UNITED STATES OF AMERICA

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CHEMICAL SAFETY AND HAZARD

INVESTIGATION BOARD

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Public Meeting
CAI/ARNEL CHEMICAL PLANT EXPLOSION
DANVERS, MASSACHUSETTS

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Tuesday
May 13, 2008

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North Shore Ballroom
Sheraton Ferncroft Resort
50 Ferncroft Road
Danvers, Massachusetts

PRESIDING:

JOHN BRESLAND

Chairman

U.S. Chemical Safety & Hazard

Investigation Board

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I N D E X

P R O C E E D I N G S

(6:33 p.m.)

CHAIRMAN BRESLAND: If you can take your seats we can get started momentarily. We'll have to stop talking as well. We will go ahead and get started.

Good evening and welcome to this public meeting of The U.S. Chemical Safety Board, the CSB. I'm John Bresland, Chairman and CEO of the Board. With me this evening are board members, Gary Visscher, William Wark, and William Wright on my left. Also joining us is our General Counsel, Chris Warner and the CSB stock members who are responsible for the investigation.

Before we begin, I would like to point out some safety information. We do have exits here, exits over on my right and exits on my left. And if there is an emergency, please take those exits and they'll take you outside the building. And we have plenty of firefighters here this evening as well to make

sure that everything goes according to plan.

I'd also ask that you please mute your cell phones and pagers so that are proceedings this evening are not disturbed. And I'd also ask that the people who are sitting up here at the front turn off their Blackberries completely, because apparently Blackberry signals are picked up by the microphones. And for the people who, the panelists who will be speaking later on, if you could turn off your blackberries when you get up to the table to avoid that interference also. I will take a minute or a few seconds to allow you to turn off your Blackberries.

Before we start, I would like to read a statement from Senator John Kerry. Senator Kerry's statement is as follows: "Eighteen months ago, the Danvers explosion destroyed homes and businesses beyond repair, and drove more than 300 people out of their homes at Thanksgiving. We now know what caused the explosion, and what needs to be

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done to prevent similar instance in the future. I applaud the work of the CSB to uncover exactly what happened that November morning, as well as the efforts made by the Massachusetts First Responders whose swift and effective response helped to contain the damage and deliver residents to safety."

I would also like to thank Senator Ted Kennedy and Congressman John Tierney for their support during our investigation. Mr. Matt Patton from Congressman Tierney's office is here this evening representing the Congressman, and we thank you for attending this evening, Mr. Patton.

The CSB is an independent, non regulatory federal agency that investigates major chemical accidents at fixed facilities. The investigations examine all aspects of chemical accidents including physical causes or human error, as well as inadequacies in local, state or federal regulations, industry standards and safety management systems. The

product of our investigation is a written report which includes safety recommendations designed to prevent similar accidents in the future.

The purpose of this evening's meeting is to allow the CSB's investigation team to present its findings and recommendations resulting from the investigation of the November 22, 2006 explosion at the CAI/Arnel facility in Danvers, Massachusetts. Following the investigation team's presentation, a panel of local and state officials will describe changes in the regulation of chemical facilities that have been proposed or implemented since the accident.

The Board would like to thank the panel participants for accepting the CSB's invitation to participate in this evenings meeting. They are Massachusetts State Representative Ted Speliotis, Massachusetts State Fire Marshal Steven Coan, Danvers Fire

Chief James Tutko, Concord Fire Chief Kenneth Willette, and local community leader Susan Trapeano. And I will introduce them in more detail later in our program.

Following the panel portion of this evening's meeting, we will open the floor to public comments. If anyone in the audience wishes to comment publicly, please sign up at the tables in the check-in area, just outside the door, and I will call your name at the appropriate time. I will first call those people who have signed up, and then I will open the floor to anyone else who wishes to speak. Please note that we have to limit public comments to three minutes each.

And also note that we are not able to take questions for the investigators directly from the audience. And so I will ask that all comments be directed to me as the presiding official this evening. If there is a point that is raised in your comments where I believe the investigation staff can provide

some immediate clarification, I will ask them to do so. The meeting will conclude with a discussion by the Board Members and a vote on the final report.

During the early morning hours of November 22, 2006 a powerful explosion destroyed the CAI/Arnel Inc., and Paint Manufacturing facility in Danvers. Scores of nearby homes and businesses were damaged, some beyond repair. There were no injuries in the plant, which was unoccupied at the time, but a number of local residents did require hospital treatment.

The Chemical Safety Board has been in operation for ten years, and the Danvers accident caused the most severe community impact of any accident that we have investigated. Many of you here this evening were affected by the devastation that early morning in November 2006. I walked the Danversport neighborhood a few weeks after the explosion and I was moved by the destruction

and the terrible impact on the local residents. I went back to the neighborhood again this afternoon, and I was happy to see that it is getting back to normal.

The Chemical Safety Board's process is as follows. Each independent Board Member has had the opportunity to study the draft report and come to this meeting with his own opinions. The public meeting is the Board Members opportunity to discuss our opinions about the report and its recommendations. Our objective is to leave here this evening with strong effective recommendations based on the reports findings. We want those recommendations to help prevent similar accidents in the future.

I would like to thank the CSB Team for their diligent work on this investigation and I would also like to thank the Danvers community for your continued interest in our investigative efforts.

I will now recognize other Board

Members for an opening statement.

Mr. Visscher.

MR. VISSCHER: None.

CHAIRMAN BRESLAND: Mr. Wark.

MR. WARK: None.

CHAIRMAN BRESLAND: Mr. Wright.

MR. WRIGHT: None.

CHAIRMAN BRESLAND: Thank you.

At this time I will ask CSB Investigations Manager, Stephen Selk to introduce the investigation team. Mr. Selk.

MR. SELK: Good evening Chairman Bresland, Members of the Board, and Mr. Warner. Good evening officials and ladies and gentlemen.

Unable to be present with us tonight are two investigators Johnnie Banks and Angela Blair. Mr. Banks is a graduate of the University of California at Berkeley and is a Certified Fire and Explosion

Investigator. Ms. Blair is a professional chemical engineer.

Joining me at the podium tonight is Jeffrey Wanko. Mr. Wanko is a professional chemical engineer and a certified safety professional. He holds an advanced degree in Environmental Sciences from the Illinois Institute of Technology.

Also at the podium is Robert Hall, a former naval nuclear reactor operator. Mr. Hall is a Penn State engineering graduate and holds an advanced degree from the George Washington University. Mr. Hall will be presenting the staff's recommendations to the Board tonight.

Also with us and seated in the front row is Mary Nicotin, Mary's background is in psychology and she was most recently working on doctoral studies at the University of New Hampshire.

Finally, the Lead Investigator is Mr. John Vorderbrueggen. Mr. Vorderbrueggen

is a graduate of the California Polytechnic State University, he is a professional mechanical engineer. And I would like to mention that for the last several months, Mr. Vorderbrueggen has spent his time at the explosion site of the Imperial Sugar Company in Savannah, Georgia. Mr. Chairman, as you're aware that accident took thirteen lives and injured many dozens more. So I am very grateful, I would like to recognize Mr. Vorderbrueggen's public service, it's a pleasure to work with you sir, and I welcome you to the podium.

MR. VORDERBRUEGGEN: Thank you Steve. Chairman Bresland, Members of the Board, General Counsel, ladies and gentlemen.

You've heard the introductions, quickly I will go through the outline of my presentation today, I will talk about the investigation process, I will present the incident summary, which is where we will show the video, which is the best way to show

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exactly what happened based on our findings. We will then, or I will then present the investigation findings as a result of our activities and then we will turn it back over to Chairman Bresland for questions from the Board back to the investigation team, ultimately Mr. Hall will present recommendations to the Board for consideration and finally Board discussion and vote.

Why did we investigate this incident? It's pretty obvious. And as Chairman Bresland just mentioned, this explosion caused the most significant community impact in the ten year history of the Chemical Safety Board. Ten people required hospitalization, and that doesn't count the many dozens that were injured that luckily didn't have to be hospitalized, but I'm sure that they received cuts, bruises and other, thank God, non life threatening injuries, minor injuries.

At least 300 residents were

displaced from their homes. As many of you in this room were in that group. There was widespread property damage, and the latest information, and we will update our draft report, it is 24 homes were damaged beyond repair and 6 businesses, and that includes the CAI and the Arnel facility were damaged beyond repair from this tremendous explosion. Marina buildings and boats were heavily damaged, dozens of windows were shattered as far away as a half a mile at the Bishop Fenwick High School, south of the facility. And damage was reported as far two miles from this facility from this explosion.

Now, for the process that we went through to come to the conclusions that our report has, and ultimately to the recommendations that we urge the Board to accept tonight. First, the investigation team documented community damage, we interviewed residents and business owners who had experienced this event and the impact from

this event. We collected and analyzed flammable liquid samples from the facility. We were interested there, for example, there are underground storage tanks that contain flammable liquids and we wanted to confirm that the material in these tanks were what the company expected them to be, just in the off chance that maybe there was a wrong material that might have contributed to this event.

We also collected and examined important physical evidence. We did collect some samples of material that could have been ignition sources, small fans and other small appliance type devices that were in the debris. And we also looked at the large mixing tank which you will see in the presentation, turns out to be the focus of our investigation, as it relates to the activities of the day before the accident and what led to this terrible accident.

We also interviewed all of the employees of both CAI and Arnel who were

working in that facility, and we interviewed the management personnel, all of those, of course, at Arnel, that was their only operating facility, and the management personnel that were key in routinely in CAI's operations in Danversport.

We also estimated the explosive force that this event caused throughout the community and we duplicated and analyzed the chemical recipe that CAI had actually mixed the day before this event. And the purpose of that was to identify the boiling characteristics of the liquid as well as characterize the vapor that was being, that we expected would be released from this mixture in the event that it over heated and boiled.

We examined the role of federal, state and local regulations, that was twofold purpose, we were looking to see how the existing regulations were applied, could be applied to prevent these types of events, but we were also looking for opportunities for

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these different statutes and regulations to be improved, is there opportunities to improve.

And then finally, we examined the role of the National Fire Codes for similar purpose, what codes are mandated by the Commonwealth of Massachusetts, there may be some codes mandated by the local government, the Town of Danvers, and then also we were looking, are their opportunities for these codes to improve as a result of the learnings from this event.

I will now move in to the incident summary. And to discuss exactly what we found in this event.

Two companies shared the facility and they had shared that facility as two independent companies since 1985. CAI Inc., is headquartered in Georgetown, Massachusetts which, Members of the Board, is about 13 miles north of Danversport. There were 20 employees employed by CAI at the time of this incident, and seven or eight employees worked, routinely

worked in the Danversport facility. And they manufactured solvent based printing inks in Danversport. They also manufacture water-based printing ink in Georgetown.

The other company, Arnel Company Inc., had nine employees at the time of this incident, working all in Danvers, that's their only operation location, and they manufactured solvent based stains, paints and adhesives. And it is also important to note that these two companies operated as a single company prior to 1985, so the history of operations at this facility does date back prior to the 1985 time frame of this business reorganization, if you will.

This next slide is an aerial shot of the Danversport peninsula, circled in green is the facility structure itself, and to the east, to the east south east is the, it's a very popular marina, and this picture is actually representative of the time that this occurred, because as you can see, most of the

boats are out of the water and covered for the winter. And there were quite a few hundred boats stored at the facility. Route 35, Water Street, is a main thoroughfare, north south, that goes about 200 feet west of the facility. There are three small businesses that are between Route 35 and the facility, and one in particular, and you will see photos of it a little later, was the pizzeria bakery building that sustained heavy damage, and in fact there were six employees working in that facility the night of the explosion, preparing for the Thanksgiving holidays and all of the orders that were placed of the breads and pies and pastries.

You will notice Bates Street and Riverside Street form the principle roads on the peninsula itself, and both of those roads are lined with single family and a few duplex type homes. And the closest homes to the facility actually are only about 150 feet. They're on the south side of Bates Street.

And just for reference, Danvers is a little more than a mile north, up Water Street and a little bit of west of Water Street.

This is a shot, or a sketch of the CAI and Arnel facility, it is about 12000 square feet, and in the southern portion of this facility was the offices and labs, they're at the bottom of the picture. The utilities, including the boilers, the fuel oil tanks, compressed air are in that area. And in through the closed door up into the shaded area of this sketch is the production area of the two companies. And I will zoom in on those two areas here in a minute.

The other important features in this picture are the two trailers to the east of the facility, up in the upper right corner is the Arnel trailer and that trailer contained about 15, 300 pound fiber drums of industrial grade nitrocellulose. And the CAI trailer, just south of that, contained about a 150 drums, 300 pound drums of industrial

grade nitrocellulose.

