source in this case. We do know that the oven was in operation. We know that the door was open, and we know that there was a malfunctioning temperature controller controlling the oven, and that was likely the reason that the door was being used to control the temperature in the oven.

We are, however, exploring thoroughly other possibilities, including a potential malfunction of the lube/oil system used to oil the furnace. Also was there a possibility of fire inside an electrical panel, or electrical sparks from some other source.

And as follows the typical mechanism for a dust explosion, an initial explosion actually disturbed the dust that had settled on the building

surfaces. The dust ignited causing a flash fire, a very quick fire, and then at that point a secondary dust explosion occurred.

We are going to see a video, in a few minutes, that will show how dust explosions happen, and also a simulation of what we believe occurred in the facility.

Now it is my pleasure to introduce Francisco Altamirano to discuss the blast and fire damage analysis. Francisco has over 25 years of safety and safety systems management experience in the petrochemical and construction industries.

He has led, or participated, in numerous incident investigations and safety analysis, and audits. Prior to joining the CSB he worked in petroleum refining, and was a safety consultant for the ACG group, providing clients with guidance on regulatory compliance.

He is a graduate of the university of Colorado.

MR. ALTAMIRANO: Thank you, Steve. Before I get started, I ask your permission, it is pretty hot up here, I'm going to take my jacket off.

Good evening, ladies and gentlemen, respected Board members. We've all heard the adage

that every picture tells a story. My part of tonight's presentation is to show you, by the use of pictures, the extent of the damage the explosion and fire imposed at the CTA building.

You will also see areas of the facility that helped investigators with insight into the kind of explosion that also occurred. You will see damage that is consistent with a dust explosion. As you will see, it is very devastating.

This first slide, right now what we are seeing is a diagram of the facility. As you can see the arrows, I will use a laser pointer here. Right here is where all the photos that we will be seeing tonight, these are the photos that we are going to be showing.

This photo shows you a view looking towards the 405 blend room. The blast pressure damage to the blend room enclosure, the ceiling and roof damage from pressure venting outward.

Also notice the burnt pelt material which had been stored between line 405 and 403. As well as building debris, bricks, and other materials that were blown about by the pressure that was created.

The southwest corner of line 405, see the wall panels squished outward from above the blend room

area. This area between the blend room ceiling, and the roof of the building, was known as the garnet room.

This area, the garnet room, had a large accumulation of combustible dust. You also notice the enclosure walls of the line 403 blend room were knocked down. Cracks on the outer walls showed evidence of blast pressure damage.

Looking toward -- between lines 405 and 403, the metal panels above 403 blend room pushed inward by the pressure. The pressure damage to the masonry walls, as the pressure pushed outward, and around the structure walls, on its way towards line 403.

Pressure venting upward, followed by intense fire damage to the roof panels. Some roof damage that you see includes roof panels taken out by the fire department to put water on the fire below.

This picture above line 403 blend room, you can see the metal panels above the 403 blend room, pushed inward by pressure coming from line 405. And I have it highlighted up here.

I would also like to note the dust and other material on the building structures, as my colleagues have already pointed out, were on the

structures and ceiling panels.

At southwest line 401, this photo you see on the screen is a mixing room. Pressure entered the room via a door on the north side wall, and exited out of a big slide door on the southwest side of the room.

Notice the big cracks on the outside wall. This is evidence of pressure pushing outward from the interior wall of the room, looking for a place to vent out. We found flame patterns running along the ceiling, starting behind line 405, in the warehouse area, which is the south portion of the building.

Pressure and flame traveled on this path toward line 401. The southeast wall of the building, note the structure damage, the metal panels pushed outward, steel columns being bent outward, also.

The roof damage resulted from pressure coming from line 401. And as Steve and Mark have already indicated, and told you, this is the 405 bag house. You ask what is a bag house? Well, here is a quick and simple description.

Think of the bag house as a giant vacuum cleaner bag that sat on top of the roof, on the building that was connected to the production lines. Dust was collected from the production process and sucked up to these giant vacuum bags, just like you

would keep your vacuum bag clean, in order for your vacuum cleaner to work effectively, it was important to keep these bag houses clean and open to the lines below, if the production process was to run effectively.

The picture on the screen is the number 405 bag house unit. According to eyewitness testimony all of the bag house units were on fire that day. Note, fire damage on the outside of the bag house.

You can also see roof damage from the over pressure being pushed outward. Several employees were in the process of cleaning number 405 bag house when the explosion occurred. One of the employees was severely injured and burnt.

I'm going to show you a computer simulation which demonstrates how the explosion and fire travelled across the CTA facility. It is a complex computer model, based on explosion and fire effects.

And it shows the explosion and the path of the flash fire. The initial and secondary dust explosions, which raise the roof of the facility; the colors, primarily red, would indicate the intensity of a pressure wave, as it moves through the facility.

You also see the numbers of the lines, the

blend lines, 1, 2, 3, and 5, as the pressure is engulfing these areas, the production areas.

As we move on toward our next presentation, it is my honor to introduce my colleague Mr. Jim Dahn.

