U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

PUBLIC BOARD MEETING

Moody Ballroom
Hilton Hotel
8181 Airport Blvd.
Houston, Texas

Thursday,
March 6, 2003

The above-entitled meeting came to order, pursuant to notice, at 9:00 a.m.

PRESIDING: CAROLYN MERRITT
Chairman

BOARD MEMBERS:

JOHN BRESLAND
DR. GERALD POJE
DR. IRV ROSENTHAL
DR. ANDREA K. TAYLOR

CHARLES JEFFRESS, Chief Operating Officer
CHRISTOPHER WARNER, General Counsel

STAFF PRESENT:

JOHN MURPHY
LISA LONG
GIBY JOSEPH
DONALD HOLMSTROM

I N D E X

P R O C E E D I N G S

MS. MERRITT: Good morning.

On behalf of the U.S. Chemical Safety Board, I welcome all of you to the CSB public meeting here in Houston.

I'd also like to welcome those who are joining us live by Webcast at our Website, www.csb.gov.

I'm Carolyn Merritt, and I'm chairman and CEO of the U.S. Chemical Safety Board. And with me this morning are our other board members, Dr. Irv Rosenthal, Dr. Andrea Kidd Taylor, Mr. John Bresland, and Dr. Gerry Poje.

Also with us in the audience, if you'll stand, please, is Charles Jeffress. He's our chief operating officer. Mr. Christopher Warner is our general counsel, and of course, our staff and guests. And we certainly are glad that you are here with us this morning.

Our main business today will be to review the staff's findings and recommendations concerning the May 1, 2002, Third Coast industry fire near Pearland, Texas. We'll proceed then to public comment -- and I encourage you of the public to please feel free to speak -- and possibly to a board vote on the report and recommendations.

Time permitting, we will then take up some routine business, for which you are welcome to stay, and

adjourn around noon. We've also scheduled a press conference here at 12:30 to recap today's activities.

As many of you know, this has been a very busy time for us at the Chemical Safety Board. We have eight major investigations under way, including today's case, the Third Coast fire.

Before we hear a brief update of those cases from Mr. Jeffress, I'd like to take a few minutes to make a few general observations.

First of all, we have good news, and that is that we have added seven new investigators and specialists to our staff since we were here in September in Houston. We're very grateful to our friends in Congress for providing us with the adequate resources to fund that expansion.

All of us share a common goal, and that is to see that chemical accidents are prevented and that the public, the workers, and workplaces are better protected from chemical hazards.

The unfortunate news, however, is that at no time in recent history has there been a greater need for an agency like ours. This winter there has been a rash of tragic chemical accidents. In January I returned to the Houston area with our investigators to respond to the incident at BLSR in Rosharon.

In addition to that event at BLSR, which has now claimed three lives, the board is investigating major plant explosions in Kinston, North Carolina, and Corbin, Kentucky. Those two explosions have taken eleven lives, inflicting terrible injuries as a result of fire, and caused major economic disruption to those communities.

As a safety professional, I have to tell you that it's difficult for me to watch, as incidents happen, knowing that most all of these could be prevented through better safety management systems. It's a difficult message to have to convey to people like Antonia Diaz, the young wife of one of the burn victims at BLSR.

Mrs. Diaz is the wife is Octavio Diaz. When the incident occurred there, Mrs. Diaz was eight and a half months pregnant with their first child. Octavio Diaz survived the incidents, but Mrs. Diaz's brother, Francisco Perez, and her half-brother, Macario Martinez, both workers at BLSR, perished at the scene.

Mr. Diaz now faces, along with his family, a lifelong struggle as a result of his injuries. I can't begin to imagine the sorrow that those families face in the wake of such chemical disasters. I can say that we at the Chemical Safety Board will learn every lesson that we can from these accidents.

We'll continue to seek better safety at sites across this country by urging the adoption of our recommendations and publicizing the hazards to raise the awareness that such incidences could happen anywhere.

Today we'll learn about an earlier incident in the Houston region that, surprisingly, caused no deaths or serious injuries. And I say surprisingly because at the Third Coast fire on May 1, it was one of the largest fires of recent memory, consuming about 1.2 million gallons of combustible liquids, like motor oil and brake fluid.

But the fire started in the middle of the night, thank goodness, and there were no workers present, but the blaze burned for 24 hours and caused the evacuation of about 100 people in surrounding homes and businesses.

In addition, and we shouldn't forget, that 180 emergency responders were also involved in this event. Every event impacts people in many different ways. Although this accident caused no injuries, it does raise a number of serious safety issues relating to the management of combustible liquids.

Specifically, what kind of fire protection systems, for example, alarms or sprinklers or fire-retarding partitions, are necessary where combustible liquids are stored in large quantities? Secondly, what role should the

local government be playing in ensuring the safety of these kinds of industrial facilities?

Are the local, national, and international fire codes adequate to prevent the incident and to prevent the results of these hazards of combustible liquids? Even questions are raised about OSHA's role in preventing these events.

I want to emphasize that while our investigators did uncover fire safety deficiencies at Third Coast, the company has been completely cooperative with us in this investigation. They also experienced a total loss of this facility, and I'm sure they would agree that the cost of prevention would have been a good investment.

I look forward to working with Third Coast and other parties to fully implement the safety recommendations that will be considered here today. Our goal is to prevent this type of incident where the outcomes may be more tragic.

I also want to acknowledge the good cooperation with the Pearland volunteer fire department and OSHA, Houston South Area Office. Lastly, I would also be remiss if I did not mention the excellent working relationship in the field between the Chemical Safety Board and the Bureau of Alcohol, Tobacco and Firearms. ATF has been shoulder-to-shoulder with us not only here at Third Coast but also

recently in North Carolina and in Kentucky.

I'd like to briefly explain the format for today's meeting. We will hear from the staff and they will present the circumstances of this incident and their root causes. At that point, board members, you will be welcome to question the staff.

We'll hear the staff's proposed safety recommendations followed by another round of questions. At that point, we will take a short break and when we return, we'll entertain comments from the public.

A few ground rules, though, for those comments, if you please, would be that if you wish to offer comments -- and we encourage you to do so; you're welcome to do so -- your comments should be pertinent to this case at Third Coast, and you need to limit your comments to five minutes, please.

If you plan to offer comments, we would ask that you make yourself known to the staff at the registration table some time between now and our break.

Depending on what the board hears today, we may then proceed to a vote on the report and its recommendations. Following the public meeting, we have scheduled a press conference at 12:30 right here in this room, and members of the public are certainly welcome to

attend this press session, but we'll only be taking questions from accredited reporters.

Now, if there are any other opening comments of any other board members?

(No audible response.)

MS. MERRITT: Then if there are none, then I'd like to introduce Charles Jeffress, who will give the board a brief update on our ongoing investigations. Thank you.

Charles.

MR. JEFFRESS: Thank you, Chairman Merritt.

Chairman Merritt and board members, I'm proud to report to you that today the Chemical Safety Board has more staff deployments than at any time in our history. While that represents unfortunate accidents, it also represents our doing our job in helping the public understand the cause of these incidents, helping the chemical industry prevent future incidents of this type.

Our ability to respond at this level is the result of more staff that we added last fall, as you will recall. But it's also the result of our existing staff's stepping up to the challenges, accepting more work in a very positive response to the increased workload that these incidents have brought to us.

And I'd like to take this opportunity to publicly

thank the staff for stepping up and taking on the challenges, helping us address these problems that confront the manufacturers and users of chemicals in our country today.

The goal of our investigations is to help manufacturers and users of chemicals better understand the causes of these incidents, better understand the hazards in their workplaces, and our investigations cover a wide variety of industrial settings that you'll see as I go through our list of open investigations.

The longest running investigation at this point is in New York City -- Kaltech Industries Group, Incorporated. On April 26, 2002, an explosion occurred in the basement of a ten-story building in the Chelsea district of Manhattan, which is pictured on this slide here.

Kaltech Industries produced metal signs in the basement of this building. They also occupied space on the first and mezzanine floors of the building. In the explosion 31 people were injured, including 14 members of the public in the building and surrounding it.

The explosion was the result of a chemical reaction that occurred when waste and surplus chemicals were consolidated from several small containers into 55-gallon drums so they could be taken offsite.

We will have a public hearing in New York on this -- to discuss issues related to this investigation next month. Particularly interested in issues related to the regulation and handling of hazardous chemicals in commercial buildings and mixed-use districts such as this. We expect a final report on this investigation in June of this year.

The next investigation is the one that you'll hear more about today. I just skipped it -- excuse me. Which is the Third Coast Packaging Company in Friendswood, Texas, just south of here. And I will leave further discussion of that to Dave and the group when they come.

The next is DPC Enterprises, which is south of St. Louis, Missouri. On August 14, 2002, employees of DPC Enterprises were unloading chlorine gas from a rail tank car when a hose ruptured, sending a cloud of gas into the surrounding community.

This gas continued for three hours -- the leak continued for three hours. It forced the evacuation of homes and businesses in the area. Four people were treated at hospitals, although there were no long-term injuries at this point, as far as we know.

The picture you see there is the tank car and the gas escaping from the hose where it's connected to the plant.

On October 4, 2002, Board Member John Bresland made an interim report in Festus, Missouri, to local and state officials about the progress of our investigation. In December we issued a safety alert to users of chlorine gas to check on the construction of the transfer hoses that transfer chlorine from tank cars to their plants to assure that they've been manufactured with the proper material to prevent leaks such as this. We expect to complete this report at the end of next month.

The next investigation is in Pascagoula, Mississippi, First Chemical Company. On October 13, 2002, an explosion occurred in a distillation tower at the plant. The explosion and fire ruptured a nearby [inaudible].

There were three minor injuries, and Jackson County civil defense officials ordered residents within a one-mile radius of the plant to shelter in place for a period of time. Debris from the explosion and fire, including this nearly six-ton piece of metal that you see here that came from the top of the tower, were blown up to a quarter-mile away from the plant site.

The community was very fortunate to have as little collateral damage as occurred since this plant was in an industrial park with significant amounts of ammonia and gasoline and other chemicals stored close by. This was a

runaway chemical reaction, illustrating one of the hazards that the board highlighted in its study last year on reactive hazards.

We expect to complete this investigation in September. We did hold in January -- Board Members Gerry Poje and John Bresland made an interim report to the community in Pascagoula, Mississippi, on this investigation.

Next is Environmental Enterprises, Incorporated. Environmental Enterprises treats industrial waste to make them safe to enter municipal sewage systems. At their Cincinnati plant an employee was overcome by hydrogen sulfide fumes after an inappropriate treatment of some of the chemicals being treated. This investigation is a part of a larger study of toxic gases emanating from hazardous waste systems.

Next is Catalyst Systems, Incorporated, investigation. Catalyst Systems is actually a part of U.S. Chemicals and Plastic Company. This plant is located in Gnadenhutten, Ohio. This plant produced benzoil peroxide, a chemical used in auto body fillers.

Employees at the plant had home-grown a system for producing a product with a much higher concentration of benzoil peroxide than they had been making in previous years. It was this system that exploded on January 2, 2003.

Fortunately, no employees were in this part of the building at the time. While this part of the building is destroyed and no longer usable, no one was hurt and the rest of the company was able to continue operating.

The next investigation is back here in Houston again; ironically, right back in Brazoria County: BLSR. On January 13, 2003, a vapor cloud deflagration and pool fire erupted at the BLSR Operating, Limited, facility located here in Brazoria County about, as you said earlier, five miles north of Rosharon.

The fire destroyed two 50-barrel vacuum trucks, and that's what you see in the picture here -- the remains of the two trucks. Three employees have died and two are seriously burned as a result of this incident. Our investigation is focusing on identifying the source of the flammable vapor and the ignition source; possible hazards associated with handling waste liquids from oil and gas production wells, and these folks were actually hauling volumes from gas wells, and our investigation is focusing on the level of worker awareness of flammable liquid hazards at these wells and their associated waste disposal facilities.

The team recommendations and findings will be presented to the board the next few months and will be released as a final report in early summer.

The next investigation is the largest investigation the board has undertaken in its history, West Pharmaceutical Services in Kinston, North Carolina. On January 29, 2003, six people died as a result of an explosion at the West Pharmaceutical's plant. Four more employees remain in critical condition six weeks after the incident in burn centers and hospitals nearby.

The company produced rubber products for use in the health care industry. The primary fuel in the explosion was dust generated by the manufacturing process. This dust accumulated above a false ceiling in the plant. We continue to investigate what set off the dust, what caused the dust to explode, but you can see the shambles, the total destruction of the plant that resulted from this accident.

The ninth open investigation is in Cranston, Rhode Island, at Technic, Incorporated. Technic is a leading producer of precious and nonprecious metal plating chemistry in the electronics industry. Chemicals handled at the facility include silver nitrate, potassium silver cyanide, potassium cyanide, nitric acid, and other cyanide salts.