And it is important to note that this nitrocellulose is considered a flammable solid, it is not an explosive, and it did not play into this event, with the exception of it burns violently, and that was really the extent of its involvement, but it is important to note that this was in this facility.

Not in the picture, but just above the, more or less above the Arnel word, maybe 30 or 40 feet, were the three underground storage tanks, containing, each containing up to 3000 gallons of flammable liquid or flammable solvent. I might slip and call it a liquid sometimes and call it a solvent at other times, but they're synonymous. They were underground and they essentially were full or near full, so we had 9,000 gallons of flammable liquids in the underground storage tanks.

On this next slide I am going to zoom on the right area of this view, where it

says 1,100 square feet and 1,200 square feet, and that's the Arnel production area, primarily used for Arnel production is probably the best way to describe it. You will see on the left side is the Arnel mix tank, that was their primary mixer that they used to make their paints. They also had some smaller portable tanks in their production area. And they also stored in 55 gallon drums, which are not shown in this view, but just below the Arnel mix tank, was a number of 55 gallon drums of various solvents for their process.

What's important to note in this view also is that CAI stored, had eight solvent storage tanks located along that wall in the center of the picture, and those eight tanks could hold up to 4,000 gallons of flammable liquids. And that material was co-mingled, if you will, with the production equipment of CAI and Arnel as you see in the lower left corner, CAI actually had a mix tank

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in this area. So there was some sharing of space as well as co-mingling of flammable liquid storage and process equipment.

If we move west into the other production area, or what is primarily CAI, its production area, you'll see that again Arnel had storage in the lower left area of this production area, and that included dry materials as well as flammable liquids. The stacked totes there were portable, those were portable containers in Arnel's work area. The primary production for CAI was the large mix tanks labeled numbers 1, 2, 3 and 4. And you will notice in the lower right corner is the fire door that entered, that provided access into the office and lab area.

The next slide I am going to zoom in on mix tank number three. Mix tank number three turned out to be the focus of our investigation as it related to the immediate causes of this event. The CAI ink base which is a liquid that they produce in large

quantities in the tank and then they draw that material off and add color pigments to make the various colors of inks and different grades that they sell to their customers. That tank was about 3,000 gallons, it was insulated, it was eight feet in diameter, and about ten feet tall. And at the base of that tank was a steam heater. And CAI used steam through this heater to heat the liquid mixture in the tank such that they could dissolve the resin that was part of their recipe.

Other important features of this process equipment, the access point was on a mezzanine deck about ten feet off the floor, there was a stairway access to that. The tank had an unsealed dome hatch, and the steam control was simply a quarter turn on/off valve, open, close valve. So that was the extent of temperature control on this large tank.

You'll notice that there's a display console on the right hand side, its

simply identified what the temperature of the contents that the tank was, and they also used that display console to tell them what the weight of the contents was in the tank, and that's how they filled the tank based on the weight. But the important features or lack of features in this process system is there were no process controls, no automatic control devices to control temp, steam flow or any other of the process attributes in this tank.

The best way to describe what happened is to use the animation that has been prepared for tonight's presentation. It starts with a sequence of events leading up to the incident of November 22, 2006. It will present some emergency response and homeowner experiences, and most importantly we will be producing a final version that will feature comments by residents, by the Town Manager, by the Chairman of the Board of Selectmen in the Town of Danvers, the fire chief and a police official.

This expanded video will be available online and on DVD, and we anticipate that it will be available in about two weeks or so. And it's available to anyone who wants it, and they go worldwide. This video will be used worldwide. It is our hope that others can learn from what happened at CAI. So with that we will move into the video.

(Whereupon, a video demonstration was played.)

MR. VORDERBRUEGGEN: This is what the immediate area looked like Friday morning, the day after Thanksgiving. And I can emphasize that had this event occurred a few hours later as people were starting to prepare for the morning, getting ready to get the kids for school and go to work and things like that, it could have, it would most likely have been much more dire. So, that's very important.

The other interesting thing that I don't think that people realize is that the

only fire occurred in the CAI/Arnel facility, there was no fire in any of the structures adjacent to the property or in the, as it moved farther away.

We can move now into the investigation findings and I am going to look at four specific areas. The incident analysis, what allowed such an event to occur. Massachusetts Hazardous Materials licencing and permitting laws, we will talk about that. I will then discuss briefly federal regulations applicable to this event, and how they may have prevented it and how they could be improved if appropriate. And the same thing with fire codes, the national fire codes, we will look at a couple of fire codes that are applicable to this activity.

First of all, our investigation findings. The team found that heated flammable mix tank, or the heated flammable mix tank was not vented to a safe location outside of the building. All of the vapor

generated inside mix tank three stayed in the building. The steam valve on the tank heater was inadvertently left open. It's important to understand the human error factor involved in this incident. It is not anybody's fault that that operator left that valve open, it's human nature, this activity went on hundreds of times a year, and like many of us we sometimes forget to do something that we do hundreds of times in a given period of time.

There is plenty of published literature, which we cite a couple in our report, and I advise anybody whose interested to look at the literature, on human error and how common it is. And it also points to how important it is for these routine activities to be properly controlled through safeguards, through procedures and other activities that don't, that can compensate for human error. This was a single failure, if you will, that resulted in this. There was no ability to correct for a human error. The tank was not

equipped with automatic controls to prevent overheating, so in the unlikely event he did it many hundreds of times, so it only happened once, that's unlikely, but it did happen. If there had been automatic controls it might not have happened.

And then finally, we concluded that uncontrolled heating from the steam heater being left on did cause the flammable liquid to boil inside this tank and it boiled for many hours and generated the vapor. We also learned from interviews with many of the workers in the plant, that the building ventilation system was turned off for the night, and that was normal, they did that every night for years and years.

We also concluded that the flammable vapor accumulated in the unoccupied building and an unidentified ignition source set off a violent explosion. And in fact, the little bit of irony in this event is that the fact that the both companies were pretty

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diligent in attempting to minimize ignition sources. They followed various codes related to flammable liquids, applicable to the electrical devices, but that may have afforded the opportunity for the vapor to accumulate to its highest point that would have, that ultimately resulted in this tremendous explosion.

Now let's move into the underlying causes, why did this event happen. We know how it happened, we know, some people think because a valve left that's why it happened, but it goes much deeper than that. It's the management systems and the need for proper management systems to make sure that you have safeguards and controls and procedures. And the team concluded that CAI, in fact, did not conduct what we call a process hazards analysis.

They were working with a process that used very large quantities of flammable liquids, 1,000s of gallons, or in this case if

you converted it to, more than 10,000 pounds of flammable liquid. They also heated those flammable liquids in unventilated tanks, inside the building.

Was it prohibited by any code or standard? Absolutely not, and that's a problem that we found with the standards, and I'll talk about that later. They did not do anything wrong in their activities the day of this event. We also know that CAI did not prepare or use any written procedures or checklists for their daily activities on this very hazardous material, as it related to the description here. And again, that's critical to minimizing human error. If they had had a written procedure that said, go verify the valve is closed before you end your activity, that might have prevented this event from occurring.

We then move into the state regulations, and how state regulations apply to this facility and we also look for

opportunities to improve the state or the Commonwealth in this case, regulations applicable to flammable materials. We focused only on flammable materials because that's the situation we had here. This is not a toxic chemical issue, it's a flammable chemical event.

So we will talk briefly about the general laws of Massachusetts, and the Code of Massachusetts Regulations, the Board of Fire Preventions Regulations, specifically. Bear with me on this chart, it took a little bit of work to generate this chart to the point where hopefully it will be understood by all parties here.

Under the General Laws of Massachusetts and down in Chapter 148, Section 9, and Section 13, is a land use licensing law that has been around since pre-World War II, and in fact it is a reasonable to a good basic law for providing input from the community, if a company wishes to use a flammable material

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above certain quantities, the community has a right to provide input and the company has some certain elements of expectation to obtain this license.

And specifically, the general law directs two things to organizations, if you will, to manage this activity of licensing for flammable materials. First of all, it assigned responsibility to the Board of Fire Prevention Regulations to establish what is the threshold and what are the flammable materials that must be licensed. And those thresholds and quantity and specifically listed items, are listed in 527 Code of Massachusetts Regulations, Table 1, which is part of the Board of Fire Prevention Regulations.

And it actually lists eight categories of flammable materials. There are five liquid categories that it cites the quantities in gallons. There are two compressed gas categories, these are all

flammable, compressed gas categories, they're measured in cubic feet, which is typically how we measure compressed gas. And finally, there is one category of flammable solids, and in fact as I mentioned earlier, the nitrocellulose was a flammable solid in use at this facility. And it is categorized for threshold in pounds, and it is a very low number, it's only a hundred pounds, and you will see that later.

So the company that wishes to use any one or more of these materials must seek a license before they can bring the material on site, if they exceed these quantities. So they apply, they submit a license application and it is up to the Town Board of Selectmen as directed by the General Laws of Massachusetts to evaluate that application for license. And in fact, the application for this license requires that the abutting land owners, in the case of Danversport, number 3 Bates, and number 5 Bates and those right abutting the

property would have had to been notified, in writing, advanced notification, so they have the opportunity to comment on the planned use these flammable materials in this property.

And a public hearing is required to be held by the Board of Selectmen in the case of the Town of Danvers to evaluate the suitability for using these hazardous flammable materials at that location.

There's a couple more things the law requires. Once the license has been granted by the Town, or the licenses as you see in the depiction here, and there may be some discussions as to how many might be required, but there clearly are three different categories measured, one by gallons, one by cubic feet and one by pounds. But once the license or licenses are approved by the Board of Selectmen, the company must also issue or submit an annual registration certificate back to the Town Clerk in the case of the Town of Danvers, in some other towns

actually the fire department handles this registration. And this registration form is merely a document signed by an official of the company that certifies that he is compliant with the laws that we see here. It's that simple, at least we hope.

One more thing is required by the laws related to flammable materials at this facility and other facilities like this, the general laws require that the fire department conduct a periodic inspection, but it doesn't define the periodicity. It also requires the company to obtain a permit, an annual permit for each license that's held from the fire department. So the fire department manages the permits, and the periodic inspections. The permit is annual, the inspection is not defined. So that's how a company obtains its first license to manage and to handle flammable materials on their property.

This happens to be the standard form that is used by most communities in the

Commonwealth of Massachusetts for a company to apply for a license. And we found one particular short coming on this form, it only lists or it only asks the applicant to list the capacity of tanks in gallons, and then it happens to define above ground or underground, and it asks for the kind of fluid to be stored. Where's the solids, where are the compressed gases, it's not on the application. That leads to confusion of the process of licensing for these materials. So we have a good basic law but we have some weaknesses in it.

Let's look at the Certificate of Registration. This is a standard form provided by the Commonwealth of Massachusetts for towns to use, they can modify it a little bit, but in effect this is consistent, and it only, as I mentioned, it is a Certificate of Compliance, the owner says I comply with the law and I have obtained my license and that is processed annually. And there is no mention

of what specific materials are licensed, it just cites the Title of the Law, which happens to be Keeping, Storing, Manufacture or Sale of Flammables or Explosives.

So that's another weakness. The registration form fails to remind the Town Clerk or the fire department of what this, of what the party is recertifying, and we think that, we concluded that that is a weakness in the program and that's an easy thing, we think, to fix.

Let's look at the history, as we understand it, from the documents provided by the Town of Danvers in our investigation. Way back in 1944 Essex Finishing Company appears to have been the first company to seek a license at this property, and they, the Board of Selectmen meeting minutes documented that 250 gallons of lacquer were approved for use as a licensed material.

In 1948, apparently the name changed, but it's Harold Plastics, obtained a

license for 2,000 gallons of flammables, and then ultimately the last record that the Town of Danvers was able to produce. And remember, in fairness to the companies, all of their documents were burned up in the fire, so they could not provide any. But the last record available is in 1955 Harold Chemical Products, obtained a change in the license, or a new license that now brought the quantity up to 6,000 gallons of flammables were licensed to be used at the Danversport property which we know now as the CAI/Arnel property.

This is the most recent registration, or it was the registration at the time of the incident that was provided to us, and in fact, this registration is, with the exception of the dates, and the dollar amounts, is the same for five or six years prior to the May 1, 2006 annual registration date. And it actually shows that, the company is authorized to store 11,500 gallons of miscellaneous. We were unable to determine

how it went from 6,000 to 11,500 but we will presume, and we did presume for the sake of our investigation that 11,500 was the licensed amount of flammable, of gallons of miscellaneous.