Mr. Dahn is President of Safety Consulting Engineers, Inc. This firm specializes in explosive testing, hazardous chemical identification and testing, electrostatics, accident reconstruction, and hazard analysis;

Mr. Dahn holds a degree in aeronautical engineering from the University of Minnesota. He is author of numerous reports and papers on explosions. He serves as a member of the National Fire Protection Associations Technical Committee on Handling of Dust, Vapors and Gasses.

Please welcome Mr. Jim Dahn.

MR. DAHN: Thank you, Francisco. I'M going to talk a little about dusts, and why dusts are exploding, and why they don't explode, and give you a sort of a little run down on that.

And we also have a couple of video clips showing some of our testing that we did in the laboratory at our facility, to kind of demonstrate what dust can do. And those videos will be showing

what the CTA dust that we found in the facility will do, in terms of a dust explosion.

When we think of dust, and many of us think about the darn stuff that is around our house, gets in the way, always kind of clutters up things, we have to dust everything up and clean it up.

And we've also heard about dust in grain elevators, and we know that they will explode, there is no question about it. And very devastatingly so. But why do dusts explode and why do some of them do and some don't?

I think the real issue delays with the materials. If you take any material, like a piece of paper, for example, that is what we call cellulose. We know we can take a match to it, and we can burn it, it is burnable.

If I chop that piece of paper into real fine powder, very very small powder, so that you can hardly see the size, and threw it up in the air, and took a match to it, it could catch on fire, and a very large fire ensuing.

As Steve mentioned that doesn't do much unless you have it confined. That dust going up in an area, and it is very well confined, and you now put the match in there, it is going to raise the pressure

of burning very high, and do a very devastating effect.

So many times over the last 35 years that I have been involved with evaluating the safety of operations, dealing with powders, and dusty type of materials, so many times people looked at the dust as kind of a nuisance, you know? It gets in our way, it is sometimes hard to see through it, and we want to keep the places clean.

And we work at keeping the places clean. And so many times fail to recognize the danger involved with the dust. Dust, as Steve pointed out, in real fine particle sizes, suspended in air, now we have the fuel mixed with the air, and that we know is flammable.

Aluminum powder is flammable. I had an incident, about four years ago, in southern Illinois a fire marshall came to me and said, we have a problem down here, I think, but I don't know for sure, it is a wheel manufacturing facility.

They make the bicycle wheels out of magnesium and aluminum. And they buff the wheels up to make them real shiny and, he said, I'm concerned about the dust that is generated.

I said, well, what happens to the dust

that is generated? Well, they blow it down into the basement of the building. I said, where is the dust collector? And he said, I have not seen one over there.

So he convinced management for me to come over to take a look at it. I went down into the basement, which is about as long as this room is here, about 75 to 85 feet wide. I opened up the door to the basement and this huge cloud of dust came out of the basement.

My first reaction is what am I doing here. I went into the basement, I looked around, there were at least three to four inches of dust, throughout the whole basement. At one end of the basement the doors -- the windows were open, and the other end of the basement is where they blew the dust down into the basement.

The aluminum and magnesium dust was piled up about so high, so high. And it kind of just floated down there. And by the time it went outside, you didn't have too much dust going outside. And I looked at it and said, this is very dangerous, especially if that powder will explode.

And the fellow said, it doesn't explode because we have buffing compound mixed with this

aluminum and magnesium, and it doesn't explode. I said, well, we need to check that. And we have standard methods of checking for dust explosibility today.

Over the last 30 years I've been involved with ASTM, actually a little longer than that, in developing out new standards to evaluate the dust explosibility, the ability of dust to explode, and how rapid it will explode, and how easy it is to ignite, and in what conditions it will propagate.

So we took the dust back to our facility and, sure enough, it was really dangerous. The output was, probably, very similar to the resin dust that we are talking about here at CTA. Getting back to him I said you have to get a dust collector in now. It is essential to get dust collecting in here now.

What you have is going to create an explosion, and that basement, the first floor of that building is going to blow up 35 feet in the air if you don't get something done with it.

And an engineer called me back about four months later and said, we bought some dust collectors, but we don't know how to put them in. I said, I will come over there, and I will show you how to put the dust collectors in, how to collect the dust.

And his comment was, I'm not sure if we have enough money for that. That was in September of that year. March the following year I got a call from an OSHA inspector saying I understand you did testing in this material. I said, yes, we did. He said, well they had an explosion. The floor went up 35 feet in the air, 35 feet in the air.

It wiped out about 80 percent of the plant, which is about three times the size of this room, and it killed five people. The plant manager said we do the same thing in Switzerland, we never had a problem there.

Being aware of dust explosion hazards is essential, essential. Just recently, within the last year, we had a company that was manufacturing polyethylene powder, a real fine powder, and they knew it was -- they thought it was dangerous, they sent it out to get tested.

And in the process of testing the results came back and said it was not explosive. And I know, and my colleagues know, that this stuff in very fine particle size will explode. We got a sample, we tested it, and they couldn't believe the results, it exploded.