On February 7 this year, an explosion and subsequent fire in the process ventilation ductwork, and here you see some of the ductwork coming off of the vets

where these ducts assembled into the main ductwork that carried all the waste out is where the explosion initially occurred.

The explosion resulted in serious injury to an employee, an evacuation of immediate neighbors to the plant. Major damage, as you can imagine, to the plant. Theories in how the incident started include perhaps a combustible dust explosion or the explosion of shock-sensitive material in the ventwork.

This incident, like the Georgia Pacific incident that the board closed last year, highlights the need for facilities to pay special attention to the systems that handle their waste, whether they be sewers or whether they be ventilation ducts.

The processes that occur in waste-handling systems are a concern to us, and obviously, can result in major damage to plants and major injury to individuals.

The most recent investigation we have is in Corbin, Kentucky, at CTA Acoustics. On February 20 an explosion and fire at the CTA Acoustics plants injured a total of 44 people. Four have died; four more remain in critical condition in the hospitals.

Noxious smoke, as you see here, forced the evacuation of an apartment building, houses, and businesses

around the plant. The plant manufactures acoustical and thermal insulation for automotive industrial customers. It was heavily damaged. Parts of it are back in operation, but our investigation is active. We are still on site at this plant today.

In addition to these ten open investigations, as you see, eight major ones and two smaller ones, the board has initiated two studies -- one on toxic gases from sewer systems and one on handling sodium hydrosulfide. These studies and others are being pursued as time permits in the course of our investigation of these incidents.

Again, I'd like to thank the staff for stepping up their efforts to meet the challenges presented to us in the past six months by these types of incidents. We look forward to sharing with industry and with the public the lessons we learned from these events so that we can prevent further incidents.

MS. MERRITT: Thank you, Charles.

Do you have a question?

DR. POJE: I'll just make a comment, Charles. As you know, the board members are also part, frequently, of some major investigations and in the field, and I've the opportunity to be in the field on three of those. And I do want to salute you and the staff for the quality of field

work that's going on right now.

I think it's of the highest quality that the board has ever pursued, and I think I would share the comments from the chairman. These incidents are horrifically significant to our country.

The one that I just returned from at CTA Acoustics -- not only are 500 jobs at risk and the terrible travail to the individuals, but this is a crucial supply chain feature for other businesses, and as a result of their tragedy at this facility, over 10,000 other workers have been laid off at other facilities because of the inability to produce this material.

So I do urge us to make sure our messages get out on how to be preventative for these incidents so we can protect an awful lot of jobs in this country.

MS. MERRITT: Thank you, Dr. Poje.

Thank you, Charles. Would you please at this time -- may I make an announcement, though. If anybody has got mobile phones, cell phones, pagers that beep or ring, would you please turn them off so that our report will not be interrupted by your calls. Thank you.

Charles, would you now introduce staff and let's proceed with our report.

MR. JEFFRESS: Thank you, Madame Chairman.

To present the report on the Third Coast accident investigation, we have three people to present; two staff members and one consultant.

Dave Heller, who is the supervisor in the investigations and safety programs division of our agency. Was a lead investigator on this incident. He's been with CSB for four years. He's a chemical engineer and a certified safety professional.

Prior to joining the agency he spent 24 years in private industry in a variety of assignments in the chemical industry. With us he's served as a lead investigator at the Morton Chemicals Explosion on New Jersey, at the Bethlehem Steel investigation in Indiana, at the Motiva Enterprises investigation in Delaware, and of course, at Third Coast.

He will be the primary presenter of the report to you. Joining him is Jordan Barab, our investigation recommendations specialist. He's been in the occupational safety and health field for over 20 years. He joined the agency in September last year.

He's a recommendations specialist working with investigators to develop recommendations, evaluating the responses we get from recipients, and working to assure that people adopt the recommendations that we make.

Presenting with these two is Bob Zalosh, Robert

Zalosh, who was a special consultant to the agency during the course of this Third Coast investigation. Dr. Zalosh has been a professor of fire protection engineering at Worcester Polytechnic Institute in Worcester, Massachusetts, since 1990.

Prior to that he worked for 15 years for Factory Mutual Research Corporation. He has authored chapters on explosion protection for the National Fire Protection Association's fire protection handbook and for the Society of Fire Protection Engineers' handbook of fire protection engineering.

And I'm proud to say that while he was on sabbatical in 2001, he spent awhile working on the staff of the Chemical Safety Board. So welcome back to our investigations.

And with that, Madame Chair, I'll turn the presentation over to Dave Heller.

MS. MERRITT: Thank you.

MR. HELLER: Thanks, Charles.

Madame Chair, board members, Mr. Jeffress, Mr. Warner, in the early morning hours of May 1, 2002, a small broke out at the Third Coast Industries plant in Brazoria County near Friendswood and Pearland, Texas. By the time the fire was extinguished nearly 24 hours later, the

facility was a total loss, consuming more than 1.2 million gallons of oil and engine lubricant materials.

Several nearby buildings were destroyed and neighbors evacuated. Environmental cleanup activities included removal of debris, soot and ash, and approximately 900,000 gallons of contaminated water. Fortunately, no employees or firefighters were injured in this incident.

Our investigation team arrived on the scene on the night of May 1. We were also present, and we'd like to thank also the Texas Commission on Environmental Quality, TCEQ, the Bureau of Alcohol, Tobacco and Firearms, ATF, U.S. Environmental Protection Agency, and the Occupational Safety and Health Administration, OSHA. And we were also joined by the Coast Guard in those succeeding days on the site.

This morning we'll be presenting the results of our investigation, our findings and analysis to the incident, our determination of root and contributing causes, and recommendations aimed at preventing a recurrence of this incident.

And the key issues we're going to cover are the lack of fire control measures at the Third Coast facility, consensus code standards, namely, codes developed by the National Fire Protection Association -- that's the NFPA -- and other code-making bodies, notably the International Code

Council, and how adherence to their practices would have made a difference at Third Coast, and the need for communities to have codes, fire codes, that protect businesses, the community, and the environment.

First, some background about the Third Coast facility. Third Coast was located in an unincorporated area of Brazoria County. It was about 18 miles from downtown Houston. Third Coast began operations in 1988 and had expanded several times over the years.

At the time of the incident, what Third Coast was doing was they were blending and packaging automotive and engine fluids, so antifreeze, motor oils, windshield washer fluid, hydraulic and gear oils and other fluids like brake fluid, power steering fluid, and transmission fluid.

These items were sold under various Third Coast brand names. Third Coast was also blending and repackaging materials for major oil and lubricant companies. Almost 100 employees worked at the Third Coast facility -- this Third Coast facility.

Third Coast also operates another facility, Third Coast Terminals, which is located inside the city limits of Pearland, Texas. At this point it's important to review how flammable and combustible liquids are classified.

Now, NFPA, the National Fire Protection

Association, and OSHA classify these liquids based on their flashpoints and their boiling points. Flashpoint is the minimum temperature at which a liquid gives off enough vapor to form an ignitable mixture with air. The lower the flashpoint, the easier it is to ignite.

And there's a cutoff between flammable and combustible liquids at 100 degrees Fahrenheit. These cross right here. Best way to understand that is that materials of flashpoints below 100 degrees -- they can generate enough vapors to ignite under normal summer conditions right here in the Texas area and many other areas also.

Liquids with flashpoints over 100 typically must be heated by some source to become flammable. And the classes shown in red on this diagram are the materials that were onsite at Third Coast at the time of the incident.

The vast majority of the materials are what are called Class III combustibles, the least likely and the hardest to burn, but there was also some methanol, mineral spirits, and some other more highly combustible materials. But as became evident on May 1, 2002, once ignited, even these Class III combustibles will burn just as fiercely as any other flammable liquid.

And now an overview of the facility. We can take a look at this slide for one second, but I'd like to talk

about this off of this diagram of the plant. There was a storage tank farm -- there was about 74 -- these are vertical storage tanks up to about 50,000 gallons in capacity.

Seventy-four of these tanks were in use at the time of the incident. There was about 700,000 gallons of material stored total in those tanks. Third Coast also had four warehouse buildings, and these had -- this is really how the facility had grown over the years from 1988 through the 1990s.

And inside the warehouses were blending and packaging lines and also storage for finished product, so we had cases of motor oils and drum material, smaller cartons of brake fluid cans, small cans all inside these various buildings. About 500,000 gallons of materials in these smaller containers.

This is a closeup of that lower left-hand corner of the facility. And see the tank farm a little better, and again, we said that most of the materials were Class IIIB combustibles. There were some that were more flammable, so a tank of methanol, which is a Class IB flammable, a Class II material, and one or two of the Class IIIAs, and that will become relevant as we go through the presentation here.

Also like to point out at this point the area

that we believe was the most likely source of point of origin of the fire, and this was outside of Warehouse 1 around what was Packaging Line 4.

Now, here's an overhead photo. This was taken before the fire. The facility is outlined in red. And what I'd like to point out to you here is the proximity of the houses and businesses around the plant. This is West Clover Lane here, and here are -- and again, not all of the houses are marked off here, but here's some of the houses that were close by in white and the businesses are with the black squares.

Now I'd like to take you through the sequence of events that began on the evening of April 30 and continued through the following days. On that evening, second-shift workers were carrying out normal activities, blending and packaging a variety of fluids in and around the plant and in and around Warehouse 1, and they left the site at about 11:30 p.m.

Now there's about a one and a half hour gap. At about 1:00 in the morning the security guard arrives for his regular rounds. And if I can point you over to the schematic back here, the guard came into the office area of Warehouse 2, sort of checked in, walked through the building and looked out a door out of the back end of Warehouse 2,

and he sees a fire around Packaging Line 4 around the table here.

He runs back through the building, calls 911, and goes back again to the door to take another look at the fire. At this point his opinion is it's too large for him to really attack with a fire extinguisher. Flames were really starting to lick the top of what was a covered area, which shows it in brown here where that Packaging Line 4 is.

Now, the emergency response was really quick. Within seven minutes the first firefighters were on the scene. In fact, the first firefighter on the scene was the Pearland Volunteer Fire Department chief, and this is what he observed from the -- where he was in the southeast corner of the facility looking in.

He saw a pool fire or a ground fire in this area here where there was a tank wagon and two box trailers of empty drums. Dr. Zalosh will talk about this a little more as we get into his part of the presentation.

He heard the sounds of containers failing and rupturing, and also the tank truck that was parked here was a 6,000 gallon tank trunk of a synthetic motor oil was beginning to get cooked by that fire underneath it and was starting to vent out of its top.

He then tried to back out and enter the facility

a little farther down, but the fire was really growing quickly. The sounds of the fire and the explosion had grown to this -- quite a bit by this point. He wisely backed off.

He called for mutual aid from the surrounding fire departments and started to look at evacuation of the neighbors. So in all, over 180 firefighters and support personnel were involved in this incident, but really, there was nothing they could do.

Closest supply of water for firefighting was over one mile away. Firefighters were able to set up a water shuttle system using portable tanks, and it was enough for them to cool nearby structures, but the decision was made to let the fire burn out until really all the 1.2 million gallons of flammable and combustible liquids had been consumed, and then they could safely approach and extinguish the remaining fires.

This also had an advantage in that it minimized the runoff of any contaminated water from the firefighting efforts. While the facility was almost totally destroyed and it will not be rebuilt, it was almost three days before the residents closest to the plant could get back to their homes.

Some of these homes required extensive internal and external cleaning, and the environmental cleanup

activities went on for many weeks.

Here's a view of the facility from the morning of May 1. You can see the amount of smoke that was being generated from this fire. This was taken from the south, looking towards the facility this way, with the tank farm closest to us.

These tanks here were tanks that were unused. They hadn't even been connected yet, so they were a set of tanks that really got bypassed by the fire, were empty. This is another aerial view. This is a little later in the morning, but you can still see some wisps of smoke.

The predominant wind direction was from the southwest to northeast, and that's pretty much how the fire spread through the facility. This is the area back around Warehouse 1, which we think was the source of the fire, and you can see how it really went right through the facility.

A little corner of Warehouse 4 was left. A little corner of Warehouse 2 was left. Those are those tanks that weren't in use. And again, I'll point out the proximity of the houses. House right here, there was two garage. One garage had been converted into an apartment; that was lost. A small welding shop over here, and again, some of the neighboring houses.

Neither Alcohol, Tobacco and Firearms nor the

Chemical Safety Board could specify an exact cause or point of origin for the fire. The extensive destruction made identification of the cause next to impossible. ATF considered the likelihood of arson as a fire cause but could not make a conclusive determination.

An expert retained by Third Coast stated his opinion that the fire started as an electrical fire in a maintenance office which was inside Warehouse 1. Based on our interviews with witnesses, eyewitnesses, we believe the most likely source of origin was outside of Packaging Line 4, outside of Warehouse 1.

Again, though, for us the key issue was not how a small fire started but why a small fire could not be controlled and destroy the entire facility. And to take us through that process, I'd like to turn over the podium to Dr. Bob Zalosh, who will talk about that mechanism of fire spread.

MS. MERRITT: Thank you.