The other interesting point on this particular registration is it cites the original license which was only 250 gallons, so again, it's probably a standard form that has been reproduced and reproduced for this particular site, and it was not recognized that, it was not referring to the current license, be it the 6,000 or the 11,500. So there was a lot of confusion in this process, but we think we got it figured out.

Now let's look at what was physically at the site. Our conclusion was the first category of flammable material on site at the facility, based on the definitions in the table, under 527 Code of Massachusetts Regulations, was Class I Liquids in container 60 gallons or less in portable tanks. Those

are 55 gallon drums, those are five gallon buckets, one gallon buckets and that type of container. And a license is required if a user exceeds 793 gallons. And in fact, the investigation team estimated that there was approximately 4-6000 gallons on site in those categories of storage containers. And we know based on, or we would assume that they had a license for 11,500, so one would presume that that would be reasonable.

However, we looked at the Class I liquids in non process, so the four big mix tanks don't count in this category, and notice that they don't count in the first category because they're too big, they were 2,000 to 3,000 gallon tanks. In the second category, the threshold is 10,000 gallons, so a license would be needed. However, based on the material on site, or the capacity of the tanks on site, because that's what counts, not what's actually there, but the capacity, we concluded that the underground storage tanks,

9,000 gallons and the eight stationary tanks in Arnel production area was another 4,000. So there was at least 13,000 gallons of flammable material that we put into class, into that category and again, even if you try to apply the license to a portion of that now, that one by itself or some combination, they have exceeded their license quantity based on our interpretation of the law.

And finally, flammable solids, I think we all agree, and in fact the Fire Marshal clearly pointed this out as well, that flammable solids had a threshold quantity of 100 pounds, and there was about 50,000 pounds of industrial grade nitrocellulose on site at the time of this event. But again, that was not causal to the event, it burned violently, it was the brightest fire that the community saw probably, and you let it burn, until it burns out.

In summary, only one of the three required flammable materials were licensed at

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this facility. And furthermore, the current registered quantity was much greater than the licensed quantity. Again, there's this disconnect apparently between the 6,000 gallons on what we know to be, apparently the most recent license to what the registered quantity of 11,500 was.

We also know that contrary to the requirements of the fire code, that there were no permits issued to this facility for any of those licensed materials and we also know through records from the fire department and discussions with the fire department, is there were no inspections of those licensed materials. But again, the law only requires a periodic inspection, no specific periodicity, and the records on file confirmed that there were no specific inspections to address all those licensed materials.

Well we also, we decided it was important to see what other communities are doing, is this just Danvers' problem, we

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didn't think so, it's not fair to blame it all on Danvers, they're one of many, many communities. So we did a phone sampling with some documents presented to us that were faxed to us and provided to us, to look at, we looked at Boston, Worcester, we looked at Springfield, we looked at Leominster, of course Danvers and we also looked at Georgetown, because CAI is located in Georgetown and we were interested, did CAI even have a license in Georgetown for flammable materials.

You will notice the licensing, we're only interested in the manufacturing facilities in this review, we're not interested in the box stores, the gas stations or other properties, we were looking at manufacturing handling hazardous chemical, hazardous flammable materials. And you see the summary there, it ranged from zero in Georgetown to more than 200 in Springfield. And the three in Danvers by the way, one of

those is the CAI/Arnel facility and they have since surrendered their license, so that today is only two. Unless there has been others processed since then.

Fire permits were reported current, but we did not look at the documents, but they were reported current in all, but we know through this review that Danvers did not have current, this facility did not have current permits. So again we knew the status of Danvers and we can only rely for this simple study of what was reported to us.

Category and quantity on the registration, well three of those locations, of those communities require liquids to be listed on the registration, and three require no information. This is the annual registration form. And finally, the process by which the town is required to implement the law, is it or is it not in their bylaws, and in fact, only one has it in the bylaws at that's Leominster and that dates back to 1997.

So it's, I'm sorry 2007, that law was created after the Danvers incident.

So, when a company goes into the Town Clerk, or goes to the fire department, there's no laws on the books for even the Clerk to understand what do I do with all this paperwork. What do I do, what's acceptable, what's not. We think that's a weakness in the process. And then probably most important, not only does the law not address what a company needs to do if they want to change their license, but the towns reported that they do certain things, they're listed there, some, most of them say a new license is required, but one did not. But again, there's no documents, there's no laws on the books, so it's kind of hard to expect the town, like I say the Town Clerk or the administrator who is handling the annual registration to know what to do if a company comes in and doubles their quantity. So those were a number of weaknesses we saw in this very simple

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sampling, but I think it points a more global problem that needs to be reconciled or resolved in the Commonwealth.

Specifically our findings were if a quantity increases, the company wants to go from 2,000 to 5,000 gallons or they want to add flammable solids, or they want to add compressed gas, there's no laws on the book to require re-licensing that facility. Which means there's no requirement to convene a public hearing to give the community the opportunity to comment on that proposed change. And there's no notification of affected landowners. That, we think that that's a weakness in the law. And finally, the local government bylaws do not address, at least the small sampling we conducted, do not address license and registration process, and we think that that may be how, there might have been creep, you wouldn't consider 6,000 to 11,000 creep, but over fifty years that could have been creep, 1955 to 2006, fifty

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years, and that appears to be the only record of a license. Okay.

We also, I commented briefly that the Fire Prevention Regulations don't specify frequency for the local fire department to conduct inspections, it just says an inspection is required. And we think that that should be tightened up, there should be some time, guidance or instruction on that periodicity. And this slips past the license process, but we also observed in our review the Fire Prevention Regulations that the Commonwealth's regulations do not require specific compliance to the two key national fire codes that are listed here.

The first is, National Fire Protection Association, NFPA 30, which is the generic, if you want to call it that, flammable and combustible liquids codes, code. There are pieces of NFPA 30 incorporated in the fire code but not the entire NFPA 30 and it, that even makes it more complicated to try

to understand, it would be better if the entire code were endorsed and incorporated into law here in Massachusetts.

And as it relates to CAI and Arnel, NFPA 35, which is titled, Manufacturer of Organic Coatings, is the defacto standard for flammable materials for paints and inks. And the company, neither the Commonwealth requires that for that type of operation and the companies were not even aware that NFPA 35 existed. And the industry organizations that are involved in manufacturing of those products, agree that NFPA 35 is the defacto standard for that.

Let me move forward into federal regulations. Again we looked at the federal regulations to see where there any regulations that could have helped these two companies do their job better, should they have done that, and maybe there's opportunities for federal regulations to improve as a result of the learnings from this event. We looked at the

Occupational Safety and Health Administration, two standards, 29 CFR 1910.106 which is the Flammable and Combustible Liquids Code, and we looked at 29 CFR 1910.119 which is the Process Safety Management Standard, more commonly called the PSM Standard.

First, let me look at flammable liquids in 1910.106. I mentioned early in the presentation and we looked at the view of the CAI and Arnel operation, up there, kind of on the north side of that property in that building, were eight mix tanks, solvent storage tanks, containing up to 4,000 gallons of solvent. And the picture at the bottom you can see what they look like after the event. Well under 29 CFR 1910.106 the team concluded that the storage tanks did not comply, they were required to comply with the standard, but they did not, specifically there was inadequate area ventilation. If an owner or an operator stores flammable materials inside a building it must be adequately ventilated,

and this building, as we mentioned, they turned the ventilation system off at night.

We also noted that these eight tanks were not vented out of the building. They vented directly in the building, just like the large mix tanks. We also observed there was no spill containment around these tanks, so if one of those tanks were to leak, if the piping associated with one of those tanks were to leak, that flammable liquid could then spread, throughout, literally throughout the production area. Each one of those tanks is 500 gallons.

Now this was also important to our investigation because we considered the possibility that one of these tanks could have been the source of the flammable vapor that caused this explosion. But we concluded that if one of these tanks had sprung a leak, which again, is highly unlikely because they were steel tanks and the valves were closed, there was nothing moving on them so it's unlikely

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that any one of these tanks would have sprung a leak. But even if it had, there just wasn't enough thermal energy, it was too cool in the building, the floor, we concluded, was too cool to generate sufficient vapor to cause such a violent explosion.

Now, had one of these tanks leaked before this explosion, there could have been a tremendous fire, it could've destroyed the facility, it probably would not have done the damage to the community that was done. So we concluded in our investigation that a leak from one of these improperly installed tanks did not contribute to this explosion.

We also noted, if you look at the white circle in the lower left hand corner, that rubber hoses or where rubber hoses were located prior to the fire, were not protected from fire, that's a prohibition in the OSHA Standard. And I also want to note, that most of these elements are also prohibited by the Massachusetts Fire Code.

And finally, as I mentioned early in the presentation, these process tanks were co-located, these storage tanks were co-located with process equipment, that's a prohibition. There should have been a rated fire wall separating all storage from all production, and there was not.

Next we looked at Process Safety Management, the PSM Standard 1910.119, that standard has been around since 1992 and it is a very effective tool in helping companies that handle flammable liquids and toxic materials based on a certain list of toxic materials, in a safe manner. There's actually thirteen management practices that the PSM Standard requires of the owner or the operator in the event that they are going to operate a process that contains more than the threshold quantity of the material.

So we wanted to see, did this law, did this rule, apply or does this standard apply to either company. And in fact, it did.

PSM applied to the CAI processes because mix tank three, at the time of the event, contained more than 10,000 pounds of flammable liquid, 10,000 pounds is the threshold quantity for flammable liquids on PSM. It contained just under 11,000 pounds the night of the mix, of the incident. Remember there is three other tanks there, they play in to the determination as well, but the simple fact of the matter is, they were, CAI should have complied with the PSM Standard. However, CAI was not even aware that this standard exists. And they did not apply those good management practices that are required by the standard.

Specifically, there's three that I am going to highlight here, that we think would've really helped CAI understand the hazards and could very well have prevented this event from occurring. There's, one of the first elements is there is a requirement to prepare design basis, and that would expect the company to look at the OSHA Standards that

might apply, to look at the Fire Code requirements that might apply, to look at the national standards that could be out there available to make sure that they're process confirms to the regulations as well as uses the best available practices for safe operation.

The second element which we've already cited as the underlying cause of this event, is there should have been a systematic process hazards review of their mixing processes. And that process hazards review, we believe, would have alerted the company to the need for automatic temperature control and or some kind of safety device. That review asks, the simplest way is to simply ask questions. What could go wrong? What might happen? Could I spring a leak? Maybe I leave the steam valve on, that type of thing.

So that review should have identified the need for automatic controls or some basic controls. It should have

identified the need for continuous building ventilation. And the need to control vapor in the unlikely event, or in this case in the event, the vapor would escape.

And then the last important element of the thirteen elements that we considered key to this event, was the need and the requirement by PSM to have written operating procedures. PSM understands that the standard developers and industry recognize that the only way to minimize human error and to, and also improve quality and everything else, is to have written operating procedures. And we know that CAI did not in this incident.

We then looked at the National Fire Codes, and I've mentioned these two codes specifically or standards until they are endorsed into law then they become officially codes, the first one, the flammable and combustible liquids code, NFPA 30 and NFPA 35, the standard for the manufacturing of organic coatings.

We also looked at the International Fire Code, which is similar to NFPA, the two somewhat competing organizations, but communities, some communities endorse the IFC or the International Fire Codes, some communities, and when I say communities all the way up to the state level, endorses NFPA. And these are key standards that every state should be broadly endorsing, these are, both of these organizations develop these standards based on consensus, primarily, based on best practices, there is some prescriptive requirements, thou shalt not do it this way, thou shall do it this way, if it's bigger than this you gotta go here, if it's bigger than that you gotta go there. And there's also guidance documents.

And again, we believe that the Commonwealth can improve in use of the National Fire Codes and furthermore, and we also, of course we looked at the content of the codes, and we think there are a few things

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that can be improved in the fire codes. Being engineers, most of us on the investigation team, and some of us unfortunately mechanical engineers, we like to know what things mean when we read about a requirement, when a requirement is specified. Yet terms that are used in both of these codes were not clearly defined. For example, kettles and thin down tanks, if I'm told that I have to have a thin down tank that is made out of stainless steel, I need to know what a thin down tank is, and it was not clear in all of the standards we viewed.

So we think that the code developers could improve the use of these standards by tweaking them, by improving some of the definitions. And another example, what's the difference between and open, a closed, or a sealed and vented tank, or pressure vessel or container. So you know, we run into all of these kind of challenges. So we think the National Codes developers can

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improve on their standards and make them better for end users.