And that -- it took a lot of training for

those people to understand the danger involved with the dust. I'm going to show you, tonight, the dust that was involved with the CTA, the resin dust with carbon in it, and what kind of a dust explosion output it can have.

I again, as Steve mentioned, there is five elements of the triangle, and I will talk about the sixth one as well. The dust being suspended in air, and there has to be air there, and it has to be in the right concentration, and an ignition source has to be right there by it, in order to get it to go.

When I first started out doing dust explosibility testing about 30 some years ago, I made a Hartman chamber, and I tried to get the darn thing to work, and it didn't work, and it didn't work. And thank God my friends in the Bureau of Mines, Marty can testify to that, showed me that you have to get the right ignition source, the right location, and the right timing, to get an explosion.

Because I'm sure many of you really question how in the world could this have gone on for so long without any potential for an explosion? How often you've seen people working in the site, you've seen fires ensued, sparks occurring, and no reaction.

I kind of equate it to, when you go up to

the gas station, to get your gasoline in your car, and you are pumping gasoline into the gas tank, we know the gasoline in that tank, in the vapor form, mixed with air will ignite with very little energy.

As a matter of fact, less energy is required on a dry day to walk across a carpet and touch a door knob. But we don't have vapor explosions in gas stations. Concentrations have to be right, the ignition sources have to be there, there has to be confinement.

And I'm going to talk a little more about not only confinement, but we also need to think about propagation. Like in grain elevators, the most devastating explosion occurs as a result of the initial primaries, which are not very significant.

That primary explosion kicks up the dust, and causes a major secondary explosion. The walls in a building like right here, are good for maybe about one pound per square inch over pressure. A dust explosion can produce up to over 150 pounds per square inch of pressure, significant.

And what makes the difference is that when, as Steve mentioned, you've got powder laying around, dust laying around in ledges and what have you, initial ignition that you will see here, the dust

explosion here will kick that dust up in the air, now it is a matter, as the fire comes across that dust, ignite the dust, and propagate onward.

And the propagation will be a bunch, on how much dust is at any one location in that facility. So the first video we are going to show is a Hartman chamber, it is a 1.2 liter chamber. We use this apparatus to determine the minimum ignition energy of a material.

I just want to mention that one of the ignition sources that a lot of people do not understand, or appreciate, is the electrostatic discharge potential. When you have resistive materials, like plastic materials, they not only generate charge in the handling, but they store up charge as well.

The first video is kind of jumping around a little bit. I will try to kind of give you an idea of what is happening as we go.

This is the Hartman Chamber. The plexiglass window on it is about 12 inches tall. This is the powder we put into it, CTA powder. That amount of powder is about equivalent to about a half a teaspoon, half a teaspoon of powder, think of it, half a teaspoon of powder. Not much.

And what we have here, we have two electrodes. We have an electrostatic spark discharge across the electrodes. When we blow air out from the bottom of the chamber, that dust will go up into the tubes, and go by the ignition source.

We put about 30 pounds per square inch in the reservoir underneath the apparatus, of air to loft that stuff up in the air, and this is what the consequence is.

You see a lot of the black smoke following that. We have several other clips we will be going through. Another repeat, but we will look at it more of a larger field, from outside of the chamber. We saw inside the chamber before.

Now, again, this is just a very small amount of dust, less than a half a teaspoon. Now we pressurized it back up again, to 30 pounds per square inch. See how far that flame shot above the apparatus?

Significant amount of flame, you can see the after effects following that. The amount of energy it would have, if this was confined, for that small amount of powder, would be sufficient to take an average person of 150 pounds, and throw them up five feet in the air. Half a teaspoon of this stuff.

We have another one going here. Yes, this is the open one. We take an open can, put dust -- too short, dust in the bottom of it, and we just add a little air holes, and blew the air into it, and watched what happened, the fireball that came out of there.

Just a small amount of air. I could take a little plastic bag, which demonstrated at CSB, and it is blowing up a little bit, take the same apparatus, push the bag down, with the little match on the top side to get the same effect. It doesn't take much.

This is the CTA powder. In the next video that will be starting momentarily, I want to show what happens in terms of the sixth stage, I believe, of dust explosions, and that is the propagation. The propagation from the primary explosion, this is a small primary explosion, would have been sufficient to kick up dust along the way, to generate a secondary explosion.

The first clip we have here is just showing you the dust test without the dust in it, just showing the spark gap across it. Again, the same apparatus, 1.2 liter chamber.

And the next one will have the dust in the

chamber, but we will have a little trough that goes about three and a half feet down. And at one point we put a little powder sitting at the edge up there, and see what happens with that.

Watch the flames starting over here, and propagating down that channel, the channel is wide open. See how it propagated down that channel?

In the next clip we have the same channel up there, but now what we have is a little beam over there, it is about a half inch wide, with a little dust on top of the beam, for the same length and distance.

And watch what happens to the flame above that beam, where the dust is settling on it. It is like a roof section, and a beam going across the roof. See how that propagated right across there? The propagation is rather significant.