DR. ZALOSH: Thank you, Dave.

I'd also like to thank the board for allowing me the opportunity to participate in this investigation, become reacquainted with my former colleagues on the CSB staff, and to meet some of the new, capable staff members. Thank you.

I'm going to go through a series of evolutions in

which combustible liquid is released from the various containers and tanks that were onsite to offer some idea on the time scale of how the various and when the various containers discharged their contents to cause the fire to escalate dramatically from the point where Dave left off.

And I'll start with the containers that we were told were involved outside of Warehouse 1 on Line 4 that had been filled that evening, and those were, as you've seen here, caught containers of motor oil, and the scales here, of course, are distorted.

If you imagine a fire of the size that was first observed by the security guard, engulfing or getting close to the polyethylene containers of motor oil, we know from series of fire tests that have been conducted over the last, oh, 15, 20 years, there have been numerous test programs to observe the failure modes, the failure times, and the nature of the release from various containers.

We know in the case of polyethylene containers of combustible liquids that the time to melt the container when it's fully engulfed in a fire and allow the contents to be discharged is approximate -- is less than 30 seconds.

So these various -- presumably, hundreds of these caught containers are starting to release the motor oil and cause the fire to start growing. We're also told that

another filling operation going on that evening was filling of five-gallon containers or pails, if you will, of hydraulic oil. The pails might have been plastic, mostly polyethylene containers, or they may have been more steel drum containers of the type shown here.

The breach time for a fully-engulfed polyethylene container in a fire of this -- container of this size is within the range 20 to 40 seconds, according to tests, for example, conducted by the U.S. Coast Guard and other organizations.

The breach time for five-gallon steel containers -- it depends -- without any pressure relief opening, depends on exactly how you characterize the breach; whether it's going to be a minor release at the rim or at one of the openings or a more catastrophic release at the bottom rim, and it depends to some extent on what the liquid is in the container.

But in general, tests conducted at Factory Mutual Research Corporation, for example, under the sponsorship of the National Fire Protection Research Foundation, show that the breach times were in the range for most of them 150 to 320 seconds.

Now, these -- so two and a half to five and a half minutes, and I'd sort of like people to keep in mind

that the time scales between, as Dave pointed out, between when the security guard first saw the fire in the vicinity of Line 4 made the 911 call and the arrival of the Pearland Volunteer Fire Department was about seven or eight minutes, so all these things are happening in that time period while the fire department is on its way to respond.

When they did respond, the chief described a pool fire that was in the vicinity outside of Warehouse 1, and perhaps under the awning and outside the awning, engulfing the tank wagon, and it was apparently in the -- of a width of 60 to 80 feet wide, and in his opinion was, understandably so, too large to approach with the very limited firefighting capability they had on board and the lack of onsite water.

So the challenge represented by a fire of this size compared to the much smaller fire in the vicinity of Line 4 first observed by the security guard makes a tremendous difference in the viability of either manual or even automatic suppression, and so things have really escalated almost out of hand at this point.

But there are other larger containers that get involved, and the exact sequence of which containers failed when is overlapping here. But another key ingredient in this mix of liquids being added to the fires was the

releases from the 55-gallon steel drums, of which there were many, many in the various warehouses, including some in the vicinity of Line 4.

And these drums, to our knowledge, don't have any pressure-relieving devices, so when they do fail, they'll have to fail either along the rim, the top rim, or would have to fail at one of the bung openings on the top, or even worse would be a failure along the bottom rim, because that could produce and in fact did produce a rocketing of the drums and -- so that can land far from their original site and they can trail a large quantity of burning liquid that will spread the fire from the immediate vicinity of where the drum was.

The time that it takes, based on, again, fire tests conducted over the years and storage -- warehouse storage type environments for various liquids in 55-gallon steel drums indicates that beginning to see some breach in the two minutes and within about five minutes, they're going to be -- there's going to be a major failure that can occur, as I said, either at the top or along the bottom, and that would produce either a -- depending on what the failure site was and the pressure at failure, you know, some small vapor which would be relatively innocuous addition to the fire or a major escalation of a fire, both in terms of the quantity

of liquid released and the site of the fire.

This is a photograph of the remains of some of the steel drums that were in the vicinity of Line 4. You can see the breaching on the top lid in some cases, and the continued exposure to the fire causes failure of the lateral walls of the drum and breach into the well.

So these were just some of the drums that were contributing to the fire at this point. Another key event in the escalation of this fire was the tank wagon that was sitting too close to Warehouse 1 and Line 4, and that allowed the tank to be engulfed in this spreading pool fire of combustible oils such that the fire chief reported seeing the tank wagon engulfed and venting occurring from the tank wagon.

This eventually caused the aluminum shell of the tank wagon to melt, and the remains of the aluminum tank wagon were just what you can see here. There's some resolidified molten aluminum globules down there and then just the frame of the tank wagon was all that remained when the fire was over.

Another key event in the escalation of the fire was one or more blending tanks located in the vicinity of Line 4 outside Warehouse 1, and in fact, they were located very close to the -- one of the nearest wall of -- the south

wall, I guess it was, of one of the diked areas in which the large storage tanks were located.

The lack of protection, exposure protection, in the form of either insulation, fire resistance, or water spray exposure, allowed those -- and these were tanks on legs, and that allowed those tanks to fail, to tip over. The piping connected to those tanks also failed, as you see in the photograph, and thus several thousand gallons of the oils in the blending tanks were added to the still-growing pool fires.

And also, the quantity of liquid released at this point is sufficient to have the fire spread to encompass the second nearest warehouse, Warehouse 2, and also to start spreading to the tank farm and the storage tanks in those tank batteries.

This is a photograph of what a fire -- this is a much larger storage tank than the ones on site, but just the difficulty in trying to cope with a large storage tank fire is illustrated here.

And as Dave indicated, there was some 70-odd tanks with capacities up to about 50,000 gallons, which one by one were starting to fail and cause the further escalation of the fire.

Here are some of the remains of some of the

tanks. I'll just sort of briefly go through what some of the various modes of failure of these tanks were. Some of them, as you can see from the photograph, are collapsed and so some of those may have been tanks that were raised tanks and the legs collapsed.

It could have been failure of a weakening of the lateral walls of the tank. Steel loses about half of its strength in terms of yield strength and at a temperature of about 500 degrees C., the being engulfed in a pool fire produces temperatures that are approximately double that.

So over a period of time, all of the load-carrying capacity of the tank is diminished to the point that they all started to fail. So besides collapse, it was clear that the tops were blown off some of the storage tanks because of a lack of any emergency venting, which is the established, most commonly practiced way to prevent tank failure, in addition to exposure control with water spray and drainage and impoundment of the liquid to prevent an unlimited-exposure fire.

In addition, the piping connected to the tank, connecting the various tanks to the filling operations, were breaching their pressurization of those lines. Any remaining liquid, trapped liquid in the lines, will eventually cause those pipes to come down.

As the tanks come down, they bring the pipes with them, and so there's even further liquid released into the burning liquid.

This is a view showing the relationship of Warehouse 2 as it looked on the days following the fire and the remaining standing storage tanks in the background. There was no -- as you can see, it's aluminum cladding on the walls of the Warehouse 2 and the others; a lack of firewalls allowed the fire to spread -- penetrate into the Warehouse 2 and the other warehouses.

The lack of automatic sprinkler protection, once that fire get inside, allow the fire to cause further release from raw materials; in this case, of Warehouse 2. And in the other warehouses, for example, there were steel drums stacked up perhaps, as indicated here, four high, sometimes stacked directly on each other.

In other cases there was rack storage of these smaller containers and perhaps of the drums. And so in Warehouse 4, for example, and Warehouse 3 where the finished products were located, you have these hundreds of thousands of gallons of combustible liquid in these type of containers.

A lack of automatic sprinkler protection or any foam protection for that, and so as the fire penetrated the

warehouses, what's left of the drums is just a debris field, as you see here, and perhaps the remains of some of their racking, as racks from the storage, or the steel columns -- what were steel columns and beams supporting the warehouse.

There were also aerosol cans, storage of aerosol cans, as you can imagine, go rocketing and produce fireballs when they burst after a minute or so of direct fire exposure, and various other containers, all of which were found in debris fields for the various warehouses.

So what were some of the key factors that allowed this level of escalation and development of the fire as we understand it? First on the list here is the absence of any onsite water supply.

An onsite water supply, proper training and detection would have allowed what started as a relatively small, manageable fire to get to the point where once the fire department arrived, they didn't have any onsite water to deal with a 60- to 80-foot, perhaps 300 megawatt approximately, fire.

The lack of automatic suppression, both in and around Warehouse 1, and the attached Line 4 allowed that fire to grow. We know from dozens and dozens of fire tests what kind of sprinkler protection are needed for combustible liquids in small containers, and so there was no lack of

understanding of what would happen and how to prevent that from happening with automatic suppression systems.

The inadequate separation of the tank wagon, the aluminum wagon, from the Warehouse 1, Line 4, was a major factor in releasing the contents, thousands of gallons of contents from that wagon, and causing the pool fire outside Warehouse 1 to start spreading to Warehouse 2 and to start exposing the various storage tanks.

The lack of exposure fire protection for the tanks and the various batteries. By exposure fire protection, I mean, for example, monitor nozzles, deluge systems that would keep the tanks cool and prevent that weakening of the steel that causes the collapse of the tanks and release such that the contents of 70-some-odd storage tanks add to the fire.

The lack of firewalls and automatic suppression systems in the four warehouses was still another major deficiency factor that allowed the warehouse contents to be lost entirely and hundreds of thousands of gallons of additional combustible liquids to be the last perhaps contributions to the fire.

Some of the factors -- other factors that were important in this story in allowing this uncontrolled fire spread was the lack of pressure-relieving devices on the

tops of the steel drums. Why is that an important factor? Steel drums will eventually fail otherwise.

We figure it's an important factor in the minds and tactics and strategy of the responding firefighters. If they know that steel drums are going to be rocketing and they can be rocketing hundreds of feet and represent a threat to their people, then that will affect their decision on where they would stay and how they would approach that, and they did know and steel drums were rocketing and failing much more catastrophically than they had to.

We know from fire testing that the presence of pressure-relieving devices that will melt upon fire exposure and allow just vapor to come out of the top of the tank relieve the pressure that way rather than causing the whole 55-gallon contents to be released makes it much more viable to have automatic suppression systems, and the NFBA-30 standards accounts for that in their requirements for sprinkler protection for steel drum storage.

The lack of liquid runoff impoundment, as these various containers were failing and contributing to the fire, that just allowed more fire exposure and more fire escalation as opposed to having some remote impounded area that would prevent further exposure of the larger contents.

The lack of fire resistance on the legs of the

raised tanks caused the various raised tanks to topple over and discharge their liquid contents. There is -- fire resistance would have at least delayed that and allowed perhaps some opportunity for manual exposure protection by cooling the tanks.

The lack of emergency venting on the storage tanks caused failure of the tops to blow off in the way that they weren't intended to for these fixed roof tanks and to further escalate the fire.

Emergency venting -- there are design guidelines for the vent areas that would prevent that total loss of the top of the tank's discharge of its contents. And finally, the spacing of the tanks from Warehouse 1 and from the other blending tanks and this inter-tank spacing just promoted the spread of the fire from tank to tank until every one of the tanks containing combustible liquid were lost and added to the fire.

That concludes my story of the fire spread as we understand it, and I'm supposed to ask for questions from the board at this point. Be glad to try.

MS. MERRITT: Yes. At this time if you have any questions for Dr. Zalosh or the staff, please -- we can ask them now.

DR. ROSENTHAL: In simple terms, am I understand

that had normally-accepted fire codes that are in place in many communities been in place here that this fire would likely have been able to be controlled?

DR. ZALOSH: That's correct. The flash started -- while we don't know the exact origin, we know from the size of the fire first reported that it should have been relatively easily controlled with automatic detection and suppression systems that are commonly used in many facilities -- storage facilities handling combustible liquids.

DR. ROSENTHAL: Let me ask a second question. Do -- this place was insured. Do insurance companies normally take this into account in granting insurance?

DR. ZALOSH: Yes, they do. Most if not all of the highly protective risk, highly preferred risk insurers, insist on automatic suppression systems for a facility of this type to preclude what happened -- exactly what happened here by having automatic suppression system, automatic notification of the local fire department, to put out what any sort of residual fire that the support of automatic suppression systems would not have put out.

That's a standard practice required by most insurers, HPR insurers.

DR. ROSENTHAL: Thank you.

DR. TAYLOR: I'm just curious --

MS. MERRITT: Dr. Taylor.

DR. TAYLOR: -- I'm just curious. About how often -- I mean, you've identified a lot of factors that allowed this fire to spread. In your experience of investigating other sites, how often do you find facilities with lack of water supply, lack of firewalls, too close to Warehouse 2 -- I'm just curious.

In your experiences, how often do you see a facility like this?

