U.S. CHEMICAL SAFETY BOARD

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WEST FERTILIZER EXPLOSION AND FIRE

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PUBLIC MEETING

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THURSDAY,
APRIL 22, 2014

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U.S. CHEMICAL SAFETY BOARD MEMBERS PRESENT:

RAFAEL MOURE-ERASO, Ph.D., Chairperson,
U.S. Chemical Safety Board

MARK A. GRIFFON, Member, U.S. Chemical Safety Board

BETH J. ROSENBERG, Sc.D., M.P.H., Member,
U.S. Chemical Safety Board

STAFF PRESENT:

DANIEL M. HOROWITZ, Ph.D., Managing Director

RICHARD C. LOEB, General Counsel

JOHNNIE BANKS, CFEI, Supervisory Investigator

***HILLARY COHEN, Communications Manager**

JERAD DENTON, Esq., Investigator

RACHEL GUNARATNAM, Investigator

***AMY McCORMICK, Contracting Officer**

SAMUEL OYEWOLE, Ph.D., Investigator

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P R O C E E D I N G S

(6:30 p.m.)

CHAIRPERSON MOURE-ERASO: Good evening and welcome to this public meeting of the U.S. Chemical Safety Board, or the CSB. I would like to recognize among other people that came to this that we really are very appreciative of coming from the town.

I would like to especially recognize Mayor Tommy Muska, who is going to say some words for us in the middle of the program, and I am going to call on him. So thank You Mayor Muska for being here with us.

My name is Rafael Moure-Eraso, I am the Chairperson of the Chemical Safety Board. And with me today are our board members, Mr. Mark Griffon and Dr. Beth Rosenberg.

Also to my right is the general counsel of the Chemical Safety Board, Mr. Richard Loeb. And to my left is the investigator -- investigation team of the West

incident here in town. I'm going to name them at the end of our remarks, and he will introduce directly himself and the team.

The organization, the CSB is an independent non-regulatory Federal agency based in Washington, D.C. that investigates major chemical accidents at fixed facilities. As it was, the incident here in West.

The investigations exam all aspects of chemical actions, including physical causes related to equipment design, as well as inadequacies in regulations, industrial standards, and especially safety management systems. Ultimately, we use safety recommendations based in our findings which are designed to prevent similar accidents in the future, at least in the sector where the accident took place.

Before we begin, I would like to point out some safety information. Please take a moment to know the locations of the exits. There is a back exit where you came

in, and there are some exits on the sides if there were be an emergency. It should be taking note of that. I also will ask that you please mute your cell phones so that these proceedings are not disturbed.

The CSB is here this evening to discuss the failures that led to the tragic fire and explosion that occurred here in West, Texas on April 17, 2013. Before we get started, I would like to ask Board Member Mark Griffon, to speak the names of the individuals who lost their lives protecting their community, and were victims of the actions. And then have a brief moment of silence.

So, Board Member Griffon please.

MEMBER GRIFFON: Morris Bridges, Perry Calvin, Jerry Chapman, Cody Dragoo, Kenny Harris, Jimmy Matus, Judith Monroe, Joey Pustejovsky, Cyrus Reed, Mariano Saldivar, Kevin Sanders, Doug Snokhous, Robert Snokhous, William "Buck" Uptmor, Jr., Antoine Lennard.

CHAIRPERSON MOURE-ERASO: So I

will ask for a moment of silence in remembrance of the victims of the explosion.

Thank you Board Member Griffon. Our hearts go out to the victims and the victims' families of this tragedy. At least 15 people died a year ago, mostly as you know volunteer firefighters that perished trying to do their job. We do not take away from their heroism in the least by finding that they were not fully aware of the risk of an explosion as it happened.

Today's presentation will include a review of the preliminary findings by the investigator in charge, Johnnie Banks and then we'll hear from two expert panels during the evening. And they will be introduced during the program to discuss issues of emergency response and live land use planning. I will be introducing the panels after the presentation of the CSB from Mr. Banks and the investigative team.

So I will ask to call on Mr. Banks

to introduce his team and to continue with the program. Thank you.

I've been reminded that I skipped introducing some. Also the Board Members have some short statements they would like to say. Sorry, okay. So Board Member Rosenberg please.

MEMBER ROSENBERG: Thank you Chairman. I want to offer my condolences to the friends and families of those who died. I offer sympathy to those who were injured here. And to those who's injuries do not make headlines, so those who's hearing is impaired from the blast, who have been traumatized and to those who simply lost the mundane tranquility of their lives because of the blase.

We have learned a lot about what contributed to the tragedy. And you will hear much information about the storage of ammonium nitrate, zoning and citing of facilities containing hazardous chemicals, the training

of emergency responders, fire codes, regulation and inspections.

If the lessons from West do not cause any change in Texas and throughout the United States, I would consider that a second tragedy. I sincerely hope that the important work that the Chemical Safety Board has done in researching results in real changes.

I encourage you all to make that happen. Thank you.

CHAIRPERSON MOURE-ERASO: Thank you Dr. Rosenberg. Mr. Griffon.

MEMBER GRIFFON: Thank you Mr. Chairman. I'd also like to express my condolences to all the family and friends of those who died in this tragedy, and to the many who were injured.

The incident had a devastating effect on the entire community. And I hope that our investigation can lead to safety changes to help prevent such tragedies in the future. This is -- and it clearly devastated

this community. But I hope that it serves as a wake up call for what is a national issue.

My understanding is that there are more than a thousand facilities like this nationally. And I would venture to guess that there are other types of high hazard facilities located in close proximities to communities, without the community having a full appreciation of the risk posed.

Understanding where -- I'm sorry. Understanding where these facilities are located, and exactly what types of materials they are storing and manufacturing, is very important. But equally important is the ability to do something with that information.

If a high hazardous facility is located in your community, what can you do about it. Are community and local emergency responders equipped to handle a worse case event? Are local and state emergency planning commissions established, and are they active? Are risk management plans required, and if so,

are they being used? How can zoning and siting rules be changed to assure communities are safe from these hazards?

I'm interested tonight in hearing from our team as well as from the expert panels to help us grapple with some of these questions. Thank you very much Mr. Chairman.

CHAIRPERSON MOURE-ERASO: Thank you Mr. Griffon. Before proceeding, I would like to ask Mayor Tommy Muska if he would like to same some words.

MR. MUSKA: Chairman Eraso and the Board, welcome you to the City of West.

CHAIRPERSON MOURE-ERASO: I'm not sure if your microphone is on.

MR. MUSKA: Hello?

CHAIRPERSON MOURE-ERASO: It is, okay. Go ahead.

MR. MUSKA: Mr. Chairman, Board Members, I welcome you here to the City of West. And I thank you for holding this meeting here locally so the local citizens can

hear your results.

I want to also thank you all for your service to this country and for your vital service regarding chemical safety. I want to welcome everyone else here tonight to the City. And I'm sure that tonight's information will be of importance to you.

April 17 even was a tragic loss of life and property. And will forever change the face of West. It is my personal hope and prayer that the lessons learned from your report Chairman, will be enacted and measures put in place, so then the loss of the first responders lives will not have been in vain.

Again, I thank you very much for being here, and I welcome every to the City of West. Thank you Mr. Chairman.

CHAIRPERSON MOURE-ERASO: Thank you Mayor Muska. Now we proceed with the program. I ask Johnnie Banks, the investigator in charge for the West Fertilizer investigation, to take over and introduce

himself and his team.

MR. BANKS: Chairman Moure-Eraso, Board Member Griffon, Board Member Rosenberg, Mr. Loeb, ladies and gentlemen, good evening. We're prepared to present preliminary findings from our investigation of the fire and explosion which occurred at the West Fertilizer facility in West, Texas.

This incident occurred on April 17, 2013, and resulted in 14 fatalities and over 250 injuries, and widespread community damage. Tonight's meeting will focus on emergency response and land use planning issues identified by the team at this stage of the investigation.

It is important to mention at this juncture, that these two categories discussed tonight are by choice, and a subset of a larger effort which is focused on prevention.

Before I start with the proceedings I would like to introduce the investigative team, which includes CSB

investigators from both Washington, D.C. and the western regional office located in Denver, Colorado. There were many contributors to the work on this investigation that are not here tonight, including several investigators who participated in the deployment activities immediately following the explosion.

The core investigative team consists of myself, Johnnie Banks, Jerad Denton, Rachel Gunaratnam, Mary Beth Mulcahy who can't joint us tonight, Samuel Oyewole, Reba Schroff who is not here with us, and Lucy Shallow-Tyler.

Not continuing, we'll start with an overview of tonight's agenda. Members of the CSB investigation team will briefly describe the West incident and the emergency response.

Next we will have our selected panelists from the emergency response community come forward and provide statements and answer questions from the Board

investigation team. We will then have a brief 15 minute intermission.

Following the intermission, members of the investigation team will present some of the team's findings on land use planning. And we will invite our second set of panelists to discuss related issues. And also answer questions from the Board and investigative team.

There will be a public comment period for attendees interested in offering comments for Board consideration related to land use planning.

Finally, the team will discuss the investigation path forward and list areas we will examine prior to issuing a final report on the West Fertilizer incident. We will now move on to the investigation team presentation of the incident and emergency response.

Consent with the CSB investigation process, we have conducted an independent investigation, and have interviewed key

eyewitnesses, photo documented the scene, collected physical evidence and conducted a community walk through to survey and document damage.

As you will see later, this information was instrumental in documenting -- in the documentation of damage to residences, schools, and healthcare facilities. And was useful in recreating likenesses of some of the structures that were destroyed in the event.

In response to this incident, the agency has participated in hearings before a U.S. Senate Committee on Environment and Public Works in June, 2013, where 17 preliminary findings were released. We've also participated in activities related to the Presidential Executive Order through attending and contributing to listening sessions and engaging in dialog with other agencies similarly tasked with addressing the issue of chemical site security.

Based on these findings, developed

over the course of this investigation, the team will develop root causes of the incident. And recommendations to prevent reoccurrence at other entities engaged in similar commerce.

Briefly, some of the previous relief findings observed that the warehouse was constructed of wood. That there was no sprinkler system available for fire suppression. That firefighters had very little time to make snap decisions. And the State of Texas had not adopted a statewide fire code.

Now we will provide an incident description. At about 7:30 on April 17, 2013, the first documentation of the incident started with calls received by 911. In addition to the call to report the working fire at the plant was made by a West police officer.

The fire progressed through the facility rapidly. Four units from the West volunteer fire department responded in

addition to mutual aid from fire companies from nearby counties. Almost immediately, the West volunteer responders began stinging hose to fight the rapidly growing fire in the fertilizer building.

Just 20 minutes after the first notification was made to 911, a violent explosion occurred. The time was about 7:53 p.m. The progression of the fire and the explosion are captured in these series of photos taken on the night of the incident.

Once the fire started, it burned extremely intensely due to the presence of ordinary combustibles such as seats wooden bins that formed the container for the AN, and asphalt shingles on the top of the roof of the structure. The absence of sprinklers allowed the fire to go rapidly with no abatement. Finally, the AN involved in the fire was likely decomposing and contributed to the intensity of the fire before exploding.

In the aftermath of the explosion,

14 fatalities were reported, including 12 of the emergency responders and two members of the community that resided at the apartment complex located west of the plant. There is a 15th victim that is attributed to this event who expired in route to the hospital who had a heart attack.

There were also more than 230 documented injuries to emergency responders and members of the surrounding community. Damage to housing, businesses, schools and health care facilities was wide spread in the West community afterwards.

In addition to the immediate consequences, there were likely many, undocumented long term effects to the members of the community that was collective traumatized after the incident. Though 14 fatalities were documented as a result of the explosion, within hours of the blast, a resident of a nursing home died of a heart attack in route to the hospital as I mentioned

earlier.

Investigators also became aware of an increase in the number of deaths to a nursing home residence in the days following this incident. And we will consider linkage to the fire and explosion and the role that they may have played.

Despite not being classified as an explosive, historically AN has exploded. In examining previous incidents, the unpredictability of AN when exposed to the conditions of a fire such as the one that occurred at West Fertilizer became evident. Here is a list of some of the most catastrophic ammonium nitrate explosions documented globally for almost a century.

In 1921, an explosion at BASF in Germany claimed between 500 and 600 lives, and caused 2,000 injuries. In 1947, a ship carrying 2,300 tons of wax coated AN exploded in the port of Texas City, resulting in 581 fatalities and 5,000 injuries.

The terrorist injury explosion claimed four lives and lead to 18 injuries and resulted in the release of 5,700 tons of anhydrous ammonia. And in France an explosion in 2001 resulted in 31 fatalities and 2,500 injuries. And in another explosion in 2003 26 were injured.

In 2009 there was an ammonium nitrate fire at a similar facility in Bryan, Texas, which had dramatically different outcomes. This facility called El Dorado Chemical Company stored 550 tons of AN. A fire erupted at that facility.

Although the storage structure burned to the ground, unlike the incident at West there was no explosion, loss of life or major injuries recorded. Firefighters conducted cooling operations on nearby structures and equipment remotely.

The comparison of the West Fertilizer incident to the 2009 fire at El Dorado fire in Bryan, Texas demonstrates the

unpredictive nature of ammonium nitrate exposed to burning conditions. In the case of West, first responders had only 22 minutes to access the situation and attempt to extinguish the fire prior to explosion.

At the El Dorado incident, the Bryan fire didn't arrive at the facility in 24 minutes after the initial 911 call was made to report the fire. The first firefighter arrived on the scene about nine minutes after the first 911 call was made, noted that the material involved presented an explosion hazard. Due to a lack of water supply, firefighters made the decision to let the facility burn rather than attempt to fight the fire and noted the explosion hazard.

It wasn't until one hour later that the evacuation was ordered for the surrounding facility. No explosion occurred at El Dorado.

Of important note, the Bryan, Texas facility rebuilt. When the rebuilding

commenced non-combustible materials of construction were used.

In consideration of the potential for lessons learned, the CSB found that previous incident leading to fatalities of firefighters and emergency response to AN incidents such as the case of the Bryan incident, were not effectively disseminated to firefighters and emergency responders in other communities where AN is stored or utilized.

We'll now move on to the characteristics of ammonium nitrate and a description of the West Fertilizer facility, storage and distribution process.

This is a wood bin -- or this wooden bin is similar to the ones used at West, which stored AN prills. The prills look like the small white beads or pellets as shown in the enlargement panel on the left side of the screen.

This structure, the fertilizer building, located on the West site, housed

several of these wooden type bins that stored a variety of chemicals used to make custom fertilizer blends.

West Fertilizer was a storage and retail distribution facility. They sold mixed fertilizer, chemicals, farming supplies and grain to the public.

AN was delivered by rail and truck, and we delivered to the bins by a conveyor belts and elevators. Custom blending on site included ammonium sulfate, diammonium phosphate and potassium sulfate.

At the time of the incident, and based on interviews with employees, and estimated 40 to 60 tons of ammonium nitrate was stored in wooden bins in the fertilizer building. The building itself was constructed of wood and the roof was covered with asphalt shingles.

There were two 12,000 gallon tanks in the vicinity of the fertilizer building. Finally there was a rail car positioned

adjacent to the plant awaiting off loading that held about 100 tons of AN that toppled as a result of the explosion, but was otherwise unaffected in the aftermath of the event.

I this virtual tour, we've been able to recreate the West Fertilizer building allowing a view of the building, and equipment as configured on the day of the incident. The bins are labeled with the materials that are thought to have been present on the day of the incident.

West Fertilizer was the storage and retail distribution facility that sold mixed fertilizer, chemicals, farming supplies and grain to the public. This structure, the fertilizer building, was constructed of wood and housed a variety of chemicals used to make custom fertilizer blends. Also on the site were two 12,000 gallon anhydrous ammonia tanks and a 100 ton rail care of ammonium nitrate.

Ammonium nitrate is delivered by rail and truck and transferred into the

storage facility by conveyor belts and elevators. Other chemicals, such as ammonium sulfate, diammonium phosphate and potassium sulfate were also stored in the fertilizer building for custom blending. 40 to 60 tons of AN was stored in wooden bins inside the building at the time of the incident.

In examining the classification of AN, U.S. regulations do not classify AN as an explosive until it has been blended with a fuel source for the purpose of making an explosive mixture. Therefore fertilizer grade AN is not classified as an explosive, which can affect the actions from firefighters during response operations for fires involving ammonium nitrate.

The next portion of our presentation will examine the issues related to the issues of emergency planning and response. And my colleague Dr. Samuel Oyewole will lead this section of the meeting.

DR. OYEWOLE: Thank you very much

Mr. Banks. The toll in the wake of the West Fertilizer explosion was huge and included five firefighters from the West Volunteer Fire Department, two firefighters from the Abbott Volunteer Fire Department, one firefighter from Navarro Mills Volunteer Fire Department, one duty Captain from the Dallas Fire Department, one EMT from the West Volunteer Fire Department and four members of the public, including two good Samaritans who supported the emergency response at the fertilizer plant.

While ammonium nitrate itself does not burn, the conditions under which ammonium nitrate may detonate when subjected to a fire exposure, are not clearly understood. And current guidance does not guarantee firefighters safety.

The deaths of the volunteer firefighters and emergency responders at West, Texas on the night of April 17, 2013, was not the first time that firefighters would be

killed when responding to ammonium nitrate related explosion incidents. On April 16, 1947, a ship containing 2,300 tons of wax coated ammonium nitrate exploded in the port of Texas City, killing 581 people, including all the 26 Texas City firefighters that responded to the incident.