Again, I just want to emphasize that the most energy you can get out of a system, most people don't realize, they think of explosives as generating the most amount of energy off of a given quantity of material. But dust explosions are at about three times more energy released than the explosive itself. Three times more energy.

Thank you very much.

MR. HOYLE: To conclude our presentation we want to talk about our upcoming activities in this investigation.

The Chemical Safety Board conducts in-depth investigations and much additional investigation work remains to be done. Areas for further examination include the malfunctioning temperature controller on the line 405 oven, as well as the impact of production line cleaning schedule related issues as possible factors contributing to causing this incident.

We will also be looking at the operation, and the safety practices of other manufacturers of similar acoustic foam products. And we will also be examining the effectiveness of communications between CTA and their resin supplier, regarding the hazards of the resin material.

Plant equipment that may have played a role in the incident has been preserved. Earlier today CSB investigators met with multiple parties that are conducting investigations into the incident. We hope to coordinate testing of equipment, and materials, with these parties, and to share test results.

This process, likely, will be time

consuming, but it is very important. This will help us to confirm the likely origin of the fire, and also help us to ascertain if and why equipment malfunctioning contributed to the incident.

The CSB investigation team will continue to analyze CTA documents related to the incident, as well as company safety programs. Our upcoming test results will also be factored into our analysis.

Another area of examination for the CSB is the adequacy of existing federal and state workplace safety regulations for the prevention of dust explosions. As our fact finding analysis is completed, we will identify the underlying root and contributing causes of the incident.

And, finally, the staff will develop safety recommendations for the approval of the Board. Recipients of these safety recommendations may include organizations such as CTA, safety and industry associations, and OSHA, the Occupational Safety and Health Administration.

Our final report will likely be presented to the Board at a public meeting, similar to this one, here in Corbin early next year.

In conclusion I want to briefly reiterate a few of our key preliminary findings. They are the

following. The plant's production lines had a history of small fires erupting near -- out of the oven area.

Operators routinely put out these fires as the lines were continually attended. However, during the cleaning operation, on the morning of the incident of February 20th, there was no one present in the immediate area of the oven, because they were cleaning.

Some of the crew was up on the roof cleaning, at the bag house, and others were cleaning in other areas. So there was no one there to detect this fire situation.

The fire spread quickly over a wide area. Dust that had accumulated on flat surfaces, throughout the plant, was disturbed, became airborne, providing more fuel for the fire. The initial explosion stirred up dust, and this led eventually to secondary explosion situation.

That concludes the Staff's presentation. I will now turn the program over to Dr. Poje.

MEMBER POJE: Thank you, Bill. Thanks also to you Mark, and Steve, and Francisco, and Jim.

Now we will proceed to the public comment period of our hearing. Once again I welcome comments from all. Your input will help us with the completion

of our investigation.

The purpose of this portion of our hearing is, really, to get input from you. This does not provide questioning of the Board staff, or the Board members.

As Bill said, we are in an interim phase in this investigation, and there may be some questions that still cannot be answered at this moment in time. We have provided a microphone in the front of the room here.

There will be an assistant to help guide you to the microphone so that all can be heard. Again I had asked you to limit your remarks to three minutes. And I have, before me, a list of people who have signed up to be speakers at this hearing, and I will call you in the order that you signed up.

Can I please have Mr. Earl Patterson, Jr. come to the front? And we welcome your remarks.

MR. PATTERSON: From what I heard, from what you just said about the explosion and everything, I really couldn't believe that is how it happened, because where I was the first initial explosion happened it seemed like above the ceiling, back in the blend line section. I was back there trying to go out a door.

But if the explosion happened below ground, on the ground level, then that may explain why the explosion I heard and seen went up the top of the roof. But at the time I was back there, of course, I seen the first explosion and it knocked me to the ground.

Then I heard a second one, that is when I was on the ground, bricks and everything. But the third explosion was what you call the fireball that went out everywhere. I was back there and I seen the flame going down the blend line section.

I don't know how far it went, or anything, but the way you showed on that screen there, it does answer a few questions for me. But that won't help my mind much.

MEMBER POJE: Thank you very much for sharing that with us. Again, I think I just want to acknowledge to everybody that it is a very difficult thing to stand up in public and speak, thank you for doing such, and thank you for all who have volunteered to share information with us this evening.

Please speak into the microphone so that all can hear you. Next we have Mr. Billy Ellison.

MR. ELLISON: I am Clarence Davis' father in law, and I did not work at the plant. But I would

like to know what was the difference in February the 19th, and February the 20th.

You stated that they had the small fires, often, at the plant and they were put out. Would you say that there was an unusually lot of dust in the plant that morning, and the flames escaping from the oven ignited, and he couldn't control them, because the controller didn't work, and there was nobody, you stated, manning the oven at that moment.

Did the oven burn, did it get its fuel from natural gas? Or what burned the oven? Was it electric, or gas, or what?

MEMBER POJE: I think you have raised some very important questions. Bill, if you want to add to the remarks. I think -- I do want everybody to recall, though, as Jim Dahn presented to us, that you can go time, after time, after time without the event occurring, and then just get all of the right conditions at the right time, at the right place, and there you have the explosion.