DR. ZALOSH: I've never seen one like this. The kind of facilities I get called in, there's usually a question about whether the suppression system should have had this pressure or that pressure and how many sprinkler heads should have been designed for.

There are many questions about the details of the design of the system, but I've never a facility totally unprotected like this. There may have been, but I've never seen it.

DR. TAYLOR: Okay.

MS. MERRITT: Mr. Bresland.

MR. BRESLAND: Dr. Zalosh, how common is the use of pressure relief on 55-gallon drums? Is it quite common or is it an option that people would have?

DR. ZALOSH: It is an option, and I think its use is growing, in part because there are more -- it's more widely available. People are -- the stories of how drums fail with and without pressure-relieving devices is coming out.

The NFPA-30 provides an incentive in terms of reduced sprinkler protection. As an example, let me just sort of relate a little story from the standpoint of fire testing.

The guidelines for protecting drum storage and these other containers that we've seen here are based primarily on large-scale fire testing. And so you need to have a facility with the capability resources to run a large-scale fire test with having the confidence that they're not going to destroy their test facility and endanger their people.

And up until the advent of the pressure-relieving drums, you couldn't find a facility that was willing to run a large-scale fire test with these drums that could be rocketing through the roof of their facility and the walls of that.

But now the availability of these drums and the willingness of -- growing willingness, I should say, of people to use them allowed a large-scale test program to be

conducted here in Texas at the Southwest Research Institute and establish the guidelines and the confidence in knowing how to protect it.

So I don't know the actual numbers. All I can say it's -- the growing awareness and the use of the pressure-relieving option is increasing.

MR. BRESLAND: You talked about the risk of the drums rocketing, the consequent exposure and danger to both the neighbors, to the firefighters. Do you know if there was any evidence of drums rocketing in this particular instance?

DR. ZALOSH: I'm told that they found some drums at various places around there.

Dave, do you want to add to that?

MR. HELLER: There were some drums that were found in the yards of some of the neighbors across the street.

MR. BRESLAND: Okay. Thank you.

MS. MERRITT: Dr. Poje?

DR. POJE: Bob, if you can give me a little bit more clarity on a couple of these points. What would you see as a better system of liquid runoff impoundment and what would that add to the preventative or mitigative potentiality of a better designed site?

DR. ZALOSH: Okay. The recommended design is to have a remote impoundment area and to have channels that will carry that -- the liquid from the tanks to that remote area. There's channels or perhaps trenches or underground piping to carry it to those remote areas.

And then the remote area itself would be protected by, at the very least, it would prevent the accumulation of the liquids exposing the tanks itself. NFPA-30, the standard for combustibles under the liquid storage provides specific guidance on, for example, the pitch you need to get that and how much credit you get in terms of reduced need for automatic suppression or exposure protection or emergency venting when and if those remote impoundment principles and guidelines are followed, and they are used in places.

DR. POJE: And if I could also add on the spacing of tank batteries, what kind of a more common approach would be taken with IIIB, primarily IIIB tank fluids?

DR. ZALOSH: The spacing for the tanks depends on the specific codes. NFPA-30 provides some spacing guidelines. The Factory Mutual, one of the most well-known highly protective risk insurers, has their own guidelines on tank spacing.

It depends on the size of the tank, whether it's

a Class IIIB, as most of these were, or a Class IIIA, Class II storage. But the principle involved is to allow the access for water spray that could cool the tanks and prevent the tanks from being heated to the point where the tops would fail.

And the specific guidelines, they vary from three or four feet on up to ten or 12 feet, depending on -- in some -- the spacing depends on the size and they're given in terms of, in some cases, the diameter of the tank itself.

So, for example, in some cases it's 50 to 60 percent of the tank diameter might be a spacing for a more volatile liquids.

DR. POJE: And Dave, can you clarify for me -- were there any unusual operations that had been recently brought into the facility? In other words, were there new materials that came onsite in a relatively recent period? Were there new lines in operation?

Was there something unusual about the approach to business taken on April 30 that was different than the approaches for the previous days and weeks?

MR. HELLER: No. We interviewed all the employees and all the staff, and there was really nothing unusual either in what they were doing or the materials they were handling. It was all pretty routine that day.

MS. MERRITT: Dr. Taylor.

DR. TAYLOR: I just had one other question regarding -- to David regarding -- you mentioned that the community residents were evacuated. How were they alerted about this? Well, I'm sure they saw it, but what --

MR. HELLER: Brazoria County sheriff's department was out there in force and not sure exactly on the mechanism, but certainly, there was enough people out there to --

DR. TAYLOR: Were any of them affected in any way or do you have any -- did we do anything in that regard to find out whether --

MR. HELLER: There was a TCEQ, which was called TNRCC back there last May, did extensive testing of the air, of the groundwater, and even wipe samples of the soot deposits on folks' houses. And they reported back to the residents.

MS. MERRITT: Dr. Poje.

DR. POJE: Just one more clarifying point, Dave. You mentioned that there were relatively few non-IIIB tanks on site. Were there a trivial amount, 100 gallons or 200 gallons, or was it --

MR. HELLER: It was in the order of maybe 25 to 20, 30,000 gallons --

DR. POJE: Not a small amount.

MR. HELLER: -- 20,000 out of a total of 700,000 in the bulk storage area.

DR. TAYLOR: And also Dave, what was the contents of the tanker?

MR. HELLER: Tanker was a synthetic motor oil, so it was a IIIB combustible in there.

MS. MERRITT: Okay. I have a couple questions, Dave. Do you know -- the guard; had the guard been trained as part of his job to respond with a fire extinguisher?

MR. HELLER: They had done that in the past, and he had also discovered actually previous fires at the -- small. One was an electrical fire at the facility. So yes, I think he was qualified to do that.

MS. MERRITT: So he was trained and knew how to do that?

The other question I had is looking at your diagram, I'm just kind of amazed at the number of tanks that could be crammed into that small area. Can you tell me how many tanks were in there in about -- I mean, the plant is about seven acres. But how many acres is the tank farm area?

MR. HELLER: The tank farm area is about an acre, maybe an acre and a half. There was about 74 tanks in

there. Yes, they were close, and again, as Bob noted -- mentioned, the point is being able to get water on the other tanks. But, of course, there was no water to --

MS. MERRITT: There wasn't any water. Right.

Did you have any questions? Was there anything else? Any other questions? No?

Then Dave, would you continue, please.

MR. HELLER: Thanks, Bob.

I'd like to go now through really summarizing of the key findings of our investigation. There's no evidence that Third Coast conducted any formal fire protection analyses, consulted fire protection experts, or reviewed best practice publications, such as Bob mentioned, Factory Mutual or other groups like industrial risk insurers.

The NFPA says in the flammable code that the extent of fire protection and control provided for, for example, tank storage facilities shall be determined by an engineering evaluation of the installation and the operation followed by application of fire protection and process engineering principles.

And it's likely that a fire protection analysis of this sort would have identified the shortcomings that we've seen and prompted Third Coast to evaluate how best to eliminate the hazards and mitigate those consequences.

Third Coast did not have any automatic smoke or heat detectors in operating or warehouse areas like we have in our houses. Smoke and heat detectors can be set up to automatically notify a central dispatch office.

And again, if the fire had been detected in its earliest stages, it's likely that -- the fire department was there really fast -- that they would have had time to have done something to keep that -- to take care of it while it was small before it started to affect these other containers.

And of course, a major factor was the lack of water on site. The closest source of water -- fire hydrants over a mile away in Friendswood. As a result, neither manual or automatic fire suppression was available.

Manual fire suppression would be fire hydrants or other sources of water for the fire department use. Automatic fire suppression is sprinkler systems. And water could have been made available in a number of ways. Some facilities will put a pond on their site, a large pond, or even large storage tanks just for firefighting water.

And the fire department trucks can pull right up to the ponds, stick one end of their hose in the pond. There's a pump on their truck to boost up the pressure, and that's how they -- that's where they get their water for

fighting fires.

Now, consensus fire codes are used in most states and municipalities to provide a basis for designing and operating facilities to prevent and mitigate fires. Fire codes can cover residential properties. They can cover public buildings, commercial facilities and industrial facilities also.

The consensus process means that groups of firefighters or builders of buildings and equipment manufacturers, fire equipment designers, professors, and fire experts, to name a few, will get together and they meet -- these codes are upgraded on a regular basis, every three to five years, typically.

And that's because the science and technology of fighting and preventing fires is continually evolving. Well, in the United States, the key code for -- key consensus code for flammable and combustible liquids is the NFPA-30 code.

It's widely accepted, and it serves as the basis for fire protection requirements in many other codes. Now typically, the flammable and combustible liquids code forms part of a larger code which covers all sorts -- again, covers residential and commercial and all types of facilities.

So for NFPA, the overarching code is the NFPA-1, the uniform fire code. Flammable and combustible liquids is one piece of that. Now, some might be familiar with some of the older regional codes and building codes in the United States.

The Southern Fire Prevention code I think has been used down here in this area. In the Northeast we had the BOCA code. And now in the past couple of years, these organizations have developed and maintained these regional codes.

They've merged, and they've formed what's now called the International Code Council, and they've developed the International Fire Code, and that's also now gaining acceptance.

Well, the consensus fire codes represent good practices in various areas of fire protection and prevention, and the Chemical Safety Board, as we noticed -- as we saw on what Bob presented -- identified many areas where Third Coast fell short of these practices.

No fire prevention analyses, no source of water, inadequate drainage of containment. And again, the storage tank design, the warehouse design. Again, if Third Coast had complied with these good practices, it's likely that the fire spread would have been limited to that Warehouse 1

area.

Now, in our research in support of this investigation, we also identified several aspects of the NFPA-30, the flammable and combustible liquids code, and the International Fire Code that we believe should be studied by these organizations to determine if changes are warranted to improve their codes and to help mitigate and prevent further incidents of this type.

So specifically, requirements for fire protection analysis are not clearly delineated in these codes. The codes do not specify requirements for fire detection, especially for facilities like Third Coast that were not staffed around the clock and did not have any automatic fire suppression.

And finally, Class IIIB liquids, again, those lowest class of combustible liquids, they're exempted still from many of the requirements that are imposed on more flammable classes of liquids. The amounts of storage allowable in various size buildings and the need to evaluate the risks associated with these materials -- there are some exemptions for those products.

There was a code that Third Coast should have been complying with at the site here, and that was OSHA's, the Occupational Safety and Health Administration's

1910.106, their flammable and combustible liquids code.

It's one of OSHA's original codes. It was promulgated in 1974 and it was based at that time on the 1969 version of NFPA-30. As we talked about a consensus process, NFPA-30 has undergone significant changes since 1969, and again, based on full-scale fire tests and based on actual investigations of incidents.

But the OSHA standard has not been updated in that time. The OSHA standard specifically exempts Class IIIB combustible liquids from coverage, and that was in keeping with the 1969 version of NFPA-30.

But as we saw, since Third Coast had some more flammable materials on site, the requirements of 1910.106 were applicable to Third Coast. Now, OSHA did not cite Third Coast for violations of 1910.106. At the time of the fire, there were no employees on site. No one was at risk from the employees.

And also, OSHA could not establish all the legal elements that are required for issuance of a violation. OSHA did warn Third Coast that 1910.106 was applicable.

Despite the problems of out-of-date regulations, CSB has determined in this case that if Third Coast had been in full compliance with 1910.106, in all probability would have been sufficient safeguards to again prevent the spread

of the fire.

Compliance with -- prevention would have been better if Third Coast had been looking at the current NFPA-30 or compliance with an OSHA standard that was upgraded to meet the requirements of the current NFPA-30. Again, would have enhanced the ability to stop the fire's spread.

Now, OSHA is aware that 1910.106 is out of date and does not reflect improvements in fire safety science and technology. OSHA is also aware, obviously, that Third Coast was covered by 106. But there are other facilities that contain only Class IIIB combustibles that would not come under the OSHA standard, and they would pose grave risks to workers and the community and firefighters.

The Chemical Safety Board has prepared a letter to OSHA, pending adoption of this report, to express our concerns regarding the need for them to -- for OSHA to update the 1910.106 code.

Now, Third Coast really only had to comply with the OSHA code. There was no other code that really applied to that facility. Fire codes such as the NFPA code or the International Fire Code are used in most states and many localities to provide a basis for designing and operating facilities to prevent and mitigate fires.

In Texas, fire and building codes are not

enforced on a statewide basis. It's the responsibility of the counties and municipalities to adopt and enforce the codes. For a county of Brazoria's size, Brazoria County's size, the ability for them to adopt a fire code was only granted by the Texas law in 1997.

So before that time Brazoria was prohibited from adopting a code that would be applicable in unincorporated areas. We believe if a fire code had been in place in Brazoria County during the construction of the Third Coast facility and as it was expanded through the years, again, it's likely that a specified level of protection in the codes would have been sufficient to reduce the severity of the fire, thus allowing firefighters time to respond and limit the damage.

We believe that adopting the fire code now in Brazoria County will help prevent or mitigate future fires in the area.

