The hearing came to order at 6:30 p.m. in the multipurpose room of the Wilson Building of West Virginia State University, 103 University Union, West Virginia. John Bresland, Chairman and CEO of the CSB, presiding.

PRESENT:

JOHN BRESLAND, CHAIRMAN AND CEO
CHRIS WARNER, ESQ., GENERAL COUNSEL
WILLIAM B. WARK, BOARD MEMBER
WILLIAM E. WRIGHT, BOARD MEMBER
JOHN VORDERBRUEGGEN PE, INVESTIGATIONS SUPERVISOR
JOHNNIE BANKS, CFEI, INVESTIGATOR
CATHERINE CORLISS, PE, INVESTIGATOR
LUCY SCIALLO, GSP, INVESTIGATOR
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- Adjourn
P-R-O-C-E-E-D-I-N-G-S

(6:30 p.m.)

CHAIRMAN BRESLAND: Good evening and welcome to this public meeting of the United States Chemical Safety Board, or as we refer to it, as the CSB. I'm John Bresland, Chairman of the Board, and with me today are Board Members William Wark and William Wright.

And also joining us today, sitting beside me, is our general counsel, Chris Warner, and various CSB staff members whose efforts have facilitated this meeting, and whom you'll be hearing from later this evening.

The CBS is an independent, non-regulatory federal agency that investigates major accidents at fixed chemical facilities.

The investigations examine all aspects of chemical accidents, including physical causes related to equipment design as well as inadequacies in regulations, industry standards, and safety management systems.

Ultimately, we issue safety
recommendations which are designed to prevent similar accidents in the future. The purpose of this evening's meeting is for the CBS investigative team to present their preliminary findings into the investigation of the August 28th, 2008 chemical processing tank explosion at Bayer CropScience, which fatally injured two workers.

At this time, please allow me to go over this evening's agenda which is on slide number two.

First, we'll hear from the investigation team, and then following the team's presentation, the board will be given an opportunity to ask questions of the investigation team.

The board will then hear from a panel of outside witnesses. This evening's panelists are listed on slide three, and we will be welcoming those and giving you more details on who they are, but they are all here. They are all sitting up front and we
appreciate you taking the time to get here. Thank you very much.

After the panel portion of the meeting, we'll open the floor to public comment, and I'll say a little bit more about public comments later on, in terms of how much time we're going to have for each person to comment.

But before we get into the "meat" of the meeting, I'd like to thank West Virginia State University for hosting the CSB's public meeting, and I would now like to invite Dr. Hazo W. Carter, Jr., president of the university, to the front of the room to make an opening statement.

Dr. Carter.

DR. CARTER: Thank you very much. Good evening. Welcome to the beautiful campus of West Virginia State University. I extend greetings to the board members and investigators of the United States Chemical Safety Board, the panelists and guests. This
is a historic 118-year-old campus. To walk on these hallowed grounds is to step in the path of thousands of students, faculty and staff, who helped to shape West Virginia, our society, and our nation.

Those of you who are familiar with our campus community realize that West Virginia State University is truly a special place. West Virginia State University prides itself on being a living laboratory of human relations. We have one of the most diverse faculty, staff, and student bodies of any higher education institution, public or private, in West Virginia.

Those who work and learn here do so in an environment that accurately reflects the diversity of America. The very aspects of thought, backgrounds and opinions found at this living laboratory of human relations prepares students for the life experience of living successfully in a multicultural, multigenerational global society.
It is in this atmosphere of understanding and acceptance that West Virginia State University is pleased to host this meeting that is conducted by the United States Chemical Safety Board.

As an important part of the Kanawha Valley, and being in close proximity to a chemical plant complex, the university is concerned with all safety issues that could potentially impact our students, faculty and staff, and the day to day operations of our campus. My family and I live for this campus.

It is my hope that this meeting will be a learning experience and a foundation on which to build the best possible safety procedures for all of us who live, study and work in the Kanawha Valley. Again, thank you for attending this important meeting.

CHAIRMAN BRESLAND: Thank you, Dr. Carter. Congressman Shelley Moore Capito was unable to attend this evening, but her district director, Mary Elizabeth Ekerson is
here, and she would like to read a statement from Congresswoman Capito.

MS. EKERSON: Thank you, Mr. Bresland, and thank you, Dr. Carter, for opening up your campus this evening.

"Dear Mr. Bresland, the U.S. Chemical Safety Board, and members of the community. While I'm unable to attend this evening's meeting due to my congressional responsibilities that require me to be in Washington, D.C., I would like to thank the U.S. Chemical Safety Board for hosting tonight's public hearing and the extensive work and effort they have put into their preliminary report. I would also like to thank the members of the community who are in attendance tonight.

"The seriousness of this incident has been well-documented, and there is little question that those of us who live in the Kanawha Valley deserve a full account of the events surrounding the August 28, 2008..."
explosion at the Bayer CropScience facility in Institute.

"As many of you may be aware, we heard testimony on this incident at a House of Representatives subcommittee hearing on Capitol Hill earlier this week. The facts and actions referenced in that hearing, and documented by investigators and other officials, paint a troubling picture of the day in question.

"We know, without dispute, that there was a serious breakdown of communications between Bayer and first local responders. The brave men and women who put themselves in harm's way can only keep us safe when they have the necessary information to do so. The information which finally did reach first responders and local residents was often delayed and incomplete. These are troubling scenarios that demand a full and transparent inquiry.

"I believe Bayer and the community
are working together to significantly improve this process. Today, we will see the preliminary findings of the U.S. Chemical Safety Board, and I look forward to the board's conclusions and recommendations. Sincerely, Shelley Moore Capito."

Thank you.

CHAIRMAN BRESLAND: Thank you.

Before we begin this evening's proceedings, I would like to point out some safety information. There are exits that are marked, so if there is a need to be--for us to leave in an emergency, please exit through the ones that are marked Exit.

If, however, anticipating the next comment--if, however, we have to shelter in place, this is the shelter-in-place room in the university. So the doors will close and I will leave and everybody else will stay here.

[Laughter]

CHAIRMAN BRESLAND: This is the shelter-in-place room, and over on the left-
hand side, there actually is an emergency box
which has all of the appropriate emergency
communications equipment. So hopefully we
will not have to spend the evening here.

I also would ask that you would
mute your cell phones before we begin, so that
we don't interrupt the speakers.

Thank you.

On August 28, 2008, a powerful
explosion occurred within the methomyl larvin
unit at the Bayer plant. The explosion
occurred during the re-start of the methomyl
section of the unit. The blast fatally injured
two employees, Barry Withrow and Bill Oxley.

To those of you in the audience,
who lost friends or family members, please
allow me to extend my deepest sympathies.

I believe that the main reason we
investigate this action was the tragic loss of
life, as well as the impact which this
facility has on the surrounding community.

The facility stands in a populated
area along the Kanawha River, about ten miles west of Charleston. Chemical safety has been a major issue in Kanawha Valley for decades, fueled in part by concerns about the number of major chemical plants, the density of settlement, the local geography, and the potential difficulty of evacuating the area.

Many of you here this evening live in the Valley and have a personal interest in the safety of this facility. I should just say as a side, in spite of my accent, I have lived in West Virginia off and on for about 12 years. I currently live in Jefferson County.

The public meeting is our chance to discuss our opinions about the team's preliminary findings. If anyone in the audience wishes to comment publicly after the investigator's presentation, please sign up at the tables in the check-in area. I will call your name at the appropriately time and I'll first call those people who have signed in and then I will ask for anyone who wishes to
speak.

Please note, and I know we've got a large crowd here this evening with standing room only, but please note that we do have to limit public comments to three minutes each. We have a little timer up here that we hope that you will abide by.

Also note that we aren't able to take questions for those investigators directly from the audience. And so I'll ask that all comments be directed to me as the presiding official at this meeting.

Now, if there is a point that is raised in your comment where I believe that the investigation staff can provide some immediate clarification, I'll ask them to do so.

I would like to thank the team for their diligent work on this investigation. Our investigation continues. This is what we call a mid-term meeting. We're about halfway through the investigation, but we are here to
give you an update on what we have found so far, and also to hear from the community about what concerns or questions you may have.

Finally, let me say a word about the secrecy claims that have been made by Bayer concerning the information collected during our investigation.

As many of you know, Bayer has sought to designate several thousand pages of information as sensitive security information, or SSI, under the Maritime Transportation Security Act. You may have read about this in the local newspapers.

While the status of these documents has not yet been resolved, I do want to assure you that the presentation tonight will include the fullest possible discussion of all of the issues, including the issue of methyl isocyanate or MIC. We at the Chemical Safety Board remain firmly committed to the public's right to know.
As was mentioned, there was a congressional hearing in Washington, DC this past Tuesday that I participated in. The president of Bayer Cropscience, at that meeting, stated that Bayer's reason for raising the SSI issue to the Chemical Safety Board in February was, and I quote, a desire to limit negative publicity generally about the company or the Institute facility, to avoid public pressure to reduce the volume of MIC that is produced and stored at Institute by changing to alternative technologies, or even called by some in our community to eliminate MIC production entirely. End quote.

I was deeply disappointed with Bayer's conduct in this matter. I can assure the public that the CSB will continue to conduct a thorough investigation of all the issues and recommend whatever changes will best protect the work place and the public.

I will now recognize the other Board members for an opening statement. Mr.
Wark, Mr. Wright. So at this time, I would like to introduce the investigation team.

It's headed up by John Vorderbrueggen. He's the supervisor of the investigation, sitting over on the far right. Sitting next to him is Mr. Johnnie Banks. Sitting on this end is Catherine Corliss. I should tell you that she's also a resident of West Virginia. Sitting right beside Catherine is Lucy Sciallo. They will all be talking to you at some point this evening.

So at this point, let me turn it over to Mr. Vorderbrueggen and he will start his presentation, which I should point out, will be quite lengthy, so we'd like to move through it as quickly as possible without any interruption. You will have an opportunity later on to ask questions and make comments. But if we can get through it without interruption, it will certainly make for a more efficient evening. Mr. Vorderbrueggen?

PRESENTATION OF THE CSB's PRELIMINARY FINDINGS
MR. VORDERBRUEGGEN: Thank you, Chairman Bresland. Members of the Board, general counsel, ladies and gentlemen, to start this presentation, I want to summarize some of the activities and what we have done since the incident occurred back on August 28, 2008.

The team spent in excess of a month on-site collecting data, interviewing eye witnesses. We interviewed other parties. We interviewed the management staff all the way up to the top at the site. We have interviewed some of you in the community. We have interviewed emergency responders, part of the Metro 911 Call Center. We've collected this data. We've taken, maybe, thousands of photographs of the incident scene. We've preserved evidence that is important to our investigation.

Over the last seven months, we have been analyzing this data. We are still collecting more data. There are outstanding
document requests to Bayer Cropscience and they are processing these requests and we will have more.

We also intend to interview a few more folks. As the team assesses and evaluates the data that we have, we come up with new questions, new concerns, new issues, and all of that will be addressed by our team over the upcoming months.

Our goal is to complete this investigation before the end of the calendar year, but that is certainly predicated on the data that we do need, some of the modeling activities that we need to conduct -- chemical testing that we have even yet to determine what some of that will be, so bear with us. It will take time, but our goal is to have a comprehensive report of what happened, why it happened, and most importantly, what will we be presenting to the Board for consideration for recommendation such that this type of event will not happen in the future.
Furthermore, in the hopefully unlikely event it happens, the goal is to make sure that the community is promptly and appropriately and correctly informed so that the proper steps can be taken. So with that, I will move forward.

I'm going to summarize the facility and the unit overview. I'll provide an incident summary or the team will. We will be doing some hopping and skipping here, so bear with us as we switch back and forth. We will present a time line of the emergency response. We will summarize the fatalities and injuries.

Again, this is a tragic event and the team's condolences to families, friends, and co-workers to Mr. Withrow and Mr. Oxley.

We will then summarize the facility and the off-site damage. We will talk about the properties of the chemicals involved in this incident and the possible chemicals that might have resulted from decomposition and fire. We will then present our preliminary
findings that we are pursuing. Then we will briefly discuss the path forward for the team.

Some of you recognize some of these dates and understand this. Some of you don't. But this facility started out in 1943 and operated until 1947 in support of World War II effort in the manufacturing of rubber products.

Union Carbide purchased the facility in 1947 and operated it until 1986. Rhone-Poulenc purchased the facility in 1986 and operated it until 2000. Aventis, which is a merger of Rhone-Poulenc and Herck, took over the facility in 2000 to 2002. Finally, Bayer CropScience purchased the facility and has operated it since 2002.

This is a photo of the sign at the entrance to the facility, which I believe is Carbide Road, and is still called Carbide Road. It is a multi-tenant facility. This sign shows the seven tenants at this property.

Some of these tenants share feed
stock with other tenants and even some of 
those tenants actually provide feed stock for 
other tenants.

In particular, FMC and Adisseo are actually 
operated by Bayer employees through 
contractual equipment. The equipment is owned 
by FMC or Adisseo. Bayer employees operate.

Furthermore, I will talk a little 
bit about FMC's link with the methomyl larvin 
unit a little bit later in the discussion.

As it relates to Bayer CropScience, 
the 
corporation is located in Germany. There are 
some 17,800 employees in more than 120 
countries world-wide. Their US headquarters is 
in Research Triangle, Park, North Carolina, 
which is in the Raleigh-Durham area on the 
eastern side of the state.

The Institute plant has 
approximately 520 Bayer employees. There are 
three manufacturing centers at this facility. 
The first is East Carbamoylation, which is on
the east side closest to the University where we are tonight.

The West Carbamoylation is essentially everything west of, I believe, Carbide Road.

And then Rhodimet is its own unit, which sits very close to Carbide Road.

This is an ariel view of the facility. I hope you can see the pointer here. We don't have a laser pointer with us tonight, so we improvised. Oops and bear with us as we deal with it.