But, Bill will offer some remarks on your comments, and thank you for sharing them with us.

MR. HOYLE: As you indicated, the oven is fueled by gas, but the fire that we are speaking of likely involved the accumulation of waste material in

the oven which, from time to time, would catch on fire, and operators would put it off.

Things that were unusual in this case, different from perhaps the day before, or from general operation, would be the malfunctioning oven temperature controller, the oven door in the open position.

It happened to be in the cleaning phase of the daily work cycle, which is an activity that generates dust. They are cleaning out the production line, and there is dust generated from that.

The other thing different, as we've indicated, is during the actual production, the oven area is continuously attended by an operator. But during the clean-out phase production is not taking place, so personnel will be occupied otherwise, than watching the oven.

So as Dr. Poje has indicated, many factors come together on that particular moment, to cause an incident where a facility is operated for 30 years without, likely, without a similar devastating incident.

MEMBER POJE: If I could ask Mr. Gary Saliers to come to the microphone. And I apologize if I've got your name wrong, please correct it.

MR. SALIERS: We have heard rumors that OSHA investigated before the explosion. Can you speak to whether that is true or not, or the results of their investigation?

MEMBER POJE: I will turn it over to Bill. Again, we try to encompass, in our investigations, evaluation of a whole host of different organizations, sometimes it does include those agencies that might have regulatory oversight for facilities.

But oftentimes even that analysis has to become part of a more complex way. Sometimes regulatory agencies might be visiting at facilities for different purposes than the one that led to this particular incident.

MR. HOYLE: We understand that OSHA had visited the facility in the fall period of the year before, and they did find some concern regarding the machine guarding. That is the information that we have, and that is the extent of the -- what we gathered from that inspection, or from that report.

MEMBER POJE: Now I ask Mr. George Jay Renfro, Jr. to come to the microphone.

MR. RENFRO: I have a question about your testing. You said that you checked the black resin. Was that the black resin or the dust of the black

resin that you all had, that you actually tested? Was it the new product that comes in?

Because it comes in, in black bags of 2,000 pounds, or was it actually the dust?

MEMBER POJE: We can ask Francisco to speak to that, or Jim.

MR. DAHN: The powder material that was received on site was very, very fine particle sized. So it really was like a dust, very, very fine particle sized, with some carbon mixed in with it.

Does that answer the question okay?

MR. RENFRO: Yes.

MR. DAHN: Okay, thank you.

MEMBER POJE: And I'm sorry I forgot to call Phyllis Hamilton to the microphone.

MS. HAMILTON: Everybody I talked to said that there was a gas leak. Did you find this to be true, and don't you think that the workers should be told just how dangerous this really is?

MEMBER POJE: Bill, do you want to add some remarks to that?

MR. HOYLE: The gas system in the facility was tested for leaks, and the results did not find any significant problem with the gas system, so we did not find that gas, a gas leak likely caused this incident.

Again, we feel pretty strongly that this was a dust explosion. Regarding training for personnel, that will be included in our final report. We will be examining training, and we may make recommendations regarding better training for workers not just at CTA, but perhaps in other similar facilities across the country.

MEMBER POJE: I want to thank you for asking questions like that. You can understand that an investigation board has to examine all possible causes as it starts to narrow down to those activities are most likely have led to the event.

And, clearly, that is a very important issue for us to confront, and the team has looked at that carefully. Could I ask, now, Ms. Shawna Bennet to come to the microphone?

MS. BENNETT: I work in the mold department at CTA, and there is dust floating around in the air. Could dust from the mold cause a fire?

MEMBER POJE: Maybe we can have Jim describe what kinds of concentrations of dust are involved in explosions. But I think that is also an important question to be addressed.

MR. DAHN: That is a very good question. And many, many times I have been asked that very same

question when I'm out in the field, and in the process plants.

Well, we see dust out here, and it is really kind of dusty. Is that a dangerous situation? Normally we have had a criteria, many years ago, in the coal mining industry that says the coal dust that is locked up in the air, and if your hand is three feet away from you, and you can't hardly see your hand, that concentration is sufficient for a dust explosion.

Typically the small concentration you see floating around in the air, normally, is not enough to be able to be in the right mixture ratio. You saw in the video here, half a teaspoon in the material was lofted up into that small chamber.

There has to be sufficient enough material in the air to be able to support a combustion, or an explosion.

MEMBER POJE: Again, just to repeat. Remember we were describing, earlier, the fact that the dust has to be present, it has to be suspended. There also has to be confined in enough space, and hit the ignition source at the right time for the explosion to occur.

Clearly one of the important issues in

this investigation is to understand how the dust accumulates over time, and presents enough fuel to propagate additional explosions. So thank you for your question.

Now, could I ask Ms. Rhonda Johnson to come to the microphone?

MS. JOHNSON: Yes. David Messer was my brother, and one important question I really have is if we know there is a problem with an oven, we know there is a problem with the temperature control, why was this line not completely shut down until repair was done?