I'd like to go on to the root and contributing causes, but first let me ask if you have any more questions.

DR. TAYLOR: I have a couple.

MS. MERRITT: Dr. Taylor.

DR. TAYLOR: I have two questions, Dave, for you. One is that last slide that you showed -- I'm still a little confused about. You say that the company did not

have to comply -- they're not required to comply with fire codes because they're in a nonincorporated area or --

MR. HELLER: Right.

DR. TAYLOR: And then Brazoria County did not --

MR. HELLER: Yes. Until 1997, only counties of more than 250,000 population in Texas could adopt a fire code for unincorporated areas.

DR. TAYLOR: 250,000?

MR. HELLER: This is for counties. Municipalities, cities is different. The City of Pearland has a fire code. The Third Coast Terminal's facility inside the city of Pearland complies with that, which is going to be the International Fire Code. Now it's the Southern. But still, they're complying -- they're in a city.

Outside the cities in these unincorporated areas, Brazoria County until 1997 couldn't do anything. After '97 the law was changed to that a county under 250,000 population -- Brazoria's I think 240, maybe, right now -- but next to a larger county, Brazoria's right up against Harris County. They can adopt a code.

This was designed for the suburban counties around the large municipal areas that are seeing the growth to allow them to adopt fire codes.

DR. TAYLOR: So then just one point of clarification. So now is this company -- I know they're not rebuilding, but if they rebuilt in this area now, there would be fire codes that they'd have to comply to or not?

MR. HELLER: Not today, no. Not -- no. Not unless Brazoria County does adopt a fire code.

DR. TAYLOR: Okay. That's good. Thank you. Then my second question goes back to an earlier -- where you talked about the fire protection analyses. In your report you did mention it here that the Pearland Voluntary Fire Department had conducted a pre-plan assessment, and they had suggested to the company that they needed to install early warning devices; that they also needed a water source.

But I guess because they're not -- can you explain that for me, please?

MR. HELLER: Pearland did what we call really a pre-planning visit. It's more designing -- more for the firefighters to see, Well, if I did have to go in here and fight a fire, what am I facing? Where are the tanks, where do I hook up my truck for water? Well, nowhere, but those kinds of pre-planning issues to know how best to attack a fire if they do have to go in there.

Where -- and as they're going through, they noticed, Hey, there's no detection. There is no water, and

these -- really, there was no authority for the Pearland Volunteer Fire Department or for any jurisdiction really to hold Third Coast to any of these recommendations.

DR. TAYLOR: And so the company could not -- did not respond because they didn't have to?

MR. HELLER: Well, like, they didn't have to -- we don't know if they ever responded to the fire department, but there was certainly no changes made at the facility.

MS. MERRITT: John, do you have a question?

MR. BRESLAND: Yes. Following up on Dr. Taylor's question, do we have a copy of the Pearland Volunteer Fire Department's assessment that they did?

MR. HELLER: Yes.

MR. BRESLAND: That's in writing?

MR. HELLER: Yes.

MR. BRESLAND: And they supplied that to the company?

MR. HELLER: I believe so. Yes. Sure.

MR. BRESLAND: But the volunteer fire department, if I understand you correctly, didn't have the authority to require some actions as a result of that inspection?

MR. HELLER: That's right.

MR. BRESLAND: Were there any followups to that inspection that you're aware of?

MR. HELLER: Not to my knowledge. There have been a few times when they've been out to the plant; again, for a small electrical fire and a few other very minor incidents but -- that they had responded to.

MR. BRESLAND: This question is either for you or for Dr. Zalosh. Were there any insurance inspections done on the facility?

MR. HELLER: We were not supplied with any by the company. They'd had -- they had had inspections for their workers' comp coverage to cover issues like, you know, safety issues. Really didn't cover any of the fire protection issues.

MR. BRESLAND: Well, let me just direct this to Dr. Zalosh then. Would it be unusual in your experience in the insurance industry for an insurance company to supply coverage to a facility that has, as I understand, a million gallons of flammable and combustible materials but also doesn't have any sort of fire protection, doesn't have any fire water available within a mile?

DR. ZALOSH: It's very unusual in my understanding -- that's right -- not to have had an inspection and some requirements as a basis for coverage.

MR. BRESLAND: Would you like to speculate on how they got insurance in this case?

DR. ZALOSH: I'd rather not. But these are business decisions that are made where underwriters have to make decisions based on premiums and deductibles and reinsurance. So there are many business decisions as part of that coverage that -- so that any one company might limit its exposure.

And exactly -- I didn't -- I've no information on the particulars in this case to know how those decisions were made and what guidelines or what knowledge they had about it.

MR. BRESLAND: Do we know in this -- in the case of Third Coast at this facility if they had to pay unusually high premiums for fire insurance as a result of not having appropriate fire protection?

DR. ZALOSH: I'm sorry. I don't have any information on the premiums.

MR. HELLER: No.

MS. MERRITT: Are there any other questions?

Dr. Poje.

DR. POJE: My observation from those comments are that the insurance industry may not be the best provider here of assuring fire safety protection, at least at this facility.

But Dave, can you clarify for me -- I appreciate

your analysis of the evolution of fire codes, and seems like evolution is likely to continue apace, as to what the relationship might be between NFPA-30 and the International Fire Code?

Are they divergent approaches or do they have complementarity to them?

MR. HELLER: They're very complementary. In fact, the International Fire Code does refer even to the NFPA-30, which is really very technical to that just flammable and combustible liquids piece, so there's references in the International Fire Code to various NFPA codes. They do work together

DR. POJE: I also want to compliment you and the team for the analysis around the 1910.106 relationship on this case, and I do want to make the observation to ourselves as board members that I think there is a fairly significant issue that may not have standing in terms of our own process of this investigation to speak to OSHA.

But I personally would encourage the chairperson to consider a letter on behalf of the board in regards to matters of lagging federal standards not incorporating the better knowledge and scientific information that would improve our scope of fire protection.

And so I just encourage us all to be conversant

on those matters. I've had multiple discussions with the team about such issues and would be very supportive of a letter completing our work here to go forth to the Assistant Secretary.

MS. MERRITT: Yes. That letter will be prepared and is in the process of being prepared for Mr. Henshaw.

Also, I have a question concerning -- has this site ever been inspected by OSHA? Were they ever cited for lack of fire protection?

MR. HELLER: They were never cited on their -- for fire protection, no. No. I don't know if OSHA had been out there. They might had been out there previously, but --

MS. MERRITT: Okay. Any other questions?

DR. ROSENTHAL: The question that I would raise to staff and Bob Zalosh.

The fire codes are primarily addressed at protecting the property and the insured. Am I correct, Bob?

DR. ZALOSH: Yes.

DR. ROSENTHAL: They don't deal with necessarily the issue of possible injury to people off the property?

DR. ZALOSH: Yes. There are aspects of the fire codes that deal with distance to the property line and that sort of things which have the intention of public safety considerations. There are portions of that.

But the codes are drawn up by a committee, and the participation of the committee influences what goes into the code. And the kind of people who have determined or whose organizations support their participation in the committee tend to be heavily influenced by the user community, the manufacturing community, and the insurance community.

The public safety officials really have minimal involvement in the actual writing of the code, so the codes try to address public safety issues, but they don't have the benefit of the public safety professionals participating in those codes.

DR. ROSENTHAL: So that the costs to the public are not necessarily as fully internalized into the standard as -- such as the effects of release of materials into the environment or to the air as might be the direct costs to the insured parties. Is that a reasonable --

DR. ZALOSH: Yes. There are -- the considerations with the -- far as the environment usually comes out as a result of a notice of intent on the part of EPA to limit this fire suppressant agent or another agent or limit, for example, the -- prevent the recycling of particulates for dust collection systems; those kind of things.

Once a federal or state agency issues its concern about the environment, that's the point at which the fire codes address them. There's no anticipation of that and very little proactive working on dealing with the interaction and tradeoffs between environmental issues, public safety issues, and onsite issues.

DR. ROSENTHAL: Thank you.

MS. MERRITT: Thank you.

Then we'd like to go on to -- I think it's recommendations?

MR. HELLER: I have the root and contributing causes.

MS. MERRITT: Root causes? Okay.

MR. HELLER: Really summarizes what we've seen.

Again, our focus was on why a small fire could not be contained and led to the total destruction of the facility.

Our first root cause: Third Coast did not have a management system in place to identify or analyze fire hazards that could affect the plant, its employees, and the surrounding community and the environment. And again, lack of an adequate fire analysis, fire protection analysis, that would have identified the issues we've been discussing.

Secondly, Third Coast did not have adequate

measures in place to contain or control fires that could reasonably be expected to occur -- small fires -- with resulting effects, again, on the facility, community and the environment.

And more specifically, there was an inadequate system of fire suppression to control the small initial fire of the stock from spreading. Again, no onsite water, no smoke or heat detection, no manual or automatic fire suppression systems.

Another part of that root cause -- inadequate control measures to limit the spread of the fire. And again, as we saw in Dr. Zalosh's presentation, the tank truck with the synthetic motor oil was too close to Blending Line 4.

The blend tank support legs lacked fire protection. No containment, or inadequate containment or drainage to direct the liquids away from pooling underneath these tanks and heating them, turning to the fire and moving -- or liquids moving towards the warehouses. And then the design of the tank farm and the warehouse.

And lastly, a contributing cause, which is that Brazoria County authorities did not have laws or regulations that required Third Coast to comply with widely-accepted fire codes. And again, I'd like to note that it was not

until 1997 that state law was able to allow Brazoria County to enact a fire code for unincorporated areas, and most of the Third Coast facility had been built prior to this time.

If there are any questions? Otherwise, we'll go into Jordan's recommendations.

MS. MERRITT: Yes. Let's proceed.

MR. HELLER: Okay.

MS. MERRITT: Thank you.

MR. HELLER: Jordan Barab will now present the staff recommendations.

MR. BARAB: Thank you, Dave.

Good morning, Madame Chairman, board members, Mr. Jeffress and Mr. Warner. The Chemical Safety Board doesn't just investigate incidents. We also issue recommendations. We're not a regulatory agency. We can't impose standards or regulations.

However, one of the most important jobs of the Safety Board is to make recommendations that seek to address many of the root and contributing causes that were just pointed out.

I will now present the staff recommendations with relation to Third Coast Industries. Staff recommendations are the primary tool used by the board to motivate implementation of safety improvements that can prevent

similar future incidents that could endanger the lives, the communities, the environment, and as Dr. Poje mentioned, also jobs as well as the economy.

These recommendations are directed to the Government, corporations, trade associations, safety organizations, labor unions, and others. CSB's independent accident investigation process identifies many of the trends and issues that may be otherwise overlooked.

Board recommendations address not only the specific issues that may have caused the incident, such as we saw here and such has been reviewed by Mr. Heller and Dr. Zalosh, but we also try to address changes -- needed changes in the management systems that could not only have prevented the specific incident but could also prevent similar incidents as well.

The research into these issues, which includes consulting with experts and best practices, Government regulations as well as fire codes. The recommendations staff not only helps develop the recommendations but we also work with the recipients of the recommendations to see that they are adopted.

These recommendations can only be adopted by a vote of the board, and they can only be closed by a vote of the board as well.

I will now go through the recommendations that we're making based on the Third Coast Industries incident, and I'll also explain a little bit about the background and the rationale for making those recommendations.

First recommendation is to Third Coast Industries. As I think was pointed out, Third Coast Industries' facility at Friendswood was totally destroyed and is not being rebuilt. This recommendation, therefore, is addressed to the other Third Coast facility that is located in Pearland, Texas.

I'll read the recommendation. Audit the Third Coast Terminal's facility in Pearland, Texas, in light of the findings of this report. Take action to ensure that the facility's fire suppression and control procedures are in accordance with the relevant requirements of the International Fire Code and OSHA Standard 1910.106.

As we just heard from the report, there were a number of issues, a number of factors, where the Third Coast facility was not in compliance with either the International Fire Code, any fire codes, or OSHA Standard 1910.106.

Just to list these, those include the lack of onsite water, fire detection, drainage and containment of large liquid spills, location of the tank wagon, separation of storage tanks, and, of course, warehouse firewalls.

All of these would have been required by either OSHA Standard 1910.106 or the International Fire Code or the NFPA. And again, we are requesting -- we are recommending that Third Coast audit its facility, which means basically inspect its facility to make sure that they are in compliance with these codes.

The next two recommendations are directed at the two major codes -- associations that develop fire codes, both the NFPA and the International Fire Code. The recommendations are the same for both, and I will go through them both and then explain the background.

First, revise an FPA-30 flammable and combustible liquids code to address the following issues. For facilities that are not staffed around the clock, specify circumstances where automatic fire detection is needed. Narrow the exemptions for Class IIIB liquids and strengthen fire protection analysis requirements.

International Fire Code Council, Incorporated. Again, revise the International Fire Code to address the following issues. For facilities that are not staffed around the clock, specify circumstances where automatic fire detection is needed. Narrow the exemptions for Class IIIB liquids and strengthen the fire protection analysis requirements.