Most importantly and the single weakness that we cited, that we really urge the code developers to change is to, they do not prohibit heating flammable in open containers indoors, it's a lot to say, but we want then to prohibit this. It's too dangerous to heat flammable liquids unless, if you're inside a building unless you control the vapor, either by a sealed pressure vessel or you have proper venting of that vapor up through, out of the building, and safely outdoors. And that is a critical element that we would like to see the fire codes improved on.

Okay, I think I'm at the end. I want to just close, this was Thanksgiving, 2006, and it's only through the commitment of the local government, the fire service and everybody involved in rebuilding Danversport, and most importantly the residents and their

resilience to get back on their feet. And I do recognize and we do need to understand that they're not there yet, and it's still probably years away before they're back to where they can forget about this terrible day, but Thanksgiving, 2007 they're well along the way, and we, and again I want to congratulate everybody involved in making that happen.

So with that, I will turn the podium over to Chairman Bresland for questions.

CHAIRMAN BRESLAND: Do we have any questions from the Board Members?

Mr. Visscher.

MR. VISSCHER: First of all, thanks John for that presentation. A couple of questions about the investigation. Was there, there we go, now we're on. I repeat my commendation John for the presentation, it was very comprehensive, and thank you.

With regard to the investigation, the steam valve that we believe the operator

inadvertently left on, was that, or any parts of that ever located?

MR. VORDERBRUEGGEN: Unfortunately no. The extent of the damage, I mean it could have been blown into the community for all we know. But then with the tremendous fire that burned for many hours because it couldn't be put out, being fueled by so much flammable material, there was no way to ever recover, we never really found any valves of any significance.

MR. VISSCHER: Okay. I suppose, I mean we ruled out, or staff of the investigative team has ruled out the possibility that the valve had a defect in it? It's more likely believed that the operator failed to turn it off?

MR. VORDERBRUEGGEN: We looked at that possibility, the valve, it was a common valve for use in steam service, so it was okay to use in the service they had, it probably had been there many years, however, all

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credible leak scenarios, even under the worst of conditions, if the valve seal had deteriorated, two factors, one is it would not have gone have suddenly, it would have been progressive type thing, so the operator would have noticed it, hey I'm closing a valve, but everything is still warm. And then furthermore, even if it had suddenly failed to the point where steam would leak past the seals on the valve, there just wasn't enough energy, there wasn't enough steam flow through the seat on the valve to be able to generate the vapor that we concluded needed to be there.

MR. VISSCHER: Okay. I think the written report mentions that the plant had a fire control system that included foam fire suppression. And also an automatic alarm with the local fire department. Did that go off?

MR. VORDERBRUEGGEN: Unfortunately when buildings explode, they take the fire suppression system with them before they have

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the opportunity to suppress. In fact, in credit to both companies the fire suppression system had been installed in 2002, and it was put in because they were concerned about worker safety, and they wanted their workers to be protected, hopefully in the unlikely event a fire would occur.

But the system can only, you know, it relies on the need for detecting the fire and having a chance to activate. In fact, what the fire department reported was that the alarm started to sound, because it was connected back to the fire department, which is typical for these kinds of businesses, and the fire department worked with owners to make that happen, and it had been tested and that sort of thing.

But we concluded that the alarm system was blown to pieces in the process of sending the signal and they only received a partial signal and within a few seconds is when the fire department personnel reported

that they heard, felt the explosion and saw the bright light. And they knew where to go then, they didn't need the alarm to tell them where the event was.

MR. VISSCHER: Thanks. You've mentioned, I think that this plant had been around, or at least the current owners or the CAI/Arnel owners had been there since at least 1985, and you know we usually in our investigations find, quite often I should say at least, find some previous near misses, or near accidents that kind of give warning signs. In the investigation did you find any record of any previous times when an operator may have left the heat on, and it reached the boiling point but for whatever reason it didn't cause an explosion?

MR. VORDERBRUEGGEN: No, as you mentioned, in all of our investigations, those are very important facts, or factors in determining how, why these things occur, and are there lessons that could have been learned

that weren't. And we could only rely on the information available from the employees. And 100 percent of the employees said that they had never experienced any kind of problems, they never had any small fires, or anything of that nature. And I believe that the fire department would second that conclusion.

I do not think, at least in the records that they had available, there was any record of a response for an incident, and correct me if I am wrong when you have the opportunity, but as I recall, I know that there were, they went there for testing of the new system and that sort of thing but I don't believe there was any records. And Fire Chief Tutko is nodding in agreement. So my memory seems to be okay still.

MR. VISSCHER: The report again, the written report, talk a little bit about the major federal law that deals with community's right to know about what hazardous substances are in that community as ERTKA, the

Emergency Right to Know Act, which passed in `86 I think. And the report mentions that Danvers did not, that's the law that also creates, or specifies the creation of the LEPC's and the report mentions that Danvers didn't have one, and that's now been reestablished and we commend in the report and personally commend the community for taking that action.

I guess my question is what about compliance by the companies with those requirements. There's requirements that companies that are covered have to send in lists of chemicals and I think also the amounts of chemicals to the local fire department. Had these companies done that? And what information had been provided?

MR. VORDERBRUEGGEN: In fact we did obtain copies of the recent ERTKA, in this case they were called Tier 2 Reports, Tier 2 meaning they give specific chemical names and quantities as opposed to Tier 1 which is the

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class of the chemical. And in fact, in particular CAI's report was fairly complete. I will note that Arnel's report was there but it was not as complete, it did, I believe it didn't list the nitrocellulose, but they had 15x300 pounds., they should have it listed, it was their oversight, but certainly the large quantity of nitrocellulose was noticed, if you will, to the fire department. So the ERTKA reports based on our review of the current documents was current.

MR. VISSCHER: I think that's all the questions for now, Mr. Chairman.

Thank you.

CHAIRMAN BRESLAND: Board Member Wright.

MR. WRIGHT: Thank you, Mr. Chairman.

Can you reemphasize the number of houses were damaged beyond repair. I believe you said the total is now 24 vs. 16, is that correct?

MR. VORDERBRUEGGEN: Yes, it's been a moving target.

MR. WRIGHT: I understand.

MR. VORDERBRUEGGEN: And at the time that we drafted the report, it was at least 16, and we were told as recently as today that the number has, is much closer and more accurate to the 24, which is what we will be revising the final report to represent, the accurate, the most accurate number at this point in time.

MR. WRIGHT: Yeah, I'll probably offer an amendment to that effect.

Thank you.

CHAIRMAN BRESLAND: I don't have any questions.

At this point, we'll ask Mr. Hall to present his recommendations.

MR. HALL: Chairman Bresland, Members of the Board, from the findings and the underlying causes of this investigation we drafted a series of recommendations that we're

proposing to prevent recurrence of events like this. These recommendations are in four categories. National recommendations where we're looking to prevent these events across the country. Then specifically State recommendations, local recommendations to the Town of Danvers and lastly, recommendations to the Company to prevent events like this.

If the Board remembers, last year the Board issued a report on a similar incident that occurred in Illinois, it was called The Universal Form Clamp Company, in that report we documented a case that had very similar causes to this case. It was a company that was making a material that was flammable and heating it in an open unsealed tank. That incident, unfortunately, resulted in the death of a single individual. As a result of that incident, which is described in the report, and in combination with the findings of this investigation, we're making some recommendations for national consideration.

And these recommendations go firstly to the National Fire Protection Association. The two codes that Mr. Vorderbrueggen discussed, the flammable and combustible liquids codes and the standard for the manufacturing of organic coatings, we're asking that the NFPA revise these codes, one, to prohibit the heating of flammable and combustible liquids in tanks, inside buildings, unless the tanks are sealed and vented to the outdoors. And we're asking that these two standards also be revised to require that there be controls to prevent overheating on tanks that are used for heating flammable and combustible liquids.

Similarly, because there are two major sets of codes that are used across the country, we're asking some changes to be made to the International Fire Code. Specifically, in Chapter 20 of the International Fire Code, we want printing inks included in the definition of an organic coating. We want to

define the equipments discussed in the standard. Mr. Vorderbrueggen talked about some of the ambiguity with the definitions in the standard. And we want this standard to require controls to prevent overheating of tanks used for heating flammable and combustible liquids.

Additionally, in the International Fire Code, for Chapters 20, 27 and 34, we want the terms opened closed sealed and vented process tanks and non listed process tanks defined. And we want these three chapters again, to prohibit heating of flammable and combustible liquids in tanks inside buildings unless those tanks are sealed and vented to the outdoors.

On the state level, our recommendations, first recommendations are to the General Court of the Commonwealth of Massachusetts. We're asking the General Court to revise the General Laws of Massachusetts for flammable materials, licensing and

registration. Specifically to require that companies annually certify that the facility complies with the applicable fire codes, and hazardous chemical regulations. And to clearly require that relicensing occur when those quantities of flammable materials are increased above their existing license limit, or when new categories of those flammable materials are added.

We also want the General Court of the Commonwealth of Massachusetts to revise these laws to require the Office of the State Fire Marshal to conduct audits of the towns and the fire departments that are implementing these flammable and combustible materials licenses and permits to audit these entities for their compliance with the law.

And lastly, or excuse me, to the Office of Public Safety, The Department of Fire Services, we're asking that they incorporate NFPA 30, the flammable and combustible liquids codes, and NFPA 35, the

standard for the manufacturing of organic coating into the Massachusetts Board of Fire Prevention Regulations. And to specify what a maximum interval, such as annually, for a local fire department inspections of these licensed and permitted manufacturing facilities that are handling the flammable materials.

We also want the Office of Public Safety, Department of Fire Services, to develop mandatory written inspection criteria for the local fire departments to use in inspecting these manufacturing facilities that have licensed quantities of flammable and combustible materials. We want them to develop specific training materials and provide training to these local fire departments.

Lastly, to the Department of Fire Services we would like them to revise the license and registration forms to require the listing of the each category of those

hazardous materials, and to clarify that each category of the flammable materials requires a separate license and permit.

In addition to the state recommendations, we recognize that it takes time for a government such as the Commonwealth of Massachusetts to revise laws, to issue new regulations, the town has the opportunity to go through a much quicker process in this. And so to ensure protection of the Town of Danvers, we making a similar set of recommendations until such times that the laws and regulations of the Commonwealth of Massachusetts are changed.

We're asking the Town of Danvers to revise the town bylaws applicable to the facility licensing and annual registration, to require written certification of compliance with the fire codes, require relicensing when increasing or adding additional flammable materials. To revise the license and registration forms used by the town to require

the listing of each hazardous material and to require a separate license and permit for each flammable material category.

And lastly, we're asking the Town of Danvers to require annual fire department inspections of those manufacturing facilities that handle the licensed and permitted flammable and combustible materials. And finally to the companies, CAI Inc., we're asking CAI Inc., to develop a written safety program to manage hazardous process operations. This program should address all of the applicable fire code requires, all of the applicable safety regulations, and the incident findings and causes discussed in our report. You will see in our report the complete text of this recommendation with the details of what we're looking for in their written safety program.

Members of the Board, those are the recommendations that the team is making for your consideration.

Thank you.

CHAIRMAN BRESLAND: Thank you, Mr. Hall.

And we will give the Board Members an opportunity to ask questions. Let me start at the other end this time.

Board Member Wright?

MR. WRIGHT: No questions.

CHAIRMAN BRESLAND: Board Member Wark.

MR. WARK: No questions.

CHAIRMAN BRESLAND: Board Member Visscher.

MR. VISSCHER: That didn't work, John. Just kidding.

Just a couple of questions, one is, the information that we, in the recommendations the information that would be required both with regard to the State and Danvers, the Town of Danvers. How is that different than what's currently submitted under the ERKTA forms?

MR. VORDERBRUEGGEN: Well the ERKTA forms only require listing of the hazardous chemicals on site based on the ERKTA list of hazardous materials, it does not address requirements for licensing flammable materials or other Commonwealth Regulations. And the Commonwealth regulations for the fire code for flammable materials very specifically lists these eight categories of material. And that's really a process independent of reporting quantities to the community.

And again, I need to stress, from our understanding of the licensing law, it affords the opportunity of the residents, the abutting residents to give their import into how this company should be, if the company should be allowed, and certainly we need to allow companies to do their business. And nobody would be suggesting we're trying to push companies out, but companies have to be able to demonstrate that they are doing it properly. And the licensing process since

it's already in place, it is a good, it's a good starting point if you will, bring it up to current standards. There's a lot of language that is out of date in their licensing law, just because it has been around so long, and so it is an opportunity and does afford the community the input that they need to put in for use of land.