Because myself I know the magnitude and the power of the dust. I didn't work at CTA, I'm a registered nurse. I have seen this many, many times from people inhaling talcum powder, dust, things like this.

If the dust in that factory was the magnitude that you all have described to us, why was that machine not totally stopped until repair was done, and what is ample time to repair a machine that carries that much weight, to cause that type of explosion?

I don't understand why it just wasn't stopped.

MEMBER POJE: I think you are raising important questions about how does safety operations operate at this particular facility, how well do people recognize the incipient hazards that could lead to such conditions, and what circumstances would you take to put a layer of protection over your processes.

Those are matters that are still part of the ongoing investigation, and we hope that when we come back to Corbin we will have further answers for you.

But right at this point in time those are still matters that are under study and evaluation by the Board. Thank you very much for your courage in coming to the podium this evening.

That concludes the number of people who had registered prior to our meeting to say something at this hearing. We would now welcome anybody else to come, who may have a comment to share with us about this particular incident.

PARTICIPANT: (Inaudible.)

MEMBER POJE: Could you please use the microphone? Because what we are trying to do is to allow others to hear not just tonight, but our hope is, also, that this hearing would be up on our website, and available for those who couldn't make the

meeting tonight to see and hear everybody.

PARTICIPANT: I just want to make sure that I understand something. As of right now you still don't have the ignition source that caused the accident, is that correct?

MEMBER POJE: I think what we were saying earlier was that we likely believe that the source of ignition was from the open oven door. That is the most likely source that we have under consideration right now.

PARTICIPANT: But you also mentioned the electrical panel and some other sources. Are these -- is there still ongoing investigations, or do you think there might be a probability there?

MEMBER POJE: I think the question of probability is always an important one. But, again, what we are trying to do is to work through all possible sources of ignition, and the one that we had some -- enough confidence in our current investigation to bring to you tonight, using the term most likely source, would be the open, the oven door.

Now, understand that in almost all investigations one can't answer exactly, with one hundred percent assuredness, that we know anything that would say this was absolutely the only possible

ignition source.

Clearly we have to examine many different possible pathways, but some provide a greater degree of likelihood than others, and that is the reason why the term was used by our team tonight.

PARTICIPANT: Well, the reason I'm asking, as of next month I will have been with Certainteed, CTA for 28 years. I have been there from general flunkie, all the way through to quality, okay?

And I've seen all these scenarios there, and I have also seen a line blow, because years ago we had -- years ago, when it was Certainteed, we have had several, and I have seen people blow back.

But to this magnitude, can you tell me that gas didn't have any contribution to it at all? I smelled gas, I was there that morning, too. Now, it may have blowed the line, I don't know. But that is what I want you to tell me, did it, was that a contributing factor?

MEMBER POJE: I think as Bill identified earlier, we have examined that, the team has examined that. And at this point in time when they look at the explosion, they look at the evidence, the physical damage that was presented tonight, clearly the most likely cause is the accumulation of materials that

were seen inside the oven.

Now, again, we are presenting all of our findings tonight as part of an ongoing process of investigation. And I thank you for, again, reexplaining to us points that you've seen. I hope our team will have had a chance to talk to you.

If they haven't already I know they will follow-up with you. Again, we will be back here and we continue to welcome any other person who wants to approach the microphone.

PARTICIPANT: Yes, I'm a member of the community, and I live close to the factory.

MEMBER POJE: Could you tell us your name please?

MR. FIELDS: My name is Joe Fields. And I'm -- the question that I have is probably for the community as a whole.

What determinations has the Board made on the effects of the air, and the chemicals that were in the air that morning, and up until now what effects will this have on our community, and the people in the community, and to what degree? Thank you.

MEMBER POJE: Why don't I have Bill say something about that? He did mention that aspect of the investigation, earlier on in his presentation.

MR. HOYLE: While the incident was ongoing there were resources, expert resources, that were monitoring the air, from the military unit that was actually on-site from elsewhere in Kentucky, who brought state of the art technology to monitor the air.

In fact we would not enter the plant until the air had been tested. Also what the water, run-off water was tested for its safety, as well as the air around the perimeter of the facility.

So the results of that testing, we did not conduct that testing ourselves, but the organization that did conduct it reported that they did not find anything that likely would cause harm to the community.

MEMBER POJE: If I could just also add that earlier this evening I did confer, once again, with the Chief of the West Knox Fire Department, Barry McDonald.

There was a false statement given during the event that indicated some imminent danger from a cyanide cloud, which the firefighters in the area investigated, and found to be quite false.

There was somebody who mascaraded as an expert who really did not know what they were talking

about, and got false information out there. So that will also be part of our record, but be alerted that that first alarm that was echoed by the media was not true, and I think the media did their job to also try to dissuade people from thinking that that was the case.

But, again, Barry McDonald is here tonight, and I'm sure he would be happy to share with you some of his evaluations of that. Thank you.

PARTICIPANT: Sir, if there wasn't anything in the air when that happened, why did we have to leave our homes?

MEMBER POJE: Excuse me could you, just for the sake of our record, if you could tell us who you are?