Similarly, on November 29, 1988, six firefighters from the Kansas City, Missouri Fire Department, were killed in an explosion involving a trailer/magazine containing blasting mixtures of ammonium nitrate and fuel oil as well as aluminum pellets.

The firefighters at West, Texas were aware of the magnitude of the hazard of anhydrous ammonium from the tanks. A poisonous cloud which could leak out of the facility and drift into nearby homes. They were not aware of the risk and magnitude of an ammonium nitrate explosion hazard.

One method for improving awareness

of risk and hazard is to perform preincident planning. However, there are no Federal requirements for preincident planning at ammonium nitrate facilities. Effective site specific preincident planning is needed to guide the fire fighters on any initial and subsequent actions while on ground at a scene of a fire.

The National Fire Protection Association, NFPA, a nonprofit standards organization, has been developing standards directly affecting the fire service at the department level since 1896. The NFPA produces more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks.

The codes are voluntary standards that each State has to adopt in order to be enforced. Standards are attempts by an industry or profession to self regulate by establishing minimal operating performance or safety criteria. These are supposed to be

recommended practices for fire fighting departments.

One of such standards is the NFPA 1620 standard for preincident planning. The 2010 addition states that the preincident plan should be the foundation for decision making during an emergency situation, and provides important data that will assist the incident commander in developing appropriate strategies and tactics for managing the incident.

Additionally, NFPA 471, recommended practice for responding to hazardous materials incidents. The 2002 addition provides guidance on how to develop and effective incident response planning strategy.

Fire fighting environments are inherently unpredictable, volatile and fought with risk. It is therefore important for decisions to be made in a context of changing priorities, on certain information and limited resources. The National Fire Protection

Association, NFPA 472 standard for professional competence for responders to hazardous incidents, 2013 addition, provides guidance on the competencies for awareness level for personnel and competencies for incident commanders.

Situational awareness and site insight is very essential in emergency situation. Especially in hazmat incidents. This should include a thorough overall assessment of the scene and identification of all possible hazards to insure safety of the emergency response crew.

Most fire fighting trucks and vehicles are equipped with the current edition of the Emergency Response Guidebook, jointly produced by the U.S. Department of Transportation, Transport Canada, and the Secretariate of Communications and Transportation in Mexico. The ERG also known as the Emergency Response Guidebook is intended for first responders to consult

during the initial phase of a dangerous goods or hazardous material transportation incident.

The ERG gives directions on how to respond to fires in transportation situations, but did not give any direction in terms of handling and storage of hazardous materials like ammonium nitrate fertilizer. If a warehouse containing ammonium nitrate is treated as an enclosed space, such as stands or trailers or carloads, in a fire situation, some of the guidance provided by the ERG could help firefighters make prompt and informed decisions such as not fighting a fire involving ammonium nitrate.

There are 15 variations of ammonium nitrate listed in the current edition of the ERG. Next to each AN variant is the guide number that leads to information on the potential hazard and the appropriate emergency response. These measures however are very vague and subjective to individual users.

The CSB compared the fire fighting

measures in the MSDS provided by CF Industries, the manufacturer of the ammonium nitrate used at West Fertilizer. The MSDS provided by a similar large ammonium manufacturer, as well as the current edition of the DOT Emergency Response Guidebook.

MSDS is the Material Safety Data Sheets. It's a document containing all the pertinent information on a product. It is provided by the manufacturer of a product. These examples of guidance for fighting fires involving ammonium nitrates illustrates the hazards are not clearly communicated to emergency responders.

All three highlighted guidance indicate that the behavior of ammonium nitrate under the conditions highlighted, are not clearly understood. Also, terms such as massive, major, large, protected location and distance are not clearly defined in all three guidelines.

While the West Fertilizer MSDS

provided by CF Industries and the ERG suggests flooding a fire involving ammonium nitrate from a distance, the large manufacturer's MSDS suggests fighting such fires from a protected location. In both cases, the same distance of protected location are not clearly defined.

Hence a firefighter is left to make a subjective judgment in determining which location or area is protected. Which distance is safe enough to fight a fire involving ammonium nitrate, or which fire is massive or major.

Firefighters perform tasks that may often put their lives on the line. In order to prevent deadly implications, it is important for firefighters to receive adequate training on how to effectively make timely decisions in fire situations.

Firefighter training varies across the country. Many volunteer fire departments have training programs equal to that of career fire departments. For example, in Texas, the

general requirements for volunteer fire protection personnel certification programs, are the same as those for career firefighters.

Certification for career firefighters is mandatary, but for volunteer firefighters, participation in this certification is strictly voluntary and not strictly enforced.

The National Fire Protection Association, the NFPA estimated that there were approximately over one million firefighters in the United States as of the end of 2012. Including 345,950 career firefighters, which accounts for 31 percent of the firefighter population. And 783,300 volunteer firefighters, which account for 69 percent of the firefighter population.

Approximately 95 percent of all volunteer firefighters are in local fire departments that protect fewer than 25,000 people. Interestingly, more than half of these volunteer firefighters are located in

small, rural departments that protect fewer than 2,500 residents, similar to West, Texas.

There an estimated 30,100 fire departments in the United States. Of these, 2,610 departments are all career, mostly including 1,995 career departments. 5,445 are mostly volunteer. Out of which 20,050 departments are all volunteer.

The CSB found that despite all this, there are no Federal requirements for volunteer fire departments, which account for almost 85 percent of all the fire departments in the United States to develop site specific preincident plans with businesses and chemical plants dealing with hazardous materials like ammonium nitrate.

At this time, I will now turn over this presentation to my colleague, Ms. Rachel Gunaratnam to discuss the CSB's preliminary findings on emergency response planning.

MS. GUNARATNAM: Thank you Samuel. The CSB has found that emergency planning is

extremely important when responding to a chemical accident. It can help reduce the number of injuries and fatalities when communities can effectively respond during an emergency.

On the day of the incident, as emergency responders were trying to tackle the fire at West Fertilizer, many residents were unaware that just a few 100 feet away was a material that would detonate. Residents were injured during the explosion as they were watching the fire next to their windows, in their homes, from their cars and on the street.

This was because there was no official evacuation order or an alert issued during emergency response to let residents know to evacuate or find a safe area within their home. But such an order or an alert would need to be preplanned. Because as stated previously, there's only about 20 minutes between the time of the 911 call and

the explosion.

Local officials would need to know ahead of time to make this decision quickly. But there was no preplanning that occurred prior to April 17th, even though there are regulations that exist to help prepare communities.

Two key Federal regulations that address emergency planning applied at West Fertilizer. The first is the Emergency Planning and Community Right to Know Act, otherwise known as EPCRA that Congress enacted in 1986. This law is intended to help communities prepare for a chemical accident.

EPCRA encourages emergency planning efforts on the State and local level. And even though EPCRA is regulated under the U.S. Environmental Protection Agency, the EPA, it is enforced by the State of Texas. West Fertilizer was covered under this law, which I will go into more detail later.

The second is the risk -- then

there's the Risk Management Program intended to compliment EPCRA by requiring companies to prevent a chemical accident. It was first implemented in 1999, and this regulation covers a list of chemicals that are primarily toxic or flammable.

Under RMP, companies have to develop a program to prevent a chemical accident from occurring and then they must share that program with local authorities. West Fertilizer was required to do an RMP, but only for their storage of anhydrous ammonia, which is a toxic chemical. Ammonium nitrate is not covered under this program.

This program which is also regulated by the EPA is enforced at the Federal level and not by the State of Texas. Together, both of these programs encourage the sharing of information between companies and their surrounding communities for emergency planning.

However, during our investigation,

the CSB found there were serious problems with emergency planning prior to April 17th, especially with implementing EPCRA, which I will discuss in my next slide.

EPCRA is a law that provides a framework for all -- sorry. EPCRA is a law that provides a framework for all States to follow. That framework involves four parts. Emergency planning, emergency release notification, hazardous chemical storage reporting, and toxic chemical release inventory.

Our focus will be on emergency planning, which is what mattered at West. As stated previously, this law is enforced by the State and not by the Federal EPA, and is administered by the Texas Division of Emergency Management under the Department of Public Safety.

Under EPCRA, a company must report their chemicals that fall under two categories. First they must report their

chemical if it is on EPA's list of Extremely Hazardous Substances, EHS at certain quantities. This list consists of extremely toxic chemicals that would cause severe harm to a community if exposed at acute levels.

West Fertilizer did have an EHS substances, anhydrous ammonia, which they reported over the years. Ammonia nitrate is not on this list because it does not meet the criteria of an EHS.

However, a company must also report a hazardous chemical as defined by OSHA in quantities of 10,000 pounds or more. These are chemicals with physical or health hazards. Ammonium nitrate fits this criteria, and West Fertilizer did report their ammonium nitrate in 2012.

After a company identified what chemicals they must report, they must report this to their local fire department, LEPC and the State. And LEPC stands for a Local Emergency Planning Committee. This Committee

is charged with developing an emergency response plan for their district.

The City of West falls under McLennan County, and is part of the McLennan County LEPC. West Fertilizer reported in 2012 their quantities of anhydrous ammonia and ammonium nitrate to the West Fire Department, the McLennan County LEPC and the State of Texas.

Once a company has reported this information under EPCRA, the LEPC uses that information to develop a comprehensive emergency response plan. This emergency response plan is key to preparing communities for a chemical accident.

A plan should include procedures, evacuation plans and training programs for emergency responders. And include schedules to exercise that plan.

McLennan County did develop a Comprehensive Emergency Response Plan, which is required by Texas to be reviewed every five

years. However McLennan County didn't include West Fertilizer in their plan Because the State of Texas believed they were exempted under EPCRA.

The exemption that was applied here is the Agricultural Use Exemption, which excludes substances used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer. Based on the language of the exemption, McLennan County and the State of Texas thought the exemption applied to West Fertilizer.

So even though West Fertilizer had an extremely hazardous substance and an OSHA hazardous chemical, they were thought to be exempt under EPCRA, therefore exempt from the emergency planning requirements.

Federal EPA however would not apply this exemption to companies like West Fertilizer who blended ammonium nitrate. EPA does provide some minimal guidance on their

website, which states that the chemicals at West Fertilizer are the starting materials used to make a fertilizer and not the fertilizer itself. And they say retailers should report the amounts held for blending to produce the new fertilizer.

This disconnect between the Federal and State agencies played a significant role in the lack of emergency planning at West Fertilizer, which left emergency responders and residents unprepared for what occurred on April 17th.

I will now turn it over to Johnnie Banks who will introduce our panelists to discuss emergency planning and response.

MR. BANKS: Thank you. Before we introduce the panel, the Chair will Entertain questions from the other Board members.

CHAIRPERSON MOURE-ERASO: I would like to ask Board members if they have any particular questions for the investigative team.

MEMBER GRIFFON: I think I'll reserve them now. Most of my questions were more directed to the panelists, so. When we ask the panelists if they can -- and yes.

CHAIRPERSON MOURE-ERASO: Board Member Rosenberg?

MEMBER ROSENBERG: I think I'll wait.

CHAIRPERSON MOURE-ERASO: I have one question for -- in the slide number 37, it was reported by Rachel that West Fertilizer reported ammonium nitrate amounts to OSHA under the hazardous chemicals.

Could you elaborate a little on that. Like what did OSHA do after that report in 2012 as far as you know?

MS. GUNARATNAM: Is this on? Okay. When I was referring to that, the company, West Fertilizer did report on their Tier Two's. It's an inventory report. And they submitted that only, as far as we know, we're still looking into how far back, but we only

know that they reported in 2012 their quantities of ammonium nitrate on their Tier Two report.

CHAIRPERSON MOURE-ERASO: Okay, thank you. Another thing is, it says that you put it out under Federal EPA, there is not the retail exemption on the use of fertilizer. So did EPA know that there was ammonium nitrate being used in the facility? And if they did, what kind of actions happened?

MS. GUNARATNAM: Federal EPA?

CHAIRPERSON MOURE-ERASO: Yes.

MS. GUNARATNAM: No, I don't believe they knew, because they're not required to report at the Federal level, they're only -- you know West Fertilizer was only required to report at the State level, so.

CHAIRPERSON MOURE-ERASO: I see, okay. Thank you. Johnnie.

MR. BANKS: Thank you. At this time I would like to introduce our panelists

for the discussion on the Emergency Response and Planning. The panel for this group would be Chris Barron, if you'd come up. Elizabeth Harman, Mr. Frank Patterson and Glenn Corbett.

CHAIRPERSON MOURE-ERASO: Johnnie could you --

MR. BANKS: I would -- I'll do a brief introduction. Mr. Barron is currently -- currently serves as the Executive Director of the State Fireman and Fire Marshall's Association of Texas, and has been with the organization for over eight years.

Next is Ms. Elizabeth Harman. Ms. Harman is representing the International Association of Firefighters or IAFF. She has been the Assistant to the General President for Grants Administration of Hazmat, Weapons of Mass Destruction Training at IAFF since February, 25, 2013.

Also here today is Mr. Frank Patterson. Mr. Patterson has more than 25 years of experience it the emergency response

and homeland security fields. And has served as Emergency Management Coordinator for the City of Waco and McLennan County since 1999.

Lastly, I'd like to introduce Mr. Glen P. Corbett. Mr. Corbett is an Associate Professor of Fire Science at John J. College of Criminal Justice, the City University of New York. He is the former Chair of the Department of Protection Management.

He serves as technical editor of Fire Engineering, a 128 year old fire service journal. He is a former Assistant Chief in the Waldwick, New Jersey Fire Department, and has served as the President of the New Jersey Society of Fire Service Instructors.

Thank you all so much for joining us this evening. We would ask that if you like to present a brief statement, and then we'll entertain questions from the Board. We'll start with Mr. Barron.

MR. BARRON: Good evening and welcome to Texas. On behalf of the 23,000

individual firefighters and members of our association, we want to extend our condolences to the City of West. They were all members of our organization, and certainly participated in our certification program.

In Texas 78 percent of the fire services manned by volunteer fire departments across the State, over about 1,900 fire departments across Texas and which about 1,600 of which are volunteer fire departments. Training standards vary across the State, because as you know in Texas, it's a vast State.

There might be a fire department in West, Texas that might run one structure fire a year. And mostly run wild land fires. Or there might be another fire department in the Houston area that might run nothing but structure fires, but never run a wild land fire call.

So the standards and the requirements are generally left up to the

local jurisdiction to have an authority to set minimum certification standards for those fire departments.

We see a lot of fire departments that are still quite underfunded. That do not have the tools, the equipment or the training necessary to fight these type of fires. And they do the best job that they can with what they have and the resources they have.

Certainly West was one of those fire departments that instituted a certification and a training program. They trained their firefighters. Several of which were close to certification, if not already having a certification based on National Fire Protection Association standards, firefighter one and firefighter two, which is what our certification program is based on.

I can tell you that fire departments all across Texas continue to improve their certification, their equipment, and their personnel based on the needs of the

community and the growing demands on those fire departments, whether it's EMS calls, hazmat calls, or general fire suppression response.

We are learning a lot from this incident in West. And certainly with the State Fire Marshall's report, there will be a lot of lessons learned that fire departments can take back to their communities and implement those lessons learned so that tragic events like this won't happen again.

MR. BANKS: Thank you. Ms. Harman.

MS. HARMAN: Thank you. Good evening. Is it on? Is that on?

Thank you very much for the opportunity to present and chat with all of you this evening. On behalf of our General President, Harold Shaitberger, our condolences go out to all the families and the community here in West, Texas on this tragic event.

The International Association of Firefighters represents more than 300,000

firefighters across the United States as well as Canada. Those firefighters protect more than 85 percent of the nations populations.

The incident here in West, Texas for us really emphasizes the importance for training for first responders. Particularly at the hazardous materials operations level. Firefighter one, firefighter two are very important. Hazardous materials operations, as indicated in OSHA as well as NFPA 472 is a minimum level that all firefighters should have.

With that training, it's not just the skills that they take with them to bring there, it's the skill of the thinking, the analyzing process. Preplanning, is part of that. Preplanning for these facilities within the local area, we've discussed today and we've heard that there are no Federal regulations for that.

That is part of being a hazmat operations person. It is part of being a fire

department. Understanding what is in your, as we say, our first do area. What is in your community? How much is in there? How is it going to mix and mingle with the other things that are in there? That's key. That's all part of being a firefighter.

Recognizing the potentials for that. And recognizing the potentials of those incidents and merging those with the capabilities of that individual department. Many department as we've heard are strapped for -- in budgets these days. The first thing that goes when budgets are tight, are training.

Training should never go in a fire department. It can be conducted formally. It can be conducted informally. The International Association of Firefighters for the past 25 years has provided hazardous materials operations training to both career and volunteer firefighters, training more than 5,000 first responders every year in hazardous

materials operations training. It's key.

Not only do we train recruits, but at time we find that we're training incumbent firefighters. Folks who have been on the job for 10, 15, 20 years and have never had that level of training before. And it's a real eye opener for them.

The importance also with regards to that training, is recognizing and identifying the materials that are in the facilities, whether it's a tanker, a rail car here. This was actual fertilizer facility here. What's in there?

A training beyond the awareness level is key. That operations level is going to take you there. How to use that Emergency Response Guidebook. That's key. That's the bible to some firefighters. It should be in the pocket coat of every firefighter that's out there.

Whether you're again on the railway or you know your first do area.

You've got to be able to look up what that chemical is.

And worst case scenario, if you don't have that book, or you look it up and it surpasses the capability that your department has, you move immediately into a defensive operations, and not put yourself, your fellow firefighters or your community at risk. But you move back to watching it and frankly letting it burn if that's how it has to be.