As I've just related, there are a number of items within NFPA-30 and IFC that we've identified in this report that could be improved upon that would enhance the ability of such facilities to prevent such incidents. Let me go through these.

Again, better fire protection might have provided firefighters with enough time to contain a small fire. As was related, this fire occurred at night. Luckily, the security guard did identify the fire when it was still at a fairly small stage.

Unfortunately, by the time the fire department got there, because again of the lack of a lot of protections that would have been recommended or required by the fire codes or by OSHA, the fire had spread to the extent that they were not able to put it out.

And again, had the security guard not been there, it's unclear how far the fire would have spread by the time somebody had noticed that it was burning and what kind of destruction and what kind of other problems and implications it would have had for the surrounding community.

Again, we feel that for these facilities that are not staffed around the clock, some kind of automatic fire detection is needed.

Mr. Heller and Dr. Zalosh also related that there

their counties. This facility was built in the 1980s.

Brazoria County being a county that is adjacent to a larger county was not given the ability to impose fire codes until 1997, and therefore, it's of course highly questionable what effect that would have had specifically on the Third Coast facility.

Nevertheless, as I mentioned before, our recommendations are targeted at larger issues, at basic management issues, that are intended not only to prevent the incident that we're investigating but also to prevent other similar incidents.

Therefore, we've recommended that Brazoria County adopt the fire code in order to prevent such further incidents at other facilities.

Finally, as is our custom to facilitate broad communication of our investigations and recommendations, we're recommending to the following organizations that they communicate the findings and recommendations of this report to their membership.

Now, these -- there's quite a list there of associations and other parties. They're basically broken down into three different -- three or four different groups. We have industry associations, whose members run similar operations as Third Coast, and again, they need -- we're

trying to emphasize to them and for them to emphasize to their members the importance of compliance with these fire codes.

We also have a group of Government agencies that we're trying to also address these recommendations to, and again, emphasizing the importance of fire codes and the ability -- the need for the ability to enforce these best practices and safe conditions.

We're also addressing these recommendations to at-risk workers, and again, we have a fire department -- I'm sorry; a union that represents firefighters as well as an association that represents volunteer firefighters.

Finally, of course, the insurance industry needs to also be aware of the fact that there are many facilities that do not -- are not in compliance with fire codes or with OSHA standards, and they need to take that into account as well.

So again, let me go through the organizations to which this recommendation is targeted. Again, we're recommending that these associations communicate the findings and recommendations of this report to their membership.

The Petroleum Packaging Council, Independent Lubricant Manufacturers Association, the American Petroleum

Institute, the National Association of Chemical Distributors, the National Association of Counties, the International Association of Firefighters, the National Volunteer Fire Council, the National Association of State Fire Marshals, the Risk and Insurance Management Society.

Thank you very much. That concludes the recommendations the staff is proposing. If the board has any questions I'd be glad to answer them at this time.

MS. MERRITT: Does anybody have any questions from the board?

DR. ROSENTHAL: Yes. There's something that --

MS. MERRITT: Dr. Rosenthal.

DR. ROSENTHAL: -- struck me during the course of listening to your report. What occurred with Third Coast had their standard gone in even in 1997 and there would have been no authority to have compelled Third Coast to retroactively introduce these measures.

And I wonder if a recommendation to these interested parties, including the Risk and Insurance Management Society, which is the one group we have there from the insurance, should be to reexamine or have their members reexamine their own facilities in the light of the findings and destruction that occurred at Third Coast, rather than have them -- you know, you would hope that they

would conclude, seeing what happened to Third Coast, that maybe they ought to look at their own places.

But sometimes people do not necessarily arrive at the obvious, and it just struck me what you think might be the downsides of putting in, besides communicate findings or recommendations to members, to reexamine their own facilities in the light of the findings and see if they believe they are still adequate.

MR. BARAB: Well, let me put it this way. The code associations recognize the difficulty in making retroactive codes, and they address that problem. The insurance companies, and they are again more prospective in terms of facilities that are being built, the insurance companies, my understanding, look at not what should be in the future or what kind of things you're building but what is right now and will base their insurance already on what is.

And therefore, again, it's my understanding that that more or less builds in improvements that need to be made, whatever the codes were when the facility was built. I don't know if anybody is more familiar with the insurance industry, but again, that's my understanding.

DR. ROSENTHAL: No. My point is I recognize they don't have to do anything that's more expensive to do. But

sometimes, you know, after the horse escapes you lock the barn door. You need an incident to trigger -- here's an incident that triggered a major loss and perhaps reexamining their facilities, even if they don't have to do it legally, et cetera, triggered by this incident might cause them to reexamine and take a little different look at what they don't have to do and say, Maybe we ought to do it anyway.

MS. MERRITT: Are there any other comments?

I have one. Dr. Zalosh, you mentioned that these code councils get together, and they are primarily represented by insurance and manufacturing and what-not. And they're not very well represented for public interest.

I don't see that we have a recommendation up there, and I'm sorry I didn't think about it before now, but would it be wise to recommend to this council to make a concerted effort to include public interest and emergency responding organizations so there might be that voice also in the creation of these codes?

DR. ZALOSH: Just one brief comment on that. There's no restriction on the part of the consensus code organizations from having these organizations participate. The pragmatics of the situation are that the meetings are usually held at a time, requires a travel budget, requires some time away from the fire station and so forth, and it's

usually those cost factors and personnel factors that prevents more participation from the public safety community.

So if there's some recommendation you can make about that it would be useful. But the organizations themselves do try to encourage participation. The problem is one of pragmatics of the cost and time to participate in the actual writing of the standards.

MR. HELLER: Other than membership on the committees themselves, the codes -- the code councils and the organizations -- do accept comments or suggestions for improvements to the codes from the general public and from other organizations and from us or whoever.

We can all participate in the code-writing process.

MS. MERRITT: Okay. And is that published in the Federal Register or how are people notified of those code changes?

MR. HELLER: The code -- the NFPA publishes their -- they're pretty open about their proceedings of what comments they'd receive and what they are acting on and how they vote on the various proposals.

DR. ZALOSH: In the case of the NFPA, anybody can submit a comment on a proposed change to a code or on the

need for proposed changes. The actual -- the code itself is developed by a committee of, I'd say, 20 to 30 people, and then that code -- the proposed new revised code is presented to the organization as a whole -- the National Fire Protection Association.

And any member of NFPA can vote on the adoption of that code. At that point, you have to be an NFPA member. And there again, to vote on the code you have to be physically present at the meeting that's held twice a year, and so usually, only the local firefighting organization or emergency response organization is actually present at the final vote of a code adoption.

MS. MERRITT: Yes, it might be worthwhile for us to issue a letter or something to the affected public organizations encouraging them to participate. So maybe that's something we could think about doing.

DR. ROSENTHAL: I think that could be valuable, but am I correct that this is meant to be a consensus standard and that there are broad rules and consensus standards that almost require that you invite all interested parties in, and that unless you make a sincere effort to do this, you can't go?

DR. ZALOSH: You are correct. My understanding is that all consensus codes have to have some makeup of the

committee that includes representation by all the important interest groups and at least allow that. But the -- I'm not sure if there's any restriction on the adoption of the code if after opening it up you don't achieve that distribution of interest among the committee members.

MS. MERRITT: Thank you. I think that the -- and we probably need to know a little more about this. It would be interesting, I think, for us to research this a little bit also, but we as a board could issue a letter or communication with regard to this to the agencies and organizations to try to broaden this a little bit.

DR. POJE: I do also appreciate the practicalities that are difficulties in getting fuller participation, particularly from organizations that are not as resourced to be stakeholders at the table, if you will, in those discussions.

I did want to make another couple of observations. I appreciate the depth of thinking that's gone into this area of communicating the findings of this report to a broader suite of parties. I think it's also exemplary of a maturation of the board's staff in being able to think broadly how to have a preventative impact.

Within that suite of organizations, there are some to whom we have already issued similar such

recommendations in the past, and I would hope that the staff would build off of that as they communicate this work to those organizations.

For example, in the Herrig Brothers incident with the propane tank levy in the State of Iowa at an agricultural operation, recommendation was given to the International Association of Firefighters for communicating the results.

Not only did they take the effort to communicate the results via notification to their members on their newsletters, they also conducted an effort to get into firehouses all over the country a more rigorous analysis of the Herrig Brothers incident and the prevention recommendation such that it became viewed in the firehouse during the downtime for all sorts of firefighters, volunteers as well as union firefighters, in a way that I think is a very powerful prevention message with more reality behind it than just saying, Here's a Website. Go look at it.

American Petroleum Institute has invited the Chemical Safety Board, and I think Dave, you did present to them in last year's major meeting dealing with storage tanks, coming out of the Motiva investigation.

It's sort of using the voice of the board to get

further penetration into the most particular communities so that they fully understand the facts as we have outlined them here today and can appreciate the context and urgency of implementing those recommendations.

So there are some new organizations who are new to the board and who will be new for us in meeting with them who I think could benefit from understanding the potential strength of the meaning of the word communicate the findings and recommendations of this report, and we may learn better ways from discussing with them how to reach for the prevention end.

MS. MERRITT: Thank you.

In order to get back on schedule, I think we will forego our break and go right into public comment. And I have the names of people who have registered. If you would still like to comment, please go ahead and make yourself known to -- yes -- make yourself known to our registration desk and that still will be allowed.

If you would, keep the comments, you know, three or four minutes so that we can stay on schedule we would appreciate it, and we'd ask you please to step to the podium. I know that makes everybody nervous, but it does help everybody in our Webcasting to be able to hear you.

And also, if you would clearly pronounce your

name, because when I introduce you I may butcher it. I don't know -- I hope not.

The first person is Mr. Everett Lislie. If you are present, if you would please come to the podium.

Mr. Lislie here? He is not?

Mary Jo Castillo -- is she here?

Brian Mansfield?

MR. MANSFIELD: I just have one quick comment. Brian Mansfield with the Friendswood Fire Marshall's office.

MS. MERRITT: Would you please say your name clearly so we can make sure I get that?

MR. MANSFIELD: Brian Mansfield. I'm with the Friendswood Fire Marshall's office.

MS. MERRITT: Oh, good. Thank you.

MR. MANSFIELD: I just want to express a concern that our office there at Friendswood, we were not notified of this meeting and that we were notified last night by a concerned citizen, and that's the only notification we had.

I just wanted to express that concern that maybe in the future that we get notified of any meetings in Friendswood or in the area there concerning this incident or anything in the surrounding area.

MS. MERRITT: Okay. Thank you very much. I appreciate that, and we'll try to broadcast this a little

broader. I think we did send out some 500 notices, and we're sorry that you were missed.

Mr. Frank Elam? Yes.

MR. ELAM: Good morning. Can you hear this?

MS. MERRITT: Yes. Please state your name.

MR. ELAM: Yes. My name is Frank Elam, like elm tree with an A in it -- Elam. I'm representing the Dace Manufacturing Company, which is directly across the street from Third Coast.

I have two questions. The second question is recommendations to prevent fire, most of which you've already covered so I'll edit them before I tell you and put in only the ones that you have omitted.

The first question is this. Is there any residual chemical hazard to the neighbors of Third Coastal and if so, what is it? Is there a hazard to people, a chemical hazard to paint and metal? Must chemical samples be taken and tested, and what treatment is required, and who in your organization do we contact for these answers?

MS. MERRITT: Thank you. Generally, we ask you to provide comments and not questions. I think I can properly direct you, however, to the -- I'm sorry; they've changed their name -- what is the environmental agency now that --

MR. ELAM: Something like EPA. I'm not quite sure.

MR. HELLER: TCEQ.

MS. MERRITT: Texas Environmental Quality would be the people that would be able to answer your questions and did do sampling and would be able, I think, to give you the answers to the questions that you've just asked.

MR. HELLER: Between TCEQ and U.S. EPA, there were questions.

MR. ELAM: Fine. I will locate them.

MS. MERRITT: Yes. Thank you. If you'd like to contact our offices, we'd be glad to give you that address and phone number if you need it.

MR. ELAM: I have your Washington addresses. Thank you.

MS. MERRITT: Thank you.

MR. ELAM: Okay. My comments on how to prevent fires. I made a list, most of which you covered, but here's one you didn't. All electric wiring should be inside metal conducts. All electric wiring should be copper and not aluminum. All switches and wire connectors should be inspected, cleaned and tightened for residences once every three years and for manufacturing plants once every 12 months.

Would you like to comment on that?

MS. MERRITT: No.

MR. ELAM: No? Fine. Okay.

MS. MERRITT: But we thank you for your comment. That will be in our record, and so as it's distributed, and to those who are listening on Webcast, they have heard your comments and recommendation.

MR. ELAM: Another comment I have which was not covered is that rats and other rodents can chew wire insulation and cause fires. I recommend the use of pest poison to control these.