MS. HUBBARD: I'm Elizabeth Hubbard, and I live at Corbin Manor Apartments, right down by the factory down there.

MEMBER POJE: You know, again, I can't profess that I know all of the details surrounding the emergency response. But it is not infrequent, the Board's investigations up to this point in time has visited a number of communities where people have been asked to shelter in place, or asked to evacuate.

And there has been no harm to them, except

for the upset that they've had from being dislocated from their home, and being made much more anxious than they would ever like to be.

We don't have any evidence, at this moment in time, that points to any exposures to people of chemicals that would have caused harm, nor that there were any in the workplace, or in the off-site water, that gives us cause for concern.

MS. WHITE: My name is Linda White, and I've worked at the CTA Acoustics plant for this, my 19th year. And I was one of the people on the back line 1 that got burnt.

And this is about the gas, again. But has anyone talked to the gas company to see if they had any reports of any kind of leaks around, or before that time of the explosion?

MEMBER POJE: I will ask Bill to say something more about that.

MR. HOYLE: Again, the gas company was contacted, the system was checked out, and as well as the equipment in the plant was tested for leaks. And all of that information has led us to conclude that a leak in gas was not involved in this incident.

I recognize that some of the people that we talked to, out of the 60 interviews, maybe one or

two people mentioned that they thought they smelled gas. But, overwhelmingly, the majority of the people we talked to did not report that they smelled gas.

And also our testing did not -- or the testing that was conducted did not reveal a gas release. That is why we think it is most likely, as we have demonstrated tonight, that this was a dust explosion.

MS. WHITE: Thank you.

MEMBER POJE: Thank you.

MS. LEMMINGS: I'm Lisa Lemmings, I work there also. My brother was killed in it. And there have been fires there before, but they ain't never hit -- they blowed the ovens, besides the ovens before, but they ain't never run all the way across that factory and got every line.

And also if you all are aware that dust blows up that bad, why don't OSHA have some kind of regulations on that, to keep that factory a little cleaner? And why don't they take it?

MEMBER POJE: I thank you for those last points. That, clearly, is one of the issues of great concern to the Chemical Safety Board. As I stated earlier, we have an ongoing investigation in a similar community, in Kingston, North Carolina, where there

also was tragedy.

This investigation here, the Board has also gathered some preliminary evidence about other incidents that have occurred in the recent history in this country, about dust explosions.

We have regulations established, under the Occupational Health and Safety Administration, for managing the hazards associated with dust that might accumulate in grain elevators, and similar kinds of operations.

We have standards that might deal with the control of dust in coal mining operations. We have standards that might deal with the control of dust in sawmills. We do not, as far as we can tell from our research, have anything that speaks to the types of dust that are found at the Kingston facility, and at the CTA facility.

You've heard from our lead investigator that the rest of our work will encompass some analysis of this particular problem. And if the Board believes that the evidence is there, that we have differential standards, we will tackle that question, perhaps, with a recommendation.

But that is part of the ongoing investigation. And I do share your concern about the

gravity of this situation that might not have a level playing field of safety in this country, for dealing with such materials. That will be part of the deliberations that we bring back to you when we complete our investigations.

I share the concern and mourn the loss, also, of your brother.

MS. LEMMINGS: Thank you. I also want to know, there was a helicopter scheduled to come in Tuesday, and they was going to shut the factory down and send everybody home at 2 o'clock.

I heard that the union stewardess for that helicopter company called another union stewardess in town, and said that they would not set those vents on the roof at CTA today, because they had a gas leak.

And if that was true, that would be Tuesday. They ran it Wednesday, they ran it Thursday, it blew up. Has anybody checked into that?

MEMBER POJE: Bill, you might want to say something about that.

MR. HOYLE: Yes, we are aware that the commissioning and installation of new dust collection on the roof was scheduled to occur fairly soon. We have not, this is the first time that I heard that the work might have been canceled due to a concern about a

gas leak.

But we will certainly, we have not heard that, and we have interviewed a lot of people. But we will certainly, I assure you, we will look into that and see if there is anything to that.

In fact, after the meeting, it probably would be useful if you would come up and talk with one of our investigators so we can follow through on that.

MEMBER POJE: Thank you. Please state your name.

MS. ALSIP: My mane is Jackie Alsip, I don't work there, my husband does, he has been there for about 11 years now. And I have two questions, one is his.

He wants to know if did you test the natural white binder when you did your testing, or was it just the black?

MEMBER POJE: I'm sorry, I didn't hear the question.

MS. ASLIP: Did you test the white binder, the natural white binder, or did you only test the black?

MEMBER POJE: Let me ask Jim to respond to that.

MR. DAHN: We tested the natural binder,

as well as the one that had the carbon in it. And they are both about the same in terms of explosion output.

MS. ASLIP: And then my other question is, since CTA was aware that there was a problem with the line 5 bag house, and the bag house we know collects the dust, my question is, if they had hardened the protection on line 5, until the new bag house was in place, would this have prevented the fire, or the dust that caused the fire?