We support through out training a risk based approach. We call it APIE, analyze, plan, implement and evaluate. We embed that in every firefighter that we train. So that they know whether or not they can go in, they shouldn't go in, or they stand back and move to a defensive operations.

We stand by to assist in any way that we can with this community. With the rest of the nation as well as Canada, where our members are. With training programs, with qualified, very experienced instructors that

come in from all over the globe to deliver these training programs. We'll be more than happy to share those programs, the expertise and the subject matter expertise of all the instructors that we have.

And again, thank you for the time to share that, and our resources that we hope to share with all of you here.

MR. BANKS: Thank you very much. Mr. Patterson.

MR. PATTERSON: Thank you. My name is Frank Patterson. I'm the Emergency Management Coordinator for the City of Waco, McLennan County, Texas. And on the agenda I believe it said I was the LEPC. I'm a member of the LEPC and as you all know the LEPC is an industry driven committee.

And we are as the Emergency Management Office, we are the repository for the LEPC related to Tier Twos within our county. And we also are involved in the Emergency Management Plan. I don't know how

deep you want to get into.

I have -- I mean if you want to wait and ask questions, but I did feel like we maybe needed to discuss the way the State of Texas does our planning so you can understand that part of it. If you want to wait or you want do that now, I can do it now. Okay, all right.

In the State of Texas back in 1975, we've already had an all hazard plan approach for the State of Texas, in which there was requirements for jurisdictions to plan as an all hazard approach. And when the EPCRA rules came out in 1986, that -- those standards in the EPCRA community rights law were distributed amongst various annexes within our plans.

Our plans are 22 annexes and a basic plan. And they're functional in a nature. The annexes are functional in nature. So it's warning, firefighting, law enforcement, things of that nature.

And so through that process, they were broken up into the plan throughout the plan. So it's not a stand alone. We have a hazard material annex, but all the warning doesn't matter if it's a hazmat incident or a tornado or whatever it is, the warning point is still the same warning point. So it's those things were distributed throughout the plan.

And that's the same thing we do here. In the State of Texas we have three levels of planning. Basic, intermediate and advanced. In McLennan County we've been at advanced preparedness levels for years. Ever since I've been here, we've maintained an advanced preparedness level in regards to that.

So in specific tier two reporting, the tier two reports as you all know that go to the State, and they also go to the fire department, which has a primary responsibility for the area, and they come to the LEPC.

So our office, the Office of Emergency Management, acts as a repository for the LEPC and those tier twos as it relates to that. I think for the other thing to recognize, is that there are some things, and I'm glad you all are here. I think there's going to be great things that come out of this and really goes above and beyond standards.

I think there's some protocols that can come from this as well that will really help through the process. I believe that the EPCRA standard needs to be changed. I believe there's things in there through the reporting process and the way we get it from the Federal to the State to the locals, has deficiencies in there that need to be addressed.

I know that, because I've believed this since 1999 since I've been here, you know, there really is no -- there is no tangible, I guess punitive actions for industries that don't report. There's some

civil things that are written in there that says LEPC can do some civil actions. But what business is going to go after another business? That's kind of like the fox watching the hen house.

So there's some things within that I think we need to address, we need to look at. I also think that through the process of planning process, there's a disconnect in getting that information all the way down to the basic core level.

You know we send it in, it goes to the State. It gets put in a file and says okay, this community has a right to know, if somebody want so call, we'll ask them about it -- we'll tell them about it if they want to know about it.

But as far as the local level, if industry comes in and builds somewhere and there's no requirements for that industry to tell them, or if it's a small mom and pop industry, and they don't know the rules, they

don't know to apply to begin with, the local government doesn't know if they've built in an incorporated area on Texas. If there's not way of permitting a requirement for them to get a permit to build, that they're even there until years later until after they're there.

I mean you know, so there's things that need to be addressed on the front end I think help. There's things that we do as an industry, as a dispatch fire industry that need to be implemented on the back end of this as well.

And that is you know, like in dispatch for example, this should be a requirement, that all dispatchers have that information in their CAD system so when they dispatch fire departments to a fire, that dispatcher then brings it up, it jumps up with an icon and say hey, there's something here. We need to notify the firemen that are responding, there's something here.

And that's what I'm talking about.

That there's things throughout this system that there's holes through this that we can work on. And I'm glad this is occurring that you all are here, you all are looking at this and we're going through this, because I think we're going to see positive outcomes from it. And it starts all the way through, Federal, State and local.

So thank you all very much for your time. And I appreciate being here.

MR. BANKS: Thank you very much. Mr. Corbett.

MR. CORBETT: Thanks. Thank you Mr. Banks. Chairman Moure-Eraso, Board Members Rosenberg, Griffon, thank you for allowing me to testify tonight regarding the April, 2013 explosion at the West, Texas fertilizer company.

I'd also like to extend my condolences to the family and friends of those who were killed and injured as well as everyone else has here tonight.

I'll confine my remarks to the issue of firefighting response to the West Fertilizer facility, and the context of the firefighting recommendations of Appendix E of the Nationally recognized code NFPA 400, the hazardous materials code. And the Chemical Advisory, Safe Storage Handling and Management of Ammonium Nitrate, a joint publication by the ATF, OSHA and EPA.

While I will not focus on the code provisions dealing with storage and handling of ammonium nitrate tonight, I must note that the ammonium nitrate provisions found in our Nationally developed model codes are grossly deficient, antiquated, contradictory and confusing. The recommended firefighting procedures found in NFPA 400 and the Advisory are just one element of an entire set of code provision that need to be rewritten.

We heard tonight about the firefighting efforts that took place at West. It's obvious that the West, Texas fire

department attempted to engage the fire and attempted to extinguish the fire, contain the fire. We know that they were there for about 20 minutes and apparently they may have been on their way realizing that the fire was in fact uncontrollable, may have made the decision to leave and to evacuate.

When we look at NFPA 400, it appears that the firefighting efforts at the West facility were entirely consistent with the following specific recommendations from NFPA 400, and I quote, should a fire break out in an area where ammonium nitrate is stored, or in a vehicle transporting ammonium nitrate, it is important that the mass be kept cool and burning might be promptly extinguished.

Large volumes of water should be applied as quickly as possible. If fires reach massive and uncontrollable proportions, firefighting personnel should evacuate the area and withdraw to a safe location.

And again we hear those vague

indescribable terms, uncontrollable and massive, whatever that means. This set of provisions in 400 encourages firefighters in fact to attack an ammonium nitrate storage fire. It is likely that the fire department supplied perhaps several hundred gallons emitted on the fire.

We don't know a lot about what exactly happened that night. But they in fact of course did try to extinguish -- contain and extinguish the fire.

The provisions that encourage firefighters to keep attacking the fire until it reaches again those undefined massive and controllable proportions, and only then evacuate the area are really problematic. It appears that the West firefighters again did exactly what these recommendations said to do.

And another seemingly contradictory statement, I quote, where possible firefighters should withdraw and allow the structure or vehicle to burn if it

can be done safely. I don't know what that means. Let me say it again. Where possible, firefighters should withdraw and allow the structure or vehicle to burn if it can be done safely.

It appears that a firefighter should only abandon firefighting efforts if the burning structures with the ammonium nitrate storage will not pose a threat to the surrounding communities. That's the only conclusion I can draw from that.

Given the fact that the fire was venting, obviously as we saw in the video, in the photographs earlier, there's another provision which I'd like to mention briefly here, that 400 discusses in terms of the confinement of the byproducts, or the products of combustion.

And again I quote, as much ventilation as possible should be provided to the fire area. Rapid dissipation of both the products of decomposition and heated reaction

is very important. Now if you look at the Advisory that the ATF, EPA and OSHA created in the wake of the West incident, you'll see that they sort of split hairs with that specific issue about ventilation. So again, it's another problem.

So in essence NFPA 400 provides inappropriate recommendations in my opinion, encouraging firefighters to engage a fire unless it is massive and uncontrollable. The problem with this recommendation is that it's entirely too late for firefighters to withdraw when the fire's in fact massive and uncontrollable, placing them in grave danger as well as the people in the surrounding community without time to evacuate.

As I mentioned, OSHA, ATF and EPA issued in August, 2013, their Chemical Advisory dealing specifically with ammonium nitrate. While it's a slight improvement over NFPA 400, the Advisory fails to provide definitive advice as to how and when to fight

a fire. To some extent it relies on the same language from NFPA 400.

For example, the Advisory suggests that firefighters and I quote, should first consider if they can safely fight the fire, or whether they should just let it burn. Move to a safe location and focus on evacuating nearby residents and preventing further safety issues for the surrounding community.

The Advisory -- this Advisory places the emphasis on a set of observed conditions of anyone of the following. Number one - a fire involving ammonium nitrate is judged to be quote, out of control. Number two - a fire is engulfing the ammonium nitrate. Again, whatever that exactly means. Brown or orange smoke is detected, which would indicate the presence of nitrogen dioxide, or number four - rapid increase in the intensity or amount of smoke or fire in the area of ammonium nitrate.

So that's both 400 and the

Chemical Advisory recommend firefighting of -- recommend fighting a fire involving ammonium nitrate storage. Neither set of recommendations make a distinction about the amount of ammonium nitre, or the type of construction the fire protection features in the building. Whether it's well protected with non-combustible construction, up to date handling equipment and sprinklers versus a wood frame structure, without any fixed fire safety features as was seen in West.

It is my opinion that it is a mistake for the code and the Advisory to recommend a fire attack in an ammonium nitrate warehouse such as the one found in West. It is the initial wrong course of action.

I believe that responding firefighters should concentrate their efforts purely on evacuation such as was done in Bryan, Texas in 2009. While firefighters is sworn to protect property, the potential for disaster is very high with ammonium nitrate.

Lives are at risk including those of the firefighters. Time is not on the side of the responding firefighters, it is best to simply move everyone back and let the fire burn itself out.

So with that, I'll end my comments, and I would entertain questions if you have any. Thank you very much.

MR. BURNS: Thank you.

CHAIRPERSON MOURE-ERASO: Yes, some questions from the Board.

MEMBER GRIFFON: Yes, I can start with a few questions. For the local Emergency Planning Commission. I was curious, you mentioned that the LEPC was an industry driven group. And I wondered if you could just expand a little bit on how the LEPC in McLennan County, how is it funded? Or how does it sustain it's work that you do on the LEPC?

MR. PATTERSON: Well it's not funded. It's an unfunded mandate. And so

what happens is, is our Office of Emergency Management, we do our best to engage and keep that going. That is a part of our partnership, that's what we do.

But it is an unfunded mandate. Industry, there is no -- although there might be a requirement that industry participate, that doesn't always mean that they're going to because there's nothing on the back end of it if they don't.

So that's kind of what I was mentioned getting to earlier. But there currently is an unfunded mandate. We receive no funding for it. We don't have any funding. And so we are actually in years past, in 2004 we applied for a grant through the hazardous material, through the Texas Division of Emergency Management, to do a commodity flow study of what's coming through our county, up and down our highways and interstate.

So that's essentially when we want to do any kind of large project, either

industry -- the local industry has to fund it, or we go out for grants. I will tell you, we have a very robust hazardous material team by the City of Waco, which is a paid fire department.

In 2000, looking at the facilities within our county, I quickly realized that we didn't have all the tools we needed to respond to some of these facilities. So working with industry, we actually developed that hazmat team. The industry provided resources to the city to develop that.

Since that, it's become a regional team. And what I mean regional, it's global to the county as other six counties, if it's requested they'll respond. And we've been able to fund that through grants as well, where we've gotten grants through Homeland Security grant funding to buy them equipment, send them to school, keep them educated. Keep all that going. So that's really it.

MEMBER GRIFFON: Okay, and that's

exactly why I brought up the question, was the question of the unfunded mandate. And in my experience is that some the LEPCs around the country that have been most effective and active, they have one large industry in that community that ends up putting forward a lot of resources and you know, chairing the committee et cetera.

MR. PATTERSON: That's correct.

MEMBER GRIFFON: And so, but I appreciate the answer. Did -- in this situation, did you receive an RMP from West for the West Fertilizer facility, a Risk Management Plan?

MR. PATTERSON: Not that I recall, no.

MEMBER GRIFFON: No, okay. Okay. And did you -- do you receive those from other companies, the RMPs themselves, or?

MR. PATTERSON: I have received in the past from places.

MEMBER GRIFFON: You have received

from some of them, okay.

MR. PATTERSON: Yes, from some in the past, yes.

MEMBER GRIFFON: I mean is it a regular thing, or is it a --

MR. PATTERSON: No, it's just -- it's not.

MEMBER GRIFFON: Okay, sort of sporadic?

MR. PATTERSON: correct.

MEMBER GRIFFON: All right. Because that's something I think we want to see how they fit together. All right.

And this might be more general, I don't know if more generally to the rest of the panel. The question came up specifically on the training levels, hazmat operations level, and I wondered if there's any requirements for the fire departments to have a certain number of individuals trained at certain levels, level one, level two, or operations level?

MR. BARRON: I could answer that. No, not in the volunteer world. I'm not sure in the paid world if there is, but there are certain requirements regarding firefighter one and firefighter two that is regulated for the paid firefighters of Texas.

MS. HARMAN: And I can address that with regards to national certification standards. From the National Pro Board, which is an affiliate of the NFPA, there are certification standards for firefighter one and firefighter two, prerequisite for that is hazmat operations.

So you will find that most career professional firefighters are at a minimum hazmat operations. So that should be everyone. If you -- I mean across the country, across Canada, if you call 911 now, and a firefighter walks in this door with turnout gear, you should expect that at a minimum, they have hazmat operations level training.

Are they a technician? Do they understand chemistry? Are they a specialist? No. That is a definitely a specialized group that's usually taken on by a very large department or it's done regionally, things of that nature, because that gets much more into a lot more education, equipment, specialized apparatus, things of that nature.

MR. CORBETT: Just briefly, I'll mention the volunteers as well. It's really in a State by State basis, so certain States do require that volunteers also have fire one, fire two, which includes -- the fire two includes the operations level training and things. But again it's a State by State basis, as whether it's paid and volunteer, or just volunteer, just paid that kind of thing across the country.

MEMBER GRIFFON: And do you know for Texas?

MR. CORBETT: I haven't lived here in 20 years, so I don't remember. I think

MR. BARRON: It is included in firefighting two.

MEMBER GRIFFON: It is included, okay. All right. And then along this idea of preincident planning that was pointed out in their presentation. I think -- let's see, we basically said that there's no -- point out that there's no Federal requirement for fire departments to conduct preincident planning at ammonium nitrate storage facility.

And I think we had another similar finding related to volunteer fire departments. And I wonder if -- I just wanted to ask what your thoughts are on whether, if there were a Federal requirement for that, do you think that the -- a volunteer fire department would have the expertise to be able to do that sort of preincident planning, or would they need other resources, you know experts, chemistry, you know, other experts to help them in determining actually how to do -- you know, to put together the plan?

MR. BARRON: Coming from the volunteer fire department that I grew up in, we did preincident planning. And that generally involved a tour of the facility. It involved drawings. It involved tier two reports, which are generally brought to our attention.

That goes in a binder that goes on the main apparatus, the main engines of a fire department. So at least in my world we did. I can't say that every fire department in Texas does that. But I don't know if there would be a need for experts to come in for a simple preplan that would include exits, that would include type of construction, that would include tier two and include hazardous materials identification within a particular plant or storage facility.

MEMBER GRIFFON: Okay. Others have opinions on that?

MR. CORBETT: Again, being an North easterner, I'll just say that you know, I live

in a county that's got 69 fire departments. Five of them are career, the rest are all volunteer. And each community is different.

And I can tell you just from my own experience, that you know, industry sort of within the community are usually well known to the firefighters there. And I think they do -- a lot of departments will take that extra step as he mentioned earlier, about going out visiting the facility, meeting with people, sort of trying to get an understanding of what's going on.

But certainly I mean, again these are folks that have regular jobs during the day and practice at night and they're filling out infers reports and all sorts of other things, paperwork that they have to do in today's world. And you know, being able to bring in experts you know, that's done again at the local level I think.

Once they -- if they understand that this is a problem, that they will ask

certainly for help. At least that's been my experience. Thank you.

MEMBER GRIFFON: Right, okay. Thanks, I'll let others.

MEMBER ROSENBERG: I just have one. Hi, I just wanted to ask Mr. Corbett. If the language you read about AN, the confusing and ambiguous language that you read, is that typical of other chemical standards? Or just -- is it just AN?

MR. CORBETT: Well, I mean there are other --

MEMBER ROSENBERG: How nervous should we be?

MR. CORBETT: Well, what's unique about ammonium nitrate is that -- and again, I did some work for the Board on this as sort of code work, research and things. I mean a lot of it comes from the 1950s, basically after Texas City. And there was a heightened alert, you know a level of alert for folks.

And I think, the fact is we needed

up with specific recommendations for the specific chemical which you know, in other realms, it's usually grouped by category. If it's radioactive or flammable liquid and things.

But this is unique in my mind in the sense that there's not a lot of them out there that had their own set of specific recommendations. Even though I think they're erroneous and probably incorrect. But that's been around for again, almost 50 years now, so.

But I don't know that there are. I mean, again there's a variety of different kind of training materials out there at different levels. I mean a lot of us you know, when we go through training and things, or provide training, we try to at least get the firefighters to understand you know, the different categories in hazmat and generally how they react. You know, what the problems are, what the issues are and things.

But when it comes to something like this and everything. Again in my mind, it's somewhat unique in the sense that it has it's own sort of special set of recommendations.

MEMBER ROSENBERG: Okay, thank you.