The view is to the north of the facility. The north is to the top of the picture and the I-64 is out of the picture to the north. As you can see, Main Street, which is Route 25, runs right across -- east to west -- across the top of the facility.

The Kanawha River is to the south of the facility. As you can see, on the right hand side if the picture, is the edge of the University that abuts the eastern end of the
property.

The methomyl larvin unit where the incident occurred on August 28 is shown and circled in the lower left portion of the picture. It is approximately 800 feet north of the river, about 800 or so feet off the west property line and a little over 1000 feet off of Route 25.

This is a close-up view, a zoom-in view, of the methomyl larvin unit. What is shown is -- in the center of the picture, that's the methomyl larvin unit proper -- I apologize. I think I may just deal without the arrow. I apologize.

Almost in the exact center of the picture is where the explosion occurred in this unit. To the extreme left of the picture, you'll see a large rectangle, black rectangular structure. That's the two story control room that housed the control room operators and other activities for this unit.

The north-south dark line in
roughly the center of the picture -- the control room is, as I said, to the lower left. The pipe rack is roughly to the center. It runs north to south, top to bottom in the picture.

The explosion epicenter, again, as is said, is roughly along that road is immediately south of the methomyl larvin unit.

I'll now move into the process description. The methomyl larvin unit was actually designed and fabricated and put in service in 1983. In the summer of 2007, the larvin end of this unit or the larvin portion -- the control system was upgraded to a new -- it was called a Siemens System -- and we'll talk about the difference between Siemens and Honeywell a little bit later.

In the summer of 2008, the methomyl unit was upgraded. There was an extended outage. The control system was upgraded to match the larvin portion of the unit and a new residue treater was installed. The reason for

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the new residue treater is the old residue
treater had -- it was at its end of useful
life.

This is a picture of the old
residue treater after it was removed from the
unit this past summer. It's approximately 8
feet in diameter, about 14 feet tall. It
happens to be lying on its side. The new
residue treater looks just like this treater
except it was pretty stainless steel and it
sat vertically. It was installed in the unit
in the summer of 2008.

I will now move into the process
description and please bear with me as I go
through this diagram. If you look on the left
side of the diagram, in the box, it says MIC
Production Unit. That's the Methylisocyanate
Production Unit.

It is located on the eastern side
of the facility. In that unit, they mix
phosgene and methylamine and ultimately
produce the methylisocyanate. It is stored
underground in that facility. Many of you have some familiarity and maybe extensive familiarity with that unit, at least in understanding its basic process.

From that unit, they distribute the methylisocyanate to the four process units in the facility that uses it as a feed stock. That is typically handled in overhead pipe racks. The dash lines show the transfer lines from the center production unit of methylisocyanate to the process units that use it.

In particular, the MIC day tank, which is at the lower bottom, receives the methylisocyanate, and it supplies the daily production needs for methylisocyanate to both the FMC carbofuran unit, which again, is operated by Bayer; owned by FMC. It feeds the methomyl larvin unit.

Looking at the top of the picture, we'll go back to the beginning of the methomyl process. We are not going to get into the
larvin end of the unit. That's the next item downstream. We are only focusing tonight on methomyl.

In the methomyl unit, the first basic step is the acetaldoxime and chlorine are combined and they end up -- and I'm not going to pronounce that. I'm just going to use the abbreviation CAO. They combine sodium methylmercaptide with the CAO and the resulting material is -- I'll use the short name -- oxime.

From the oxime product or intermediate product it's called, they combine the methylisocyanate in what is shown in that vertical hash line. It's essentially a pipe system and the methylisocyanate reacts with the oxime and ultimately methomyl is produced. It is sent to the crystalizers where they crystalize it. Methomyl is a solid material in its final stage.

From the crystalizers, it moves to the centrifuges to remove the solvent that is
used throughout the first run -- first portion of the process.

So on this next slide, we're coming into the crystalizers at the top center of the picture -- I'm sorry -- from the crystalizers to the centrifuges. The centrifuges are like large washing machines. They spin. They actually do some washing, if you will. They run some solvents. They spin. They dry it. The dry methomyl is now packaged in 55 gallon drums or something of that approximate size, stored in a warehouse.

Some of that methomyl is sold as direct sales to other chemical companies for their production purposes. Some of that material is stored and used, ultimately moved into the larvin end of the production unit.

Coming out of the bottom of the centrifuge is the liquid. The liquid is a concentrated -- it has some amount of methomyl in it and it has other products because there's other chemistry involved in this
process. They recover the solvent to re-use it.

There are many thousands of gallons of liquid solvent used in this process and so it is recovered in what is called a flasher, which simply, if you can call chemistry simple, is simply a method of boiling the solvent, sending the vapor into the vapor recovery system. You can dense it back to a liquid. Now you have a clean, relatively pure solvent that is returned into the process unit.

The flasher bottoms is the waste material, the last bit of material that cannot be recovered from the centrifuge flow. That is what the residue treater was intended to process, before the final liquid was sent to the boiler house for burning.

So the flasher bottoms fed into the residue treater. The purpose of the residue treater was simply to decompose the remaining amount of methomyl that survived the process
down through the solvent recovery flasher because they could not out the methomyl into the auxiliary fuel tank and burn it for various purposes.

One of the important features of the residue treater that I'm just going to point out here is where it says the solvent pre-fill. In the unit start-up, the first time you re-start the residue treater, it is critical that the treater be pre-filled up to a certain level with clean solvent, such that the flasher bottoms is then introduced into the solvent, and so it's immediately diluted.

So that's what the purpose of the solvent pre-fill in the residue treater is.

So we now have a hopefully somewhat clearer understanding of how this process worked up through the residue treater, which was a waste treating device.

This next slide shows a more detailed view of the residue treater. This is
the device that failed the night of August 28.

Again, bear with me as I try to go through this.

Down in the lower left side is the solvent feed line. The operators would manually open that valve at the lower part and they would start filling the residue treater to some 20 or 30 percent. The re-circulation pump would then be started.

The first step, which is a critical step to starting the second step, since the first is filling it. The second step is to heat the solution, the solvent. So the system was designed to run the liquid through a steam heater, which you see on the right center of the page with kind of a pink and red color and it says steam -- is there. So steam heated the material.

Once the residue treater contents was up to the required operating temperature, the computer system was intended to control and allow what is called the feed control
valve, which is over on the extreme left side of the photo, to open.

That valve would then allow the methomyl solvent, from the liquid from the flasher bottoms, to now enter the residue treater that's been pre-filled and pre-heated. There's quick dilution and because the temperature is at their operating temperature, the methomyl will self-decompose into a material that they can then transfer into the auxiliary fuel tank.

So there was a temperature transmitter control or a temperature transmitter that was connected to the feed control valve and there was -- bear with me. It was the flow transmitter where two important transmitters that helped control the feed control valve.

Once the unit was up and running, the methomyl decomposition creates heat, so the computer system was intended to automatically switch from the heating cycle to
a cooling cycle and from then on, for weeks on end -- however long they were making methomyl -- they would actually take a little bit if heat out of the system to ultimately control the pressure in the residuereater.

I'll now move into the summary, the incident summary, of what happened the night of August 28.

The methomyl unit re-starts activities actually began a week earlier on August 21. There's many things -- it's a complex activity. There's many people in a control room and working in the unit, especially when there's been changes to the equipment. It's not a simple activity. It's not a normal activity.

It had been an extended outage. It was the first time use of a brand new control system on the methomyl unit. Although the operators had some experience or had experience with the same control system on
larvin, but you're talking about a different process unit. It has different critical parameters. It has different adjustments. So it was the first time use of their control system.

It was the planned beginning of an extended production run to meet a new international demand. In fact, Bayer was in the process of hiring new employees and there was a good opportunity for Bayer, and the larvin product is the end product coming out of this unit.

The actual methomyl production started on August 27, so they spent about a week preparing equipment and adjusting equipment. They were continuing to adjust to the new control system, displays in computer input method.

What I mean by that is the operators and the personnel in the control room were continuing to familiarize themselves. So that was an ingoing activity,
both on the control console displays, as well as how they entered data to tell the computer what to control in the system.

The operators and the other unit personnel were also focusing on the upstream equipment. There were some performance start-up issues. That is somewhat typical. Again, there are adjustments to be made, things to be clarified, checked, and because of the new control system, that even compounded that challenge.

So they were continuing with control tuning and process trouble shooting throughout the week prior to the incident, including the day of the incident.

We're now at Thursday, 5:00 in the morning. The status of the residue treater as the level indication read was 0 percent full. It effectively was empty. Its temperature was 40 degrees Centigrade, which is 104 degrees Fahrenheit. The devices to control temperature and flow were bypassed.
When I showed in that earlier picture, there was a temperature control on the feed valve and a flow limit on the feed valve. They were in a bypass mode, which means that they were ineffective.

At that point in time, empty residue treater and cold residue treater, the flasher bottoms feed valve was manually opened. The computer did not make that control. The control was switched to manual and it was manually opened.

Thirteen and a half hours later, the liquid level is now 49 percent, which is plenty of liquid in this. In fact, it typically operated around that range. Temperature is at 145 degrees Fahrenheit, which is actually above its intended operating temperature. So the temperature actually climbed.

The reason the temperature is climbing is because the feed that's going into the unit is pre-heated. It doesn't come in
cold. It comes in at some higher temperature and there is some amount of decomposition occurring from the methomyl which creates heat.

So this small amount of decomposition was bringing temperature up. But for all intents and purposes, up until now, the control room operations personnel are seeing this temperature climb -- and I'll show you a chart in a minute -- and it appeared normal. At that time, 6:25, was the first time the re-start pump was started.

About four hours later -- it's now 10:20 pm, 15, or 20 minutes before the incident, the residue treater is at 58 percent. That's still within operating range. The temperature is climbing. It's significantly climbing, and the pressure is now unexpectedly increasing.

The control board operator saw that on his console. That was the first time that there was recognition that something didn't
appear to be correct.

This graph is an actual graph of the pressure and the temperature during the time. It starts a little after 4 pm on the afternoon of August 28. The bottom line, the red line, is the pressure curve, and it was normal. They pre-pressurized the reactor to a small amount so it was sitting there running fairly normally.

The temperature is the black line, and up until about 6:43 pm, which is about the time they started the re-circ pump, temperature was flat. Start the re-circ pump, start mixing things, and now we get a little bit of methomyl decomposition occurring, and the temperature starts climbing.

What the operator -- what typically was seen was a curve like this and the assumption would be that the heater was doing its job. So there was nothing to be concerned about from 6:00 until just before 10:19 pm and again, it's a very small blip in this curve.
that it starts to go towards a vertical, which is telling the operator that the pressure has gone up over a short period of time.

It was at this point that he started to take corrective action. Within a few minutes, he asked one of the outside operators to check the residue treater vent system. The residue treater has a vent system to remove gases and they had historically had problems with that vent system over the operating time because there are some solvent material, so the vent system would tend to plug up, which is not necessarily a safety issue, but it meant that the operator had to go out and make sure the vent line wasn't plugging because that would result in a pressure climb.

Within a few minutes, the second outside operator was asked to assist. Again, these are the two gentlemen that did not survive.

As they were approaching the
residue treater -- they were walking down the roadway, the residue treater relief valves opened. Those are the emergency vent valves to start relieving pressure. They could hear that. Other people in the unit could hear that. Now the unit alarms are starting to sound. That actually lasted for about four minutes before the actual rupture occurred.

But right about 10:35 pm, the residue treater violently ruptured. Approximately 2500 gallons of methomyl solvent liquid was suddenly released into the roadway and a fire almost immediately erupted.

This methomyl solvent liquid is highly flammable. It's a solvent and as soon as that residue treater ruptured and was blown into the unit -- we'll show you some pictures -- sparks were created from steel hitting concrete, steel hitting steel. Wires were being ripped, electric wires -- high voltage, low voltage instruments, piping. There was a spark ignition source there virtually as quick
as it ruptured. Solvent piping, then headers, and other process equipment were damaged, destroyed as the residue treaters came apart.

This is a shot of the unit after the explosion had occurred. The picture -- the white section in this picture is what was the approximate location of the residue treaters and the approximate size. It actually sits behind that debris pile and that's where it physically was.

We are looking basically northwest in this view. The roadway, the street, is to the left of the picture, and it's pretty obvious the amount of energy that was released when the treaters came apart and all the steel was thrown -- steel and piping. The treaters were driven into the unit and in the next picture we'll show where it came to rest.

That large, somewhat shiny chunk of steel was a brand new pressure vessel. It traveled approximately 50 feet into the unit.
and the piping was of course ripped out. A lot of electrical conduit and other things were ripped out as a result of this explosion.

Our preliminary findings -- why did the residue treater blow up? That's the easy part of our investigation, actually. The hard part is figuring out the management system deficiencies that resulted in these specific actions or conditions to occur on August 28, so that's what we are looking for. That is our goal.

But we do know that the minimum temperature safety interlock was bypassed, so therefore, methomyl could be introduced into the residue treater well below the required safe minimum operating temperature.

Also, the minimum re-circulation flow interlock was bypassed, so in fact, this valve could have opened even when re-circ was not occurring, although in this case, it was. Re-circ was occurring.

And then finally, the feed valve
was put in the manual mode and opened so that methomyl was introduced when the residue treater was essentially empty and it was cold. So there was no dilution and no rapid decomposition as it was intended to occur.

So looking back at this picture, the problem, the immediate physical problem, is the two devices that have the X's had been over-ridden, de-activated, such that the feed control valve on the extreme left could be manually opened. This was done way before the residue treater was properly prepared and the residue treater violently ruptured.

This is a curve. This is the rest of the curve from the previous one with the remaining time shown from about 10:19 pm when the operator in the control room observed that there was an issue, a problem. To the point, the black line is when the residue treater ruptured and the signal was lost.

In the red curve, the pressure is now uncontrollably increasing. You see a small
blip in that curve, if you will. It kind of drops off. That was the relief valve opening and the pressure dropped off for a little bit and then went back to climbing because the runaway chemical reaction was overwhelming the relief.