Another comment which you did cover but maybe not explicitly. Fire extinguishers which will put out oil fires and electric fires other than water should be prevalent, because the water will float the oil up and carry the fire somewhere else. So I believe a big emphasis should be put on the so-called chemical fire extinguishers.

I would also suggest that the firewalls be made to be double walls and just fill them with water inside.

Another comment is this. We all face a threat of terrorism. I believe that we should block the roads that pass directly near a plant and should provide at least 1,000 feet from an accessible road to a plant because of the threat of terrorism.

And the last -- I don't mean to be facetious, although you'll all laugh -- we might contact the famous firefighter organization headed by Fred Adair to see if he has any suggestions as to fire prevention.

And that's all I have. Thank you.

MS. MERRITT: Thank you.

Are there any other comments? Are you -- yes, sir. Are you registered? Thank you. Please take the microphone so we can hear you. Thank you.

Speak your name and --

MR. LISLIE: My name's Ernest Lislie. I'm a neighbor next to Third Coast, and I guess my biggest concern is -- and I've got here a couple of questions of health problems that has occurred from this fire. And some of the long-term effects of the explosions, especially concerning kids and older people, the water and contamination of some of the soil -- we've never got any kind of results back on if the land which, you know, is our investment has been contaminated.

We've called the insurance company and Third Coast. Their response is it's not their concern. I'd like some kind of response from that.

MS. MERRITT: Our investigation is to the root cause of the incident and contributing causes and then to

prevention of this happening again. I do believe, however, that reports from the Texas Natural Resources people who were overseeing --

I believe, Dave, if you can help me with this, but I believe they oversaw the cleanup, and they should be able to give you an answer or a report involving the effects or residual effects concerning the fire and cleanup at this site.

And as I did the other gentleman, would strongly recommend that you contact that agency and ask for the report or meet with them to talk about the residual effects of that incident on the community.

MR. LISLIE: I appreciate that answer. I have done this. I've already gone through all these motions. What they're saying is they don't have the money advocated to do any type of soil testing.

The TNRCC has done some water testing on the deeper wells that everybody out there are on well water, and the results is -- was clean, but the long-term effects of the chemicals soaking down through the different water tables and to a particular deeper water source for water wells -- they have no results or any kind of recommendations for.

So we're just kind of guessing, and we can't get

any real answers. That's why I brought it up. We appreciate you being here. I was kind of shocked that, you know, the United States Government was concerned about this Third Coast, but we're having a hard time getting answers. I don't know if y'all can intervene or if there's any other help or --

MS. MERRITT: John, do you have a suggestion?

MR. LISLIE: -- what I need to do.

MR. BRESLAND: I certainly appreciate your concern.

MS. MERRITT: I'm not sure we can hear you. Turn your microphone up.

MR. BRESLAND: I certainly appreciate your concern and I understand that you're having problems getting results from the appropriate agencies. One suggestion I would have, and this is speaking as someone who used to work in one -- a chemical plant, and understanding the powers of communities in getting things done, would be to get together with your neighbors.

Talk to your neighbors, and then as a group go and talk to your local elected officials and ask them to help you. I think you may have some more success if you do that.

MR. LISLIE: We are currently doing that.

MR. BRESLAND: I think the power of a group of people is much greater than the power of a single individual going and talking to the agencies.

MR. LISLIE: I understand. We are in the process of doing that. I was hoping maybe that, you know, the U.S. Chemical Safety and hazard investigation could maybe help in some kind of way or not. I feel that it's not y'all's expertise, and I wasn't aware of that.

MS. MERRITT: One of the things that -- I believe this is Region 6 of EPA, and one of the things that we would be happy to do is to pass your concern along to Region 6 and to the administrator to see if we can't get some answers also from Region 6 EPA.

So, I mean, we can use our bully pulpit to do that for you as residents. So I'm sorry I don't have better answers for you, but I think John's recommendation is -- or the other one I was thinking of -- you do have the authority of the vote, and I would certainly contact your county elected officials to ask for answers.

And also, then I would be glad to make a contact with Region 6 and see if we can't get some assistance also in providing some answers.

MR. LISLIE: Well, we do appreciate that.

MS. MERRITT: You're very welcome. We'll try to

do what we can.

MR. LISLIE: I do have one other question. Y'all are here to make a vote? What is this vote concerning?

MS. MERRITT: Well, what we will do is it is accepting on behalf of the board the report from the staff and their recommendations. Those need to be voted on and accepted in public at a public meeting, as we're doing today, and then once that is completed, the report then will be issued, and also the recommendations then would be sent out to all of those people that recommendations have been made to.

So this is the formal process of accepting that report and accepting the recommendations that would allow us to go out, as a board, to begin to ask for the implementations of those recommendations.

MR. LISLIE: All right. I appreciate your time.

MS. MERRITT: You're very welcome. Thank you.

Now, if there are no other questions or no other comments from the floor, I guess I would like to open the floor then to the board as to whether or not there's any discussion on the report.

DR. TAYLOR: Madame Chair, I wanted to go back to the gentleman that last spoke. I think one of our concerns -- we talked about this before -- is to help this to the

community, and that's a big issue for many of our investigations.

Although we're looking for root cause at the facility, but I think the surrounding neighborhood is also impacted and they need more answers in many cases. And hopefully, whatever the board can do in facilitating that, we should consider that -- for instance, in this case, contacting EPA which you suggested is a very good idea.

But in our future investigations, we also need to take consideration of what happens to the communities surrounding these facilities and how they're impacted very strongly by our investigations.

MS. MERRITT: Thank you.

DR. ROSENTHAL: I think that for clarification, and I agree with what you've said, Madame Chairman, and what Dr. Taylor has said, but perhaps the -- some of our guests may not appreciate that the law tends to limit the board's study of chronic effects and talks about the board's focusing on acute effects.

However, I think that one of the acute effects is anxiety in the community about long-term health effects. So in that regard, I think we ought to take into account that these incidents may generate these concerns, and make recommendations that the appropriate agencies address them.

So that I'm saying that this -- the existence of this anxiety is an acute result of the accident and may give us a standing for then making the recommendation to an agency that they address this anxiety.

MS. MERRITT: And I think the maturity of the board is one of the processes that we are experiencing right now. For those of you in the audience may or not realize, we have begun to look at the other facets of our legislative authority and our responsibility as an agency.

And so I think we have discussed this among ourselves, and as an agency feel that public impact, within the boundaries of our legislative authority, certainly is one of the things that we will consider.

Dr. Poje, did you have something?

DR. POJE: Yes. No, I just wanted to echo the remarks of you and others on this very matter. I've come to Houston by way of Atlanta, Georgia, and was at a meeting of the Agency for Toxic Substances and Disease Registry and had the opportunity to meet and greet a number of individuals who are involved in a more formal advisory position on community and tribal aspects of toxic substance exposures and the health effects to their communities.

So this is a -- while it's no immediate comfort to the gentleman who raised these comments, this is not a

unique problem to the situation in Friendswood, nor is it a unique problem in the State of Texas nor in other states around this nation.

And I would also offer that we are trying to work with the Agency for Toxic Substances and Disease Registry and do have other partners for whom we are still trying to evolve a more effective partnership to address matters such as this.

And I will be happy to be an agent of communication to them about this issue as well.

MS. MERRITT: And I would encourage you to pull up our Website on occasion. Many of these memorandums of understanding or agreements or things that we communicate with other agencies are posted on there, and it's -- be interesting, I think, for the general public to be able to follow our progress with regard to some of these requirements and needs of the community. So we invite you to visit that web page and stay posted.

Are there any other comments or questions?

Yes, ma'am.

DR. TAYLOR: I just wanted to go back to our report itself. I do believe, and wanted to thank the investigators as well as our consultant, regarding this investigation. It's very thorough and very well done, and I

do believe we have all the facts there surrounding what we know about this event and have made adequate recommendations.

MS. MERRITT: So are you saying that you believe there have been no other new questions raised that should delay a call for the vote?

DR. TAYLOR: Yes. Yes.

MS. MERRITT: Then I will do that, and is somebody ready to make that motion for the acceptance of the report?

DR. TAYLOR: I am.

DR. ROSENTHAL: I have some discussion on it since you've made the --

MS. MERRITT: All right.

DR. ROSENTHAL: I think there have been two issues raised here that we might want to consider in terms of the -- one is the suggestion that we modify the recommendation to the other parties other than the county and Third Coast and the code associations that they suggest that there be -- aside from disseminating the contents of the report that the members of the associations reexamine their own facilities that are not covered by the codes in the light of the findings of this report.

MS. MERRITT: In other words, add that portion?

DR. ROSENTHAL: Yes. So I raise that as an issue that we might want to consider.

MS. MERRITT: Include in the --

DR. ROSENTHAL: In the final report.

MS. MERRITT: -- in the final report. Okay.

DR. ROSENTHAL: Other than that issue, I am prepared to move ahead and approve the report, and pending discussion of the other board members, you may talk me out of the desire to hold the part up until the other is done.

DR. POJE: Madame Chairman, I guess on that very matter, though, I would appreciate input from our staff, because I do see merits of it but I also have some concerns about the practicality of measuring the outcome. In other words, I think we have a number of past experience which allows us to understand that such was communicated.

I think we've had lesser experience for understanding how you would take it one step further and assure the reexamination process had occurred at those facilities. So maybe I'm missing your point.

DR. ROSENTHAL: You're missing my point. I haven't been clear. It is not that we ask the associations or the members to do it. We just ask the association to communicate the thought that their members might wish to reexamine their own facilities, so that would just be

covered by a broadening the notice to some that I've seen, which is, Here is the report, read it; to say something like, Here is the report, read it and you might consider if you are not covered by current up-to-date fire protection practices that you wish to reexamine your own facilities in the light of this report.

DR. TAYLOR: See, can I make a comment about that? I don't think there would be any problem in the recommendation as it currently exists, but in the letter that's sent to the associations perhaps add that language. Would that be --

DR. ROSENTHAL: If that's -- if Counsel assures me that this is correct, I'll drop the issue.

MS. MERRITT: We were just caucusing here on exactly how we do what you just asked to do, and I think, if that would be agreeable, I think including that suggestion, because it would be very difficult for staff to track that.

And I think making -- I think it's a very good and worthy recommendation, and we can do it in the cover letter to ask them to communicate not only the findings of this report but to take this as a warning and have them, you know, encourage their members to review their own practices.

Would that be acceptable, do you think?

DR. ROSENTHAL: Absolutely.

MS. MERRITT: Okay. Then if there are no other comments, then I would call for someone to make a motion concerning the vote.

DR. TAYLOR: Madame Chair, I move to approve the investigation report. It's Report Number 2002-303-1, and recommendations regarding incident that occurred at the Third Coast Industries' Friendswood facility on May 1, 2002.

MS. MERRITT: I think our Counsel is suggesting that we add to that the words "as amended by the record of this meeting."

DR. TAYLOR: As amended by the record of this meeting.

MS. MERRITT: Okay. So then how it would read is -- the motion is to approve the CSB Investigation Report Number 2002-03-1 TX and recommendations as amended by the record of this meeting regarding the incident that occurred at Third Coast Industries' Friendswood, Texas, facility on May 1, 2002.

Is there a second?

MR. BRESLAND: I second.

MS. MERRITT: Thank you. John Bresland seconds that motion. Then by a roll call I would ask for your vote.

Dr. Taylor.

DR. TAYLOR: Approve.

MS. MERRITT: Dr. Rosenthal.

DR. ROSENTHAL: Approve.

MS. MERRITT: Dr. Poje.

DR. POJE: Approve.

MS. MERRITT: Mr. Bresland.

MR. BRESLAND: Approve.

MS. MERRITT: And I approve. So by unanimous vote, then this report and recommendations has been accepted by the board.

Thank you all very much.

Now what we would like to do -- we're really right on time, which is really nice and amazing and wonderful -- I would like to ask if Jordan Barab would do an update on the recommendations that are currently open and what the status of those recommendations are in about 15 minutes.

MR. BARAB: Okay. Thank you, Madame Chairman.

As I related in my previous statement, the job of the recommendations program is not just to work on developing new recommendations. The most important job we have is to follow up on the recommendations that we have already made, which means tracking those recommendations as well as working with the recipients of those recommendations.

With today's recommendations, we now have, in the history of the Chemical Safety Board, made 150 recommendations to recipients. And again, we are actively trying to follow those up. There are a number of recommendations that we've made in the past that we've received some kind of response from the recipients, which we would like to report to the board and for eventual action by the board on those, on our recommendations on action on these responses.

Let me just review that all of the responses that I'll be reporting to you today are either -- will either be classified -- are either classified by the staff, recommended by the staff to be classified as open, acceptable response or open, awaiting response, with the exception of one.

Now, open, acceptable response or open, awaiting response basically assumes that the recipients are working in good faith. Either that they have not yet fully complied with our recommendation or we have not yet received enough information from them to really indicate whether they are working toward that end or not.

There is only one recommendation which we're going to report to you today which we have recommended by classified as open, unacceptable response.