CHAIRPERSON MOURE-ERASO: Thank you. I have a question also for Mr. Corbett. You hear our investigative team describing the two incidents. One in 2009 in El Dorado, Texas and the other in West Fertilizer.

And I wonder, first of all I would like to ask you, what are your opinions, or why the actions of the initial responders that were the way that they were describing here pretty similar, why in one case there was basically no consequences, and the other case was really catastrophic consequences.

And I would like after you give me your opinion on this, I would like to ask the same question to the CSB Panel, they would like to elaborate a little answering that

specific question. Why it didn't explode in El Dorado and why it did explode in West, Texas? But let's start with Mr. Corbett.

MR. CORBETT: Yes, I think one of the issues here about ammonium nitrate you know, is that for one of the larger code issues that I mentioned earlier again, more about the storage and handling, was that it's sort of a bipolar situation. On one hand we sort of think of it as this innocuous fertilizer. And on the other hand we think of it as an explosive. And the code reflects that sort of ambiguity between them.

Now as far as the specific incidents go, one of the things that at least in my mind, when I was doing the research, was the fac that we don't have a lot of research specifically on ammonium nitrate in its habitat, meaning in its storage facility, in its handling and things like that. We've got a lot of bench scale research that looks at the chemical itself.

But there's nothing to look at it from the perspective of large full scale testing of a storage facility, right. And you know bringing in organic materials, bringing in fuels, all those kinds of things. We don't have that, that I could find, any of that research that's been conducted.

And you know, I think a lot of this is luck unfortunately. I mean you know, we don't know, I mean again I found contradictory information about ventilation of the fire, right. That you know, we know what happened in Texas City, that the ship was sealed and the explosion occurred. 400 recommends that we ventilate the fire.

But in some cases, that's not what we're recommending here and stuff. And I think part of that goes back to the fact that we don't know. I mean we don't know exactly how these materials, exactly how they detonate.

I mean we know that they can

detonate, but the mechanics of the storage, the organic, the fuels, all those kind of conditions together, I don't know that we thoroughly understand that. And I think going forward that's something that you know, some entity really should be looking at and try ti figure out, is it shock, does that really mean anything? Is it ventilation? Is it the size of the fire? Is it the ammonium nitrate buried under a cake of molten ammonium nitrate?

I mean these are all things in my mind that I don't know because I'm not a chemist to begin with. But I don't know the answers to that and I think we've got to do the research.

I don't know if that answers your question. I'm trying to.

CHAIRPERSON MOURE-ERASO: Yes, it is. It point out too difficult. I wonder if our investigator in charge, Johnnie Banks would like to add more on this comparison of

El Dorado and West, Texas.

MR. BANKS: Well, it really you know, resonated with us, the striking difference in outcomes between the West incident and the Bryan incident.

There was, we think, early on in the response to that fire in Bryan, the discovery of it -- of material safety data sheet that indicated that there was ammonium nitrate. And that the firefighters should respond with copious amounts of water.

They didn't have that water, and so they pulled back. They allowed the facility to burn to the ground. They also effected an evacuation of the surrounding community. I think up to 10,000 people were evacuated.

And those were the things that stand out. As Mr. Corbett indicated, there is a randomness to -- or a seeming randomness to the way ammonium nitrate behaves. I mean we've looked at a number of different

incidents where there's been a fire involving ammonium nitrate and in some instances, virtually the same circumstances with completely different outcomes where in one instance it will explode and anther it doesn't.

There's the -- as Mr. Corbett said, there's the shock value, there's the contamination, there's the decontamination. So there's any number of different factors that we see that come to the forefront when you're looking at an ammonium nitrate incident.

The West and Bryan incidents were -- they really you know, struck a nerve with us, because the 24 minutes that it took to respond, that would have been outside of that window at West. So there was, as I said this morning, there was a lot of really snap decisions that people were making decisions based on the best information that they had.

And in 20 minutes they went from

where ever they were in West, and responded, they answered the call. They brought four units to the site and they began doing you know, what they were tasked with doing. Heroically.

The -- I think the wisdom that we hope to bring out of this is that if there's a knowledge before hand that the AN, ammonium nitrate is involved, as Mr. Patterson said, that that information should be in the firefighters hand when they leave the station.

They should have that information either through some device in their rigs, or some hard copy that says that there's ammonium nitrate, or there's some other toxic or really nasty material in this building. And the prudent thing to do is just to step back and you know, really assess it. And get the right people involved to make the decisions on what to do next.

It's property that we're talking about. And the loss of life is one that I

think is untenable.

CHAIRPERSON MOURE-ERASO: Thank you. I would like to come back to Mr. Corbett. You proposed like two different approaches on AN. You said that the guidelines, especially the very last guideline that was produced by OSHA, EPA and ATF, that they are vague in terms of talking about actions to be taken when something is uncontrollable or massive.

So my question is, can you conceive a way to quantify the type of situation? Or that -- when something is uncontrollable, when something is massive, that's first. And you're alternative -- your other alternative that you proposed was to say well, rather than deal with the specifics of those situations, you feel that an evacuation should be like the first action to be considered.

And you know, so I don't know if you want to comment about uncontrollable and

massive, and if we always should evacuate. And I would like also to ask the same questions to the firefighters that are involved on this, or how do they feel about uncontrollable, massive, or just evacuate and withdraw from fighting the fire.

So Mr. Corbett?

MR. CORBETT: Yes, I -- again that's an undefined term that gives me a lot of angst to try to wrap my hands around. From my estimation, I don't know that perhaps that massive -- the problem -- my problem is this. Is that if it's massive and you're getting to a point where it's massive, uncontrollable, you're probably behind the eight ball already right off the bat.

And given the fact that most of these facilities are in remote areas, rural areas in the country and things, time is not on our side here. And I don't know that there's anything quantify able that we can about it.

I think what we can say though is that you know, if for example, you know, it's a more modern facility, the building's sprinklered, it has non-combustible construction for the building and the bins and you know perhaps even the bags that are used are fire resistant, then I think those are all things that would led me to believe that okay, maybe this is something we can deal with.

I mean one of the things we should be looking at in my opinion is video surveillance. I mean cameras are cheap today. We can afford them. That's not a very expensive alternative. And I think having surveillance equipment you know, in these storage facilities, available remotely off site, as we mentioned earlier, having a preplan, wold allow firefighters even before they even get there to look at what's going on inside the building.

If they see that it's a wastepaper basket or it's a forklift on fire, then it's

a whole different animal. It's not the issue that we're dealing with. But if they see that there's a bin on fire and a lot of ammonium nitrate, I think that's a warning sign to us you know.

I would think that if the building was sprinklered though that the sprinkler system would have knocked the fire down, no question about that.

So but I didn't answer your question because I don't know the answer. I don't know that I can put a number to uncontrollable and massive. I think if you're at that point, you're way too far down the trail here. And time again is not on our side.

I mean we should -- again, you know, this is a fertilizer plant. It's something that -- there's no, you know if there's no life hazard, you know workers and things like that, then the firefighter should simply pull back and evaluate the neighborhood

based upon their plans that they've developed ahead of time you know, as far as set back distances for the evac.

Again, I don't know that I -- I didn't answer that question. I don't know what the purpose, I'm sorry.

CHAIRPERSON MOURE-ERASO: No, no. But it's very instructive what you say. I would like to ask Ms. Harman and Mr. Barron for the point of view of the people that have to fight the fires. How do you feel about evacuating or dealing with -- making a decision that something is controllable, or that something is not massive?

MS. HARMAN: Right. And you hear that a lot from fire officers and folks who have a lot of experience with that. And the definition of looking at something and saying that's uncontrollable, that's massive. That comes with training. That comes with years of experience.

That's the gut feeling that a

firefighter has when they're there. Because they've done their preplanning, they know what's in that facility. They know the quantities of what's in that facility, and the inter-reactions of those. And that does come with experience.

So how you quantify that, I don't think you're going to see a firefighter standing there trying to do a mathematical equation. And I don't know if we could come up with that or if it would even be prudent. But it does come down to training and experience and truly preplanning.

You know as far as being defensive operations, you know we look at different situations as high risk, low probabilities, is it a high probability, a low risk. And there's a weighted balance at times here.

You know this particular incident here in West, Texas for us, is really a reminder that these types of tragic events can happen in both rural areas and large urban

areas. There's been a focus over the years that this is a large urban area issue, or that hey, they've got a tank farm over here.

This was a smaller, unexpected, high risk, maybe low probability that maybe we got too comfortable too quick as a nation, as a community. We look across, where does the Federal funding go right now. It goes to high risk areas. It goes to areas that have large commodity flows, things of that nature.

So I think you know, defensive operations is going to depend on what is that risk? Is it a high risk, low probability? Can you evacuate quicker than you can put the -- then you can extinguish the blaze? What are your staffing numbers? How many people do you physically have? Are you going to exhaust them before you know, you can get control of the incident?

And what are the resources you have with regards to equipment? And water? And water supply? All of those are taken into

account and eventually, that incident commander who should have years of experience in the proper levels of training, is going to make a judgement call on that.

CHAIRPERSON MOURE-ERASO: Thank you Ms. Harman. Mr. Barron?

MR. BARRON: I'm going to echo what she said. In addition to making those high risk, those type of decisions on a scene, they're going to have to also equate into the fact that do they have the proper equipment to put out these type of fires? Do they have the water supply? Is the water supply for a community available enough to fight a structure fire, or fight a massive chemical fire like this? Do they have enough foam?

So it's going to depend on a lot on what type of equipment and training and specialized apparatus that they might have. Now along channel industry, along the Texas coast where they have six thousand gallon per minute trucks and foam that could go all day

long, it's a different story.

But in other areas of the State they just don't have that type of equipment. It's very expensive. It's very expensive to maintain and it takes specialized training.

So it's all going to depend on the location, the training, your risk assessment of course. And then what type of water supply, or extinguishing agent that you're going to have.

CHAIRPERSON MOURE-ERASO: Thank you. Thank you very much. I would like very much to thank the panel. I think it has been very useful for us to hear this. I don't know if there is anything else that you want to do Johnnie before dismissing the panel after we thank them.

MR. BANKS: I just want to echo your sentiments and thank the panel. It's been very informative, very helpful. I hope that the community appreciates the time that you've taken to come here and contribute to

this effort.

It's been very, very helpful for all of us, so I appreciate it. Thank you.

CHAIRPERSON MOURE-ERASO: Thank you Johnnie. So we're going to take a -- well, yes.

(Applause)

MEMBER GRIFFON: Mr. Chairman I'd like to add one thing.

CHAIRPERSON MOURE-ERASO: Yes, please. I'm sorry, if anybody would like to have the last statement, please.

MEMBER GRIFFON: Sorry about that. We think that Texas is a leader in the United States when it comes to learning from our lessons from tragic events. And we have done so on line of duty this through State Fire Marshall's Office. Mandatory legislation that investigates all line of duty deaths in Texas.

Within a matter of nine months, the State of Texas developed an industrial

response for municipal firefighters class that's 32 hours long for volunteer firefighters, municipal firefighters, to respond to these type of events, and have the training necessary. It's a 32 hour class, it's being implemented all across Texas, and there is grant funding available out there for that.

So we've stepped up above what, instead of just sitting back and we're throwing out training to these firefighters that's even more particular to these type of events. So I just wanted to express that, and that we are learning from our lessons from these tragic events. And we're doing something about it.

CHAIRPERSON MOURE-ERASO: Thank you very much. Any other statements for the panel?

MR. CORBETT: Yes, just thank you, I just think we've -- again we've got a lot of work to do as far as the National

recommendations, when we have National bodies telling us that we should be doing something, which I -- and again, I made my case here that I think is wrong. I think we need to change that.

But thank you again for allowing us to testify, all of us.

CHAIRPERSON MOURE-ERASO: Thank you. Thank you very much. Yes?

MR. PATTERSON: I have one last thing. I would encourage from a local perspective, you know, this is the local guy. When we establish the National standards that we have alternatives. I've heard sprinkler systems mentioned several times. I've read the reports about sprinkler systems.

What we need to keep in mind in rural America, and Texas is no different, that you have water wells that supply those rural water supplies. They don't have enough water to supply a sprinkler system.

So as we come up with these

regulations, you could essentially -- and I'm looking beyond just ammonium nitrate. I mean this is what we're talking about, but what I'm hoping is that this will be -- it will transcend ammonium nitrate. I'm hoping we're looking at more than just ammonium nitrate here. I hope this is not just a one trick pony.

So as we go through this, what I hope is that we come up with alternative standards. Whether it be if you don't have a sprinkler system, you've got to build it out of you know, concrete so thick, whatever it is you know. Whatever that non-flammable material would be.

But that we don't get so focused on everything that we lose sight of the local guy and the small guy in this process as well. There's a balance here. And I think that I just hope that as we go forward with these standards, that they're realistic.

Even for the first responders and

the firefighters, that they're realistic standards that we're going to look at developing for the volunteer as we go forward. So I appreciate your time.

I know in McLennan County, the State you know, has a standard that doesn't allow some counties to adopt fire codes because they're of a certain size. Well McLennan County was one of those. But we're adjacent to a county that's large enough, so we can then adopt codes.

We're looking at that right now. We're looking at establishing fire codes for the unincorporated areas of the country. We're looking at establishing the Office of Fire Marshall. But even with that, there's counties in this State of Texas that can't adopt fire codes because they're just not allowed to under State law.

So -- which goes back to that whole as we develop these standards you know, I just encourage you all to keep that in mind.

And I appreciate the opportunity. Thank you.

CHAIRPERSON MOURE-ERASO: Yes. I cannot help but after you mentioned the fire codes, to ask a question. Another thing, why do you think there is this regulation in Texas that the small towns are not allowed to have fire codes?

MR. PATTERSON: Well I can only speak to counties. I can't speak to cities you know particular. If I can speak to counties, Because that's where I'm at is the country level.

And I really can't answer that question. I don't know why that is. The fire Marshall will be up here in a little while in the next panel. The State Fire Marshall, he'd probably be the question, the one to ask that question.

CHAIRPERSON MOURE-ERASO: Okay, well I'll ask him that question.

MR. PATTERSON: Thank you.

CHAIRPERSON MOURE-ERASO: Do you

have any additional comments?

MEMBER ROSENBERG: I do not. Thank you very much for the opportunity to be here.

CHAIRPERSON MOURE-ERASO: All right. Thank you very much. So thanks again to the panel.

(Applause)

CHAIRPERSON MOURE-ERASO: We are going to take a ten minutes intermission to continue the program. So we -- so for ten minutes.

(Whereupon, the foregoing matter went off the record at 7:23 p.m. and went back on the record at 7:35 p.m.)

CHAIRPERSON MOURE-ERASO: Thank you very much. We are ready to reconvene. I'm going to ask Johnnie Banks, the investigator in charge for the West investigation, to continue with the presentations, as planned. So, Mr. Banks.

MR. BANKS: Thank you. For the next

portion of our presentation we're going to be taking a look at Land Use Planning, and Mr. Jerad Denton is going to lead that portion of the proceedings. So, Mr. Denton.

MR. DENTON: Thank you, Mr. Banks. Welcome back, everyone.

In the second half of the presentation the investigative team will discuss issues surrounding Land Use Planning. There's a particular interest in Land Use Planning because of all of the CSB's investigations to date, some of the most severe offsite consequences the CSB has encountered have been in the West investigation. The fact that the fertilizer facility was located near a middle school, a large apartment complex, a nursing home, and a high school is extremely concerning. Action must be taken to insure similar facilities are kept at a safe distance from the community.

This presentation seeks to explain how the City of West came to be located so

close to the fertilizer facility. It seeks to explore some of the offsite consequences from the West incident, and it seeks to discuss the scope of this problem. We'll conclude with a discussion from our panel and the public to determine if there might ways to utilize Land Use Planning to prevent similar accidents.

Now, in the case of West the city experienced severe offsite consequences. The explosion at the fertilizer facility resulted in at least 14 fatalities and over 200 injuries. The explosion also caused damage and destruction to over 350 homes, an apartment complex, three schools, a nursing home, and a hospital. With housing limited as a result of this explosion, many families were forced to live in nearby Waco or Hillsboro. West City Park which contained a playground area was also destroyed by the blast.

Now, what follows is a blast model produced after months of collecting and analyzing data on the effects of the blast.

The CSB hired ABS Consulting to develop the model. Through this model we began to see how the pressure wave moved through the community and the magnitude of the pressure each structure experienced. Note the short amount of time that passes as the wave propagates through the community. As you can see, many of the structures experienced pressure around 1 psi, which is like having 144 pounds of load on a 12-inch by 12-inch floor tile. This load, combined with the rate that the blast wave moved at produced a substantial amount of damage.

Now, we get to see some of this damage through the next slides. Here's some of the photos of the West Intermediate School taken by the CSB in days following the explosion. On the left there was substantial damage to the gymnasium. Note the deformation in the roof joists. On the right are photos from where there was fire damage in the school. The roof and ceiling caved in on the

northwest side. This damage is especially concerning when we consider that the school was not in session. Had it been, many more could have been injured due to the extensive damage.

The apartment complex located about 450 feet from the center of the blast was decimated. The building was heavily damaged by the explosion with failure experienced to both the walls and the roof. Two fatalities occurred at the apartment complex.

Now, to understand a little bit about how the facility came to be located so close to the City of West it's helpful to take a historical look at the city and the facility. The fertilizer facility was built in 1961 and opened for business in 1962. The facility was used as a storage and retail distribution hub that sold mixed fertilizers, chemicals and farming supplies to the public. The facility played an important role in West,

which is a farming community. It provided farmers with the necessities to grow crops and save them from having to make a trip to Waco or Hillsboro.