At 10:35, based on the various time stamps, the vessel ruptured. The top curve, again, clearly the temperature is running away, unable to control it at this point in time.

Other preliminary findings, as I've mentioned a couple times, the residue treater was not pre-filled with the solvent as required by the procedure. The solvent was not pre-heated to the minimum operating temperature as required by the operating procedure. The flow of methomyl mixed solvent mixture to the residue treater had actually begin at 5 am the previous morning or that morning, and had continued all day at a very low rate, but that's where the liquid was
added to the residue treater.

The residue treater re-circ began around 6 pm. Ultimately, there was a sudden uncontrolled exothermic -- meaning heat-releasing, heat-generating -- decomposition of methomyl.

In fact, some preliminary numbers -- and these are subject to further refinement -- but it does point to a significant deviation from the permitted conditions. But the concentration of methomyl, in the residue treater, was probably significantly in excess of 20 percent.

Yet, the relief system was sized for not to exceed about a half a percent concentration, and it was clearly documented in the safety analysis and the operating procedure. Obviously, the residue treater violently ruptured, solvent methomyl lines were severed, and the contents were ignited.

We'll move into a new segment. I will ask Mr. Johnnie Banks to come up and
discuss the emergency response consequences and community impact.

MR. BANKS: Thank you, Mr. Vorderbrueggen.

Chairman Bresland, Board members, general counsel, ladies and gentlemen, good evening.

For the next portion of our presentation, I'll be presenting an overview of the emergency response and time-line, the consequences of this incident, and the community impact.

Based on the team's review of control room records and charts, we estimated that this incident occurred at about 10:35 on the night of August 228, 2008. At about one minute into the incident, a local citizen reported an explosion to Metro 911.

At about that same time, the Tyler Mountain Fire Department alarm sounded, alerting members to report for deployment to the incident at Bayer. Also at about this time, the Bayer gate guard attempted to call
Metro 911.

It's important to add here, through an interview within the executive director of Metro 911 and the supervisor at Verizon that the Metro 911 call center fielded over 2700 calls on the night of this incident.

There's a finite amount of calls that can be effectively handled at any one time. If the caller calls during that time, he gets a fast bust signal. He has to hang up and re-call.

At about four minutes into the incident, Metro 911 called the Bayer main gate in an attempt to gather information on the nature of the incident. At about seven minutes into the incident, the Kanawha County sheriff ordered Route 25 closed. This route runs just north of the main entrance into the plant.

Metro 911 called the main gate again. Concurrent with this call, the gate guard was attempting to call Metro 911, realized that he was connected, and at that
point, requested an ambulance for a burn victim.

At ten minutes into the incident, the Bayer emergency operations center was activated and crews A and B were notified through a ring-down system. This was an effort to bring personnel to the plant to assist with the emergency.

Also at about this time, the Institute Volunteer Fire Department chief arrived at the main gate, notified the Bayer incident commander of his presence, and offered any assistance that he might offer. At that point, he was told to stand by and await instructions.

At 14 minutes into the incident, the Nitro and Dunbar Police Departments closed I-64, which is a bit more north of the plant. At 15 minutes into the incident, the Institute fire chief tells Metro 911 that the Bayer incident commander reported that no dangerous chemicals were being released.
This was based on the incident commander's observation of the intensity of the fire and the notion that any chemicals would be consumed in that fire. However, this was not based on feedback from any monitoring -- electronic or otherwise -- to give them the feedback on the nature of the chemicals being released, if any.

At 24 minutes into the incident, consistent with procedures, Bayer notified Metro 911, West Virginia State University, West Virginia Rehabilitation Center, and Reagent Chemicals.

At 25 minutes into the incident, the Saint Albans fire chief notified Metro 911 that he would be advising a shelter in place if additional information wasn't forthcoming. Based on his observation of a vapor cloud that appeared to be heading toward Saint Albans, he made the announcement to Metro 911 to that effect.

At 44 minutes into the incident,
Metro 911 announced a shelter in place in the area around Bayer. They also, at that time, started a reverse 911 ring-down notification to citizens in the affected areas.

At 49 minutes into the incident, the Bayer incident commander recommended to Bayer emergency operations center to contact Metro 911 to shelter in place in Saint Albans and Nitro.

Based on an interview with the Metro 911 personnel, unfortunately this transfer of information did not occur.

At 59 minutes into the incident, the Kanawha Putnam County Emergency Management Director activated the county emergency alert system. This alert activated a shelter in place for the areas west of Charleston to Putnam county.

A little over two hours into the incident, Bayer reported the incident to the National Response Center.

In this scene, the area that was
affected by the shelter in place zone, is shown in the gray area. It's important to note that there was a slight wind direction to the southwest towards Saint Albans. The areas that were affected by the shelter in place are Dunbar, Institute, Jefferson, Nitro, Saint Albans, and South Charleston. This shelter in place affected approximately 40,000 citizens.

A little over three hours into the incident, a Bayer spokesman held a news conference. At that time, advised that the fire was continuing, but contained.

At three hours and 30 minutes into the incident, Metro 911 cancelled the shelter in place. At three hours and forty minutes, Bayer reported that the fire was out. At six hours and 15 minutes after the incident, Bayer reported an all clear with the exception of a small fire that was allowed to burn in the larvin unit on ruptured relief line piping.

Next, we'll take a look at the consequences of this incident. On the night if
this incident, in response to rapidly changing conditions in the plant, an operator went outside to make operational changes and to check the plant to see if he could make the corrections that were necessary to correct the conditions that Mr. Vorderbrueggen just showed you.

Shortly after he went out, a few minutes later, a co-worker went out to assist him. Both these operators were in the plant at the time of the incident and fell victim to the result of the rupture of the residual treater tank.

One victim died from his injuries almost immediately. The other one, the second outside operator succumbed to his injuries about 41 days later at the Burn Center in Pittsburgh, Pennsylvania.

There were also reported suspected chemical exposure symptoms reported that night.

They would affect five Tyler Mountain
volunteer firefighters, two Norfolk Southern employees, and one Institute volunteer firefighter.

Symptoms included headache, abdominal pains, and diarrhea. The symptoms developed the next morning after they returned to quarters for the five Tyler Mountain firefighters.

The next day, Friday, the Institute volunteer firefighter went to the emergency room for additional treatment. He was seen, treated, and released.

Next, we'll take a look at the overpressure damage from this incident. On site, the new residual residue treater vessel was completely and totally destroyed in this incident. Associated process piping and equipment was also destroyed. There was moderate overpressure damage to control room and nearby structures.

In this scene, we have a photo of the
residue treater tank post-incident that was taken to a laydown area.

This next photo shows some of the damage that was typical of offices that were in the control room center. Typical of the damage was ceiling tiles that were dislodged from their molding and ceiling lights that were torn from their anchors. Some bookcases were also noted to be moved.

In the photo on the right, which is of a building that was near the control center, you'll note that the door was knocked off its hinges by the overpressure.

In conducting our assessment, we also became aware of damage to businesses and homes in the area. This damage consisted primarily of window breakage and minor structural damage.

To date, there have been approximately 57 submittals for claims for damage. The damage ranges from mobile homes, residences, and vehicles, and totaled about
$37,000.

One of the businesses that was damaged in this incident was across the Kanawha River, about one half mile away. There were several windows that were broken on this business establishment.

The photo below is in a private residence. It's typical of the damage that we observed, with cracks in the ceiling and walls.

This next scene is a report of property damage where we attempted to capture the distance and direction of the damage as reported. While most of the damage is clustered in a one half to one and one half mile direction from the epicenter of the event, damage was noted as far away as a little over seven miles near Charleston and as far north as Poca, which is a little over six miles. Each of the lines depicted in this diagram is meant to capture the direction and distance from the epicenter.
This next diagram is an attempt to capture how the communication was conducted on the night of the incident.

All of the parties in the boxes on the right are of municipal fire and police services that are familiar with, conversant, and compliant with the National Institute Management Systems, or NIMS, process and protocols. Most, if not all, of their communications that night went through Metro 911 and followed the unified command structure.

Communication within the Bayer EOC, as directed by the Bayer incident commander, showed a number of hand-off of information from one source to another and did not follow unified command structure.

It's important to note that in spite of the concerns that were raised about the communication between the various entities and responders that we have seen no evidence to indicate that there was any delayed
treatment for the injured in this incident.

Our emergency response findings, in the area of personal protection equipment or PPE for hot zone responders, the use of self-contained breathing apparatus or SCBA or respirators was not clearly conveyed to outside responders.

At the conclusion of this incident, outside responders did not de-contaminate on-site before returning to quarters and remained in their clothing and returned with their equipment.

With regards to incident command coordination, the Bayer incident command structure did not use a unified command structure. There were multiple EOC's established when this incident occurred, both inside the plant and outside.

The shelter in place decision process was complicated by a lack of clear information and the decision-makers made their choices based on the best information that
they had at the time they made the calls.

Communication between BCS, Metro 911, County EOC -- the gate guard followed Bayer emergency communications procedures. Metro 911 experienced an extremely high call volume on the night of this incident. To their credit, their staff self-reported, volunteered, came out, pitched in, and did a commendable job in handling the rigors of this incident.

In talking to the staff at Metro 911, this is the largest event that they've ever handled and they can stand proud.

The emergency responders that fought the fire in the plant performed commendably. In spite of challenging odds, they stood their posts.

That concludes my portion of the presentation. Ms. Sciallo will take you to the next portion of our presentation. That you for your attention.

MS. SCIALLO: Thank you, Mr. Banks.
Good evening.

We understand that there is a great community concern for a possible chemical release on the night of the incident. For the next portion of the presentation, I'm going to describe the characteristics of methomyl and I'm going to list some of the human toxicity elements.

After that, I'm going to list some of the hazardous chemicals that may be formed when methomyl breaks down or decomposes.

Then I will cover the toxic effects of methyl isocyanate and I will describe what conditions present on August 28 might have resulted in a release of methyl isocyanate.

First, I'll talk about methomyl. Methomyl is a carbonate pesticide and it is a cholinesterase inhibitor. Cholinesterase inhibitors disrupt the function of the peripheral and central nervous system. Methomyl can have irreversible and reversible effects on the nervous system, depending on
the duration and the concentration of the exposure.

Methomyl is a white crystalline solid. It can be harmful to humans when it is absorbed through the skin, inhaled, or ingested,

Acute symptoms include ocular effects, such as blurred vision, pin point pupils, tremors, muscle twitching, gastrointestinal effects such as nausea and abdominal pain. At higher concentrations, respiratory arrest, coma, and even death can occur.

Chronic symptoms include liver damage, anemia, and nervous system damage due to prolonged cholinesterase inhibition.

Was methomyl released on the night of the incident? When the residue treater ruptured, methomyl concentrated solvent was released from the treater and associated pipes and equipment.

Now, the residue treater's
function, as Mr. Vorderbrueggen explained, is to break down methomyl so the intended chemistry or the intended decomposition of the methomyl was taking place in the treater prior to and during the residue treater's rupture, as there was a rapid temperature increase.

Besides decomposition, some burned, as there was an intense fire on the unit almost immediately after the residue treater's rupture. Some remained on the ground and nearby equipment and some of the methomyl might have been carried in the air. There's a tremendous heat current that might have locked the methomyl into the air.

Here is a photo of methomyl unit equipment taken a couple of days following the incident. The yellow arrows point to methomyl residues observed by CSB investigators.

Now, when I discuss what could have happened to the contents of the residue treater, I mention some of the methomyl might have burned in the fire. When methomyl burns,
it breaks down and might form hazardous chemicals, some of them in trace amounts. The list includes acetonitrile, dimethyl disulfide, hydrogen cyanide, oxides of nitrogen and sulfur, methyl thiocyanate, and methyl isocyanate.

Bayer provided the CSP with a thermal decomposition analysis that listed some of the chemicals of methomyl decomposition. The CSB also referenced methomyl material safety data sheets and pesticide literature for the formation of this list.

Methyl isocyanate is an extremely toxic material and is used in the methomyl process. It was stored near the residue treater. It's highly reactive with water and it's highly flammable. It has a relative vapor density of 1.4. This means that it is heavier than ambient air and it lays low to the ground.

It has an immediately dangerous to
life and health or IDLH concentration of three parts per million. The IDLH is defined by the National Institute of Occupational Safety and Health. Methyl isocyanate has a boiling point of 39 degrees Celsius or 102 degrees Fahrenheit, and it readily evaporates, especially in summertime temperatures.

Possible sources of a methyl isocyanate release. There are a few conditions that could have resulted in a release of methyl isocyanate on August 28. One would be if MIC supply piping and equipment was broken. Bayer reported that the equipment was not broken and the MIC day tank was not damaged.

There are vent systems or scrubbers on the unit that are designed to remove hazardous chemicals before they're released to the atmosphere. These vent systems were damaged, which could have resulted in an MIC release, as MIC is a raw material in the process and might have been present in the system.
Also, as I mentioned previously, MIC might be a product of methomyl decomposition in trace amounts.

There are 16 monitors on the methomyl larvin unit capable of detecting methyl isocyanate. The CSB has recently learned that these alarms or monitors were not operational on the night of the incident. There are also stationary perimeter or fence line monitors around the facility that are designed to detect multiple chemicals.

The investigation team intends to further examine the operational status and sensitivity of these monitors in the ongoing investigation.

Now, I'm going to list some of the acute and chronic symptoms of methyl isocyanate exposure. Acute symptoms include eye irritation, ocular damage, respiratory distress, pulmonary edema, skin irritation, chemical burns, nausea, abdominal pain, coma, and death. Chronic symptoms include lung
damage and blindness.

Now, I talked about methomyl and MIC. Now, I'm going to summarize the chemical properties of other chemicals, some used on site and some used in the methomyl process to exhibit the relative toxicity of these chemicals. I'll describe how they can be identified.