MR. VISSCHER: Yeah, I guess I recognize that this is, that we're talking about the licensing process, compared, but in terms fo the information that LEPC or the fire department or the town would be getting it's relatively the same as the LEPC is now getting under ERKTA, I take it. The names of the chemicals and the amounts and any other information, I believe they also have to submit their MSDS to the LEPC, so there is a fair amount of chemical information being given to the LEPC.

MR. VORDERBRUEGGEN: Yes, there's certainly some overlap in the type of

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information. The licensing law does not get into what the company must do to demonstrate that they will safely handled it, that's really, I guess that's up to the Board of Selectmen to make a decision, what do we want them to demonstrate to the community as to how they have prepared, do they have engineering plans and drawings and that sort of thing, especially for new operations.

Operations that have been there for a long time, that's a little bit different animal, and bringing them up to a current standard is probably a little bit more challenge. But again, the ERTKA, which is a federal law, requires only notification of quantities of certain listed chemicals and it doesn't require permission if you will, it's just a notification process, and it is critical to the success of and LEPC. If the LEPC doesn't know what's on site, then they're not going to be very successful.

Also recognize that the fire code

that we're talking in the General Laws of Massachusetts that we're talking about, only address flammable materials, the toxic materials, we're not aware of a, there is no specific licensing law similar to the flammable materials law and that may be something that, in fact I think the Bill in review now looks at toxic chemicals as well. But again, our focus in this investigation was on the flammable side.

MR. VISSCHER: Just one more question. There's, currently there's the licensing process, and the registration process, and the permitting process, and I think the recommendations in the report all go to the licensing and the registration process, maybe there's some also on permitting. What is the, I guess trying to understand this, the difference between those and both in difference and purpose as well as process, because I understand that the thresholds are the same I think under all three, right? They

have the same thresholds, so what, what's kind of the difference and the purpose of those three.

MR. VORDERBRUEGGEN: Okay. Well, of course we don't know exactly what the 1930s and `40s decision makers what they had in mind, but again, I think if you look at the licensing law it says that once you reach a threshold you shall have a license, and to obtain that license you need input from the community, so that gives them their right to comment. Once the license is granted by the local government then the law also says that you now shall inform the fire department of your use, and that's done through the permitting process.

And I think that's probably really a trigger to give the fire department, if they haven't been directly involved in the licensed process, which I would be surprised in today's world that the fire department wouldn't be a participant in that, but ultimately the

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permitting process, that's an annual process, and that would be, could be conveniently a trigger point for the fire department to say okay, we want to see what's gone on for the past year, we want to look at what you've done, we're going to check our records, and that would be, that gives the fire department a trigger, if you will, for them to look at how is this company performing over the period that they have been licensed.

Because the general laws provide for remedies if in fact the companies are not performing up to what is determined to be considered to be safe. The fire marshal has the right to stop that process, and I think he gives the authority to the fire department to do that, again, they could elaborate on this if they so desire, but yes there is, you get the license, the license sits in perpetuity really to the land, it's actually a, it's a grant to the land, it's not even a grant to the property. So a property owner can sell

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the property and a new owner can come in and they have the right, if the license exists, they have the right to the materials based on that license. And if then the annual permit is required and a periodic inspection is required.

And the certification is simply a letter or a statement by a officer of the company that says I certify I comply with the licensing law, and I put my name on it. That's all the certification is, and it does collect a fee for processing, so there's fees associated with it, but that's all the certification is, a certificate saying I comply with law, General Laws of Massachusetts 148, Section 13.

MR. VISSCHER: Thank you.

Thanks, John.

CHAIRMAN BRESLAND: Okay, I have one question, it relates to the recommendation to the National Fire Protection Association, the very first one. I'm just curious if you

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can explain the history, the recommendation says prohibit heating flammable and combustible liquids above their flash points in tanks inside buildings, to me that would seem like such an obvious thing to prohibit, it's like taking my can of gasoline and put it your kitchen and heating it up. What, is there a history about that, that would explain why that wasn't in the current rule.

MR. VORDERBRUEGGEN: We may need to ask somebody in the audience who is a member of NFPA. If it's five gallons and it is attended it might be safe, if it's 50 gallons it might be safe, but then you start getting to the large quantities. And again, as Mr. Hall mentioned Universal Form plant they had large tanks and in fact they had some controls on those tanks, they had temperature controls on the tanks. But guess what they didn't do, they didn't maintain them, so they didn't work, and they over heated the tank and tragically somebody died. And it was not an

employee of the company, it was truck driver who happened to be in the wrong place, at the wrong time, so it was a terrible tragedy.

And the tragedy here in Danvers is, yes, thank God there were no fatalities, but this was a tragedy here. It may be that they decide that the code associations might want to set limits, such as, you know if it's five gallons or less, and you attend, or set some parameters on it, but we really don't want large quantities heated inside the building, unless you have positive means to remove or control the vapor. Do it in a pressure vessel, make sure your vessel is rated for the pressure it's going to see, that may be a suitable alternative, but we don't want open topped containers heated with large quantities of flammable material.

CHAIRMAN BRESLAND: Okay, well maybe we'll get an answer to that question during the public comment period.

Mr. Visscher.

MR. VISSCHER: I'll just make one point though, in both the UFC situation that you described and this one, the ventilation was turned off. Right? I mean, or it was inadequate ventilation that in terms of Chairman Bresland's question, it's more, the issue is more the ventilation that wasn't provided in both cases.

MR. VORDERBRUEGGEN: Yeah, they just weren't designed for the conditions that they were operating. I think UFC it was a much larger area and it wasn't, if you will, a deliberate shut off of the ventilation system at UFC, it just, the ventilation was not adequate for the load.

CHAIRMAN BRESLAND: Okay, that brings to the end of our discussion on the recommendations and on the report.

The next part of the program is a presentation by the panel members, but I think we can give people an opportunity to stretch their legs and perhaps get a drink or some, I

don't mean an alcoholic drink, a drink of water at the back there. And we will reconvene in five minutes.

(Whereupon, at 8:15 p.m., there was a short recess.)

(8:22 p.m.)

CHAIRMAN BRESLAND: We will go ahead and get restarted again.

Let me thank again, all of the panel participants for agreeing to be here this evening. All of you have worked very diligently to promote the safety the Town of Danvers and the Commonwealth of Massachusetts and we certainly appreciate that.

I'm going to introduce you, and I will go through all of the introductions in the order in which you are going to be speaking.

Representative Ted Speliotis is in his sixth term representing the 13th Essex District in the Massachusetts House of Representatives. He is currently a member of

the House Ways and Means Committee and the Vice Chairman of the Joint Committee on Higher Education. By the way, I've abbreviated your introductions quite a lot, I know you've a lot more talents than those two sentences I've just given you.

Stephen Coan has served as Massachusetts State Fire Marshal since 19, since the 1996 creation of the Department of Fire Services, an agency within the Executive Office of Public Safety and Security. Fire Marshal Coan oversees services such as fire training, application of the fire codes, hazardous materials response and fire and explosion investigation.

Fire Chief James Tutko is a lifelong resident of the Town of Danvers. He was appointed to the Danvers Fire Department in May of 1971. And has served as Fire Chief since 1991. Chief Tutko was an integral part of the emergency response to the Danversport explosion.

Chief Kenneth Willette is a 30, I was going to say a 34 year old, but, he would probably appreciate that. His is a 34 year veteran of the fire service, and since 2003 has served as Fire Chief for the Town of Concord, Massachusetts. He is just concluding, and I think that conclusion is next week, he is just concluding his term as the President of the Fire Chiefs Association of Massachusetts. He responded to the Danversport incident as an Operations Chief with the Incidents Support Unit of the Department of Fire Services.

Susan Tropeano has lived in Danversport for fifteen years. Following the incident, Ms. Tropeano has become an active member of the Danvers LEPC, or Local Emergency Planning Committee, and a spokeswoman for the Volunteer Nonprofit Organization of the incident.

Let's start with Representative Speliotis.

REPRESENTATIVE SPELIOTIS: Thank you, Mr. Chairman and through you to the Board.

First let me thank you for allowing me to testify before you in regards to legislation I filed on behalf of the Massachusetts Fire Chiefs Association. As your report so well reveals this evening, Massachusetts may be in relations to regulating the safety of chemical facilities, but our laws and regulations were in large part adopted prior to World War II, and desperately need to be updated. Shortcomings exist in the ability for local fire departments to gain the expertise and knowledge for the proper usage and safe storage of chemicals.

Naturally, state agencies such as the Department of Environmental Protection focus much of their attention on the disposal of chemicals and the protection of our natural resources in the air, water and land, leaving

the daily handling and storage of chemicals in plants such as CAI/Arnel largely unsupervised. Prior to the explosion here in Danversport, once a chemical plant in Massachusetts received their initial permits and were inspected, companies were able to easily increase their capacities with little or no oversight or knowledge by the community. Due to a lack of resources to establish a uniform statewide procedure, cities and towns were unable to conduct ongoing inspections and maintain records through a standard application process.

House Bill 4521 attempts to address these concerns by empowering the State Fire Marshal's Office to establish the appropriate regulations and provide him with the financial and technical support to provide local fire departments with the expertise and guidance to ensure that every community is protected to the best of our ability from the dangers of experiencing an explosion such as

ours in Danvers. This legislation has received a favorable recommendation by the Committee on Public Safety, and is currently before the House Ways and Means Committee. About ten days ago, the Massachusetts House of Representatives concluded our formal deliberations on next year's fiscal budget, and we are beginning to turn our attentions on legislative matters such as this bill.

Mr. Chairman, your willingness, with your staff, and Fire Marshal Steve Coan and the Fire Chiefs Association participation at a meeting last week at the State House, with the Chief of Staff of the Chairman of the House Ways and Means Committee has greatly elevated the importance of this initiative. Please trust that your final recommendations and suggestions of state and local officials testifying this evening serves as a powerful message to the leadership of both branches of the Legislator and the Governor's Office that we need to strengthen our oversight powers.

The passage of House Bill 4521 will ensure that the lessons we all learned in the last year and a half, will be codified into a law that will hopefully prevent such an explosion from ever occurring again in the Commonwealth of Massachusetts.

Thank you, and I look forward to continuing to work with you, your Board, and my fellow panelists in the coming months.

CHAIRMAN BRESLAND: Thank you very much.

Fire Marshal Coan.

MR. COAN: Thank you, Mr. Chairman. Thank you again, Mr. Chairman and thank you for your time and the time of your very truly professional investigative panel.

I'd like to go through for a moment with you the response of the Department of Fire Services and then make some very quick and preliminary comments on the recommendations that are found in the report.

First, the Department of Fire

Services response to this incident was a multileveled support and coordination role to both the Incident Commander, Chief Tutko and to the Community of Danvers. We responded with our Incident Support Unit as has been referenced, responded with numerous hazardous material response teams, fire and explosion investigation unit and a technical services engineering and code enforcement unit.

Post the incident, our engineering and code enforcement conducted a very extensive survey and review of technical data, licensing and permitting, to look at the compliance of existing General Laws, Chapter 145, and 527 CMR both the law and the regulation that had been extensively talked about tonight.

We created a report and issued findings, and in our findings we indicated that licensing and permitting procedures and oversight do in fact need to be strengthened. Additional training for municipal officials

and inspectors are needed. Statutory change and improve regulations in the area of chemical process safety and process safety management is needed, and additional resources for technical support to local public safety officials must be provided. Again, I think we would say that they parallel very closely your recommendations.

Our actions since the 2006 event have been to draft along with the Fire Chiefs Association the comprehensive chemical process safety legislation that the Representative has indicated is pending before the House of Representatives at this time. To amend our state fire code to increase and improve training and seek additional resources.

The chemical process safety legislation would allow the Board of Fire Prevention Regulations, which I must indicate is an independent Gubernatorial appointed board made up of many different disciplines, both credentialed engineers and members of the

fire service, and others. It creates a chemical users certificate for facilities using or storing highly hazardous chemicals. It empowers the State Fire Marshal to suspend or revoke certificate for non compliance, establish user fees, so that the cost of the oversight of this program will be borne by the great majority, by the industry in the Commonwealth and provides staff to implement, administer and support the local authorities.

Let's talk for a moment about training. I believe as in other areas that our office has responded to major incidents throughout our state, and beyond, that the training of municipal officials is clearly a major component to success. And in that regard, since the Danvers incident, we developed and we conducted training, joint training seminars to municipal licensing fire and building officials to review the licensing and permit requirements for flammable and combustibles in the state.