At the time, the facilities were largely surrounded by open fields leaving concern for any potential offsite consequences. Furthermore, no zoning regulations existed at the time the facility began business. The community's largest concern with the facility was the occasional accidental release of anhydrous ammonia. However, over the years the City of West began to slowly build residences, schools, and other occupied buildings within close proximity to the facility.

Now, through assistance from the McLennan County Engineer's Office, the CSB was able to visually show the community's development over the years. We start with a photo of West in the 1950s. And from this photo you get the sense that the site of the

fertilizer facility was largely an open field. Now, in the '60s the facility itself was established. And in the '70s the community starts developing north of downtown. In the '80s more growth is located around the facility itself with a track, a baseball park, West City Park, and a lot more infrastructure located north of the facility itself.

In 2010, substantial infrastructure is located near the facility. And, ultimately, parks, subdivisions, nursing homes, schools, and an apartment complex came to be located within a 600-foot radius of the facility itself.

Now, here's a photo of the facility just prior to the explosion. Notice how many more buildings and schools surrounded the facility, and how close they are to the facility. You get a sense from the photo that as the community continued to locate its infrastructure near the facility it became an even more attractive area to develop.

Here's a photo that depicts the destruction of West using before and after photographs. I'll point out to keep an eye on some of the areas closest to the facility, West Park, the apartment complex, and some of the residences up here. And from this photo you really get a sense of the devastation that the community experienced.

Now, importantly, the location of ammonium nitrate facilities in or near populated areas exists all over the country. It's not just a problem in the City of West. In fact, according to data reported to the Department of Homeland Security under the Chemical Facility Anti-Terrorism Standards there are 1,350 facilities across the country that store ammonium nitrate in quantities greater than 2,000 pounds. Some of these facilities are located near commercial and residential areas.

The CSB has developed a map to give you a sense of where fertilizer

facilities like the one in West, Texas are located. Note that this map is concerned with fertilizer grade ammonium nitrate storage and not the storage of explosive grade ammonium nitrate.

You can see that the majority of these types of facilities that have reported information to the Department of Homeland Security are located in the southeast. This map shows that the problem is larger than the West, Texas incident.

Now, to further our discussion of Land Use Planning, we need to start with an understanding of the Land Use Planning legal framework. U.S. law largely assigns the authority to regulate how private land is used to the individual states. In turn, the states generally assign this authority to their individual municipalities or counties. Zoning codes are, therefore, typically adopted as ordinances at the county or local level. However, at all levels of government there's

been a failure to adopt codes concerning the siting of many types of hazardous facilities near communities, and this includes fertilizer grade ammonium nitrate facilities like the one in West, Texas.

Another issue in Land Use Planning is grandfathering, which is to say that Land Use Planning and Zoning codes typically do not apply to existing ammonium nitrate storage facilities. So, for instance, the West fertilizer facility existed prior to the promulgation of the city's Code of Ordinances which creates an issue of grandfathering, meaning that the city ordinances did not apply to the West fertilizer facility.

Now, this is a serious concern given that many of the ammonium nitrate facilities have been in existence since the 1960s and the 1970s. So, even if zoning regulations were adopted in a municipality today, ammonium nitrate facilities already in existence would not be subject to such

regulation. Facilities that are covered, however, are facilities that are constructed after zoning codes have been enacted, or existing facilities which undergo significant modifications after code enactment.

Yet another issue in the Land Use Planning discussion is that Texas does not require the adoption of the fire code which has been pointed out here today. This is important because a fire code could provide for important safety measures to protect the community. These measures can include requiring setback distances for hazardous facilities. They can require non-combustible materials be used in a facility's construction, and they can require the installation of sprinkler systems. However, many rural counties in Texas cannot adopt a fire code. Only counties that have populations over 250,000 or counties that are adjacent to a county with a population over 250,000 are allowed to adopt a fire code. Therefore, the

majority of the counties in Texas cannot adopt a fire code to prevent accidents such as the West incident.

Furthermore, in 2003, the CSB in its Third Coast Industries investigation made a recommendation to the County of Brazoria, Texas to adopt a fire code. The county proactively adopted such a code, and while the County of Brazoria, Texas is to be commended for taking such action, this serves to highlight the fact that the CSB has identified the lack of fire codes in Texas counties as an issue as far back as 2003.

McLennan County, where the West fertilizer facility was located, had not adopted a fire code, although it technically had the authority to do so because of its proximity to the more populous Bell County. The West fertilizer facility was, thus, not required to follow any NFPA or ICC recommendations for the storage of ammonium nitrate.

Now, at this time I will turn the presentation over to Mr. Johnnie Banks to invite our panelists to come forward and participate in the discussion on Land Use Planning. Thank you.

MR. BANKS: Thank you, Mr. Denton. Okay. I am pleased to introduce our second panel. First we have Mr. Bruce Johnson. As I call your name, if you would just come over and take a seat at the desk there.

Mr. Johnson currently serves as the Director of Fire Service Activities for the International Code Council. Before joining the Code Council staff in September 2007, he held a position of fire marshal for Riverhead Town, Long Island, New York from 1998 until 2007.

Next we have Mr. Mark Roberts. Mr. Roberts is the International Code Council Senior Regional Manager of State and Local Government Relations serving Arkansas, Louisiana, Oklahoma, and Texas.

Also we have Mr. James Schwab. Mr. Schwab joined the American Planning Association as an Assistant Editor of Planning Magazine in November of 1985. After serving in several other positions, he is currently the Manager of APA's Hazards Planning Research Center.

Lastly, we have Mr. Chris Connealy. Mr. Connealy is the Texas State Fire Marshal and Deputy Insurance Commissioner with the Texas Department of Insurance, or TDI, since June of 2012.

Thank you all for participating in the discussion on Land Use Planning, and if you would like to have a brief opening statement, we'll start with Mr. Johnson.

MR. JOHNSON: Thank you, Mr. Banks. Good evening, Chairman Moure-Eraso, CSB Board Members, staff, panelists, and members of the community. My name is Bruce Johnson, and I'm the Director of Fire Service Activities in the Government Relations Department at the

International Code Council.

On behalf of ICC, our Board President and CEO we extend our condolences to the family, their members, and the community for the loss that was suffered a year ago here in West, Texas.

The ICC is a membership association dedicated to building safety, fire prevention, energy conservation and sustainability. The ICC develops model building codes used to construct residential and commercial buildings, and a model fire code to insure buildings remain safe throughout their useful life.

The ICC also develops a model zoning code, the IZC, that is adopted at the local level in 11 states, including 24 jurisdictions here in Texas. Most U.S. cities, counties, and states that adopt codes choose the International Codes or I Codes developed by the ICC. The I Code are currently adopted at the state or local level in all 50 states,

the District of Columbia, Guam, Puerto Rico, the U.S. Virgin Islands, and the Northern Mariana Islands. It is the mission of the ICC to provide the highest quality codes, standards, products and services for all concerned with the safety and performance of the built environment. The best most effective method for states to insure that their built environment remains safe, sustainable, affordable, and resilient is through adopting up-to-date model construction and fire safety codes.

The I Codes undergo an update every three years through an open and consensus-based code development process that considers the latest technology, fire research data, installation techniques, new building products and methods, and affordability. For a jurisdiction to benefit from these advances in the code, routine adoption update is necessary.

The International Fire Code, or

IFC, is a model code that establishes the minimum fire safety levels for both new and existing buildings. It is the intent of the IFC to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion, or dangerous conditions in both new and existing buildings, structures, and premises, and to provide safety to fire fighters and emergency responders during emergency operations.

The purpose of the International Zoning Code is to safeguard the health, property, and public welfare by controlling the design, location, use or occupancy of all buildings and structures through the regulated and orderly development of land and land uses within a jurisdiction.

The IFC contains a chapter entitled "Construction Requirements for Existing Buildings," or Chapter 11. The intent

of this chapter is to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing minimum construction requirements where such existing buildings do not currently comply with the minimum requirements of the International Building Code.

The scoping section of Chapter 11 goes to say, "The fire code official is authorized to grant necessary extensions of time when it can be shown that the specified time periods for compliance with these retroactive requirements are not physically practical, or pose an undue hardship. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of acceptable systematic plan of correction with the fire code official."

This chapter of the IFC captures retroactive requirements that were incorporated in earlier editions of the IFC,

particularly in Chapters 7, 9, and 10. These requirements were previously found in different chapter sections of the code, and were more difficult to locate and/or enforce. They are now consolidated into a single chapter.

The IFC contains requirements for the storage, use, and handling of all hazardous materials in both new and existing buildings. This would include requirements for a site such as West, Texas Fertilizer facility. The IFC establishes requirements for ammonium nitrate storage, use, and/or handling in the IFC Chapter 63 that deals with oxidizers, oxidizing gases, and oxidizing cryogenic fluids, and references the requirements of applicable NFPA standards for ammonium nitrate.

And, finally, Chapter 4 of the IFC includes emergency planning and hazardous material inventory statement reporting as part of the fire code requirements for existing

buildings that utilize hazardous materials and addresses the preplanning that was previously talked about at the earlier panel.

My colleague, Mark Roberts, will now make a few comments about the International Zoning Code as its use and adoption relates to Texas.

MR. ROBERTS: Thank you. Thank you for the invitation to be here tonight.

I'm the Senior Regional Manager for the Government Relations Department of International Code Council serving Texas. As Bruce mentioned, the purpose of the International Zoning Code is to safeguard the health, property, and public welfare by controlling the design, location, use or occupancy of all buildings and structures through the regulated and orderly development of land and land uses within a jurisdiction. The zoning code requires adopting jurisdictions to have a zoning code official, establish a Planning Commission, as well as a

Board of Adjustments.

The duty of the Planning Commission is to create and recommend to the legislative body a Comprehensive Plan for the physical development within the jurisdiction. The Planning Commission is required to hold public meetings that gives citizens the opportunity to provide input for developing the Comprehensive Plan. The Planning Commission can consider areas outside of its boundaries that may impact the Comprehensive Plan. The plan must include official maps, components that include growth and land use, commercial/industrial uses, transportation and utilities, community facilities, housing, take into consideration environmental issues and geologic natural hazards.

The zoning code official then implements the Comprehensive Plan. Typical zoning areas include agriculture, commercial, commercial residential, factory industrial, and residential zones. The intent of

designating these zones is to create a jurisdiction with compatible areas for specific uses while separating non-compatible uses into other zones. Also, by designing the zoning code would separate commercial, commercial residential, and residential zones from factory industrial zones that could pose a hazardous threat.

Of importance is the requirement that lawfully established buildings and uses in existence at the time of the adoption of the zoning code shall be permitted to have their existing use or occupancy continued provided such continued use is not dangerous to life.

So, how do we determine what is dangerous to life? The zoning code isn't designed to give specific criteria or hazards. We use the International Fire Code sections for existing structures and specific requirements for hazardous materials that may be present in those uses.

The International Zoning Code is an adoptable tool to provide a jurisdiction a framework for zoning legislation and implementation that regulates the location of property uses and occupancies effective from the adoption date forward. Existing structures and uses are not retroactively affected. The fire code, however, provides specific minimum requirements to safeguard the community from hazards posed by existing occupancies and uses within structures.

That pretty much concludes what I had to say. I'm open for questions. Thank you.

CHAIRPERSON MOURE-ERASO: Thank you, Mr. Roberts.

MR. SCHWAB: Good evening members of the Chemical Safety Board, Staff and the members of the community behind me. On behalf of the American Planning Association, I'd certainly like to state that we certainly regret the loss of life that occurred here and dedicate ourselves to creating more resilient

and safer communities with a high quality of life for all of our citizens.

I'd like to tell you a little bit first about APA and exactly what we do, and what I do there so that I can set the stage for some of my remarks that follow. APA is a national organization representing members of the professional planning community, about 40,000 across the U.S., some working overseas in various kinds of international practice.

In a few days we're about to have in Atlanta a conference with about 5,000 of those who attend every year to soak up the various kinds of professional education that we offer to that professional planning community, as well as the planning commissioners and volunteer members of planning commissions and zoning boards of adjustment at the local level.

I happen to manage something we call the Hazards Planning Research Center at APA. It's one of three programs that make up

something we call the National Centers for Planning. The other two dealing with green communities and community health. These are attempts to get information, research, best practices on some leading -- what we consider leading edge planning issues out to this community of practice.

One thing I want to state about planning as we view it is, I understand we're on a panel dealing directly with land use, but we take in a broader swath of activity in planning than land use alone. And I'll talk a little bit about some of that as I move along. And this attempt to address hazards takes in more than just land use considerations, as you will begin to understand.

So, what does the Hazards Planning Research Center focus on? Well, to be honest, and I shared this with the staff that talked to me originally. I've spent most of my time on natural hazards, but at the same time a lot of the principles we have developed are

perfectly applicable to questions of manmade hazards. And, in fact, if you follow the progression of planning dealing with mitigation and disaster recovery as it has evolved through FEMA, a great deal of it actually focuses within the context of the Department of Homeland Security on all hazards planning. So, we understand that, you know, a hazard is a hazard. There are different characteristics, but nonetheless we -- if we're going to make our community safe we have to take an all hazards approach.

Typical of the kinds of things that we have focused on really two key points. One, that there's a place for planners to intervene to help with that process of making their community safer and more resilient before disasters occur, which involves hazard mitigation. And I'll get more into that in a moment, as well as the recovery process after a disaster. How do we rebuild a community effectively and make it stronger and more

resilient after an event has occurred? How do we find those silver linings in the cloud that give us the chance to rethink what a community should look like after a disaster?

At the moment, we are actually working with FEMA on the development of a report due out this summer called, "Planning for Post-Disaster Recovery - Next Generation." It's the rewrite of a document from about 15-16 years ago which I led at the time that is focused on making some of these distinctions between the things that we can begin to think about through planning before a disaster even with respect to the nature of recovery and recovery management after a disaster, and distinguishing those activities from those that must inevitably follow the actual event when we know the contours of the reconstruction that must take place. A very tricky subject but very important, and one that we think that the entire nation really needs to grapple with much more thoroughly.

So, there are a number of resources that we have developed over the years. And I've been working to put many of those at the disposal of your staff so that they can absorb that into the kinds of presentation you saw a minute ago from Jared.

One of them was developed actually about 10 years ago called "The Growing Smart Legislative Guidebook," which was -- it's about 1,600 pages. It's great bedtime reading, but it's a detailed approach without a one-size-fits-all solution to modernizing state planning and zoning enabling legislation which gets at the question of what does the state permit or require from its communities with regard to both planning and zoning?

Also, I want to mention that about 20 years ago before I even anticipated getting so involved in disasters that I produced for APA at their request a document called "Industrial Performance Standards for a New Century," which is geared to the question of

what kinds of conditions can be addressed with regard to new industrial facilities at the time that they are permitted so that you have some performance standards that are expected of that facility in an ongoing manner after it is established. I can get into more detail on that, but I just want to put that out there.

I also want to make clear that in talking about hazard mitigation, and I provided a document that we also did for FEMA about four years ago called "Hazard Mitigation - Integrating Best Practices into Planning," which dealt with how you can effectively weave hazard mitigation priorities into all aspects of the local planning process and not have them isolated as a special process where very often the local hazard mitigation plans that are done for FEMA approval are done by emergency managers. Planners don't get involved. We're trying to change that so that there's a communication going on between those two sets of professionals to make that a more

effective document, and one more closely tied to means of implementing solutions to hazards in the community.

So that document, in particular, I would encourage is something that can take account of industrial hazards in the community, get that research documented at that stage, and then hopefully incorporate that into a local Comprehensive Plan, as well, so that you're addressing the kinds of issues that are out there within the community of the existing hazards and looking at some ways of mitigating those hazards. We can get into more detail on that, but I just want to establish that point.

I want to conclude very quickly with a little summary, because I think this is extremely important about the applicability of zoning and land use planning to these particular problems with industrial facilities. This is not isolated to the question of ammonium nitrate, it's a question

of, you know, any kind of chemical or explosive hazard that may exist.

First point, which really gets to a major issue that's come up here, is that zoning should be understood essentially as a prospective tool, not a reactive tool, not a retrospective tool, but one that deals with how you permit new facilities. That means that an existing facility, the grandfathering is a legal question. It means that you can't just go back and, you know, after-the-fact impose new conditions on a facility that is already permitted. However, the exception here is, and this is a critical one, is that where there is a change or expansion of an existing use, that changes the ball game because then you can go back in and reestablish new conditions, or apply current zoning in a situation where the facility had been grandfathered. So, that is the one situation in which you are able to examine older facilities. Otherwise, basically, you're looking at, you know,

conditions on proposed facilities.

There is a flip side to this zoning question, though, that I think is absolutely critical and it was highlighted in that presentation, which is if you've already got the industrial facility in the case here where it was out in open fields and there was a fair amount of open space around it, you did not have the level of hazard that was then introduced over the years by the development that gradually came closer and closer to that facility. So, the zoning question is not simply one of what is appropriate for that facility? It's also a question of what is appropriate around that facility once you understand the nature of the hazard? And in the case of an explosive hazard, I think you'd want to know something about the potential blast zone, what is the potential reach of the impact of that explosion, and establish some kind of a buffer around that area.

Clearly, that isn't something that

happened. I don't know, you know, the history of that, or why, but that is certainly something that if I were a city planner I would be looking at that all along as a critical factor. And there are a lot of solutions to that, some of them not necessarily involving zoning, establishing, you know, just an open space zone through public acquisition or maybe originally requiring that facility to acquire more space around itself to prevent that development. You can use various kinds of deed restrictions, et cetera, to prevent those problems, but there are solutions to that.