I'll list the chemicals in the left hand column because I know the font is small. We have methyl isocyanate, methomyl, phosgene, chlorine, ammonia, and methyl isobutyl ketone, MIBK.

The column to the right lists the IDLH or the immediately dangerous to life or health defined concentration. The column to the right of that is the odor threshold. Notice for methyl isocyanate, the IDLH is three parts per million and the odor threshold is two parts per million.

If one were exposed to methyl isocyanate, they may experience some of the
irritating effects such as eye irritation or
burning or throat or burning at levels at
around .4 parts per million.

So this means that odor is not a
good warning sign for methyl isocyanate
exposure because you may be experiencing the
effects of the exposure, the damaging effects
to your eyes or your respiratory before you
actually smell it.

Also notice phosgene's IDLH is two
parts per million and the odor threshold is
much lower in comparison to methyl isocyanate.
It's 0.4 parts per million.

Then the column to the right of
that, I list some of the odor characteristics
for each chemical. The last column on the
right indicates whether or not these chemicals
are covered by the Environmental Protection
Agency's Risk Management Program.

An aspect of the EPA's Risk
Management Program, or RMP, quantitatively
estimates the impact of a chemical release in
the community. If facilities have an RMP listed chemical in a specified quality, they are subject to the Risk Management Program. MIC, phosgene, chlorine, and ammonia are RMP-covered chemicals.

Now, for the next portion of the presentation, MR. Vorderbrueggen will now explain the Risk management Program in depth.

MR. VORDERBRÜEGGEN: Thank you, Ms. Sciallo.

As the previous slide showed, in the chart, the RPM regulation under the EPA standards identify a number of toxic chemicals -- Ms. Sciallo showed the slide, the precious slide, that had the RPM -- a series of chemicals that fall under the EPA's Risk Management Program requirements. In fact, in these chemicals that were listed, they are all toxic chemicals.

There is also a class of flammable chemicals that fall into RMP, but our interest tonight is the toxic list.
Within the United States, the EPA Risk Management Program requirement comes into play when methyl isocyanate -- we'll talk only MIC tonight -- is handled in quantities exceeding 10,000 pounds.

It turns out that Bayer Cropscience in Institute, West Virginia is the only facility in the United States that we have identified that falls -- that handles more than 10,000 pounds of methyl isocyanate and therefore, of course, they must have an EPA Risk Management Program, which is a comprehensive program to manage all aspects of handling methyl isocyanate.

It's similar to the OSHA process safety Management standard, and we'll talk briefly about that later. There is significant overlap in the various program elements.

The Bayer Risk Management plan -- a risk management plan is a document that the company is required to submit to the EPA that
lists certain parameters and elements of the process that handles the covered chemical, in this case, methyl isocyanate.

The Risk Management Plan summarizes some of the protective systems. It summarizes quantities and that type of information. There are two what are called accident scenarios that must be reported -- must be evaluated and reported as part of the Risk Management plan and I will now talk about those.

The first one is called the worst case scenario, and it is, in fact, what one would consider to be a worst case. The regulation requires that the company identify the largest quantity of the covered chemical in the single largest container.

In the case of Bayer Cropscience, it's reported to be 200,000 pounds of methyl isocyanate. That does not necessarily mean that that is the largest quantity on site. The contents of the day tank would be additional, possibly. The contents of the piping systems
and other components might increase this, but the single largest container at the Bayer Cropscience facility is 200,000 pounds.

The worst case scenario requires a computer model analysis to determine how large of a plume would occur and the extent that that plume would travel in the community should that entire 200,000 pounds of content be essentially instantaneously released. Now, there's some variations, but it's within a few minutes. Might as well assume it's instantaneous.

In the end, it requires that you assume that it releases and it goes out in all directions. It ignores the typical wind direction of the facility and other wind conditions. It does specify specific wind conditions, but it assumes it's going outward in all directions at some specific wind conditions and terrain conditions.

In the case of the Bayer Cropscience facility, more than 300,000 people
would be affected within 25 miles of this release. 25 miles, by the way, is the limits of the computer models. It cannot predict beyond 25, so that is the de facto end point for this particular scenario.

Now, a more logical scenario that is required by the Risk Management plan or the program that is written into the plan is what is called the alternative scenario.

That is a scenario that the company determines to be -- and I'll use the term credible, the most credible scenario -- and they evaluate their piping systems. They get credit for their management systems and their controls and other devices. The company then identifies what could be a credible scenario.

In the case of the Bayer Cropscience facility, it's effectively a leak in a flange on a pipe in the methyl isocyanate system somewhere in the facility. It's predicted to release 125 pounds of gaseous methyl isocyanate over -- and in this
scenario, there is credit taken for the wind direction, so the end point is based on the average wind direction or the prevailing wind direction within a year in this facility. They don't report what direction that is, but it is the prevailing wind direction.

In the case of methyl isocyanate, it's 58 people would be affected by the chemical within just under a half a mile in the prevailing downwind direction.

So those are two important elements that are put into the EPA Risk Management Plan document as part of the EPA Risk Management Program, which is 40 CFR 68, for anybody that wants to read up on it.

With that, we'll talk about methyl isocyanate issues. I think most of you are here for this reason.

The investigation team is working on and we will be looking at the on site inventory, this 200,000 pounds or more is a large inventory. It is the only inventory of
this quantity in the United States.

We will be asking Bayer Cropscience to provide us some of the bases for why they consider that inventory to be safe and manageable and controllable. That is something we will be looking at and we will be reporting to the Board in our final report our findings on that issue.

We also will be looking at the methyl isocyanate day tank at the methomyl larvin unit and its proximity to the explosion epicenter. It was about 80 feet away.

We will be looking at the adequacy of the safeguards that would prevent or mitigate a toxic release of methyl isocyanate.

Again, preventing it -- that's the first goal. Don't let it get out of the pipe. If it does get out of the pipe, the next critical element is to mitigate it. What can be done? What is done?

Water is a good mitigator for methyl isocyanate when it's being released
because it does break down. Fire is a good mitigator for methyl isocyanate releases because it burns. There are other ways to mitigate. You contain it. You control it.

Ultimately, of course, ideally, is there an alternative to storing such large quantities of methyl isocyanate? There are industries -- there is at least one company in the United States that actually produces methyl isocyanate and uses it as quick as it's produced so that at any given time, there are only a few pounds of MIC in their production unit at any given time.

There are alternatives. They're complex, though. We can't just stand here and say they need to do that. There are economic issues and other issues that have to be addressed and we will be looking into that as part of our investigation.

At the facility, just a quick summary, the large quantity is stored underground in the methomyl production unit on
the east side of the plant. As I said, the single largest container is 200,000 pounds in presumably, an underground tank.

How do they handle methomyl? I'm sorry -- MIC, Methyl isocyanate. How is handled? How is it controlled? How it is safely handled? They have operated a plant a long time. Bayer is not the only operator of this plant. It was Union Carbide, then Rhone Poulenc, etcetera.

They do pump it to the production units on a daily basis. They use jacketed piping, which is a pipe in a pipe. That way, if the internal pipe that contains the MIC were to spring a leak, it's captured in an outer pipe. This jacket space between the two pipes has leak detection devices to monitor, do we have a leak in the pipe?

The transfer piping is drained and nitrogen purged after it's used, so the transfer piping, the long runs of transfer piping, typically do not contain methyl
isocyanate, except for the time that it is transferred from the production unit to the end, to the receiving unit.

Finally, on the long runs of pipe, to limit the quantities that could be released, there are multiple valves in the pipes, such that they can isolate shorter sections of pipe, to again, reduce quantities should a segment of this long run -- in some cases, they may be 2000 feet long because they're going from the east end of the unit to the west end -- so minimizing the individual quantities and having isolation valves is a way to help control that risk.

There are other features with the methyl isocyanate day tank in the methomyl larvin unit that are important to its safe operation. First of all, it's a stainless steel pressure vessel that contains this liquid. The vessel is eight feet in diameter and 19 feet tall. It is rated for up to 75 pounds per square inch gauge for its maximum
This day tank holds up to 37,000 pounds in any full filling for the daily use.

Two units use this, the FMC unit and the methomyl larvin unit.

At the time of the incident, there was 13,800 pounds in the MIC day tank. I'll come back to the picture and give you a little bit more detail on that previous slide.

On this slide, this shows the location of the MIC day tank with relation to the residue treater explosion epicenter. That is about 80 feet to the southwest of the epicenter. Primarily, the liquid came out of the residue treater in the direction of the MIC day tank and the residue treater went to the northeast into the unit, as you saw in those earlier pictures.

It was a violent destruction that occurred. Then, of course, an immediate fire that occurred in the unit. There was some fire in the roadway due to pooling of flammable
solvents, but there is no indication that there was direct fire over at the MIC day tank area, as show in this picture. Although, there was some heat exposure, but not direct fire.

This is another shot of the MIC day tank. This view is looking to the southwest, so in the hills -- way in the background is Saint Albans, for those of you who are familiar with the area.

The MIC day tank is underneath that structure, that steel structure. The residue treater would have been in the lower right hand corner of this picture, some 80 feet away. In this picture, you can see there's some additional interferences between the day tank and the residue treater that would have had to have been compromised if the residue treater had traveled the opposite direction toward the MIC day tank.

One more view, to give you the perspective. The MIC tank is on the left hand side. The residue treater, its location is on
the right hand side. The methomyl unit is on the extreme right. We are looking, essentially, due west. The control room would have been past the elevated pipe rack there. MIC piping is in some of that elevated pipe rack that is sued to transfer the MIC, both from the day tank into the unit, as well as re-filling the MIC day tank from the production unit.

A few other features. It is a refrigerated and insulated pressure vessel. It has redundant pressure temperature and level instruments. If a pressure instrument were to mal-function, there's a second one as a back-up.

There are area air monitors and alarms within the methomyl larvin unit and around the day tank.

There is an emergency dump tank on the MIC day tank system that is sized such that it can hold the entire contents of the day tank and all of its associated transfer
piping should one or more of those devices become compromised, spring a leak. The unit operators have the ability to rapidly transfer the contents into a back up tank to prevent any further release or to prevent a release if, in fact, there's something that is near releasing.

Finally, there's a concrete liquid containment wall or a concrete liquid containment wall, around the base of this tank that is the capacity of -- that containment area is enough to hold the entire contents of the day tank should it leak and the leak cannot be stopped.

By controlling it, you don't want it to spread. You control it and there's some control on the boil off that is helpful to mitigating the release.

Finally, the blast blanket debris shield that surrounds the day tank. That blast blanket debris shield was installed in 1982. In 1994, the then-owner, which I believe was
Union Carbide, installed the top section above the vessel. The squirrel is showing that in the picture.

So that's above the vessel and that protects the piping, the relief system above the vessel. That top section happens to be larger wire rope diameter than the original sections.

In 2008, after the explosion of August 28 -- sometime in the early fall of 2008, Bayer Cropscience removed the existing wire rope blast blanket as part of the refurbishment of that vessel and they day tank system and replaced the sections with, as we understand, a larger wire rope diameter. We understand it's on all sections. All of this is some of the areas that we are continuing to look at.

That tank is in service.

AUDIO TECHNICIAN: Something is wrong. Pick up that other mike.

MR. VORDERBRUEGGEN: This one is
taped to the floor.

    AUDIO TECHNICIAN: Let me switch this. Want to use that one?

    MR. VORDERBRUEGGEN: Is this mike coming in okay? Can everybody hear me now? Okay, I'm seeing some hand waving. That's a good sign.

    Okay, thank you.

    Let's look at a close-up of the blast blanket itself. The picture on the left is actually what it looks like. It's heavy wire rope, as I said. It's a very heavy steel blanket.

    The picture on the right is actually the framework that this blanket hangs on. What you see in that picture is the actual MIC day tank that was behind it. This was removed so that Bayer could refurbish and clean up.

    The insulation is removed in this picture. They re-insulated and they put it back in service because the FMC unit still
needs the methyl isocyanate. So it operates today.

These three pictures are representative of the kind of debris that we observed in the area near the MIC day tank. The picture on the left -- there's electrical wire. There's conduit. It's light weight, small stuff, that type of thing, but a mess.

The top right hand picture was a control valve in the methomyl larvin unit that was thrown 60, 70 feet possibly. It probably weighed 100 pounds.

In the lower picture on the lower right is another small valve that probably weighed two or three pounds. It was 60, 70, 80 feet away from the methomyl larvin unit.

So the MIC storage issues. The question remains, is it appropriate to have centralized production as they currently operate? They make MIC and distribute it. Or could it be locally made at the unit and consumed?
Whether it's locally made or consumed immediately or locally made and stored in much smaller quantities, that's a question that the investigation team is looking into and will be reporting on to the Board as part of our ongoing investigation.

There are some advantages and there are some disadvantages, and there are some questions. It could or would reduce storage inventory. It might require more locations to handle phosgene.

Phosgene is one way to make methyl isocyanate. So now, you might have multiple locations of a phosgene production. It may be small quantities, but the more you have to handle, the more equipment you have to have, and the greater the chance of an issue.

Chemistry is available that might eliminate phosgene, so there's many questions to be addressed as part of our investigation.

We do know that there is continuous produce in use. In fact, there is a history
related to the Kanawha Valley. DuPont ultimately moved their operation and they implemented in LaPort, Texas in their facility back in 1985 -- they eliminated the need to transport MIC via rail car.

Prior to 1985, they transported rail cars full from the northeast, not from this community but from the northeast part of the country, all the way to LaPort, Texas to make the final products. They now make and consume MIC in a very small section of the piping system. There's only a few pounds available at any given time.

In fact, DuPont patented this process and received an award in 1987. So we will be looking at this technology and we will be considering that as it applies or could be applied at the Bayer Cropscience facility.

With that, we'll move one more time into the unit operations as it relates to PSM and RMP, and Ms. Catherine Corliss will come up and present this section. Thank you.
MS. CORLISS: Thank you, John, and good evening, ladies and gentlemen.