Now, what I will do is I will rather quickly go through these and just basically summarize the recommendation and what our -- what the staff's recommendation is as to the disposition of those responses.

You have in your notebooks under the recommendations section a copy of all the evaluations that the staff has done on these responses. Those pages are numbered R-1 through R-24, and we will have -- well, you'll see when we get up to the recommendations themselves in the color orange is the actual page number that the evaluation appears, in case you want to refer to that in your questioning.

There are, I think, four different reports that we'll be covering today in these recommendations. I'll refer to those four reports. The first one, which have a number of responses, deal with the report that we conducted in Motiva Enterprises.

This was a July 2001 incident where there was an explosion at Motiva Enterprises which killed one worker, Jeffrey Davis, who was a boilermaker, and seriously injured eight others. This resulted from a welding spark that ignited flammable vapors in one of the storage tanks which contained sulfuric acid.

As you can see in the picture, the tank totally

left its foundation, which is to the right of the tank itself, emptying its contents not only into the site but also into the Delaware River which resulted in significant damage to aquatic life.

We have a number of recommendations -- number of responses, I'm sorry, to the recommendations. And again, you can see here we have summarized basically the essential elements of the recommendation and in orange are the page numbers where the evaluations occur.

Let me just read through these. The first group I'm reading through we have classified as open, acceptable response, which means they're in the process of responding, again, in good faith.

Let me just run through these. Ensure accountability for mechanical integrity decisionmaking. Conduct management of change reviews for changes to tank equipment and operating conditions. Revise the hot work program at the plant.

These, by the way, are to the specific refinery in Delaware City. Upgrade unsafe condition report systems in regard to decisionmaking authority. Elevation of unresolved issues and means of hazard communication. And again, all of those we have recommended be classified as open, acceptable response.

There's one further that we are recommending be classified as open and awaiting response, because are still awaiting enough information to see how they are responding. This is Number 4 there, Review of the design of the existing tankage that contains or has the potential to contain flammables regarding installation of inerting systems and emergency venting. And again, we're recommending that this be classified as open, awaiting response.

Are there any questions about these recommendations, or do you want me to move on to the next?

MS. MERRITT: Yes, Mr. Jeffress?

MR. JEFFRESS: I'd just like to remind the board that this is a presentation to you of where the staff is on evaluating the implementation of these. You will have documentation that includes the materials sent to us from this company, and you will receive a ballot for notation voting next week on these items.

So we're not looking to vote today. This is simply a presentation of where we are and the backup documentation, some of which is in your book. Others will be forwarded to you next week.

MR. BRESLAND: I have just one question about the wording here. If the staff recommendation is open,

acceptable response, does that not mean that it's closed?

MR. BARAB: No, it doesn't. Open, acceptable -- in some of the cases -- let me just give you some examples. In some of the cases open, acceptable response, we will have received a response, a letter from them, for example, saying that they have complied in fact fully with all of our recommendations but they will have sent no proof of that.

Generally, what we'd like to ask if they say they've upgraded, for example, their guidelines or they say they've communicated the information to their membership, we ask to see some proof. In other words, a copy of the guidelines, a copy perhaps of any audit reports, and copy of the e-mails or the Web page that they used to communicate their report.

So that, and occasionally some other exceptions, some other details that they may have left out, earn the open, acceptable response category.

MS. MERRITT: So it's almost open, acceptable incomplete response?

MR. BARAB: Right.

MR. BRESLAND: Or so far, so good.

MR. BARAB: Well, allow me to move on in that case. All right. Now we get to the exciting part. This is to Motive Enterprises. This is to the parent company. Now,

the first one I'm going to be talking about is actually again the only response that we've received that we have recommended be classified as open, unacceptable response.

This is on page, again, our 7 of your -- in your notebook. I'm going to go through this in a little bit more detail because I think this is -- requires a little bit more detail.

CSB asked Motiva to work with -- I'm sorry; that's the wrong one -- CSB recommended that Motiva conduct periodic audits at their refineries and safety systems involved in this incident, such as mechanical integrity, management of change, hot work, et cetera.

CSB asked Motiva to track and implement the audit recommendations and share the findings with the workforce. CSB report found that Motiva corporate entity failed to detect and hold the refinery management accountable for deficiencies in their safety systems that led to the incident.

Now, we received a response from Motiva Enterprises. Again, it was a letter reviewing their response to our recommendation. Basically, to summarize, the letter cited a number of existing management practice, processes and standards.

However, most of these again were existing before

the incident occurred. The only audit they mentioned in this letter of response for management of change or mechanical integrity review were those already required by the PSM regulations or the EPA's RMP regulation.

And as we noted in the report, the acid tank farm where this incident occurred was not covered by PSM or RMP. So again, the audit that they mentioned would not have covered this area. The letter did not cite any audits that had been conducted in these areas and the document did not agree to perform any audits.

Again, all of these were in place before the incident occurred and they failed to prevent the incident at that time. The letter also does not indicate that Motiva will track, implement or share the findings of these recommendations. So again, we are recommending that that be classified as open, unacceptable response.

Any questions on that specific recommendation?

DR. POJE: Just a comment that I want to review the letter and the other materials and discuss that with staff before the voting process is under way.

MR. BARAB: Yes. Yes. And again, as Charles said, all of these will be reviewed in more detail. The documentation for a number of these is fairly extensive and it's all either in an electronic or a paper form and it will

be presented to you in those forms.

All right. Let me move on then. The second recommendation on this page is communicate -- is to, again, Motiva to communicate the findings and recommendations of this report to the workforce and contractors at all Motiva refineries.

And again, they've indicated that they have done so but they have not sent us the evidence, and we will -- are suggesting that we communicate to them that we'd like to see what they've done.

The next one -- again, this continues on the Motiva report, the American Petroleum Institute, and this is to work with the National Association of Corrosion Engineers to develop guidelines, API guidelines, with respect to storage tanks containing fresh or spent sulfuric acid in tanks with wall or roof holds are thinning.

Ensure that API recommended practices address the inerting of flammable storage tanks, and communicate these findings and recommendations of this report to your membership. Again, these deal with some of the essential issues of the Motiva incident.

The holds, the thinning in the tank, the holds in the tank, the failure of the inerting system, and our conclusions that the API guidelines needed to be more

precise in those areas. And we're asking them, again, to work with NACE, the National Association of Corrosion Engineers, to develop these guidelines.

They responded to us that they have in fact met with NACE, that they are in the process of developing a process for moving forward on revising their guidelines. And again, we are classifying that as open, acceptable response because they again are in the process of moving forward on our recommendation.

The mirror side of that is to the National Association of Corrosion Engineers, to whom we recommended that they work with the API, again to develop the API guidelines that we just talked about and again, communicate the findings and recommendations of this report to their membership.

And they are in agreement with API that they have in fact met and are in the process of discussing and putting together a procedure for developing these guidelines. So again, that was classified as open, acceptable response.

Any question on these past two?

All right. Finally, in terms of Motiva, we'll move forward to the Building Construction Trades Department, AFL/CIO, which were simply asked to communicate the findings and recommendations of this report to their membership.

They indicated that they have done that. We simply will -- they did not send us, again, the evidence and we'll simply respond to them and ask them for the evidence of that communication.

All right. Let me move forward to another report. This is the Sonat Exploration Company. This is an incident that occurred in 1998 where a gas well operated by Sonat in Bienville Parish, Louisiana, exploded during servicing.

Four workers were killed. The facility sustained significant damage. In this case, the separation vessel ruptured due to overpressurization, releasing flammable material which then ignited.

We asked -- now, Sonat has since been bought out by El Paso Production Company, so this recommendation, although originally directed at Sonat, goes to El Paso Production Company, and it's from El Paso that we received a response.

We asked them to institute a formal engineering design review process for all oil and gas production facilities and develop written operating procedures for oil and gas production facilities and implement programs to ensure that all workers are trained.

We did receive a letter as well as some

documentation from them which is rather extensive. In a nutshell, they are proceeding with some of these recommendations. They indicated they're proceeding on all of them.

The documentation they forwarded to us, however, did not indicate some of the items that they had indicated they were moving forward on. So again, we will communicate with them that we would like to see some of the items that they had indicated they were moving forward on.

The second recommendation there -- actually, the third recommendation there -- is ensure that all oil and gas production equipment subject to overpressurization is equipped with adequate pressure relief systems and audit compliance with the program.

Again, their response to us, while it mentioned -- while it acknowledged our recommendation that they address the overpressurization issue, none of the information they sent to us actually mentioned anything about overpressurization.

So again, this would be an open, awaiting response because although they indicated that they want to address this and we feel are operating in good faith, they actually failed to send us any information indicating that they were addressing this.

MS. MERRITT: Jordan, the question I have is, you know, this is three years past the event or more. How -- I mean, I think we as a board need to think about how long we're going to continue to keep them open without, you know, addressing them as unacceptable responses.

MR. BARAB: Right.

MS. MERRITT: And then do whatever reporting we need to do to whatever organizations need to know that they are not responding. And I would like also for the recommendation staff to give us a tally of how old some of these are.

I think we're going to need to take a look at those, because this could go on forever.

MR. BARAB: Yes. And you know, you're absolutely right, and this is approaching -- we try to get these things closed out within about three years, and we are approaching or may have exceeded that at this point, and we will, on some of the older ones -- you're right -- we are in the process of tallying up the older ones are and we will be contacting them personally as well as assisting the assistance of the board -- requesting the assistance of the board in doing that.

As Mr. Jeffress indicated in his presentation, we have substantially increased our recommendation staff

recently and that our primary mission is in fact to go back to some of these older recommendations and --

MS. MERRITT: Thank you.

MR. BARAB: -- see if we can close them.

All right. Let me go on to our last report, and this is one of our more recent reports, improving reactive hazard management. This was a study that examined the chemical process safety in the United States specifically around hazardous chemical reactivity and concludes that reactive incidents are a significant chemical safety problem.

This response is from the Environmental Protection Agency. We had recommended that they revise their accident release prevention requirements to explicitly cover catastrophic reactive hazards. And second, that they modify the accident reporting requirements in the AMP information to determine and record reactive incidents.

The response we got from them did not -- was fairly equivocal. They did not indicate that they were in fact going to move forward in revising these regulations. They did not indicate that they weren't going to. They did give us a list of a number of actions they've taken to increase the awareness of reactive hazards.

But again, there was no conclusive response in

terms of their revising of the regulations. So again, we classified this as open, awaiting response; again, because we really haven't received a response yet.

That concludes the recommendations update.

MS. MERRITT: Okay. Well, we look forward to the full report, and the board will certainly be reviewing those soon. Appreciate that. Thank you.

Was there any other --

MR. JEFFRESS: That concludes the presentations.

MS. MERRITT: That concludes the presentations.

Well, that brings us to the end of this morning's session, and this meeting of the Chemical Safety Board.

The next item would be -- of our business is the press conference, and Dr. Rosenthal, who actually was the board member that responded to this incident at Third Coast, will be there, and the lead investigator, Dave Heller, will be conducting that media briefing.

I'd like to thank the entire Third Coast team for a thorough investigation and excellent report. In addition to Dave Heller, also Jordan Barab and Dr. Zalosh -- thank you for your presentations.

And also to Mike Morris, who is not with us today, but who was also deployed at the scene and participated in the investigation.

You have done a really very good job. We thank you very much for this report.

Fortunately, the fire at Third Coast last May didn't result in any deaths or injuries, but the impact was significant, and the magnitude of the fire should be a wake-up call to those who handle combustible materials or regulate their hazards.

Under the right conditions, combustible liquids like motor oil can burn rapidly and cause tremendous damage. Proper safeguards are essential. As a federal agency, we spend a lot of effort reviewing the various federal safety regulations that help prevent chemical accidents.

The Third Coast investigation offers an important reminder that often, solutions lie at least in part in the hands of the local community. By adopting a comprehensive fire code to cover unincorporated areas, Brazoria County can take a strong lead in ensuring the safety of other facilities.

As today's presentations showed, just because a plant is not in the middle of the city doesn't mean that it has -- it is a safe distance from homes, businesses, schools, and in the event of a major fire, all of these entities are impacted.

The protection afforded by a fire code are

therefore invaluable in urban as well as rural areas. I'm pleased that our preliminary discussion on this subject was with Brazoria County officials has been very positive and productive, and I look forward to further progress.

I can say from my personal experience as a corporate safety official that money spent on fire protection systems is one of the best investments that a company can make. Had better systems been in place at Third Coast, this facility might well be standing today, producing revenue and supplying jobs.

I look forward to working with Third Coast to verify that appropriate measures are in place at the Third Coast Terminal in Pearland. I anticipate that the full Safety Board will be reconvening here in the Houston area shortly to review the findings of our ongoing investigation at BLSR.

To learn of these and other developments at the CSB, please continue to visit our Website at www.csb.gov, and consider signing up for our e-mail alert system.

With that, we now conclude our board meeting. Pending the press conference, this meeting is now adjourned.

Thank you, everyone.

(Whereupon, at 11:55 a.m., the hearing was concluded.)