Once you've got the situation where you've got a lot of development within close proximity to that facility, that -- those buildings are also grandfathered by then. Yes, everything is grandfathered. What happens then? Frankly, at that point, zoning fails and what you've got is a situation where you fall back on reliance on these fire, and

health, and environmental codes that can take other approaches to solving the problem. But, basically, once you've already allowed all that development to happen in such close proximity, zoning is no longer a tool. You forfeited that tool. So, I'll stop there.

MR. CONNEALY: Good evening, Mr. Chair, Board Members, staff of CSB, and certainly ladies and gentlemen in the audience. I'm Chris Connealy, the State Fire Marshal, and I had the misfortune of spending a month here in West while we were doing the fire investigation. To say that it had an impact on first responders around the state would be an understatement. This is the third worst loss of life for firefights in Texas history. Number one, ironically, was Texas City, we discussed earlier in 1947. In 1956 the Shamrock Oil facility where 19 firefighters were killed outside Dumas in the Panhandle area, and then 10 official firefighters but 12 responders here in West.

And seeing what this wonderful community has gone through, and certainly the impact to the families that have given up so much through the loss of these folks that perished in this incident and numerous injuries, and over $100 million worth of damage, we've got to make sure it never happens again. So, I'm going to just recapture the various things have been going on.

There's been a lot going on since April 17th. The Homeland Security Committee and the House has met three times. They're very much engaged. We just had a hearing this past Monday, and I'll get to that in a second.

You know, when West occurred it was late in the legislative session, and we couldn't even tell the legislature how many ammonium nitrate facilities were in Texas. So, we had to combine two federal, two state databases, remove the redundancy, and we came up with 134 facilities. We still had concerns if that was right, so we sent our Deputy Fire

Marshals across the state to, one, ascertain is ammonium nitrate in that facility. Secondarily, offer a voluntary consultation, basically a voluntary fire code inspection to those facilities, and we've done that in 2013, and we just completed it in 2014, of all -- currently there's 96 AN facilities in the state that have 10,000 pounds or more, split over 66 counties. So, we have a good handle where they're at.

The legislature wanted to create a website that's on our website of the State Fire Marshal Office where citizens can access, type in their zip code and ascertain if there's an ammonium nitrate facility in the area. The map is pretty rough. Certainly, the locals would know where that's at. You know, we constantly balance security concerns, post-Oklahoma City environment, along with public right to know, and so that's been accomplished. We had over 18,000 hits when it launched from November 1st to December 1st,

and it continues to be very successful and desired by the community. And if you have a facility in your area, the local contact information of the fire department in the service area is contacted to talk to what I refer to as Mrs. Smith, the customer, so she can ascertain what's going on.

As we develop this database, I'm a big believer in transparency, and we have shared that information not only with other state agencies that are our partners in this endeavor, but CSB, Department of Homeland Security to make sure everyone has updates of what the status is of ammonium nitrate facilities in our state.

We have also - as I mentioned, these consultations have been completed for two years now. And, again, the Homeland Security Committee wants to continue to do more, and we've risen to that challenge. And now we're doing these countywide Awareness and Best Practices meetings amongst these 66

counties.

I've been in Texas all my life. Texas is huge, it's a challenge. And we've completed 18 so far, so we have 48 more to go, but we'll get there, and we're committed. That will take through December. We do sign-up sheets, we do evaluations. And, quite frankly, the evaluations have been way beyond expectations. The process, the first order of business is describing the time line of what happened in West, and then we go into more detail what is ammonium nitrate, and the best practices associated with storage of it. And then we have a very frank discussion. Right now we talk generically because the West line of duty death report that we're charged by state law to do, we expect to release that next month, but in the interim we have a policy, and I think you understand why, that we brief the families first, and the fire chiefs involved before we release it to the public. And they have that right to see that

first.

So, these presentations, these county presentations will change significantly on the third phase when we go into great detail the operational things that occurred on April 17th with the West Volunteer Fire Department and other fire departments that responded. So, those have been ongoing.

As I mentioned earlier, this past Monday after having done all this research - you know, this is a huge public policy issue, and as I mentioned, West occurred late in the last legislative session. I'm a firm believer when you're developing public policy and you're rushing it, you're going to miss the target. And to the credit of the legislature they agreed, and we've been very deliberate, doing quite a bit of research. Many of your staff I've talked to regularly and thank you for that.

I know a lot more about ammonium nitrate. I am not a chemical engineer, but I

have a great appreciation what it does, and understand it pretty well. Also gotten on the FPA 400 Committee because we're determined we're going to fix this issue. That said, we had these meetings and they've gone extremely well. We published the schedule where we're going, we've put out a press release for the next month where we'll be, and then the - we also have it on our website. And we also send an email to you and other agencies to let them know where we're going to be. We also send it to the Texas Ag Industry Association. Again, we can't do this in a vacuum, not involving the businesses that are making a living with this product.

And farmers need fertilizer, and I've said numerous times we are not trying to put these AN facilities out of business; just the opposite. West is discussing right now having another fertilizer facility in the area because it's a community that depends on farming, and they need fertilizer. And they're

having to go much further distances now to acquire it.

You know, that business is one, those jobs are gone, and we need to come up with solutions that are reasonable. And very briefly, what that is at this point, we briefed the House, we'll be briefing the Senate next month, is proposing adoption of NFPA-1. Well, my good friends for the International Code Council, the state has always used NFPA in the past, but it's quite a bit of similarities between the National Fire Code and NFPA-1 for ammonium nitrate facilities. And, also, for that process we are proposing - because right now there are - well, there's 96 facilities spread over 66 counties. We'll be at 92 very soon; for various reasons these businesses are deciding not to carry ammonium nitrate or different formulations that's not explosive. They're making those decisions on their own. But we are looking to allow a three-year phase-in

period because these businesses have a slim profit margin. And I think when you're having a retroactive aspect to code adoption you need to be sensitive to these businesses to have time to get to that point.

Certainly, I recognize there's that danger in that period until you get there, but also, we're also looking at - this provision has been discussed, the 250,000 population. As I stated, Texas is huge, and trying to manage a statewide fire code from Austin in the State Fire Marshal Office is daunting. I would rather it be managed at a local level, and we're also proposing removal of - or changing that statute so local counties, regardless of population - municipalities already can do that, that they can adopt a local fire code. And they have a better sense of how to manage things in their community.

And, also, there's additional funding that the legislature is interested for

training firefighters, if you heard with both volunteer and paid, and also more training with emergency management officials and elected officials that serve in that capacity, as well.

There will be more discussions as we move forward. The legislature in Texas only meets every two years, so it's been, I think, fortuitous that it's had enough time to really drill down what the issues are here. And we'll be having more hearings as we go along.

Is everyone on board with this? I'd be lying to you otherwise, no. But I'm encouraged that certainly the Lieutenant Governor and the Speaker of the House have issued interim charges. Our marching orders, prevent another West in no uncertain terms. And we're committed to that process. I've been a firefighter for 36 years, and what we saw in West was - I've never seen that many firefighters die in one incident. If that don't change, I don't know what is. And that's

why we're on this, you know, tour of Texas. You know, it's unprecedented but the feedback is people are learning from the presentation, and I'm hopeful that we've talked to about 775 folks of 18 meetings so far. This is very rural areas. When we get said and done, we'll have talked to two to three thousand people, which is pretty significant representation of rural Texas where most of these facilities are.

And I really believe they're getting it. And I think we're building - when you do public policy, you just don't talk and tell people what you should do, you also listen, and that's what these outreach meetings facilitates. And we're working with industry and many other folks to, I think, get this right. And I have no doubt that Texas will make substantive changes next legislative session, and that'll be in January. Thank you.

MR. DENTON: Thank you very much. We'll turn it over to the Board, if you have

any questions.

CHAIRPERSON MOURE-ERASO: Yes, are there any questions for the Board?

MEMBER ROSENBERG: Yes, I just have one. Is this on?

CHAIRPERSON MOURE-ERASO: Yes.

MEMBER ROSENBERG: Okay, thank you. I just wanted to know how a local community like West would adopt your code.

PANELIST: Simply, they would start looking at the codes. They would need to hire - specifically, a fire code or a zoning code?

MEMBER ROSENBERG: Zoning code.

PANELIST: Zoning code. Specifically, they would need to - the City Council would need to organize hiring a fire code official, I mean, I'm sorry, a zoning code official, or a zoning code director, planning director and start putting together their Planning Commission. And through that Planning Commission, hold the public meetings, bring in the public and start planning the

specific, you know, Comprehensive Plan that they're putting out. I mean, it's not simple. I mean, it's -

MEMBER ROSENBERG: No, they may not have the money for it.

PANELIST: But the nuts and bolts of the work is actually at the Planning Commission level when they're actually putting together the Comprehensive Plan.

MEMBER ROSENBERG: No, I understand that. I was -

PANELIST: Adopting the zoning code is just the framework of what they have to do.

MEMBER ROSENBERG: Okay.

CHAIRPERSON MOURE-ERASO: I'm sorry. How about a fire code?

PANELIST: You want to take that one?

MR. ROBERTS: Well, Mr. Chairman, the conversation started a little bit in the earlier panel about some of the restrictions that exist in Texas law right now, so my

understanding is that a county that doesn't have a population of 250,000, or is not adjacent to a county with that population is prohibited from adopting a fire code. So, State Fire Marshal Connealy was saying that that's something that requires legislative action to change, and that's going to be a process that the State has to undertake.

You know, really when you look at what ICC does, we're a membership organization, so we produce a model code, and we produce a family of codes. Fire code is one of them. It's intended to work as a companion code with the International Building Code and other codes that address different aspects of safety in the built environment. But that model code needs to go through a formal legislative process by a jurisdiction that has the authority to adopt, administer, and enforce that code.

And a big part of that is not only going through that adoption process, and it is

a process that requires public input, of course, particularly on an initial adoption of a code where one hasn't existed before. But there's also a cost associated with that adoption, and it's an investment in the community.

The next step is the administration and enforcement of any of those model codes, and that requires resources, whether it's from the State Fire Marshal Office as a fire code enforcement, or that's given down to the local level. There needs to be resources in place, there needs to be training so that code is understood and it's consistently and effectively implemented in the communities. So, it's a complicated process, particularly on a jurisdiction that doesn't have any codes and needs to move in that direction.

CHAIRPERSON MOURE-ERASO: Thank you.

MEMBER GRIFFON: Yes, I have a few

questions. Let's start with Mr. Connealy. I appreciate the update on what's been happening in Texas since the incident. And I was wondering if - and you might not be the perfect person to answer this question, but you're here, so I'm going to ask it. And I was wondering if - what has Texas done since the incident with regard to Land Use Planning? Has that come up in the hearings, and is there any initiatives, any work in -

MR. CONNEALY: It has come up, and that's something, as these other gentlemen have discussed, that is needed. We have a number of facilities in the State that we verified that are in downtown or significant infrastructures by them. When we do these county Best Practices meetings, we provide a flash drive using the software program that estimates the blast zone. We give that to the local officials so they can use it for emergency management purposes, of what is the potential damage that's going to occur if

something happened there. So, that's been very well received.

But, yes, we're constantly reinforcing. I mean, when we have these Town Hall meetings, if you will, there's great concern with that. And, hence, while we need to get ammonium nitrate either retrofitted with sprinklers if you're going to have it in a combustible structure, or segregate it and put it in a non-combustible storage bin. Both those meet the code, Best Practices, if you will, and we've largely resolved the issue along with your general fire inspection for other things.

But the scenario in West, as you all know, as well as we do, that the fire originated the seed room. It traveled to the ammonium nitrate bin, and encircled it. There's combustibles in the seed room, there's combustible wood frame structures that supports the building, and then we get - the fire gets to the ammonium nitrate bin, it has

plywood and wood supports in the bin. The fire is continually growing. There's a roof over it so there's pressure being built up, these oxides of nitrogen that's being produced. We also have carbon black that's dropping onto the ammonium nitrate pile, and when the roof structure, those wooden members are consumed by the fire and the roof collapses into the pile, we had two explosions. First is when the roof structure collapsed as verified the Seismic Center, and then milliseconds later the big explosion everyone saw on TV. So, that sequence of events can be managed either by, in most cases, controlled by a sprinkler system, or if the ammonium nitrate is not in that combustible structure, you've gone a long ways to minimize your risk exposure. So, that sequence of events, there has to be an interject. And if you can do that - obviously, we would prefer to see these facilities in a non-inhabited area, but we have 46 that have combustible construction of

these 96 facilities, and that's why we have the retroactive provision because we're not going to change anything unless we get retroactive requirements to have them come into compliance, as well. We just have to get ammonium nitrate away from combustibles.

MEMBER GRIFFON: And I was actually asking the question also in terms of the broader question of just high-hazard facilities, you know, and how they are - how you do the Land Use Planning for those around the state, and whether any - and I don't know what the current situation is. Does the State put out guidance - I think I'm following up on Dr. Rosenberg's question, you know. I can picture the local Planning Board grappling with how to zone for a high-hazard facility, and whether, you know, is there guidance from the State? Are there, you know - and are there any recommendations to improve or change that, or that kind of thing?

MR. CONNEALY: Absolutely. We want

to make sure that cities have the capability to provide zoning. If they don't have a local zoning issue or a building code, or fire code, there's a remedy there that removes those barriers so they could do just do that.

The challenge is with existing facilities and the infrastructure that's around them, you know. I'm not sure how that will play out long term because they're there, such as West. The town grew up around it.

MEMBER GRIFFON: Right.

MR. CONNEALY: There's no malice involved. It just happened.

MEMBER GRIFFON: Yes.

MR. CONNEALY: You know, as was stated earlier, that we like to be (inaudible) more of the planning than I am.

MEMBER GRIFFON: Okay.

MR. CONNEALY: That there's ways of avoiding that. In some cases, you know, the cow is already out of the barn.

MEMBER GRIFFON: Thank you. Thank

you. I just wanted to ask ICC, the - you mentioned the International Zoning Codes. How - can you just get into a little bit of how they address siting a hazardous facility near a community, or what guidelines do you have, or some specificity on how it deals with residences, schools, a situation like that was here?

MR. ROBERTS: The code, basically, just establishes zones, whether it's commercial, commercial residential, residential, factory industrial, schools generally fall in line with zoning with residential. And it just allows - the community has its own geographical area to deal with about how to split those up.

MEMBER GRIFFON: Okay.

MR. ROBERTS: So, as far as exact guidelines about a hazardous facility, it would just fall as factory industrial, and then you would rely on other codes like the fire code for guidance on just what that

hazard is.

MEMBER GRIFFON: Okay. And does it include any kind of risk assessment, or risk analysis?

MR. ROBERTS: Not in the zoning code itself, but -

MEMBER GRIFFON: Not in the zoning code.

MR. ROBERTS: - but certainly in the fire code -

MEMBER GRIFFON: The fire codes.

MR. ROBERTS: The fire code, you'd have risk assessment on each structure.

MEMBER GRIFFON: Okay.

MR. ROBERTS: For existing, as well. And, again, like we've said over and over, the zoning code would not apply to existing structures.

MEMBER GRIFFON: Right.

MR. ROBERTS: You would have to go to a fire code for that.

MEMBER GRIFFON: Right. And then

the - this question is kind of open, I think, to anyone. The question of the local Planning or Zoning Boards, you know, I'm just wondering how - just from all your experience whether they have the resources, the tools, the capability of making these judgments on - you know, I think part of it is they have to know enough about these complex facilities to determine, and to do those calculations to determine if the risk is too great to put this type of facility in proximity to schools or other sensitive areas. So, I'm wondering if, you know, in your experience what's the capabilities of the local Planning Boards?

MR. SCHWAB: I would like to offer a little different model here on that point, because one of the things that we've worked very hard to emphasize in this regard is, you know, planners have a certain kind of training. They have to understand spatial relationships within a community, they understand issues about economic and community

development, and so on, but can't possibly be trained themselves in depth on issues like how ammonium nitrate is handled.

MEMBER GRIFFON: Right.

MR. SCHWAB: That's just not part of their training. What we can do, however, is planners are very well trained in most cases, or should be as, effectively, orchestrators of public policy within a community. And particularly, also, orchestrators of public participation within a community to rally the public to participate in the process of policy making.

One of the things that they can do as a result is figure out who does have that expertise and how to bring them, effectively, into the planning process. And we go through this model repeatedly on a number of questions, not just this one. Just let me give you a couple of examples.

A few years ago we were working with the Forest Service on a project called,

"Planning the Urban Forest." Planners are not foresters, they're not expected to be arborists, they're not tree specialists, but clearly they understand that that's a goal within the community to have better tree canopy, and it does all sorts of - they can begin to understand what are the outcomes of that that benefit the community. So, what you do is then go and get that expertise. You have arborists, or urban foresters, or people with that expertise and you bring that - you have that discussion about where you can inject that expertise into the planning process.

The same thing goes with this whole field of all kinds of disasters, natural or manmade. There are emergency managers who have a good deal of that expertise. There are firefighters who have that expertise, and you bring them into that discussion, and then talk about where in the - what would be an effective element of that zoning code, at least prospectively looking at facilities that

don't exist already, to address those kinds of things up front before you start permitting development. So, a lot of this is really communication and coordination between - interdisciplinary communication and coordination that has to go on to make this happen effectively.