I will be talking about unit start-up issues with respect to equipment, the man-machine interface used, fatigue, and procedures, and then evaluate all of this with a perspective from the OSHA process safety management standard and EPA's Risk Management Program, which you've already heard about.

There were many unit issues to deal with the week of the explosion related to a start-up after an extended shutdown and a new computer control system on a complex sensor process was installed.

I will talk about some of the more important issues relative to the residue treater. To begin with, the instrument drip system was redone during the shutdown, but a valve wasn't installed on one of the pressure taps. Instead of a drip, there was a steady stream of a solvent, MIBK, going into the column.
This put excess MIBK in the column and dropped the level of MIBK in the supply tank, which was something that was noticed in the process of troubleshooting this issue.

Because the instrument drip system wasn't working properly, there was dilution going on that made the column operate poorly. MIBK Hexane column temperature and base liquid level controls were still in need of adjustment on Thursday because of what had happened prior to that day.

Unit personnel were working on these controls both Wednesday and Thursday. In fact, the controls were in manual, not automatic control, on Thursday evening because all the adjustments had not been made.

That is not unusual in a start-up situation, but I am sharing those details with you so that you will understand what unit personnel were dealing with as they were working that week.

Because of these control problems
and the extra MIBK that the column had, the
column itself was not in its normal steady
state operation on Thursday. The solvents were
mixed to a certain degree, which affected
other process steps in the crystallizer, the
centrifuge, the flasher, and ultimately, the
residue treater.

Process controls were also an
issue. Valves, flow meters, and ratio
controllers are different with the new Siemens
operating system, and they all had to be
adjusted.

Solvent flow was lower than desired
during the solvent run, which preceded the
start-up. This is a normal way to go about
commissioning a process after it's been done
and empty.

But there was a problem, as will
occur in any start-up -- several problems, to
put it mildly. There was a blockage in a valve
that took awhile to trouble shoot and correct.
Because of that blockage, the flow wasn't
adequate during the solvent run in some areas of the process. Because of that, final adjustments to the controls had not been made prior to start-up. These adjustments were ongoing on Thursday.

And then, finally, two centrifuges are typically run in the unit and two centrifuges are needed to increase the level in the crystallizer to its normal operating range. With one centrifuge down, which was the case for the majority of the start-up, it was necessary to run the system at a lower than normal rate.

This affects the methomyl content in process flow streams leading to the flasher and hence, the residue treater.

The new control system had totally different screen images. The Honeywell system showed bars for process variables, while the Siemen system showed real equipment images with process measurements on those.

There were six screens available to
this particular unit's operation. One of them was dedicated to alarms, which left five screens to monitor unit operations.

Some equipment, however, would need as many as three screens to effectively monitor the process during certain situations. That makes it problematic having just five.

Three overview screens were created just the week prior to the explosion because operators identified a need for them.

Processing speed is much improved with the Siemens control system, however the user interface is slower. The user interface was changed. With the Honeywell system, an operator would type on a keyboard certain control sequences and they would occur.

With the new system, a mouse would be used to click on a device on the screen and then a value would be typed in and then the system would respond.

There were other issues with the ratio controls during start-up. The process
measures were different. The Honeywell had used percent volume or percent range, while the new Siemens's system used engineering units like gallons or pounds. This meant that operators were looking at different numbers than they were used to seeing.

Overtime rates had been high for more than a year in the methomyl larvin unit. For June through August of 2008, the average overtime rate for the trained operators, excluding the new operators -- trained operators average overtime rate was 47 percent.

To make sense of that, if you were working 47 percent overtime, your 40 work week would be 59 hours for three months in a row. Some operators even worked 60 to 70 hours per week.

Research has shown that fatigue has negative effects on performance. Fatigue can cause certain behaviors that may have played a role in the accident.
Impaired judgement, impaired decision-making, task-shedding, and cognitive tunneling are possibilities. Task-shedding means that you would not be doing certain tasks that you typically would do when overwhelmed and tired. Cognitive tunneling is a term used to describe a fixation on one aspect of a process to the exclusion of the bigger picture.

Some of the decisions made and not made by all unit personnel, not just operators, in the days before the explosion affected the residue treater. Fatigue may have played a role in these choices and it's an ongoing investigatory topic of concern.

We've talked about the residue treater to some degree already. I want to make a couple points.

The system was not capable of attaining the target temperature without the addition of methomyl containing residue, as mentioned before and called flasher bottoms.
The heater gets it close to the operating temperature, which is when the decomposition will occur when the methomyl contained fluids are introduced.

In the past, start-ups would get the temperature within 5 to 10 degrees of the required temperature, as found in the operating procedure, and then methomyl containing residue would be introduced, and the exothermic, or heat-producing reaction, would occur and raise the temperature to the set point, as found in the operating procedure.

There was a work-around in place, which involved bypassing a temperature interlock to open the flasher tails speed valve and introduce the methomyl containing residue to the residue treater.

Now, I'd like to talk about operating procedures. The procedures had not been updated to reflect the switch from the Honeywell system to the Siemens system. This
was not just a name change issue.

For example, in the past, if you wished to bypass a safety interlock, you would do what is called pinning a relay. That is actually introducing a physical object into an electrical device that moves to prevent that movement from occurring.

Now, if you wished to bypass an interlock, you need a password, you access the control system, you've got the required authorizations, and then you can change the computer logic.

Inputting the proper ration for the MIBK hexane column is also not in the operating procedure. As mentioned, that caused difficulty during this start-up.

There are other changes required by earlier process hazard analyses that were not reflected in the operating procedure as well.

Both the process hazard analysis and the operating procedures specify the importance of the residue treater methomyl
concentration to not exceed half a percent. Yet, sampling was not done or required to ensure this was the case. Sampling wasn't done at the residue treater. It could only be done at the flasher feed and the discharge of the residue treater. I will talk about this more in a minute.

Now, we will take a look at these issues from a regulatory perspective. The Institute site is covered under both OSHA's Process Safety Management Program and EPA's Risk Management Program. The first I'll call PSM and the second, RMP.

This particular unit is covered by PSM because it has more than 250 pounds of methyl isocyanate and more than 100 pounds of phosgene. It's also covered by RMP due to the phosgene, MIC, and flammable solvent inventories maintained in the unit.

Both of the programs are similar and they simply intend to prevent the unexpected release of toxic, reactive, or
flammable liquids and gases. They require the same actions by covered facilities.

They do have a different perspective. OSHA has an employee focus. It's also referred to looking inside the fence line. EPA has a community focus, looking outside the fence line at what the facility might release to the community.

Both of them, I'll refer to as requiring, as we talk about the subsequent elements. Process hazard analyses are studies that are intended to identify, evaluate, and control hazards in a process. A team of knowledgeable people will conduct such a study. It's required that recommendations that come from these analyses are resolved in a timely manner and the resolutions are documented.

In this case, audits have revealed that the Bayer process hazard analysis did not evaluate or control the hazards identified. The operating procedures did not provide clear
instructions for safely conducting activities involved in each covered process.

We've talked about the residue treater and the sampling that did not occur. That's what I'm talking about.

And the operating procedures shall address, at least, the following elements, including start-up following a turn around. The operating procedure for the methomyl larvin unit had been out of date since October of 2007 regarding the control system and considerably longer for recommendations that had resulted from process hazard analyses.

We've already talked about the residue treater temperature as specified in the operating procedure being unachievable. The workaround that was used on start-ups was not included in that procedure.

Both the process hazard analysis and the operating procedure identified the need to keep the methomyl content in the residue treater below a certain value to
prevent a run away reaction. However, sampling was not done to ensure that that happened.

Pre start-up safety reviews are another element of both PSM and RMP. They require operating procedures to be in place and adequate before you start up a unit. In this case, the operating procedure was not revised for the control system change so it was not considered in place, nor was it adequate for successful operation of the residue treater. We've already talked about the work around.

Management of change is another element of these programs. It is a written procedure that requires change to be managed for technology and equipment and personnel. It requires operators to be trained in the change prior to start-up.

The written procedure to manage change covers these elements, yet the work around had not been included in a review as required by the management of change.
procedure.

Bayer assumed that familiarity with the Siemens system on the larvin unit and a brief review of a few other significant changes for the methomyl process was adequate training for methomyl unit operation with the new control system.

In fact, it was not adequate. The methomyl process was not a batch process like the larvin. It was, rather, a continuous operation, more complex and more sensitive to upset conditions.

We've already talked about the changes to the screens that the operator used made as recently as a week before the accident.

PSM and RMP both require action items to be followed up on. Action items result from these programs from process hazard analyses, incident investigations, and compliance audits. What they specifically call for are action items to be promptly addressed
and resolved and documentation of that resolution.

Bayer's action tracking system was lacking. A response plan was not created over the past years. Actions were not tracked and documentation of resolution and corrective actions did not occur. There were a number of open high priority action items at the time of the explosion.

For example, there were more than 25 open action items from a process hazard analysis conducted in August of 2004. That was five years earlier and wouldn't be considered prompt treatment to have not been corrected in that period of time.

Finally, documentation of the corrections was also inadequate. In many responses to some of these action items in the system used, it's unclear whether plans made to correct the items were actually executed. A plan is fine, but it has to be completed to consider the action item being properly
resolved.

Now, Mr. Vorderbrueggen will complete the presentation by talking about the investigation path forward.

MR. VORDERBRUEGGEN: Thank you, Ms. Corliss.

It's been a long night, so I'll go through these quickly. Most of these have been addressed or at least mentioned. Please bear with us. We hope it's useful.

The investigation team is going to continue identifying additional documentation that is needed for our investigation and request that from Bayer.

We will conduct follow up interviews with some site personnel. They'll be some new interviews and we may be talking to some additional emergency response individuals in the community.

We will continue collecting information on the community impact. We will acquire the missing methomyl larvin unit's
Then, the meat of it is to review the design documents associated with the methyl isocyanate operations. We do intend to run some air modeling to predict what kind of chemical release might occur in the impact zone. We intend to do some chemical testing on some of the samples we collected back in the fall.

Of course, ultimately, the team will develop the report and the formal written recommendations for consideration by the Board at the end of our activities in a format similar to this, and hopefully, a vote at the public meeting.

So with that, Mr. Chairman, I will turn the floor back over to you and if the Board has any questions, we're ready to respond.

BOARD QUESTIONS

MR. BRESLAND: Thank you, Mr.
Vorderbrueggen. We thank the team for your excellent presentation.

Let me ask the Board members. We'll start with Board member Wark. See if they have any questions.

MR. WARK: Thank you, Mr. Chairman. In the interest of time, I am not going to ask a bunch of questions. I have a bunch of questions regarding emergency planning preparedness and response, and at some time in the future, I'd like to be able to discuss this with the appropriate personnel regarding what happened here, talk to the LEPC's, talk about on-site, off-site emergency planning, and how that can be hardwired together -- the same as in an area that I worked in quite a bit, the radiological emergency preparedness programs around commercial nuclear power plants, and what applications there might be there.

Finally, I would just mention that in this regard, I'm happy to say that we are
completing -- one of our videos is going to be on emergency planning preparedness and response. We would hope that some of the lessons learned here, we'll be able to take nationally and be able to protect and assure the health and safety of people across the country. Thank you.

MR. BRESLAND: Board member Wright?

MR. WRIGHT: I too, in the interest of time, will forego any questions. Most of mine are technical in nature, and I'll discuss those with the staff at headquarters. Thank you.

MR. BRESLAND: Thank you. Let me just ask a couple of questions. How many air monitors are located on the fence line of the property and what was their status in the time of the incident?

MS. SCIALLO: There are three monitors on the perimeter of the facility. The Chemical Safety Board has received results for two of the three monitors that were
operational on the night of the incident.

MR. BRESLAND: One clarification question for Mr. Banks, which is on slide 34, where you talk 49 minutes into the incident, Bayer recommended -- I don't remember the exact wording, but there was a recommendation for a shelter in place. Can you just clarify that? I think there may be some issues or differences of opinion or maybe I didn't exactly understand what you said.

MR. BANKS: Okay. At 49 minutes into the incident, the Bayer incident commander recommended to Bayer emergency operation center to issue a shelter in place for the Saint Albans and Nitro area.

This was based on his observations of a pool fire that was advancing towards a warehouse where methomyl was stored. This wasn't based on any electronic monitors or feedback from monitoring systems.

MR. BRESLAND: So it was a communication that went from one part of the
Bayer facility to another part?

MR. BANKS: Yes.

MR. BRESLAND: But then --

MR. BANKS: Yes. I'm sorry. I didn't complete that. The Bayer IC relayed that to the Bayer EOC and asked that that information be transferred to Metro 911. That unfortunately wasn't done.

MR. BRESLAND: So that information was not transferred, so that did not ever --

MR. BANKS: Yes.

MR. BRESLAND: Okay, thank you.

Thank you.
Did Bayer have any portable monitors and were they used on the night of the incident --

portable monitors for chemicals in the atmosphere?

MR. BANKS: Not that I'm aware. We have no evidence that we found to indicate that.

PANEL TESTIMONY AND BOARD DISCUSSION WITH PANELISTS
MR. BRESLAND: Do we have any other questions from the Board members? Thank you.

We will now move along to our panel discussion. Actually, by shortening the Board member questions, we're back on schedule again, I'm happy to say. Thank the Board members for that.

Let's start with the panel members on -- we asked them to do a four or five minute presentation on the issues that they see coming out of this investigation. We'll start with Mr. Sterling Lewis, who was appointed as the state fire marshal on May 1, 2000.

We've had a very professional relationship with Mr. Lewis over the last couple of years on investigations that I've been doing here in West Virginia. We very much appreciate his help. Mr. Lewis?

MR. LEWIS: Thank you, Mr. Chairman.

Members of the Board, members of the team, investigators. Again, Mr. Chairman, I would
like to thank you for the privilege to get to work with your investigators -- some of the most professional, knowledgeable individuals that I get to work with at the state fire marshal's office. We certainly appreciate that.