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Our intent here by bringing each of those disciplines together was to improve coordination and cooperation between the land licensing authority and fire and building permitting authorities within a municipality. Frankly, what we found is there are silos and the silos need to be broken so that the community is operating harmoniously between the licensing side which could be a city or town clerk, the building department and the fire chiefs, and the fire departments responsible for the issuance of the permit and then inspections. I'm pleased to say that to date, we've been able to train over 300 local officials across the Commonwealth in this particular program.

I'm also very pleased to say that CSB and the Department of Fire Services agree on pretty much everything. We agreed on the cause of the fire and explosion, we agreed to the need for further regulation in chemical process safety, and we agree on the importance

of increased inspection and enforcement to protect the public and the regulated community.

As you know, I prepared these slides before I had the opportunity to review the report in the last day or so. So I would like to take a quick moment and add to my comments, just very quickly, that in regard to the particular recommendations that have been made tonight, first of all, under the section of the General Court recommendations, you make reference to a written with the annual registration renewal, that is a very valid recommendation, and we believe it can be accomplished by regulation and enhanced training, may not need legislation, it can be implemented quicker and it's a very valid and good recommendation.

You make recommendation to modify licenses required for increase storage amounts, we believe the law already requires this, but we agree with your investigative

team that is not as clear as it should be and that some modification to the law may be necessary but clearly additional training is needed and can be implemented immediately in this area to provide better guidance to the local officials.

You make a recommendation in regard to the Department of Fire Services State Fire Marshal auditing local governments. In licensing has always been handled at a local level in Massachusetts, we cannot say at a state level how many licenses currently exist, or what a resources are needed to implement this recommendation. However we agree again it is a valid point, and will be taken under consideration by our department, and we believe the successful passage of our chemical process legislation will go a long way to implementing this particular recommendation.

Secondly, you make recommendations to the Department of Fire Services, you asked

for the adoption NFPA 30, you make note that we have already adopted a portion of this, we agree in concept that the Commonwealth should adopt NFPA 30. You make reference to the adoption of NFPA 35, we again agree in concept to this, but we recognize the need for additional technical expertise at the Department of Fire Services to fully implement this particular NFPA standard in the Commonwealth.

You make a recommendation that annual inspections of facilities holding one or more licenses, we agree wholeheartedly to this, but we recognize and I believe you'll hear from local officials in a moment, that there are resources needed at the local level to make this recommendation effective across the Commonwealth.

You make recommendations for mandatory written inspection criteria, and we wholeheartedly agree with this. We expect that this will again come from the passage of

the chemical process safety legislation, it is one of the silver linings in any tragedy that enables us to drill down and take a very comprehensive look at a particular subject matter, and in this case we agree that this is an area that should be looked at, and looked at very closely.

And finally, you make a recommendation that we revise our fire prevention forms, FP2 and FP5 so that it would list each hazardous material type, quantity and a separate license and permit for each class of material. We agree to that, and we will internally and administratively change that along with further review, along with, if it meets further review, I should say, by our legal department.

So to conclude my part of the presentation, Mr. Chairman and Members of the Board, I would like publicly acknowledge the expertise, assistance, and professionalism of the members of the CSB investigative team, and

the ongoing support that the members of the CSB has shown in working with Massachusetts to prevent a similar event from occurring in the future.

Thank you very much, Mr. Chairman and members of the Board.

CHAIRMAN BRESLAND: Thank you very much.

Fire Chief Tutko.

CHIEF TUTKO: Good evening, Chairman/President.

On the morning of November 22nd, 2006 I was the Unified Commander in Charge of the mitigation of the explosion that occurred in the CAI/Arnel facility in Danversport. My department and all other department and agencies that responded performed their duties above and beyond what would be expected of emergency responders dealing with an incident of this magnitude. Despite the tremendous property damage and loss, we were lucky that morning. All of us who responded witnessed

the surreal scene of fire and devastation. With destruction presented before us, we expected to suffer loss of life. In all my years in the fire service, I have never witnessed the magnitude of destruction we encountered that morning. It is hard to imagine that a company the size of CAI/Arnel would cause such destruction and devastation. It is truly a miracle no lives were lost.

Those of us in the fire service and emergency management cannot rely on miracles. Our response must be strategic, comprehensive and we can not wait until the bell rings to take action. We must be proactive. We have the tools to mitigate fire and other emergencies both natural and manmade, but we need the tools to prevent this type of accident from happening again. The fire service understand the value of good fire prevention and accident programs, but in the case of chemical processes, we fall short in understanding the whole picture.

In Massachusetts our current fire prevention laws and regulations deal with storage, housekeeping, fire suppression and alarm systems, areas that we are familiar to inspectors in the fire service. By conducting our inspections in these areas, we can prevent incidents from happening, however in the area of chemical processing, processing, our expertise falls short. We are not chemical engineers or process engineers, the fire service needs to have access to professionals who understand the chemical processes that occur in our jurisdiction to ensure that these facilities sometimes located in our residents' back yards, are safe from the type of accident that occurred in the CAI/Arnel facility.

Currently the Massachusetts Association of Fire Chiefs has written and sponsored legislation that would assist the State Fire Marshal and local fire departments to be more proactive in the prevention of chemical process accidents.

It is our hope, through the process of your organization's reviews and recommendations, along with the subsequent code review, will assist us in making changes in chemical industry regulations at the local, state and federal levels. We believe this is the only way to make the business of storing and mixing chemicals safer for the employees of the facilities, the general public and for emergency personnel who must respond to such incidents.

After the explosion the Danvers Fire Department began taking steps to improve the inspection of chemical facilities. And we're encouraged to see this is a key recommendation of your report. We have implemented a new inspection program this year, performing inspections on all our license holders to make sure they comply with state fire codes and regulations. These inspections will be performed every year. The town has also reinstituted the Local Emergency

Planning Committee, which it's charged with creating an emergency plan for the Town of Danvers, and to ensure that all hazardous materials are stored correctly and used properly.

Another recommendation from your report is covered under our local registration process. Any new applicant for a license or any currently licensed facility looking to increase the quantity of chemicals being used, or seeks to amend its license in any way, must first pass a fire department review and attend a public hearing before the Board of Selectmen before a license or amendment is voted on for approval.

I would like to thank the Chemical Safety Board for all the hard work it has put into this report. The findings and recommendations contained within the report will help make Danvers and the Commonwealth of Massachusetts a safer place to live. Your organization provides crucial resources and

expertise in the area of chemical safety and I truly believe a cooperative effort among CSB and local and state agencies will benefit public safety for years and decades to come. If we all work together, we can take actions to prevent a recurrence of what happened in Danversport, November 22nd, 2006.

Thank you, to the Board, for your time.

CHAIRMAN BRESLAND: Thank you very much, Chief Tutko.

Chief Willette.

CHIEF WILLETTE: Chairman Bresland and Members of the Chemical Safety Board, thank you for inviting the Fire Chiefs Association of Massachusetts to participate in this discussion tonight. Our association represents over two hundred and fifty active and four hundred retired fire chiefs. And it is the fire chiefs of Massachusetts who will play a key role in implementing the recommendations made in your report of the

November 22, 2006 explosion in Danversport.

The fire chiefs of Massachusetts are proud of the many life saving initiatives we have been involved in. Are advocacy and partnership with State Fire Marshal Stephen Coan, the National Fire Protection Association, our friends in the General Court on both sides of the isle in the Patrick Administration have resulted in the passage of life saving legislation covering the installation of carbon monoxide alarms in homes, fire suppression sprinklers in nightclubs and requiring cigarettes that are sold to be of a fire safe type that will not continue to burn if not constantly puffed on.

While it pains me to say so, each of these initiatives was motivated by major incidents that resulted in the loss of life or serious injury, forcing the Commonwealth to consider how can we prevent such a recurrence. Your report under consideration tonight, provides solid suggestions how we can work to

avoid another Danversport type incident from happening. The recommendations are clear and achievable. The Fire Chiefs of Massachusetts stand willing to embrace these findings, but are concerned about the impact upon local fire department operations and the resources available to fund them.

As Chief Tutko has stated, the Fire Service is well aware of the value of preventive efforts, including increased inspection of local high hazard occupancies. Clearly tonight we understand the CAI/Arnel facility meets the criteria for a high hazard occupancy, but prior to November of 2006 the risk posed by this facility was not so clear.

The goal of having uniformed fire personnel inspect such facilities on an annual basis should be a central focus moving forward. However, local fire departments are finding themselves strapped for resources to meet emergency response needs and lacking chemical processing expertise. To achieve

this goal, there must be consideration for making such financial, technical and human resources available.

To that end, the Fire Chiefs of Massachusetts in partnership with Representative Speliotis and the Office of the State Fire Marshal supported by the Patrick Administration and many members of the Massachusetts General Court, has drafted legislation which addresses many of your recommendations but also provides a framework of technical resources and identifies a funding regiment to implement these recommendations at a statewide level. House Bill 4521 would establish a technical staff within the State Fire Marshals' Office to review applications for a users permit from facilities such as CAI/Arnel, share the permit application with local fire officials, and stand ready to assist them as needed. As this piece of legislation is being considered by the House Ways and Means Committee, a

subcommittee of the Board of Fire Prevention Regulations is drafting specific guidelines to address chemical process safety within these facilities.

As your report points out, even the most enhanced inspection system would not have guaranteed that an internal process hazards analysis would have been conducted by CAI, no inspection or permitting system alone, no matter how extensive, would have prevented the Danversport explosion. A strong inspection system must work hand in hand with enhanced oversight of the safety process being conducted within facilities which handle and process hazardous materials. Passage of House Bill 4521 would create this critical oversight making it possible to implement the recommendations in your report.

Your report correctly finds that the Massachusetts Fire Service and the Office of the State Fire Marshal are truly the front line of defense for ensuring the highest

degree of life safety, protection of property and preservation of the environment through good code enforcement and increased knowledge of chemical process safety. The fire chiefs of Massachusetts accept this duty, but lack the technical knowledge to work in partnership with the chemical industry and need technical staff to advise us regarding the public safety. House 4521 addresses those needs and I respectfully request your consideration and support of this legislation.

In closing, I would like to thank Chairman Bresland and the Chemical Safety Board for the many months of hard work on the investigation, and for providing recommendations that will help to prevent similar instances in the future. Thank you also for coming to Danvers to release this report, for developing first hand an understanding of the impact on the community and the Massachusetts Fire Service, and for the spirit of cooperation you have exhibited

to local and state officials. I know that your dedication and expertise will help us make Massachusetts a safer place to live.

CHAIRMAN BRESLAND: Thank you, Chief Willette.

Ms. Tropeano.

MS. TROPEANO: Thank you, Chairman Bresland.

A couple of months after the explosion, in November 2006, I spoke with a woman named Claire Freda, a councilwoman from Leominster. I did a Google search that pulled up an article about a city ordinance she was working on to improve oversight of chemical companies in her city. She told me that an explosion blew the roof off a chemical company Leominster in 1997, it occurred in a residential area in which a daycare was operating. Fortunately, there was very little damage outside of the company.

However the event failed to rally the people of the city to call for change.

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Eight years later, the same company blew up again. I had another conversation with a women from Wilmington who called me some months ago, she was worried about a company in her neighborhood that stored nitrocellulose in drums outside. Some of them had already combusted but there were many more just like them on the property. She was having trouble getting anyone to take the situation seriously. She had heard about SAFE, and wanted to know how we got so many people to work together on the problem. I'm not surprised that either of these situations occurred, prior to November 2006 I don't think I could have understood how some heptane exploding on the back of Bates Street could impact the lives of so many, so dramatically. It's hard to explain sometimes, without feeling like I'm dramatizing the event and its affects.

But the reality is that so many people lost their homes, some people lost

their jobs, almost everyone lost a lot of money and everyone lost time and a sense of security in their homes. Some families were split up, many families were displaced, some still are today. Sometimes it feels like our lives are on hold until the last family moves back home. It has been seventeen months, we hope it doesn't go past twenty-four. I'm uncomfortable talking about it, but I do, whenever I can, because we won't make the changes necessary to keep us safe if the public doesn't call for it.

Public Awareness is important. Luckily for us, we have had some help. With the guidance of Jan Schlictmann, the neighborhood established new lines of communications since we weren't all living side by side anymore. We told Jan that rebuilding the neighborhood and making sure that we were safe in it, are the most important things to us. Jan told us, that we could accomplish these goals only if we worked

together. So we did.

And we went right to work, trying to figure out what happened and how to keep it from happening again, and to rebuild our lives, and our neighborhood. We helped each other find apartments, clothes and furniture. We helped each other navigate such issues as insurance claims, private adjustors, contractors, and finances.