The code that they're talking about provides a certain basic framework, but beyond their code, I would say from long experience and watching communities function, and looking at the peculiarities and idiosyncracies of every community, there is inevitably some customization that must take place. And there is no escaping the responsibility in local planning of thinking through what are the issues that confront us in this particular landscape within these boundaries, whether that be ammonium nitrate, or a railroad that goes through that may be carrying who knows what. You know, you just need to take a look at what is in that

community that poses a threat, and then figure out what is an effective solution, bringing together the best expertise you can marshal.

MEMBER GRIFFON: Well, thank you for reframing my question, actually. You got to the point that I wanted to get to, so that was very good. I guess I could see, and you don't need to necessarily answer this question, but I guess one concern that could come up in that kind of scenario is as a local Planning Commission is bringing together expertise, I think often it's likely that the most in depth expert in the room is going to be the very people that are trying to build their facility. So, can - does the town have independent resources to pull in when there's a question, or -

MR. SCHWAB: Actually, this gets to a much - an even - I'm going to reframe even larger here.

MEMBER GRIFFON: Oh, please, please.

MR. SCHWAB: Because it does get to the question of a State role, but it also gets to other kinds of resources that are out there. I mean, I think you have to think outside the box sometimes.

MEMBER GRIFFON: Yes, I agree.

MR. SCHWAB: There are, for instance, academic resources, community colleges, universities that often have the kinds of expertise without being tied to a particular industry or vested interest that can be tapped. And we often - you know, that I think is one great tool.

There are states that actually use - Iowa State University actually has an extension service that includes planning advice for local - particularly for rural communities, you know, they make their planning school essentially available to those communities to help with that process.

MEMBER GRIFFON: And that's why I asked the prior question, was as the State -

I mean, I think State guidelines in this area might be very useful to help -

MR. SCHWAB: Yes, and the State -

MEMBER GRIFFON: - so that local communities know where to turn if they're, you know, looking for those other resources.

MR. SCHWAB: Sure. The State itself actually can on occasion, you know, if it chooses provide some of that kind of technical expertise.

MEMBER GRIFFON: Great, great. Thank you. Thank you.

MR. ROBERTS: Mr. Griffon, if I may.

MEMBER GRIFFON: Oh, sorry.

MR. ROBERTS: I'd just a little bit to Mr. Schwab's perspective there. You know, we're looking at that we mentioned before the all hazards approach, you know, and I think we have a multidisciplinary item that we have to look at here. And maybe from that 10,000 foot level the reason that the ICC produces a

family of codes is that they're all meant to coordinate and work together, and not just focusing on ammonium nitrate, or even hazardous materials but, you know, other natural events that we have to address in our communities. That's why if you have a community that just has a construction code, that's probably not enough because we want to make sure that that building is kept at that level of safety throughout its life, and that's where a fire code comes in. Putting the right buildings, you know, in the right places is about the zoning code, and that's the proactive piece.

And just examples, you know, of part of the construction code, we take for granted that there's an National Electric Code. Well, if we just follow the construction code and we don't deal with the safety of electric, we haven't created a safe building. If we haven't adopted a fuel gas code, we may have fuel gas in that building. It's not going

to fall down, but we may not have a safe gas service. So, those codes all need to be coordinated.

And kind of de facto what that does is it brings all those different expertise, those different disciplines of code officials together to insure that all of those things are being addressed comprehensively when you look at how a building is built, and how it's maintained. So, not having that comprehensive approach, you're working with a handicap because you haven't utilized all the resources in the toolbox to help address that concerns that we're here to prevent, and that's basically keeping a safe and sustainable environment.

MEMBER GRIFFON: Thank you for the addition. And thank you, Mr. Chairman.

CHAIRPERSON MOURE-ERASO: Thank you. I have perhaps a last question, and probably is a historical question to Mr. Connealy, and probably to Mr. Johnson, too.

And the question is why isn't that in Texas what's considered some sort of a reasonable approach not to have a fire code on the small towns? I mean, what is the historical reason that this happened?

MR. CONNEALY: Mr. Chair, I honestly don't know. I don't know where that statute originally came from, and why, but I'm very encouraged that the legislature, at least the House -

CHAIRPERSON MOURE-ERASO: Is there any advantage not to have a fire code?

MR. CONNEALY: Well, as a fire marshal I don't think so, obviously.

(Laughter.)

MR. CONNEALY: I'm very pro fire code. As I stated earlier, I think it's better managed at a local level. And I'm very hopeful that that will change. And I think with the events of West that has shed light, and I think that will come to fruition this time around.

CHAIRPERSON MOURE-ERASO: Mr. Johnson.

MR. JOHNSON: No, I think the State Fire Marshal, it's a public process so now that there's awareness, and I think that there's an opportunity to create a better understanding of what a fire code is - what it is, and what it isn't. I think there's a lot of fear that it's going to cost a lot, there's over-regulation. And it's really through the consensus process, it's really a balance of trying to find that proper level of minimum safety and not be an economic disincentive.

But that's why jurisdictions have that option, and there may be State amendments, even if they do adopt a fire code to address specific requirements that are unique to Texas or that jurisdiction.

And then, finally, as I mentioned that the other challenge, and there's some good models and examples of best practices.

Having the resources to implement that code and do the inspections that are necessary and the administration is a key ingredient to having a truly safe and sustainable environment. So, adopting the code and having the authority to do that is just the first step in that process of insuring the safety of the built environment.

PANELIST: It might be worth noting, too, that not only do we have the fire code issue, Texas is the only state that I know of that does not give its counties zoning authority either, which is something that might be worth considering in the next legislative session.

CHAIRPERSON MOURE-ERASO: Very interesting. Very interesting. Okay. I would like to thank the panel. This has been very, very informative.

MEMBER ROSENBERG: Thank you.

(Applause.)

CHAIRPERSON MOURE-ERASO:

Appreciate you bring here.

I would like now to give the floor to Dr. Daniel Horowitz, the Managing Director of the Chemical Safety Board to direct the discussions on public comment, so Dr. Horowitz.

DR. HOROWITZ: We'll have public comments on any aspect of what you heard, or anything that you didn't hear that you'd like the CSB to look into further. Only a handful of people signed up for comments, but really it is open to anyone who would like to say anything for three to five minutes. And when you make your comment, please do say and spell your name so that we can get it right in the transcript.

Mayor Muska, did you have an additional comment you'd like to make? Go ahead. If you want, you can use either podium.

MAYOR MUSKA: Thank you. And, again, my thanks to the Chair, and Directors, and investigators on your work this past year.

West has come a long way. We didn't have a fire code, we're working on a fire code. We didn't have a building code, we now have a building code in place. West is moving forward.

It will not be defined by the events of April 17th. Zoning and Planning, we have secured with donation from St. Vincent de Paul, KAI Group out of Atlanta, and they have come in. And your question was how do you do that? We had a group of business leaders that were the core of it, and they met with the business leaders first. And then we had about three different public meetings on planning.

Now, this is planning that is outside the city limits right now, but we have an idea of where we will be going. So, for instance, by the Interstate it'll be commercial. Down east of West will be more residential, so we will have a plan, a Comprehensive Community Plan that we're working on. That should be finalized by, I

think, the end of this month or next month.

You mentioned fire sprinklers. Yes, fire sprinklers or concrete bins would definitely be, you know, something that could save a lot of lives if this were to happen again.

And as I sit here and I listen to the various suggestions from the Chemical Safety Board and the investigation of 417 Fertilizer Plant, I can't help but wonder if the agency is looking in the wrong direction. In my opinion, you are looking at the distribution end of nitrogen-based fertilizer products, and the products and the safety hazards it poses to communities located around these plants that store the product.

It seems to me that it would be more effective and easier to regulate if you had a handful -- a mandate for a safer product. Then you're managing a handful of manufacturers instead of thousands and thousands of fertilizer plants. It just seems

that would be the easier way if you wanted to do that, in my opinion, my humble opinion.

It my opinion, it also needs to concentrate on the safer production of this which would then remove the safety hazards associated with it being transported. You heard a number of trains come through here. I can guarantee that that was probably on some of those trains that go through this town every day. So, if it was a safer product, the transportation of that product would also be safer, in addition to the storage at the facilities.

The end result would be a safer product and would also reduce the unlawful use of the said product such as the case in Oklahoma City. And as well noted, the cases that - where the product was used in Iraq and Afghanistan as an IED component to a bomb. The military is already looking at this because that's the main ingredient of IEDs in Iraq, was nitrogen-based fertilizer.

As for the Land Use discussion, I have many concerns and strong opinions on the lack of regulations for a general law city the size of West. Due to state law we do not have the ability to regulate any activity outside our city limits. We don't have the ability to regulate anything inside the one-half mile ETJ, which is the Extra Territorial Jurisdiction. We don't have the ability to do that. That is something that Texas law prohibits a town the size of West from doing. I'm working on that. That's one of my marks that I'm working on, but your report states that cities have the responsibility to enforce the fertilizer plants, but my question is how we could regulate a fire code when we - when most plants are outside our jurisdiction. We can have a fire code across the tracks from it, but if it's across the tracks, it's not going to be in our jurisdiction so we cannot tell it what to do.

The City of West Fire Department

is only responsible for fire protection in our corporate city limits. Any response to outside fires is a matter of courtesy, and we respond.

It is my hope that the lessons learned from the April explosion, and the fire departments across the country have taken a closer look and interest in how they respond to chemical fires. If that occurs, then the lives of the first responders that perished won't go in vein. These opinions are my own, and I appreciate the opportunity to speak to you today. Thanks.

CHAIRPERSON MOURE-ERASO: Thank you, Mr. Mayor.

(Applause.)

CHAIRPERSON MOURE-ERASO: A comment I would like to say to your comments, one of the - or the issues that we are looking very carefully, and the investigative team is looking is at inherently safer technologies on the materials itself that we are using as fertilizers. And one of the things that we are

looking at is what kind of formulations could be there, could be rethought that will make the ammonium nitrate substantially less explosive than it is. And that is something that is what you are suggesting, that is rather than looking at what we have, why don't we look at the front end of the process and see what is what we are using, and how can we make that safer rather than trying to remediate what could happen at the final end.

MAYOR MUSKA: I was doing research and it cost about 15 cents a ton to put a coating on ammonium nitrate, so it's not overbearing, I think, or cost prohibitive to do that. And this technology has been around for about 10 years, so that's an area, like I said, if you chop it off at the head, you don't have to worry about it.

DR. HOROWITZ: Thank you. And I think we'd be remiss if we didn't thank the Mayor also for helping us arrange the facility tonight, and for your hospitality to our team

when we were here for several months under very difficult circumstances. So, thank you.

CHAIRPERSON MOURE-ERASO: And also let me add for the leadership that the Mayor has demonstrated in this very difficult year. I would like to congratulate you in the work that you have done for this town.

MAYOR MUSKA: Thank you.

(Applause.)

DR. HOROWITZ: Next is Mr. John Crowder, Pastor, First Baptist Church. Mr. Crowder.

MR. CROWDER: Thank you, Mr. Chairman, Members of the Board. In the first part of our meeting tonight we heard Mr. Corbett read from approved manuals information about how firefighters should respond to fires in which ammonium nitrate is involved. The prescribed plan of action, as I understand it, is to apply water unless the fire gets too serious or "massive." If the fire is too big, firefighters are encouraged to withdraw.

It's my understanding that our firefighters appropriately implemented those suggested plans. Although no one mentioned it here tonight, an order was given that night to withdraw. While we have all had an entire year to assess the situation, to evaluate the needs and prioritize the various options, our firefighters had 20 minutes to get to the scene and then do all that assessment, evaluation, and clarification of priorities.

Within that short 20 minutes, our local heroes showed up, got organized, did exactly what the expert tonight said they should have done. They put water on the fire until it was clear that the fire was "massive." At that time, they made the right call and ordered a defensive stance. Unfortunately, time ran out before they could fully carry out that order. Our heroes gave their lives insuring a future for their families, friends, and neighbors, and we as a community will always be grateful for their

sacrifice.

(Applause.)

DR. HOROWITZ: Thank you, Mr. Crowder. And just for clarification, I think what Professor Corbett was quoting was the NFPA guidance, actually, which he was stating was effectively followed, and he'd like that guidance to be changed in light of this tragedy.

Next is Ken Paterson. Mr. Paterson. Charlie Musclewhite (ph).

MR. MUSCLEWHITE: Thank you. Thank you for being here. Thank you for what you've done over the last year. I also want to thank Mayor Tommy and Pastor Crowder. I echo exactly their comments. I'm a property owner in West now.

I had the same question as Mayor Tommy, which is - and Pastor Crowder brought it up to some extent. We heard a lot of talk about what the firemen should do, and not do, and the first responders, and even the elected

officials, that we're looking at how to change behaviors there. And a lot of talk about what the City of West should do, and the growth pattern, et cetera. And like Mayor Tommy, I didn't hear anything tonight about the manufacturers of the product until, Mr. Chairman, you brought it up in response to Mayor Tommy's question.

I greatly appreciate hearing that. I think that's a very important aspect of your investigation, and it's good to hear that you're on top of that.

Mr. Fire Marshal, you mentioned that there are four facilities in this state right now that have stopped distributing ammonium nitrate fertilizer based nitrogen product, and I applaud that. I'm curious, if four can do it, why can't they all do it? Why can't the manufacturers themselves stop it? What is the need for it? If you can make it safer, as Mayor Tommy says, for so little money why not do so?

I stepped outside about halfway through this meeting and there was a train stopped outside, literally less than a football field from this facility, and all I could count because it was hopper car from horizon to horizon were 40 hopper cars. And as Mayor Tommy said, any one of those hopper cars could contain the exact same nitrogen-based fertilizer product that blew up and that survived in the hopper car that was waiting to be distributed. And no one - I don't know how I know as a citizen whether or not this group of hopper cars contains potentially a small nuclear device, 30,000 tons in any hopper car.

It's mind boggling to me that the manufacturers can put the product out into the stream of commerce like this without warning the public, identifying it. And at some point someone asked about who is in the best position, who had the most knowledge to be able to determine what to do about this potential danger that many people are facing

without any knowledge?

According to what I heard from the fire marshal, there are 46 facilities in this state that are still storing nitrogen-based fertilizer product in combustible facilities. And, again, where are the manufacturers, and I've heard the term in this state is, "Me no Alamo," and it refers to the fact that these are the guys who are making the money off of the product. Why aren't they going to these places and insuring that their product is not being delivered by the ton, by the tens of tons, by the thousands of tons to these facilities with these combustible materials that are holding it in, and avoid a repeat of what happened here just over a year ago. So, I again want to echo the comments of Mayor Tommy and Pastor Crowder, and just make that point.

I don't know, every time I pull up to a train crossing now and watch these hopper cars go by, I do not know in my mind whether

or not any one of those cars were it to - that train to go off the track, what would happen? Am I looking at being Ground Zero in a small nuclear device detonation? I mean, that's the fear I have just as an ordinary citizen.

The fact that these train cars stop in this city, you can move the facility outside of the Town of West even further, but if it's on those train cars and those train cars are parked so that they can switch, because this is a switching town where they pass each other, there's still going to be people exposed. I mean, you can do all that you want to do at any one distribution point. That's still not going to protect the public as the product is coming from Yazu, Mississippi to these 92 towns in the State of Texas, and sitting in these 92 towns in the State of Texas, at this the height of the growing season.

I'm curious what the chemical

companies have told you that they have done since this explosion last year to avoid this kind of exact occurrence happening again this year. I mean, we are here at the height of the growing season when fertilizer, including nitrogen-based fertilizer products are supposedly floating around the state to this 96 facilities, so I'm curious if you all have heard from the chemical companies what they're doing to minimize the risk, such as going to these 46 remaining facilities that have a combustible storage situation and saying look, we're not going to deliver to you unless you get it built right. So, that's my question.

CHAIRPERSON MOURE-ERASO: A comment to your question. We have been in contact with the Fertilizer Institute, and also with other organizations that are representing the manufacturers of ammonium nitrate. And they have reacted very swiftly in organizing an organization among themselves that is going -- is looking at the safe handling, and the -

I mean, it's a very well organized code of conduct among the people that - in the organizations that are using the chemical. And we have been very positive about that development.

What worries us is that only the people that belong to that organization are the ones that should choose, should volunteer to adopt that code and to adopt those practices. And as we know, there are a number of distributors of the chemicals, and sellers of the chemical that have - will choose not to volunteer. So, that's why, as you will see in the way that we are developing our investigation, we are looking at making a regulatory analysis and see what will make people and the industry pay attention and accept a particular change that will make a difference, is that we have a regulation. We have a regulation that applies to everybody that makes a level playing field for everybody, and that is not volunteer. You

cannot choose not to do it. I mean, that's the difference with having a regulation. So, in our paths of investigation what we are looking is what that regulation must be that compel people to do this legally rather than simply rely on establishments volunteering to do it.

DR. HOROWITZ: Thank you. Next is Jack McCavitt (ph).

MR. McCAVITT: Thank you, Mr. Chairman, and Board, and investigative staff for the opportunity to speak to you.

A few minutes ago, our State Fire Marshal spoke with wisdom I thought when he was talking about the loss of the firefighters. And he said we have to make sure this never happens again. And we certainly all support that. And I agree completely that it's appropriate for the Board to be concerned about emergency response, and Land Use Planning, but I hope that the Board will put even more emphasis on prevention of fires impacting ammonium nitrate and the safe

storage of ammonium nitrate so that the firefighters are not ever exposed to the risks of those fires. Thank you.

DR. HOROWITZ: Anyone else who would like to comment, who didn't - David, please. For those of you who don't know, David White, the publisher of Industrial Fire World has long worked with the CSB on education efforts for oil site safety, which we very much appreciate.