Along with my duties as the state fire marshal, I am also the director for the regional response teams in the state of West Virginia, which we cover HazMat and WMD mitigation, mass casualty, USAR with West Virginia Task Force 1, which all falls under the umbrella of the Governor's Mobile Response Units.

On the night of the incident, I received a call from the West Virginia Department of Homeland Security and Emergency Management advising me that Metro 911 had called them and asked for the regional response teams to be put on stand by. That's our process. The county calls the state and then the state director Jenneta and I, we work
together to decide whether we're going to respond the units out.

I asked the emergency management operator why do you want regional response team assets? She advised me that she did not know, that Metro 911 called and said they need the regional response team on stand-by, but they didn't know what the problem was, but they knew that it was a Bayer Cropscience plant.

At that time, I advised her I would respond personally to the incident to see if regional response team assets were needed.

In my response, coming in from Nitro form the west end, coming into the plant, I was in a tremendous amount of smoke and could smell unusual stuff that you don't smell when you go through Nitro usually.

At that time, I got on the radio with Metro 911 and asked -- which is a normal question when we do a HazMat response -- what are we driving into? What are we responding
to? Again, this was 15 minutes after I had departed my residence. We do not know -- 1770, which is my unit number -- we have not been told yet.

I arrived on scene at Bayer Cropscience and pulled up to the gate and of course, showed my identifications and my badge. I was asked to turn over and park on the side, that someone would call me, and they did. The Response I got was we have had an explosion in the larvin unit. We have one individual that is being transported by ambulance, and we have one individual that is unaccounted for.

After approximately 40 minutes that we got into the plant, into the plant's EOC, we were ushered into a room, a number of us. We waited approximately 20 minutes at that point in time to get someone to us and we asked what is going on. I got the response of we had an explosion in the larvin unit. We have one individual being transported by
ambulance and we have one individual unaccounted for.

At that time, I figured I didn't have enough information that I needed, so I went back out to where the first responders were because they were the ones that were actually responding into the units and coming back out and changing manpower in and out.

To make Response short and leave time for the others, at the end of the night, I knew no more walking into the aftermath than I knew driving up the Interstate 64, and that was approximately six hours later.

I advised the company that I would not remove the victim until daylight. They asked, since they were having shift change, that the men that were coming into work were a little uneasy about it and I understand, so I agreed with -- Mr. Janetta and myself, we went into the situation.

I asked if the environment we were walking into was a safe environment. I was
assured that it was and we went on that assumption because they were the professionals.

After that, the West Virginia state medical examiner came in and did what they needed to do and removed the victim. I'll be happy to answer questions.

MR. BRESLAND: Thank you, Mr. Lewis. Do we have any questions? Board member Wright?

MR. WRIGHT: Marshall Lewis, I'm just curious as to whether in your professional opinion, you thought that your denial of access was for your own protection or a situation based upon the fact that maybe they didn't know what situation they had going in there?

MR. LEWIS: I could have gone that way, but I'm sort of like Dr. Phil. This is not my first rodeo.

It was a very rehearsed speech that I got from every employee at Bayer Cropscience. They train their employees well.
I wish I could train my fire marshals that well.

But no, I don't think there was any mistake. I'm not sure they knew exactly the situation they had because when I looked at the destruction inside there, I knew immediately that all the destruction there was way above the pay grade of any of my fire marshals and knowledge of my fire marshals, and that's why I'm so glad to have the team come in because we relied and always do, on their expertise.

But no, I don't think it was just a mistake.

MR. WRIGHT: Thank you.

MR. BRESLAND: Just one quick question. You may not be exactly the right person to ask, but what sort of HazMat, outside HazMat Response capabilities would there be in the area for a situation like this?

MR. LEWIS: Are you saying other
than the regional response teams?

MR. BRESLAND: Well, maybe including
the regional response teams.

MR. LEWIS: The regional response
teams are made up of 19 units around the state
of West Virginia, geographically located to
respond.

There are a number of our fire
departments and we're very lucky in the valley
that with our fire departments we have here in
the Kanawha Valley -- they make up a large
number of those HazMat Response units.

We were able to pull out one unit
and we did air monitoring around the perimeter
because we wanted to be sure -- since we
couldn't find out what was going on inside, we
wanted to be able to protect the citizenry on
the outside. We set up our air monitors
outside the plant. Luckily and by the grace of
God, we had nothing that registered on our
monitors.

MR. BRESLAND: Okay, thank you.
Let's move on to Mr. Dale Petry, who currently serves as the director of Emergency Management Services for the Kanawha County Commission. Mr. Petry?

MR. PETRY: Well, first of all, I would like to also thank you the Board and the investigative team for what I thought was a very informative investigation. I'm just glad that they saw it necessary to come and do the investigation for us.

My role as the emergency county director or emergency services is to coordinate response efforts, to protect life, property, and environment. Effective communication is imperative to fulfill this mission.

On August 28, 2008, our public safety forces was prepared to do whatever was necessary to protect human life and assist Bayer's Institute site in mitigating the emergency situation within their compound.

Unfortunately, Bayer's lack of
communication that night undermined our best efforts unnecessarily. I'm disappointed to report to you that I learned more about the explosion and fire at the Institute site from sitting in the hearing in Washington, DC this week than I did during the incident and the days that followed.

However, I will report to you that we have learned some key lessons from this experience that will ensure that certain events of that evening do not repeat themselves.

The Kanawha County emergency plan contains guidelines specific to emergencies inside plant facilities. These guidelines have been developed and updated over the years by emergency services and the Kanawha Putnam Emergency Planning Committee, which includes plant representatives.

Chief among these plans is protocol for informing Metro 911 of emergency situations within plant facilities, including
redundant communication methods. The plan assumes that our chemical plants will call us when an incident occurs on their property -- even a minor incident that requires no public warning.

Although a local telephone network was stressed that night due to the huge volume of 911 calls, Bayer has radios tuned to our public safety channels to use as an alternative method of contacting Metro 911 and to communicate with our public safety personnel who respond to plant emergencies. Bayer has long participated in weekly tests of this radio system, but did not use it that night.

Only after 911 operators called the plant, we finally made contact. We received no useful information. What telephone communication we received from Bayer that night came from a security guard at the main gate and was seriously lacking in substance.

It was hours into the incident
before we had any idea of the chemicals involved. This information came too late to take proper actions to protect the public and our first response personnel.

After midnight, a plant official reported to our emergency operations center as requested. He was less helpful to us than the security guard at the main gate.

Had Bayer been forthcoming with accurate information about what was going on inside their compound, we could have initiated measures to warn the public within ten minutes after the explosion was reported. Their lack of communication delayed those efforts for 35 minutes after Bayer refused to tell us what had exploded.

We will not wait on information again. Kanawha County has already instituted a policy that says we will wait no longer than 15 minutes for accurate information about an incident at a chemical facility.

If we're not getting information,
we will issue a shelter in place warning as a precaution to protect our citizens. The legislature has followed our lead and that same time limit is now a state law.

We have also installed a direct line to the Institute site and I will now carry contact numbers for key personnel at the site so that we can bypass the security guard who apparently couldn't tell us anything. These are just a sample of measures that we have taken to improve our Response efficiency and we don't think we're finished.

Despite the crafted public assurances that Bayer intends to correct their communication failures, Kanawha County has been responsive with actions to see that the failures and confusion that night will not be repeated.

MR. BRESLAND: Thank you very much, Mr. Petry. Board member Wark, you have a question?

MR. WARK: Yes, I do. First of all,
I'd like to commend you for the improvements that you're making in your emergency response capability.

One question I do have -- you mentioned that you have a plan, emergency plan. How often do you exercise that plan -- drill it?

MR. PETRY: We drill that plan, I would say, quarterly. We do any improvements that we need to try to make the plan better. We try to continually update our plan on any instances and any failures that we occur.

MR. WARK: What's your relationship with the local emergency planning committees? Do you sit on their committees, for instance?

MR. PETRY: We meet every other month with our local LEPC, which includes all the chemical plants and emergency response personnel.

MR. WARK: Okay, thank you.

MR. BRESLAND: I had a question today when we did a news conference this
morning. I wasn't able to answer it and I think you could probably help me with this, Mr. Petry.

The question was, the 911 operators, when they receive a call about a chemical plant emergency, which is probably something that happens with relative frequency here in the Valley because of all the chemical plants, do they have a form that they would use to ask questions of the person who is calling in, to try to gather information on exactly what's going on?

MR. PETRY: Yes, there is a form that they have to look at to try to gather information. Unfortunately, that night we couldn't get any of it.

MR. BRESLAND: During the emergency on August 28, did you receive any requests for a shelter in place from inside the facility?

MR. PETRY: No. It was after that we recommended a shelter in place before we received anything from the plant requiring the
same.

MR. BRESLAND: Okay, thank you very much.

Next speaker is Mr. Nick Crosby, who is the vice president of operations at the Bayer Cropscience facility. Mr. Crosby?

MR. CROSBY: Thank you, Mr. Chairman and fellow Board members. Good evening.

I want to speak to you this evening not only as an engineer and business leader, but as a member of the Kanawha Valley community here.

On August 28, we suffered a tragic accident at the Institute site. I want to make the point perfectly clear. Our employees, our neighbors, and the community is and must remain our highest priority.

Over the past seven months, Bayer Cropscience, the CSB, and others have been working together to examine this incident, to learn from it, and to identify opportunities to improve the systems and processes.
We've also been conducting our own investigation. On Tuesday, I took part, along with others in our community, in a congressional hearing on the accident. At the hearing, I discussed our commitment to further engagement with our neighbors and greater community. We will fulfill that commitment.

On the night of August 28, our emergency responders did a tremendous job under very difficult circumstances. They followed the communication protocol set forth in our region's emergency response plan.

After the fact however, we came to understand that our communications in the initial minutes after the incident fell short. We have apologized for that.

Many members of our community became concerned upon hearing an explosion and seeing a fire. They did not receive the immediate reassurance that they were not in danger.

We've already taken many
significant actions to improve our emergency communications with the community. For example, we have new procedures for communicating with Metro 911. We have installed a telephone hotline and have new radios to avoid overloaded phone lines to Metro 911.

The task of alerting Metro 911 has been re-assigned to our perimeter leader and not a security guard. We have a new checklist of critical information that he should communicate to Metro 911.

We have hired an emergency services leader to enhance our coordination and emergency communications with Metro 911 and the community.

And we have equipment from 911 with the same real-time computer based system that we use for modeling and monitoring chemical dispersions that we use at a site.

During the incident, there was no delay in ordering the shelter in place. The
incident commander promptly assessed the situation, observed the characteristics of the fire, and concluded that no chemicals were being carried beyond the facility. He made the decision that shelter in place was not required and it was the right call.

Approximately 45 minutes later, however, he observed that the fire was heating up nearby storage bins. As a precaution, he recommended a shelter in place for two neighboring communities. This information was relayed to Metro 911. Post-incident testing confirms that only trace amounts of methomyl were able to be found.

MIC or methyl isocyanate is a critical and necessary building block for the products at the Institute site, which are used in important insecticides that help protect crops, both in the United States and around the world.

Bayer Cropscience and the prior owners of the Institute site have invested
heavily to ensure that we employ the safest production strategy for chemical processes. We have examined other technologies for MIC and we have determined that our process is as safe as those alternatives.

At no time was any MIC released during the incident. We have multiple and redundant layers of protection which, working together, protect our employees, our neighbors, and their community from the harmful release of MIC. Those layers of protection worked as intended during the incident to protect the MIC day storage tank.

We've shared details of these layers of protection with the CSB and other government officials. Above all, the safety of our employees and neighbors from the community remains our highest priority.

We've taken a number of steps to prevent another incident like the one that happened on August 28. We have conducted an extensive internal investigation that
identified the factors leading to this incident.

Based upon the results, we have implemented several measures, including safety improvements, additional operating procedures and safe guards, and an extensive training and compliance regime to ensure that this kind of incident will not occur in the future.

Finally, let me be clear. The Bayer Cropscience has fully cooperated with all agencies, including the CSB, giving them our support, access to our facilities, our employees, and their records.

I truly hope my comments this evening have helped to provide some clarification to address concerns and to inform about the positive steps we are taking forward. Again, I welcome the opportunity to address our neighbors here this evening. We remain committed to the community and focused on the safe operation of our facility and the safety of our employees, our neighbors, and
the community.

We look forward to demonstrating our cooperation with our public emergency response officials in enhancing an active dialogue with our neighbors.

If people do have questions, comments, or concerns about this incident, our reconstruction activities or anything else, please do not hesitate to contact us. We have established an e-mail address, which is institutequestions@bayer.com to enable us to listen to what you, our neighbors, have to say.

We take our responsibilities to our community seriously and we intend to meet those responsibilities. Thank you, Mr. Chairman.

MR. BRESLAND: Thank you, Mr. Crosby. Board member Wark, do you have any questions?

MR. WARK: Yes, I have a couple. Do you have a -- you know, in the area that I'm
familiar with the radiological emergency
preparation program and the chemical
stockpile emergency preparedness program,
there's what we refer to as alert notification
system, which involves 911 ring-down. It
involves sirens, for instance.

Have you been addressing that at
all prior to this incident, as far as -- I
mean, do you have alert sirens to tell the
community off-site that something bad is
happening and that they should be paying
attention to the alert notification system?

MR. CROSBY: We have an internal
emergency alarm notification system, which is
designed for internal use only.

When our alarm sounds, we have a
duty and we have an agreed protocol whereby we
will call Metro 911 and inform them of the
type of incident. It is our duty to provide
the necessary information and the necessary
communications to allow Metro 911 to be able
to take the relevant actions within the
community.

There are community sirens. There are systems that are available, but those systems are managed or controlled through Mr. Petry and his 911 organization.

MR. WARK: The other question that I have is, we've heard from the investigators regarding monitors and I would like to ask you this.