Jan also helped us recognize that we needed to be part of making changes, to prevent similar events from happening again here and elsewhere. That began with understanding what happened. We listened to each others fears of what might have caused the destruction and we investigated to the best of our abilities. We enlisted the help of many people along the way, it's a long list. Representative Ted Speliotis, Senator Fred Barry, Congressman John Tierney, and Representative Joyce Speliotis, Town Manager Wayne Marquis, the Board of Selectmen, The

Danvers Fire Department, Public Works, the Building Department, the Planning Department, the Health Department and the U.S. Chemical Safety Board. All these people and agencies helped us understand what happened, and what to do to work towards ensuring that it doesn't happen again.

In Danvers we've learned that planning and implementing these types of changes takes time. It also takes the efforts of many people working together. We are concerned with the licensing and granted of permits as well as the registration of hazardous materials. It is necessary also to consider our town zoning and town planning. The newly resurrected Danvers LEPC has expanded it's largely emergency based charter to include looking into what we can do to prevent a recurrence of this type of tragedy. It will take these local efforts, combined with state and federal efforts to ensure public safety.

In closing, I want to take a moment to thank the CSB for having us all here today, this step in the process of recovering from the event is very important to us. Thank you for keeping in mind that this was not just about an industrial accident, this was about people, families and businesses.

As I mentioned, there were many people who helped our neighborhood, but I want to thank a few who have been particularly helpful in our quest to restore our peace of mind. John Vorderbrueggen of the CSB who answered countless phone calls and questions from me even from his latest tragic site down in Georgia. Thank you, John. Deputy Fire Chief Kevin Farrell who also answered many calls and many questions, and who helped me navigate the 527 CMR. Representative Ted Speliotis who has been an enormous help in so many ways, and continues to be. And Jan Schlictmann, who has inspired me and others to take an active role in affecting change and

who has given countless hours of his time and advise to our community.

Thank you all.

CHAIRMAN BRESLAND: Thank you very much for those heartfelt comments.

I think I will give the Board Members an opportunity to have a questions or dialogue with the panel members. And we will start off with Board Member Visscher.

MR. VISSCHER: Thank you, John.

A couple of questions. One is, a couple of you spoke about the need for better trained, more expert, and more expertise in terms of looking at chemical processing plants by inspectors, and how are you going about that, and how difficult, or what's the sort of plan on doing that and how far are you, I guess is the question, it seems like a difficult challenge for you, I would think.

MR. COAN: If I can take a crack at that first. The issue is clearly widespread across the Commonwealth.

Massachusetts has three hundred and sixty plus fire departments. As we know, many of these plants that we talk about CAI/Arnel are imbedded in many of our communities, many of them very small rural communities across Massachusetts. And many of these fire departments there is no career fire department, they're volunteers, they're on call. They have a very hard time just mustering men and women to answer the bell to suppress fire. Fire prevention isn't always high on the agenda, not because they don't want to, not because they don't care, their compassionate people, but when it comes to resources they're not there.

I think it would be very difficult, no it would be impossible, to embed in all these fire departments sufficient expertise, credentialed resources to the job that you're suggesting we do. Hence the chemical process safety legislation, which is again a joint effort of the Fire Chiefs, my

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office and with the great support of Representative Speliotis, it's designed to provide the resources to the Department of Fire Services, so frankly we can have that right there. It's no better than that.

MR. VISSCHER: I don't think so.

MR. COAN: We'll post the jobs on the web.

CHAIRMAN BRESLAND: Meeting closed.

MR. COAN: That's what the Commonwealth needs, there's no doubt about it. We need men and women that are credentialed in chemical process, as chemical engineers, as mechanical engineers who can be our experts, who can provide the training, who can provide the partnership to the chiefs across the Commonwealth to do the job. So it is, as I said embedded in that legislation, but we all know that in this day and age, getting those resources is difficult. We're looking for a first year, start up staff, small in nature,

who can be embedded into the Department of Fire Services, who can write the regulations, can initiate some training, that we can truly get a handle on the number of these facilities that are across the Commonwealth. And then the intent of the legislation is to access a fee, a user fee upon the industry and make it as self sufficient as we can so that the cost of this oversight program to be borne, will be borne by the industry and administered by the State Fire Marshal in cooperation with the local chiefs.

Mr. VISSCHER: Thank you for that. So the idea would be that you'd have some expertise at kind of a state level that would consult with locals, you wouldn't try to, as you indicated, some fire departments are in rural areas and so on and would be very difficult to have an expertise.

MR. COAN: That's correct. And we would also require by legislation that the industry who is now regulated under this law,

would be required to conduct fire and life safety analysis studies within the plants. Again, as I believe it was referenced earlier, so that that would be a baseline of information to be shared withe local communities, both with the fire department for a permitting process and to the higher levels of government as they review licensure. That information would also be shared with the Fire Marshal's office and this new technical staff so that they would provide the audit and oversight of these reports and of these companies.

MR. VISSCHER: Thank you.

One more question, I guess if I could ask this panel the same question I asked our staff actually, with regard to the current situation with licenses and registration and permits, which appears to be, I saw one at least news article I think Chief Tutko where you reported, or maybe it was a newspaper story, but that about half the small

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businesses that have licenses didn't know they also needed permits. That there seems to be kind of an opportunity for confusion of what all is required, and I guess trying to understand this, and since we're delving into the, as deeply as we are, the regulatory regime in Massachusetts, why have all three, and so what's the difference and the purpose of the three? And I throw that out to any of you so I can understand it.

Thank you.

CHIEF TUTKO: My understanding is that the license goes with the land, and is basically irrevocable. A permit can be revoked under the discretion of the fire chief. So in having the license, the permit allows you oversight, so you have the ability to go in, similar to a building permit, it allows the issuer of the permit to go on your property and inspect it, so that those are the two, the distinctions between the two. When it comes to permitting, it's very clear in the

laws and the regulations that it is up to the business owner to apply for a permit. It's not up to the regulator, the fire department, to go after the business owner to tell him that we have to come in.

But I think what happens is that people are interested in running their business and a lot of businesses and especially the chemical industry is heavily regulated. And sometimes this falls through the cracks. And so they don't realize they needed a permit. What we're doing in Danvers is we're going out, we're making those annual inspections, we're trying to educate the businesses that it's up to you to come to us, and we're trying to be vigilant on that, and we will be in the future.

But I think that that's something that again, alerting to the Marshal and to Ken, we're dealing with a finite number of personnel that we have, and looking towards my charge, we haven't even delved into the permit

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process yet of those people who have less than the required licensing amounts. Now when we went out, we went out to our 35 licensed landholders and it was a month and a half to a two month process to make sure that everyone was in compliance with their permits and licenses. We've identified over 108 potential areas of people that need a permit. So we've got to go out to that, so it's time consuming, but again, it's something we're, it's an educational process, and we're going to go out and do what we have to do to get everybody in compliance.

REPRESENTATIVE SPELIOTIS: Mr. Chairman, may I take a shot at that?

CHAIRMAN BRESLAND: Please.

REPRESENTATIVE SPELIOTIS: Thank you.

I'd like to go back a little bit and combine your question with the comments that the Fire Marshal made in his presentation, and also, my friend Chief Tutko,

and meld it all together into one, and show what really went wrong here. I think you hit the nail on the head here, we have lived in these silos, whether it is alone in Massachusetts or throughout the country, I'm not sure, but I'm familiar with my neighborhood. We tend to have building inspectors talk about nails and buildings and you know whether the structure is sound, we have DEP in this Commonwealth in which comes out and regulates heavily, heavily, what happens to chemicals and how they're stored, where they're kept, how they're disposed of, and then we have public safety officials and they look at things. But nowhere has there been one concerted effort saying what are actually doing, how are you conducting your daily business. No one seemed to have a broad oversight, until this accident occurred in Danvers.

And the Fire Marshal and the pressures of all of us, including the

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neighbors and the public and the industry said, hey, how are we going to make this work, so that we regulate the activity to protect the neighborhood. And whether that's, I'd hate to say, because I don't think it's another permit, it's on our part, it's not another application, it's the consolidation of all of those efforts into one activity under the Fire Marshal's operation that turns around and says, yes you are operating a safe facility. Because clearly, clearly, the level of sophistication from one plant to the other is extreme, extreme, as you know.

But the definition of what are problems, and one thing we've been able to do in the last year and a half, beyond, beginning to remove these silos, is to also identify the problem in a manageable fashion. You don't know, you can't understand how valuable it was that you put up the number three in the Town of Danvers. And now we know it's two, that's a heck of a lot more manageable than 40, 100,

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the number of gas stations, multiple, we have the use and the production of chemical plants of two facilities in a town of 25,000 people, we go to larger communities it may go to 100, of a town, of a city of 100,000 or 200,000 that's a manageable problem, that's a manageable solution.

In the past when we dealt in silos, we just dumped everything in to piles and never really thought about anything else. So the poor local official, the poor clerk who reviews on a Spring basis, a permit, has a pile of permits and he's signing off on them, whether it's a major chemical plant or if it's a small little gas station with a few gallons of gas, they're all treated the same. Clearly, that's not common sense, that's not the right approach. So we, at least in this state, have gone miles to just identify the, to identify the problem and begin to address a solution.

MR. VISSCHER: I rather appreciate

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that, I'm glad to hear, sometimes we tend to think the answer is always more regulation and a lot of times it's better regulations, and so I appreciate that, your efforts in that regard.

CHAIRMAN BRESLAND: Mr. Wark.

MR. WARK: I really don't have any questions for the panel, but I do want to commend you for handling an extremely difficult situation, one that was unanticipated. And being, in one of my previous lives, an emergency management practitioner, I can tell you that one of the most difficult things to handle is, unlike a hurricane, or something else that you know is on its way, this was more like an earthquake, where it just happens and you have to do the best you can.

So I would like to commend all of you for handling this in such a professional manner. And also I'm delighted to see that the LEPC is up and running again. We're

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finding all over the country that it's all over the board as far as LEPC's are concerned, and one of the things that we want to do in the next few years, or couple of years that I'm going to be on the Board anyway, is push to emphasize and raise the awareness of emergency preparedness and response throughout the country and the importance of LEPC's and how they fit into the overall response picture.

We can't always say that, you know we're never going to have an accident, because no matter what we do, we are going to have accidents. And to that extent and how to the extent that we can handle them and save lives, is a lot, it has a lot to do with the planning preparedness and response activities, and not just off-site or on-site but joint planning. And we're finding in some cases around the country, like southeast Texas, they've got it down pat, but they have the clear and present danger there that they can refer to and get

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the job done. We need more of it on the local level and other areas where you would not think this to be the case but it does happen, and this is a good example of it.

So congratulations and thank you very much.

CHAIRMAN BRESLAND: Mr. Wright.

MR. WRIGHT: Thank you, Mr. Chairman.

I would like to echo the comments made by my colleague Mr. Wark. I'd also like to applaud the individual and collective efforts of everybody on the panel in trying to address the deficiencies noted in both our report and your report with respect to this particular area of concern. And I am very pleased to hear that you've been so proactive in trying to address the recommendations in our draft report before we've even voted into effect. So you're well ahead of the power curve, and we appreciate that.

And I have my full respect and

admiration for everybody on the panel and the work you've done to help solidify the collective efforts of the community here. Thank you very much.

CHAIRMAN BRESLAND: I would like to reiterate what my colleagues have said, as we go around the country we deal with fire departments who are dealing with tragic accidents and I'm always incredibly impressed by the skill and the bravery of the fire department personnel and there are three of them here tonight, Fire Marshal Coan, Chief Tutko and Chief Willette. And I think, they were all involved to the response to this accident, and I do think they deserve the thanks of the Town of Danvers for the wonderful work they did on the days following that incident.

Well, that ends our discussion with the panelists, and we're now going to open it for public comment, and so far we have, you'll be happy to hear, two commentors,

two commentors.

I'm sorry, Susan?

MS. TROPEANO: If I may, I just wanted to bring up a couple of points that weren't mentioned in either of the reports that the neighborhood in particular has been concerned with having change in the future. And most of it luckily was mentioned, so I'll only go to what was not.

We believe that annual inspections of chemical process should be required, not just fire safety inspections. We really believe that those need to be chemical process inspections. And the proposed uses of industrial zoned property that abuts residential neighbors, neighborhoods, needs to be particularly scrutinized. We'd like to see the feasibility of a 1,000 foot buffer zone between residential neighborhoods and chemical processes, needs to be considered. And companies using hazardous materials should consult organizations like the Toxic Use

Reduction Institute in U-Mass Lowell, to find safer alternatives to hazardous chemicals.