MR. WHITE: I was going to kind of slip up here and not let anybody know that I was here, but I guess that didn't work. But seriously, thanks to the Board, and the Staff, and the invited speakers and things.

I've been around a long time in this business called firefighting. I've seen four firefighters killed at fires that I was at. It's not a good day. And firefighting is a dangerous game. And I don't use the word game just because we are going in when everybody is coming out. And the thing about

firefighting we have to understand is, in my 50 years, and that's how long I've been in this game, we have been teaching and talking about the same things, pre-fire planning, training, you know, and things like that.

I don't know if we'll ever get there. And I'm being very honest because, you know, it's not rocket science to go out here and inspect a building, you know. I mean, and you don't have to - and I'm going to tell you this, you don't have to be a certified fire inspector with a Ph.D. I mean, I can go in a building say, man, you've got ammonium nitrate here. And then you talk to the guy about it and so on and so forth. And we can make a big effort on this across this great State of Texas if we'll just go out there and do something.

I mean, I don't know what the number is, but I know there's over 2,000 fire departments in Texas, and how many of those have the firefighters even walked in the door

to say what have they got here? And that's what we've got to do. We're firefighters, that's the game we play, that's the job we have. And I think that we just need to wake up and quit offering excuses.

I mean, the industry - and I'm working, making a living on industry. But industry will sit there and then they'll mealy mouth around about it, and then all of a sudden they'll say well, we've done the best we can. No. We haven't - here they come now.

(Laughter.)

MR. WHITE: See? I mean, that's planned. You got that scheduled just right this time. But what I'm saying to you, one other thing that I want to tell you about ammonium nitrate, and I've been around it because I'm from South Texas, we lived on fertilizer and plants and things.

I never saw ammonium nitrate fire, but I know it happens. I've seen all the videos and the pictures, and everything else.

I want somebody to go out there and push the government or the industry push somebody to do some research because I want to know why at West, Texas you had a building full of ammonium nitrate, you had another building full of it, and this one blew away and killed a bunch of people, and this one is still there. I want to know why in Bryan, Texas. I live in College Station right next door, they had a building full of ammonium nitrate on fire and some of it was in sacks. And I remember hearing the volunteer firemen that day saying I don't know what this stuff is but it says it's ammonium nitrate, and the stuff is burning right in front of him. Why did he even have to ask when he figured out it was. He should know that.

The other thing is, I go around the world and I look at different plants and things, and I've been into explosive plants in Europe and things like, and done consulting work. You know what a lot of them do? And this

is the cheapest thing you can. They berm up the dirt about 15-foot high, as much as they can around the plant, plant heavy forests or trees on top of that, and then if there's a blast either here or here, that blast hits those trees and that berm, and it's diverted up. And right there is not even hardly hurt. I've seen the research photos that show that. But I still want the National Bureau of Standards or somebody to go out here and please help us by whether it's 15 cents a thousand as somebody said, or it's $5 a thousand. I don't care. We've got to do it better, and safer, and smarter. Thank you very much.

(Applause.)

DR. HOROWITZ: Thank you. Anyone else?

MR. WEEKS: Can we just ask a couple of questions of the -

DR. HOROWITZ: Sure. You want to come to the mic, or one of the mics and we'll

help you as best we can.

MR. WEEKS: Hi, my name is David Weeks. The 40 to 60 tons you mentioned it may be have been in one bin or two, what is your best guess?

PANELIST: In talking to employees they place the majority of the material in the northeast corner, quadrant of the - or northwest quadrant of the building.

MR. WEEKS: What is the size of the bins in terms of length, and width, and height?

PANELIST: Well, we're still establishing that.

MR. WEEKS: You're still - so, in your discussions, like I have seen bins 10-foot wide and 20-feet long, I've seen them 20-feet wide and 40-feet long. Do you have any sense of the size of these bins?

PANELIST: We have some, yes.

MR. WEEKS: Can you tell us what that is?

PANELIST: We're still working on making sure that those figures are accurate.

PANELIST: The drawings and so on in the final report. And I think the model that you saw today is also to scale as much as we can, 3D model that's available -

MR. WEEKS: Okay. And the - have you calculated a TNT equivalency of the explosion?

PANELIST: Yes, we have.

MR. WEEKS: And what number is that?

PANELIST: We're not at liberty to divulge that right now.

PANELIST: That will be part of our final blast reconstruction. It's still ongoing.

PANELIST: It's a work in progress.

PANELIST: So we should have that.

MR. WEEKS: Have you put an estimate on the length of time the ammonium nitrate was in the bin?

PANELIST: We have some information from the folks that work there on when the material was delivered. As we understand it, there was a high turnover because of the planting season. There was that rail car full of ammonium nitrate. There were farmers that were coming and picking up supplies of ammonium nitrate. There was ammonium nitrate being delivered, so there was a high turnover from what we gather.

MR. WEEKS: So, it was turning over in matters of days, would you say that?

PANELIST: I think that's a safe assumption.

MR. WEEKS: Thank you.

PANELIST: You're welcome.

DR. HOROWITZ: Very fair questions, and we'll certainly endeavor to answer those and others in the final report. Yes, ma'am?

MR. WHITE: My name is Lynn White, and I've been traipsing after David for the last 40 almost years, and learned a lot just

by observation. But I'm a puzzle worker and I know that you can have thousands of pieces and think you've solved the puzzle and then there's always one that's missing, or somebody did something with it that messes you totally up. So, I've been listening, and if one of the puzzle pieces that I'd like for you to think about, and that goes back to the Planning and Zoning part of it. There's a culture in Planning and Zoning that wasn't mentioned, and it's called developers drive zoning in most cities, in the City of College Station where growth is happening phenomenally. Since it started when I moved there in '72 where 95 percent of what's there now was not there then. It's been development-driven.

David and I bought a property outside the city limits that had a warehouse on it. Bella Corolli (ph) and Mary Lou Rettling (ph), and one of our gymnastics gyms wanted to make it into a world-class competition gymnastics gym. But it had been

taken in, annexed by the city without any input to us or from us. We did not know until they came to get this, and we went to the city about what we would have to do to do this, that it was - we are in a zone for heavy industry only.

Immediately behind our warehouse is a park that is the runoff control for a subdivision behind it, a residential assisted living facility on this side of us across the street, a retirement complex on this side. This whole street, heavy industry only.

Needless to say, we didn't get the gym even after making the investments to meet the code, but we were told on final walkthrough you've met the code, but we have to treat it as heavy industry only.

Now, we all had been told you can move commercial into industrial, but not industrial into commercial, and that's the basis on which it was all made. What we have learned is that developers keep areas from

being developed until they're ready to make their money off of it by getting it zoned as something it can never be used for until they're ready to go with it.

So, there's other zones around College Station, you know, so when we talk about Planning and Zoning, I've observed our Commission being guided by local decision makers and by the people that coach them from City Hall, and doing the best job they know how. But somehow they have to be informed about if it's going to be heavy industry only, what does that really mean? If you're going to let them develop along by this fertilizer facility, what does that mean?

So, if we have flood control rules and policies with a 100-year flood plain, why not have a rule that says if it's in an industrial zone within a certain distance the developer has to pay this tremendous fee for liability to that area, or some sort of incentive comparable to flood control for

hazard control in a zone. Just a thought.

And on the railroad cars, if you get one of those little code books, you can know by the code on it everything that's driving on down your highway in a truck, and everything that's on the train. That's the living with David.

DR. HOROWITZ: Thank you. Yes, sir.

MR. HOSTEAD: My name is Kirk Hostead (ph). I hate to pick on Professor Corbett again, but I noticed you mentioned the video cameras, remotely recorded video cameras. To me that just seems like common sense.

It seems kind of ridiculous that ammonium nitrate is not classified as an explosive, but either intentionally or even accidentally it can be turned into a high explosive in less than five minutes, just incredibly easily. You would think that somebody would want to monitor that. You know, maybe even an armed guard or two, but security

cameras, that's pretty cheap, pretty easy. And, of course, you have to record it remotely, otherwise something goes wrong, you've got no video. But if the West Fertilizer Company had had those cameras monitoring that ammonium nitrate a year later we would not be wondering how that fire started. So, that's a really good idea that we should probably talk more about.

Also, I hate to pick on City University of New York, but one of your fellow professors, Dr. Mishio Kaku (ph). In the past year there's been a lot of speculation on what actually caused the explosion because, you know, like we've been saying all night, at Bryan, pretty much the same situation, no explosion.

And if you Google explaining the physics behind the West blast, you see Dr. Mishio Kaku from City University of New York on CBS This Morning after the explosions. And he was speculating rather convincingly that

the firefighters could have caused the explosion by spreading water on an anhydrous ammonia leak, that there could have been a chemical reaction between the anhydrous ammonia and the water. And I just want to get your opinion, if you think that there's any possibility whatsoever that that could have contributed to the explosion?

PANELIST: Can I respond?

DR. HOROWITZ: Sure.

PANELIST: Okay. Just real quickly, just a reminder there's about 8,000 faculty at CUNY, so I'm just one of them.

DR. HOROWITZ: Well, we expect you to answer for all of them.

(Laughter.)

PANELIST: Yes, I can't answer for him. I don't agree with that. I don't think that had anything to do with it. I think, you know, we realize that the anhydrous ammonia was a concern, I think, you know, for the firefighters that were there, but I don't

think that had anything to do with it. I certainly wouldn't agree with that, you know. I disagree with a lot of the faculty all the time, so that's not to endorse that opinion, basically.

MR. HOSTEAD: Is there anybody else that has any kind of opinion on that?

PANELIST: We've never cited that as a factor.

MR. HOSTEAD: Well, it's not even a possibility, because at the time of the explosions the firefighters weren't spraying any water, and the anhydrous tanks weren't leaking any anhydrous ammonia, so that had nothing to do with it.

PANELIST: I don't believe so.

MR. HOSTEAD: But a year later people that are curious that don't know these kinds of details about what happened still think that the firefighters might have possibly actually caused the explosion. So, it's important that everybody understand that

that's not true. And when you get back to New York, I'd appreciate if you'd stop by and say hey, Mishio, could you talk to CBS and maybe get that off their website because it's just stupid. It's disrespectful to the firefighters who did everything right.

Just one more quick question. Reverend Crowder, there you are, he mentioned that a year later, you know, the firefighters had roughly 20 minutes to make snap decisions, figure out what needs to be done. And Reverend Crowder said that for the most part they did pretty good.

They had 20 minutes, you all have had a year. Is there anything that any of you all can think of that they could have done differently, or should have done better?

PANELIST: I think if you look at this investigation from the very outset, it's been done with the highest regard for those men that died. It's not an easy task to do what firefighters do. Everybody on this panel,

everybody on this Board has the highest respect for people that do that work, and the last thing that we would do would be to malign anyone for doing what these men did at the spur of the moment.

As I said earlier, they left whatever they were doing. They got a page and they left. They told their families I'm going to respond, I'll see you later, and they never came home. We get that, so any hint that something that we've been part of or that we've put forth in this investigation is really missing the point, there's nothing from day one that we've said that hinted that anyone did anything wrong at that fire.

MR. HOSTEAD: Oh, no, no, no, no. And I'm not saying that. Not only did they not do anything wrong, I have yet to find anything they could have done better, or not just them, anybody anywhere. And I really want to know if you think that there's something that anybody could have done better in that situation, it

would be good to know for future reference, you know, in that situation.

They were walking into a bad situation, but they figured out what needed to be done pretty quick. And if anybody, you know, maybe even offline afterwards say, you know, well, maybe they could have tried this, I'd be interested to hear that.

I know that lately there's been a lot of speculation, especially around the one-year anniversary that they should have just left. They should have just pulled back immediately and, you know, I don't think that that was an option for them considering the wind was blowing the smoke in the direction of the West Rest Haven, and they knew there were people in there. And if they did just leave and not try to contain the fire, that those anhydrous tanks would have vented and all that anhydrous ammonia would have blown directly towards West Rest Haven. So, I mean, in case anybody was thinking of that, that would have

been alive if they had of just pulled back, I'm just speculating. I'm not speaking on behalf of any of the firefighters, and for anybody who already knows that I'm the one that put together the PowerPoint on the likely causes of the explosions, I'm not speaking on behalf of any of the firefighters. And the firefighters, none of the firefighters are convinced that the wind or the high-tension power lines contributed to that huge explosion and the smoke.

But before you guys go back to D.C., you really need to talk about this. This is on your website. This is a screenshot of the four cell phone videos, and it pretty clearly shows that you haven't analyzed the video correctly. And you haven't collaborated very well with the State Fire Marshal's Office. I was hoping that tonight we'd talk more about what was different between West and Bryan, why other ammonium nitrate fires that weren't contained didn't detonate, and West

did. And that the explosion that detonated the ammonium nitrate came from outside of the building through the smoke which, obviously, you all haven't looked at that closely. But we can talk more about that later, but that's also important to understand because there was something very unusual about the smoke from that fire that needs to be figured out, what was in that smoke, what it consisted of, what made it so explosive, and how do you prevent that in the future? Because some of these chemicals that existed in that smoke can be combined from other chemical fires. And, you know, we need to know what happened. We need to figure out why that smoke was so explosive.

DR. HOROWITZ: Okay, thanks.

MR. HOSTEAD: Thanks.

DR. HOROWITZ: That's all. Any others? Yes, ma'am. Would you -

AUDIENCE MEMBER: I was in a direct line across the tracks and there were cinders with fire in the smoke.

DR. HOROWITZ: Okay.

AUDIENCE MEMBER: And the firefighters did everything could. I have two sons that were over there fighting the fire. If they had not put the water on it that they did, and the way the wind was blowing, that car on the railroad would have exploded, and people within seven miles would have been dead.

DR. HOROWITZ: Any others? Yes, sir?

MR. YUTTER: My name is Charles Yutter (ph). I'm a lifelong West resident, and I do believe - I believe the smoke did do it. I think that what happened is that when the carbon, like the State Fire Marshal was saying, from the - you got the different things that were burning, such as the shingles and stuff, and you can get - when you get a smoke mixture it can support an arc causing phase to ground, or phase to phase faults. This is off the internet, Transmission and

Distribution (inaudible) November 1, 2000.

And more than likely when it went through those transmission lines, it discharged across there. One of those lines, if I remember, I live five miles southeast of town, but when I came to town and went to the Rest Home to get people out, and if I remember correctly, there was one of those high-power voltage lines which were put there in the early 1900s, I believe before 1910. I think one of them was down by the football field, if I'm not mistaken. But I believe that's where it was down, and it probably discharged further down by the smoke, and then that was the weak link. And probably that's what caused - now, what caused the initial fire, I don't know. But I believe, until I'm convinced otherwise, and I got to spoke to Mr. Mates (ph) about that, and the lady here, Ms. Rosenberg, I believe, earlier. And I personally believe that's what caused the explosion itself.

DR. HOROWITZ: Thank you.

AUDIENCE MEMBER: That was the first explosion.

DR. HOROWITZ: I think that -

MR. YUTTER: I'm talking explosion as far as the big blast, because that's when the smoke was - the smoke was blowing from the southeast, and I live southeast of town, but the smoke was blowing - I mean, the wind was blowing heavy that night from the southeast to the northwest, which would have put it right through those transmission lines on Reagan Street that were built in the early, early 1900s.

DR. HOROWITZ: Thank you. I think that's it, Mr. Chairman.

CHAIRPERSON MOURE-ERASO: Thank you very much. So, I would like to give the floor to Mr. Banks about the next steps on the investigation.

MR. BANKS: Okay. I know it's been a long evening, so I promise we're winding

down.

As a path forward for the balance of this investigation, the team will be looking at AN explosion blast modeling and impact analysis. We'll be doing some - conducting some laboratory testing of AN. We'll be performing an analysis of fire code, and I think the information that we've gathered here tonight will be very helpful for us moving forward.

Obviously, there will be a regulatory analysis to consider applicability of regulations that are in place now and maybe the implementation of new ones. We'll develop recommendations, and that's part of our process. We have one of our recommendation specialists here tonight with us, Ms. Morgan. And those are really the - really touchstone to our process is recommendations that are logically connected to a root cause.

Then, finally, we'll develop a full report. And we hope to get that completed

by year's end with any luck, and not any other major events happening. And then we'll have a final public meeting. We owe that to the community to come back and give them their - the final assessment of what happened. And at that time with your recommendations, submit that to the Board for their consideration and vote. I hope they will find that it passes muster and will vote to accept it. But that will also be an opportunity for the public to come forward and give us input, as well, at that time.

Before I move off, I want to thank Mayor Muska for your graciousness throughout, to the community of West for your graciousness, your accepting us as we came to do our task under very trying conditions. And I want to also thank you for your presence here tonight. To our panel, I want to thank you for your contribution to our collective efforts. There's a wealth of information that we gathered here tonight that we would not

have gathered had you not taken time from your busy schedules to come and participate with us, so I thank you. Mr. Chairman.

CHAIRPERSON MOURE-ERASO: Thank you very much, Mr. Banks. So, as closing remarks, I will say that thank you for your attendance at this public meeting today. This has been a very insightful and stimulating day for all of us, and especially I thank the team for their dedication to this project.

I also want to thank each of the Board Members for their comments here today. All of us share a strong interest in preventing these type of explosions in the future, and we'll all be working together now with the staff to see that important recommendations that are developed for these investigations are put into place and we'll act on them.

I also would like to thank all of you that were here, especially the panel members that addressed us, and also the

members of the audience for their participation, and also for their long range of attention that they have to have for this very extensive meeting. So, thank you very much and this meeting is adjourned.

(MEETING ADJOURNED.)

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