In your written statement for tonight's meeting, which you provided to us yesterday, you said that we monitor for MIC and there's no indication that MIC was released the night of August 28. End of quote.

My question is, were all of the MIC air monitors in the facility turned on and working properly that night, for your perspective?

MR. CROSBY: We had an issue with some local general monitors, which are used to really detect what I would call very minor leaks that evening.
The monitors that we refer to in terms of ensuring that our neighbors and our community is safe are our fence line monitors. They pick up a variety of compounds and would readily detect any MIC if it were to leave the site.

Those monitors that night, detected no sign of any release of toxic chemicals outside of our fence line.

MR. WARK: And they were operational?

MR. CROSBY: They were in operation. Yes, sir.

MR. WARK: That's all I have, Mr. Chairman.

MR. BRESLAND: Board member Wright?

MR. WRIGHT: Mr. Crosby, how many monitors are around the perimeter of the facility?

MR. CROSBY: We have a number of various monitors around the facility, two of which actually manage -- detect chemical
activity around the fence line.

MR. WRIGHT: So only two of an unknown number of monitors detect toxic chemical activity?

MR. CROSBY: We have monitors which are strategically placed, actually permanent monitors on the fence line.

We also have a number of portable monitors, which we can take out into the community and can be used to actually detect the same compounds. They can be set up on an as-needed basis.

MR. WRIGHT: Okay, so let me get back to the basics. How many monitors do you have that will detect toxic chemicals?

MR. CROSBY: We have a total of six, two of those are permanently installed and four of those are mobile monitors.

MR. WRIGHT: And none of those detected any toxic releases on the evening of the 28th?

MR. CROSBY: We used the two fixed
monitors, sir, and neither of those monitors detected any releases. That's correct.

MR. WRIGHT: Would you agree with me that the system broke down miserably that evening for your company and your obligation and duty to notify the 911 operator or the emergency services center?

MR. CROSBY: I think, sir, there's two parts to our response. One thing and I will answer the question. The one thing that I am very, very proud of that evening is the way that our emergency squad responded to that incident. They did an absolutely fantastic job on the site and I was very proud of them.

MR. WRIGHT: I agree with that.

MR. CROSBY: What I fully acknowledge is that our communications to Metro 911 broke down that evening. That was not by design. We believed that we made the right communication protocols. We hadn't.

We need to fix it.

We've been working with Metro 911.
We are, in fact, planning a joint drill towards the end of next month, where we will test the changes and the enhancements and the improvements that we've made to our communication systems.

MR. WRIGHT: My follow up question to you, sir, is do you believe you had adequate information based upon the number of monitors that you employed that evening? Had you had the correct information and shared it with the public that the public would have been safe and possibly assured of their own safety, had you shared that with them?

MR. CROSBY: I've always been assured, sir, that the analysis that we carried out at the time of the incident, the way that the incident commander responded to that and the decisions that we made about shelter in place were the right decisions.

MR. WRIGHT: Thank you.

MR. BRESLAND: Mr. Crosby, you said that you have two fixed monitors. I've driven
around the facility and it's quite a large place.

Are you giving any thought to installing more fixed monitors as a result of--

MR. CROSBY: That's a very good question, Chairman Bresland. We will be re-examining the systems that we've got on-site.

Monitors are actually placed, to the best of my knowledge, in the areas where we are closest to the neighbors in our community. I mean, they're placed strategically for those reasons. They were placed in full consultation with the consultants with whom we purchased the system from with the safety assistance.

But we will be reviewing this as part of our incident review of the types and locations of our monitors to see whether there are enhancements that can be made, yes.

MR. BRESLAND: Are these specific to MIC, phosgene, chlorine?
MR. CROSBY: They detect volatile organic carbon compounds, chlorine. They look for a number of other components.

They aren't specifically designed for MIC, but they would certainly pick up MIC, as well as a range of other chemicals on the site.

MR. BRESLAND: What about the portable monitors that you talked about? Are those like drager tubes or more sophisticated than that?

MR. CROSBY: They are, in fact, portable versions of the installed monitors. They can be taken out and they can be placed within, I believe, about a three mile radius. They have a radio link back into the safer modeling and dispersion system that we use within our emergency operations center.

MR. BRESLAND: Was there a reason they weren't used on the evening of the --

MR. CROSBY: All of the information we were receiving was that there was nothing
actual leaving the site.

        We did, in fact, dispatch one of our environmental staff up into the Cross Lanes area to some portable monitoring with an alternative handheld monitor, and he too, confirmed that there was noting being detected at that time.

        The other -- one final set of monitoring that we carried out was we did use the offer from the Nitro volunteer fire department. We were using their firefighters that evening to actually walk and patrol and to assess what was actually happening around the fence line. Again, we found no evidence of any release.

        MR. BRESLAND: Okay, thank you very much. Any other questions? We'll move on to Mr. Michael Flynn, who's with the International Association of Machinists, which I understand is a union that represents employees of the facility. Is that correct?

        MR. FLYNN: Yes, sir. I would like
to thank Chairman Bresland for the opportunity
to express our views on this most important
matter.

First, on behalf of the
International Association of Machinists and
Aerospace Workers, I want to remember the loss
of two union brothers, Bill Oxley and Barry
Withrow, as a result of this August explosion.

Going through an investigation of
an event of this magnitude to determine the
root causes takes time and creates additional
stress to their family members, friends, and
co-workers.

At the conclusion of this process,
it is our hope that those two tragic deaths
and the subsequent findings will contribute to
making work sites safer, not only here in
Institute, but throughout the chemical
industry.

On the morning of August 28, I was
contacted by Don Holmstrom, an investigator
with the CSB. This was my first notification
of the incident that occurred at Bayer Cropscience.

He told me at the time that he did not have the details of the explosion, but due to the manufacturing and storage of the MIC, the chairman, along with four other investigators had already departed to the site. He requested assistance in notifying our local union representatives to ensure the CSB would have the correct union contacts when they arrived.

Through our territorial general vice president's office, I was able to contact Joe Gresham, the business representative at the facility. He forwarded me the names and the contacts for the local union safety representatives, which I then forwarded to the CSB.

Now, this was a normal CSB request, since it is our experience that the Chemical Safety Board involves all parties related to their investigation. This is why I want to
speak on the subject of the necessity for the Chemical Safety Board to have unfettered access to a plant they are investigating and the ability to involve the workers, the community for that investigation as it's taking place.

Historically, Bayer Cropscience in Institute and our local union have had in place sound functioning safety committees. Over the years, the committee has been both proactive and reactive to the issues or concerns raised as resulted to safety and health.

For the most part, throughout this investigation, that continued. Our safety committee was involved with the OSHA inspection process, the ATF and the CSB, including interviews of the witnesses.

From my perspective though, that cooperative spirit of working together toward a common goal began to be compromised when Bayer Cropscience's legal counsel started
raising issues that challenged the CSB's planned activities under the Maritime Transportation Security Act.

To add injury to insult, the company's legal counsel sought out our notes the union representatives had taken during the interview process. To respond, we had to utilize our legal department resources in objecting to that request.

As I observed this challenge taking place, it became apparent that the critical work of the Chemical Safety Board was also being affected due to their time and resources being spent to respond to legal matters.

I was immediately suspicious of these legal maneuverings, where the efforts of an overzealous lawyer pulling out all stops just to stymie any and all investigation.

The acknowledgment at the recent congressional hearing before the Subcommittee on Energy and Commerce that this was a public relations tactic to prevent negative
information from being disclosed is in itself most troubling.

As a union that represents workers across North America in the aerospace, shipbuilding, nuclear defense industries, we are well versed and respect the need to protect national security concerns. However, we must be wary of national security concerns being invoked for frivolous reasons such as a company's public relations.

The work of the CSB, including public hearings and their final reports, are intended to prevent similar accidents in the future. Whether you are a company, a shareholder, or worker in a plant, or a member in the community where the plant is located, the information garnered from the CSB investigation is not only beneficial, but can prevent future catastrophes.

The American public would ultimately pay the biggest price if all companies involved in future Chemical Safety
Board investigations exercised similar use or misuse of national security regulations to prevent a thorough and transparent investigation.

Bayer Cropscience here in Institute has a proud and experienced work force. They have been committed to safety and our local union leadership has built excellent safety committees, negotiated language in collective bargaining contract that serves our members and employees well.

No one cares more about the safety and health than the workers who live in this community, along with their most precious assets, their family and friends.

I want to close as I opened and remember that it was Barry Withrow and Bill Oxley who paid the ultimate price. It is my hope that lessons learned from this tragedy will benefit their family, friends, co-workers, and community. Thank you, Mr. Chairman.
MR. BRESLAND: Thank you, Mr. Flynn.
I certainly appreciate those comments and I tried to make the same comment earlier this evening and also in my congressional testimony earlier this week.

Just from a practical point of view, having worked in the Chemical Safety Board for a long time, but since February 12, when this issue came up, the work of this Chemical Safety Board has been directed -- I wouldn't say exclusively -- but closely exclusively to dealing with this legal issue that had been brought up and it brought our investigation of this incident and another very serious incident that killed 14 employees in Georgia, basically to a halt, so I really appreciate your comments. Thank you.

Board member Wark?

MR. WARK: Yes. I have a couple of questions. The CSB investigators noted that fatigue was a potential factor in the accident with operators working 12 hour shifts many
days in a row and sometimes up to 18 hours at a time.

I would like to know your view on operator fatigue as an important safety issue for the industry in general and also, to what extent you would condone this extra overtime, which having grown up on a farm, I know you work 12, 14 hour days for a long time and you get pretty loopy, so what do you have to say about that?

MR. FLYNN: Well, first of all, each of our contracts are locally negotiated. The overtime rules, the rotating shifts, the longer days are determined by our membership in a democratic fashion when they negotiate and vote on their collective bargaining agreement.

With that said, any critique, any investigation -- all the cards go on the table, and not all the time it's comfortable for a lot of parties. It's just not the company.
There are times that we have to look at ourselves. We do an awful lot of training, HazMat emergency response training for our members and joint labor committees. The biggest part of that is to look at our entire process and work product. There's lessons learned.

Now, Mr. Crosby said that they had completed an investigation. Well, that investigation -- our members participated in, but I would say the investigation is not complete until all the data is in from all the investigative bodies.

That issue certainly rises to the top and it's an issue that we deal with throughout the union. Especially in an economy like today, it's cheaper to pay somebody for 12 hours than to hire an additional body. A lot of times, it's driven. The economy drives that.

At the same time, people need to work it. If the second wage earner in the
family has lost their job, they're going to take the overtime. With all the other pressures going on, a lot of times it becomes an economic issue.

   But it should be looked at just like any other issue needs to be looked at, in a very transparent and candid manner.

   MR. WARK: So you would say it would be fair to say that in addition to an economic issue, that it's a safety issue?

   MR. FLYNN: Certainly, fatigue is a safety issue. There are plenty of studies that will prove that and I would say everything should be looked at, yes.

   MR. WARK: Thank you.

   MR. BRESLAND: I have no questions.

   Let me move on to Mr. Hendershot. I'll just take a few second to introduce Dennis. I have known him off and on over the years.

   He's a chemical engineer, BS, MS. He worked for Rohm and Haas for 35 years. He's involved with one of the country's experts on
inherently safer design. He was intimately connected with an investigation that we did of the Texas City explosion because he was hired by the independent safety panel headed up by former Secretary of State James Baker, which posted its report on safety culture of the BP Texas City refinery.

So we've asked him to come and talk about general chemical process safety issues, keeping in mind his expertise in this area.

Mr. Hendershot?

MR. HENDERSHOT: Thank you, Mr. Chair and Board and everybody.

The Board staff asked me to talk about a couple of issues. First of all, just a few brief comments about some personal experiences I've had with Bhopal. Also, to talk more extensively about inherently safer design.

In December of 2009 -- this coming December will be the 25th anniversary of the Bhopal tragedy. In December of 2004, on the
20th anniversary, I was privileged to participate in an international conference to mark that anniversary and to share progress that the process industries have made in that intervening time to prevent such things from happening in the future.

After that conference, I, along with a number of other attendees from the conference was able to actually tour the Bhopal plant and the city and the area. That was a very memorable experience, seeing the equipment where the release occurred, meeting many people in the community who were injured by the tragedy, talking with emergency response personnel who had to deal with those consequences, talking to plant operating personnel, including some who were off-duty at the time and were at home with their families and were actually impacted by the tragedy as members of the community.

Maybe the biggest impression of all was visiting clinics and talking to doctors
who are still dealing with long-term health
consequences 20 years later.

    One thing that really struck me
earlier this week when I was listening to the
congressional hearings on this incident and
just a few minutes ago when Marshal Lewis was
speaking, was how similar the experience of
the Kanawha Valley emergency response
personnel to that that the Bhopal India police
chief described to me as his experience in
December 1984, in terms of not being aware of
what was going on.

    It was almost the same words.

    CSB also asked me to talk briefly
about the concept of inherently safer design.
Inherently safer design is a philosophy for
design and operation of any technology,
including chemical processing. It's not a
specific technology or a set of tools and
activities, but it's really an approach to
design and it's a way of thinking for
engineers at all stages in process development
What do we mean by inherently safer design? One dictionary definition of inherent is existing in something as a permanent and inseparable element. What that means is that the safety features are built right into the process, not added on. Hazards are eliminated or significantly reduced rather than controlled or managed.

The means by which you do this are so fundamental to the design of the process that they're really difficult or impossible to change or defeat.

But again, there are some important things that we have to recognize. When we describe a process design as inherently safer, we need to remember that first of all, we're describing it as inherently safer relative to one or more alternative designs.

I never use the word inherently safe. If by safe, we mean that it's the complete absence of all hazards and risks,
then I'm not aware of any technology that could ever be described as absolutely inherently safe. We talk about something as inherently safer relative to something else.

Also, we're generally talking about inherently safer in the context of one or perhaps several of the multiple hazards that are associated with any kind of a process or technology. But it may not be inherently safer with respect to all hazards.