And based on risk assessments, companies processing hazardous chemicals should be required to have enough insurance to cover potential damage. CAI and Arnel had $7 million in insurance, which doesn't even cover the out of pocket expenses of the residents, businesses and boat owners who were effected by the incident. That doesn't include what the insurance companies spent, of course, and they want their money back too. I don't know how we can get some sort of regulation in terms in what they can, what they have to have for insurance, but this incident has strapped our neighborhood financially and that is above and beyond what has been covered by our insurance companies. The average family lost about $40,000 because of this incident.

Thank you.

CHAIRMAN BRESLAND: Thank you very much, and thank you for your comments this

evening.

Okay. At this time we would like to open the floor for public comment. Please remember to limit your comments to three minutes. And we will begin with the list of people who signed up to speak earlier, however when we have completed that list, everyone is welcome to speak, even if you have not already signed up.

So, let me go to the list, and when you come up we would appreciate it if you would say your name and spell it for the person who is recording the minutes of this meeting. And the first one is a Mr. A. Beal, B-E-A-L.

MR. BEAL: I've been waiting for this for a long time. 23 Bates Street.

Since the day of the explosion it has been hell. With insurance like Susan said, and the bank, it's just been hell. I just got out of the hospital with cancer, two weeks before the explosion, and I had to

retire under doctor's care and this didn't help at all, and you know, it's just one thing after the other. And I had my grandson living upstairs, he has to go to counseling twice a week, and where he's living now, he says Grandpy is this house going to blow up too, six years old.

And the people that owned these companies hasn't considered to say, I'm sorry. They can't get on the TV or the media and say, I'm sorry. What is wrong with them. I've had it.

Thank you.

CHAIRMAN BRESLAND: The next person on our list is Mr. Ed Sanborn.

MR. SANBORN: It's Ed Sanborn, S-A-N-B-O-R-N.

CHAIRMAN BRESLAND: Thank you.

MR. SANBORN: A couple of quick questions.

Regarding the recommendations, I didn't hear any talk about the fines for the

OSHA violations and also the, I think it was like a $400 fine for having, you know, lack of the proper permitting. It doesn't exactly seem like a very large deterrent. I think the OSHA fines were something the range of $14,000, $14,000, $30,000 something around those figures. Again, you know it doesn't really present an obstacle for a company to bother with the permitting, right. Well, we'll take care of that after the fact.

And so, we're talking about increasing the evaluations, and inspections to make sure the permitting is done correctly, but as I think it was Chief Tutko said, you know there's nothing that's going to force the fire department to go in and make sure they have the permits in hand, it's really on the company, from what I understand, to go and ask for the permits. So then when they don't ask for them, and then there is something that happens, well the slap on the wrist is a $400, or $14,000 fine, it seems insane to me that

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there isn't a higher deterrent in place.

Any recommendations, any thoughts, and comments on anyone on that?

CHAIRMAN BRESLAND: Let me ask Mr. Vorderbrueggen if he knows the answer to the question about the size of the fine from OSHA.

MR. VORDERBRUEGGEN: As far as fines, and I'm relying on primarily what was in the press, those came late, but I think they're in the range of $400 times three or four, it's less than a couple thousand dollars. And you're pretty accurate from our understanding withe OSHA citations, they and again, OSHA decision process for citations for violations against their standard is all within their process, and ultimately companies even negotiate those numbers. I do know that Arnel has resolved any differences in the citations, I don't know the number, the final number but it's, I believe less than $10,000. And the last information that the team had

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from CAI, is they were still negotiating with OSHA, however you're pretty accurate, I believe even the raw number is under, it's certainly under about $15,000 or $16,000.

MR. SANBORN: Any thoughts about though, and opinions from anyone in terms of, does it seem to make any sense in terms of the amounts of the fines. I mean, obviously OSHA is negotiated and thought about the fines and they think it's appropriate, but I'm sitting at home and I'm like the other gentleman saying this is insane, and they got a slap on the wrist.

Clearly their business is affected, clearly this has affected their lives just as much in some respects, so we're all losers in this, and it's not just affected the residents or the businesses in the area, but you know money talks sometimes. And that is one way I would think to send a very clear message to the rest of the companies in the Commonwealth and in the nation that not only

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could you, you know, blow up your company, and affect so many people's lives in this way, but not only that but you're going to have a very hefty fine if something has turned up, even previous to the explosion that puts you at risk or puts the neighborhood at risk.

The other question I had was in regards to permitting itself. And this is again for anybody up for grabs in terms of the answer, is there any, is there going to be clear criteria in terms of which permits will be pulled back or a company will be fined in violation of their permit. Are we going to have, after the bill is passed, or whatever, are we going to have clear criteria, that it's going to make it that company X is going to lose their permit?

CHAIRMAN BRESLAND: Let me just make a comment here. The purpose of the public comment period is to hear your thoughts, but not necessarily to get involved in the dialogue and answers questions. But

Marshal Coan has indicated that he would like to say something.

MR. COAN: I can, but out of respect for the Board, you're correct, that the issues that the gentleman raised are directed at the state regulatory oversight, and not the findings of the CSB.

But in deference to the gentleman, let me try to answer in two areas. First of all the fire code of the Commonwealths fines are not designed to be punitive in nature. The upper limits which are very low as you know, are set by the Legislature and they're designed to require, based upon normal inspections, not necessarily designed as fines to be levied after a catastrophic event like you had here today.

Now with that being said, the real leverage that the community has is to revoke the license or the permit. Which is the ultimate action that can be taken to put the business out of business. Prospectively,

looking into our legislation if we're successful in getting it passed, the key element is that user certificate, and once more that the compliance with the provisions of the law to hold that user certificate is the key to the business. And that user certificate we have used in other industries in the state, blasting, fireworks industry, and on a regular basis our staff is holding hearings, suspending and revoking user certificates. When you revoke a user certificate of an industry, basically they're locking the door.

So I think it is a very strong signal to the industry that if we are able to get this legislation, you will comply or you will not operate in the Commonwealth of Massachusetts.

CHAIRMAN BRESLAND: Thank you, Fire Marshal Coan.

MR. SANBORN: Thank you.

CHAIRMAN BRESLAND: Thank you,

Mr. Sanborn.

That ends the list of the people who had signed up. Is there anyone else in the audience who would like to make a comment? I see somebody coming up. If there is a second person who wants to make a comment, it would be good if you'd, okay, you're close by, that's fine.

MR. TURCOTTE: Hi, I'm Jim Turcotte, Danversport.

CHAIRMAN BRESLAND: Can you spell your name please.

MR. TURCOTTE: T-U-R-C-O-T-T-E.

I just wanted to talk, touch on the operator error that you mentioned, and the inadvertently left open steam valve. You know everything that you've covered is fail safe, some permitting and all this thing, but we all get back to human error again. In all the things that have been brought up, there is nothing mentioned about what we can do to prevent human error. You know, whether

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training of the individuals who are going to be operating the systems, licensing of the people.

Prior to 1997 the Commonwealth of Massachusetts General Law, Chapter 146 had a statutes on the book that process steam would be a licensed individual, regardless of horsepower, pressure, through an intense lobbying effort for Maine it was removed from the books. It is my feeling that if the individual that was operating this boiler or steam valve had the training and the knowledge of what he was doing, we probably wouldn't have this situation we have right now. Could have maybe averted this whole disaster. Maybe we could think about adding that to suggestions to the Commonwealth of Massachusetts, that we tighten the laws up again concerning processed steam.

Thank you.

CHAIRMAN BRESLAND: Thank you for your comments. Sir.

MR. FARRELL: My name is Alan Farrell, F-A-R-R-E-L-L.

One of the Board recommendations that Mr. Hall made was for chemical plants that have these manufacturing processes to have vented these explosive gases outside, outside the building, ok one of the recommendations. My question is, when you do that, there are, you know in the context of the area where the explosion took place, we don't have the 50 or 100 foot buffer, or what not, it was a very close proximity of the houses to the building that exploded, so if you vent that stuff outside, does that put the neighborhood at risk?

Okay, there are other, there certainly other neighborhoods that have chemical manufacturing plants similar to CAI and Arnel, okay, that exist presently, that are operating presently, okay, and if those kinds of recommendations are implemented, okay, does that explosive gas, or explosive

vapors being vented outside put those neighborhoods at risk. Now in Danversport, the wind blows this way, the wind blows that way, you know there could be somebody out there with a barbeque grill and he could be blown to smithereens.

So I just ask that, that be considered.

Thank you.

CHAIRMAN BRESLAND: Okay, thank you very much.

Do we have any more people who wish to make comment?

John, do you want to comment on that question, or Rob do you want to comment.

MR. HALL: With respect to the venting outside, one of the things that made this incident such a tragic incident was with the accumulation of the vapors inside that you have confinement that allows it to become an explosive atmosphere. If these vapors are vented outside, you'd get a much greater

dispersion, you would also see that you would not get the confinement that would allow you to create the kind of explosive atmosphere that you get by confining these in a small area.

It is common practice in a number of the codes to permit the venting of flammable atmospheres directly to the outdoors because it is a much safer way of handling the vapors, than to confine them in a contained area like what occurred at CAI Danvers. But we're also asking for more with those fire codes, and the more we're asking for is also to have automatic features to prevent actual overheating so the generation of the vapors would be much less in the situation where you had it vented outdoors and you had in addition those automatic features to prevent overheating.

CHAIRMAN BRESLAND: I should also point out that if you are venting outdoors, and venting an organic or a flammable

outdoors, the environmental regulations would come into effect and you would probably have to install environ, pollution control equipment to reduce the amount of material, that's something that's very common in industry.

Okay, I believe we've come to the end of our public comment period, and it's now the Board's opportunity to consider the report and the proposed recommendations for our vote. And before we do that, I'd like to ask if any of the Board members have any further comments, or questions about the report.

Mr. Wright.

MR. WRIGHT: Mr. Chairman, I have no further questions or comments.

CHAIRMAN BRESLAND: Mr. Wark.

MR. WARK: I have none.

CHAIRMAN BRESLAND: Mr. Visscher.

MR. VISSCHER: None.

CHAIRMAN BRESLAND: None. Do we have any motions from the Board Members on the

report?

MR. VISSCHER: I guess everybody is looking at me. No I was going to offer a motion, I'd be happy to offer the motion on the approval of the report. My colleagues on the Board know that I have concerns with the recommendations, we've heard a lot about the discussion, I'm not able to support all the recommendations. I do support the rest of the report. I'd be happy to make the motion for approval of the whole thing, but probably you want somebody to move the approval of who is going to support the entire report. So I'll defer to one of my colleagues, if they want.

CHAIRMAN BRESLAND: I'd be more than happy to hear you.

MR. VISSCHER: I think there's some Roberts Rules of Order about this, but anyway.

Mr. Chairman, I move that the Board approve this CSB Investigative Report, regarding the Agency's investigation into the

explosion and fire that occurred on November 22, 2006 at the CAI/Arnel Manufacturing facility in Danvers, Massachusetts.

CHAIRMAN BRESLAND: Do we have a second?

MR. WARK: Second.

CHAIRMAN BRESLAND: We'll now take a vote on the vote on the report, can you pass down the actual wording. The motion is to approve the CSB Investigation Report, Number 2007-03, I MA, which stands for Massachusetts, regarding the Agencies investigation into the explosion and fire that occurred on November 22, 2006 at the CAI/Arnel Manufacturing Facility in Danvers, Massachusetts.

We'll start with Board Member Visscher.

MR. VISSCHER: Nay.

CHAIRMAN BRESLAND: Board Member Wark.

MR. WARK: Yes, I approve.

CHAIRMAN BRESLAND: Board Member

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Wright.

MR. WRIGHT: Yes, I approve, Mr. Chairman.

CHAIRMAN BRESLAND: And Board Member, Chairman Bresland approves. So the motion passes by a vote of three to one.

(Whereupon, the motion was passed with a vote of three in favor, one against.)

CHAIRMAN BRESLAND: Some concluding remarks. I would like to thank each of the Board Members for their participation and all of us here have a strong interest in preventing these tragic explosions in the future. And I would especially like to thank John Vorderbrueggen for their excellent work on this investigation. The Board will be working together with our staff to see that the important recommendations adopted today are implemented. We closely monitor progress on our recommendations and we'll be sure to periodically report back to the public on their status. I applaud the people of Danvers

on their resilience throughout this tragic event and I thank you for your interest in the CSB's work.

I urge all of you to continue to make Danvers and the Commonwealth of Massachusetts a safer place by working with your local and state to ensure that the CSB's investigations are enacted. I would again like to thank all of today's participants, including the panel, and the audience for your attention.

With that, the meeting is adjourned. Thank you.

(Whereupon, at 9:33 p.m., the meeting was adjourned.)

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