MEMBER POJE: I think that those are -- that is a very important question. It is part of the ongoing investigation. At this point in time I think we are still not sure that we have all the evidence in hand to make a judgement on that question.

But I think you are raising an important point, and it will be part of our analysis coming out of the investigation.

MS. ASLIP: Do you think because the bag house wasn't in place the concentration of the dust was probably more than what it normally would have been?

MEMBER POJE: I think our team will be evaluating the relative contributions of the bag house, the relative contributions of dust in other

layers across the facility. But that will be part of the final investigation.

I'm not prepared, at this point in time, nor do I think the team is prepared, to evaluate that particular aspect of this investigation. But it is part of the investigation. It is not going to be a forgotten element.

MS. ASLIP: Because my husband works on the line. And like most everyone in here, there is not other jobs in here. And they have to go back to them. And a lot of people are still worried to go back to work.

And my husband, when he goes back, he is going to be working the lines again. Thank you.

MEMBER POJE: Thank you very much.

MR. MCDONALD: I'm Barry McDonald, I'm the chief of the West Knox Fire Department. We were the lead agency involved in the explosion.

The comments about the air quality, the Army sent the air quality control unit down. And the reason why the people was evacuated, we had what turned out to be a false report from a guy in Alabama.

And he told everybody that he was with the hazardous material team from CTA in Alabama, is what he told the incident command, or the command post.

And the reason why people was evacuated, along with us, we were evacuated also, was because our first response is human lives, and safety, plus the community.

And we were inside, and on the roof fighting the fire, and we almost had it contained and out, when we had to evacuate. And we was evacuated for over an hour.

And the reason why the people in the community was evacuated until after six that night, was because we had to wait until the air quality people gave us the okay that the air was tested, they went all around the building, inside the building, all around the community, and they came back and made the recommendation that the air was fine.

And that is when they let the people in the community to come back in. And I just have one comment. This explosion, it hit home. We have two of our firefighters, their uncle was killed in this, David Messer.

And so we feel with the rest of you that, you know, this did hit home.

MEMBER POJE: Thank you very much, Barry. Again, I can't emphasize the importance of what is the current generation of testing technologies.

And the air monitoring in this particular event was conducted by the 41st Civil Support Team from Fort Knox, Kentucky. That proved to be very valuable to us at the Chemical Safety Board because as Bill Hoyle said, we couldn't allow our own team to get into the facility and begin an investigation, until we were sure of their safety.

The same situation was the matter fore the Bureau of Alcohol Tobacco and Firearms, and for all of the emergency response personnel that were trying to do their job.

So, again, I think there is important evidence that was gathered about the air quality, and that is part of the public record. Thank you.

MS. SUTTON: My name is Lynn Sutton, Jimmy Lemmings was my brother. I just got a comment to make. CTA might not know that the dust was flammable, but they knew it was bad, because every time OSHA was supposed to come in the employees were not allowed to blow their machines up.

And that is how they cleaned it, they got an air hose, they blowed the machines up, got the dust off. But when they knowed OSHA was coming they weren't allowed to do that.

So they knowed something about that dust

was bad, they should have had more filters, or something there.

MEMBER POJE: I thank you very much for sharing that. Is there anybody else who would like to add to the record for this evening?

(No response.)

MEMBER POJE: Well, thank you all for those comments. Many calculate that speaking in public is one of the more stressful life experiences. And to speak in public on a matter as serious as this, when loved ones were injured, harmed, or victims of this tragic event, is also extraordinarily stressful situation.

So congratulations to all who have contributed to these proceedings. Should anyone have any additional input regarding the CTA incident, please contact the Board at 202-261-7600, or via our website, which is listed up on the screen here.

We will have ourselves, and our staff here for the rest of this evening, so if you want to say something to us, informally, please come up and talk to us.

And as we have heard and seen tonight, dust explosions are a significant hazard in manufacturing operations. This accident happened only

a few weeks after the terrible tragedy in Kingston, North Carolina, which was also caused by the ignition of dust in a plant, and which claimed six lives.

The Board's preliminary review of other incidents indicates that in Springfield, Massachusetts, there were three deaths at an industrial facility in 1999 from a dust explosion.

One other was killed in Richmond, California; four were killed in Vicksburg, Mississippi. We are seriously concerned with the pattern of incidents here, and want to get to the bottom of it.

As the investigation proceeds we will begin to consider safety recommendations. We will be looking, closely, at the fact that the Occupational Safety and Health Administration has safety standards to prevent dust explosions in grain elevators, and saw mills, but not in other types of manufacturing.

As Mr. Hoyle has presented, the Chemical Safety Board has an additional investigative task to complete before we can finalize our report. And I pledge that we will work as efficiently as is practicable, hopefully completing our investigation and returning as a full board to Corbin, by early next year.

I thank you all for your attention to this evening's presentation and comments, and I look forward to working with you in preventing the recurrence of similar incidents.

With that our hearing is closed, and we now would be happy to meet with you informally.

(Whereupon, at 8:50 p.m., the above-entitled matter was concluded.)