We have to remember no good deed goes unpunished and oftentimes, any change in technology, even when it's intended to eliminate or reduce a particular hazard, has the potential to increase other hazards or introduce new hazards.

And so, when you make these technology choices, it is really important to fully understand all of the implications of all of the various alternatives. That is really essential.

There's been a lot of discussion of
the potential for other inherently safer processes to manufacture the products which are produced at Institute. Other companies have reported successful implementations of alternative technologies -- and we saw some mention of that in the slides earlier -- for some of the materials produced in this plant.

It's not clear to me as an outsider and from the information that is available to the public how thoroughly those alternatives have been evaluated at Institute. You really can't tell. Society does not insist that a technology be inherently safe. We insist that it be safe.

High reliability organizations operating inherently hazardous technology can be quite successful. For example, air transportation. I almost took that out after my experience trying to get here today.

But you know, the Navy submarine program, the deck of a modern aircraft carrier -- we can do this.
In Pudd'n Head Wilson, Mark Twain suggests put all your eggs in one basket and watch the basket. The important thing there is watch the basket is in all capital letters. What he's saying is that if you're going to do that, if you're going to put all your eggs in one basket, you have to be really good and you have to be really good all the time -- not 90 percent of the time, not 99 percent of the time. You have to be good all the time.

Here at the University, if you get a 95 percent on a test, you'll probably get an A. If you're dealing with a high risk technology and you get a 95 percent on a test, you're not going to get an A, so you have to be good all the time.

As a chemical engineer and a strong proponent of inherently safer design, I can be convinced either way with regard to the processes at Institute because I haven't really seen a lot of information about how the choice was made.
With regard to changing technology, early in my career, I worked for 15 years in process research and development. Over that time, I encountered a lot of really good ideas that we were not able to successfully implement -- sometimes for economic reason. Sometimes because you just couldn't get them to work properly on a production scale. Sometimes because we encountered unanticipated safety, health, and environmental issues.

In one case, we had a new plant that was half built and millions of dollars invested when we decided we couldn't make the process work and we abandoned it.

Details really matter. They matter a lot in chemical processing, so you can have what looks like a trivial change in chemical structure that can have major impacts on things like chemical reaction selectivity, rate, solubility, and other things that are important in designing a manufacturing plant.

It's not my purpose here to try and
explain why Bayer and for several previous
owners to have chosen not to change technology
at Institute -- I'm really not qualified to do
that. I'm not familiar with that technology,
so I would just be speculating, and there
really is little information publicly
available. There could be good technical and
economic justifications for this decision and
I notice that even the report of Dr. Lapkin
for the Good Neighbor Project acknowledges
some potential difficulties. But difficulties
often can be overcome, but not always. But
they need to be looked at.

It's very clear to me, from the
concern in this room and from the continuing
public concern going all the way to the United
States Congress, that the various operators
over the years at the Institute plant have not
been able to convince this community that they
have made a good decision. Thank you.

MR. BRESLAND: Thank you, Mr.
Hendershot.
The program that you were involved with at the BP Texas City accident was a study of the safety culture of BP. What lessons did you learn from that that could be transferred -- without obviously understanding too much about Institute, but what lessons on safety culture did you learn?

MR. HENDERSHOT: I've always thought that the most important recommendation from the Baker panel report was the first one, which dealt with leadership, leadership throughout the organization.

Again, leadership is just not the CEO and the work manager and so forth, but everybody in the organization is a leader. But the leadership does need to start at the top and it needs to be real and genuine and a full commitment because if you don't have that leadership and that top management commitment, none of the other recommendations from the Baker report are really going to matter because they won't happen.
I think that's absolutely critical.
As I was listening to the description of this incident, there are a lot of similarities between this incident and Texas City, in terms of having it occur during a start-up, in terms of issues with excessive overtime and fatigue and procedures that are inadequate and so forth.

It really comes down, I think, in many cases to really having a good effective process safety management system, which, I think, most importantly provides feedback to management as to whether it is functioning properly or not. I think in many cases, systems are put out there and assumed to be working, and what management needs is bad news.

They need to get the bad news about what's not working because that's not what they need to fix. Management needs to welcome bad news. They need to look for bad news because that tells them what their job is.
You don't need to fix what's working right. You need to fix what's broken, but if you don't find out what's broken -- if your system does not provide feedback about what you might think is happening but is not, in fact, happening, then you're not going to be able to fix it.

MR. BRESLAND: Thank you, Mr. Hendershot. Finally, Maya Nye has been sitting here patiently since 6:30 this evening. I assume you still want to speak.


MR. BRESLAND: Ms. Nye is the spokesperson for People Concerned About MIC. Thank you.

MS. NYE: Chairman Bresland, thank you and Board members, thank you. Community members, thank you for coming.

My name is Maya Nye and I am the spokesperson for the community organization People Concerned about MIC.
I am also a community activist and an accidental environmentalist. I'm also a union member.

People Concerned About MIC is a community organization in the Kanawha Valley dedicated to the protection of health and safety of all of those who reside, work, and study in the vicinity of local chemical plants producing highly toxic chemicals.

The group formed because concerned community members learned that methyl isocyanate, commonly referred to as MIC -- the same chemical and killed and injured hundreds of thousands of people in Bhopal in 1984 was being produced in our backyard.

Now, I was a child when People Concerned About MIC was formed in the mid-1980's. I barely remember the Bhopal disaster and I vaguely remember evacuating 8 month after the incident that occurred here in Institute that sent more than 100 people to the hospital, including Ray Swan and Pam.
Nixon.

But I tell you what, I clearly remember the incident that occurred in 1993, in August, that occurred near the MIC tanks and it killed two workers and it sent many people to the hospital.

I was sitting in my living room, about a crow's mile away from the plant and I felt and heard a loud boom. I thought a tree might have fallen on my house and the next thing I knew -- I lived on a one way street -- and the next thing I knew, there was a fire truck going down my road the wrong way, saying there's a shelter in place in effect. Close all doors and windows and turn off all air conditioners and ventilation systems until further notice.

As you can imagine, I was pretty panicked at that point, so I called my father, who, yes, was a Union Carbide employee, and I called to ask him what to do and with no information, he told me to hang tight. So I
hung up the phone and the smell had already invaded my house.

I called my father again, only this time I couldn't get through because the phone lines were jammed.

Frantically, I grabbed some duct tape and I started taping around the windows and taping around the doors like they taught us to do in school, only it didn't work because there were too many windows and too many doors and the smell had already invaded my house.

So I sat there with my dog crying and hoping that that wasn't the last phone call I was ever going to have with my father. I was 16 years old.

My story is only one of thousands in this community and in communities across the world, in harm's way of a chemical plant. It is a story that has occurred time and time again. Unfortunately, it continues to occur.

I recently spoke to a friend who's
been diagnosed with cancer and she attributes her cancer and her recently deceased neighbor to living within spitting distance of a chemical plant.

I asked her if she would give an interview to a newspaper reporter and she responded, what can I say that I haven't already said for the last 25 years?

So I sit before you today, not because I am an ominous fanatical activist as Bayer's press strategies would allow you to believe, but because 15 years ago, almost to the day, my life was changed forever when the methomyl larvin unit exploded, the exact same one.

Again, I felt the explosion, only this time I was 10 miles away in Charleston. Again, it killed two workers. Again, notification of the incident severity was not given in due time to the people who are immediately affected by the incident.

Again, it caused lots of property
damage to local residents, which Bayer wasn't entirely interested in addressing until the watchful eye of Congress came down.

Again, many side effects have been caused to our community that we may not fully understand for years.

So while the plant names and managers have changed, the effects to our community remain the same and they bio-accumulate across lines, phone, or ship.

We did not form our community around this chemical plant. This chemical plant was formed in our community and it planted itself right next to a historically black university in an unincorporated, primarily African American neighborhood that is adjacent only to mountains, rivers, and poor white neighborhoods.

Now, the history of discrimination is clear to us and to anyone who would look at our history without bias. The continued discrimination is clear when 25 years later,
the same voices are saying the exact same
things and little has been done to change the
talking points.

For 25 years, People Concerned
About MIC has made great strides to ensure
effective communications with the Institute
facility, regardless of entity control. Our
goals have been to establish access to
information about the dangers existing in our
community and to eliminate as many of those
dangers as possible in the production of
highly toxic chemicals.

Our efforts have been modeled and
orchestrated not only national community right
to know laws, but the worst case scenario
modeling that you saw earlier this evening. In
one fell sweep in August of 2008, Bayer
Cropscience slammed the door on 25 years worth
of community efforts, visualized only by the
chain that still locks the gate to our
evacuation route to this day.

Our group has been accused by some
of trying to eliminate jobs and to this, I retort, the chemical industry put food on my table so don't tell me I don't understand the need for industry. Chemical dollars and scholarships sent me to college.

We understand the need for industry, however, we deserve the kind of jobs and the kind of industry that does not cause the untimely death and preventable death of workers or the bio-accumulation of toxins in our children's bodies.

We deserve an economy that is not solely based on extractive and chemical industries that tell us that we must choose between jobs and health. We are not acceptable risk factors.

We come before you today asking that you finally hear our voices, and I think you have started listening, and I appreciate it. We ask that you make recommendations to our government and industry that stop this systematic exploitation of our community.
We are tired -- I think that's an understatement -- but we are tired of smoke and mirrors and cagey non-answers and our lives in your hands and we deserve to know the truth about the dangers that exist in our community. We shouldn't have to, months and months later, go to DC and watch folks testify before Congress before we get that information.

We hope that the CSB recommends that the fox can no longer guard the henhouse and that corporate arguments based on non-operational monitoring systems will no longer be acceptable.

I want to commend the Chemical Safety Bard for requesting our presence on this panel because, especially after the public relations strategies to marginalize us.

Thank you for your continued effort to include community concern into the conversation regarding chemical safety. It's one of the most important voices that you'll
ever have.

We request a thorough and comprehensive investigation and even more thorough recommendation to industry and government that addresses the underlying issues at hand and looks across the lines of ownership. Thank you.

MR. BRESLAND: Thank you, Ms. Nye. Let's see if the Board members have any questions.

Board member Wark?

MR. WARK: I don't really have any questions to speak of. I do want to extend my condolences, which I did not do earlier, to the gentlemen who died in this incident and also to your friends that perished previously.

I agree 100 percent that there's this law out there called EPCRA, which is Emergency Preparedness and Community Right to Know Act, and that's something that we have to start taking more seriously, not just here in Institute, but throughout the country.
We go out on investigations once in awhile and the ones that I've been out on -- the few that I've been out on -- the next day, there's a talking head interviewing a community member on local TV and they're standing there saying I didn't know that was there. I didn't know what they had on-board. In some cases, it wasn't anymore than from here to the back of the room from the facility.

I just feel that we will do a thorough, complete job here and let the recommendations and they chips fall where they may. Thank you.

MS. NYE: Thank you.

MR. BRESLAND: Board member Wright?

MR. WRIGHT: I just have a comment, a statement. I gather that you agree with me that public relations should take a backseat to public safety.

MS. NYE: Yes.

MR. BRESLAND: As someone who's
worked or did work in the chemical industry for many years and dealt with community issues similar to the one that you were describing and the one that we're hearing about this evening, how would you -- Ms. Nye, how would you assess the relationship between the community and Bayer? I don't necessarily mean your organization, but the community in general, in this area?

MS. NYE: Well, I think you could probably see from the show of concern in this room that there's not a whole lot of trust in the efforts that have been put forward by Bayer.

MR. BRESLAND: If you were to make suggestions to Bayer for ways to improve it, what would you do?

MS. NYE: Crucial information in a timely fashion would be truthful. Yes, truthful information in a timely fashion, most definitely.

Truthful information that impacts
us. I mean, such as what the chemicals are that are being released that we may not know are impacting us because the reports that were given earlier in regards to the firefighters are not the only reports that there were of health concerns.

I would like that to be acknowledged. There were many reports from community members that were not listed there and I'm not sure how we compile that information. Not everyone went to the hospital. A lot of people are just used to suffering and dealing with it.

PUBLIC COMMENTS

MR. BRESLAND: Okay. Well, thank you very much. Thank you to all of the panelists for being here this evening and expressing some very interesting points of view and very interesting observations for us on the issues.

We come to the final part of the agenda this evening, which is the opportunity for the public to speak. We do have a public
sign-up sheet that I have a number of names on.

I think I'm going to call them two at a time to perhaps save a little time. We'll get the first two up and that is K. Nybarger from United States Steel Workers and Philip Nimkus.

If you can spell your name and please -- it's getting late. People have to go to work in the morning. I have to catch a plane at 6:30 in the morning. I'd like to get a little sleep before I get on the plane. So please limit your -- and we're very interested in hearing what you have to say.

MR. NYBARGER: I would first like to offer my condolences to the friends and family of the two brothers that were killed in the Bayer accident.

Good evening. My name is Kim Nybarger. I'm a health and safety specialist employed by the United Steel Workers International Union and Health Safety and
Environment Department.

I'm also a dues-paying member of the USW and I've been a union worker in several industries for a number of years.

I've been associated with the activities of the Chemical Safety Board since their inception. In fact, the oil industry -- oil refiner that I come out of was the topic of the first published work of the CSB, a safety bulletin in August of 2001 on the subject of management of change.

This followed a workplace accident at my refinery that took the lives of six of my co-workers. The company, through their legal representatives, initially expressed a concern of publicly reporting all the events that took place, including root causes. The assumption was fear of legal proceedings.

The union pressed for a full disclosure and that the information be shared not only among our sister facilities, but all refiners who may have coking operations so
that the lessons learned may help one of them avoid learning the same way we did through the loss of workers' lives.

I was deeply disturbed when I read initial reports that Bayer apparently, through their legal department, was using a Department of Homeland Security Law to prevent certain information from being made public, claiming that material might aid in terrorists and is protected as sensitive security information.

I do appreciate the job the Coast Guard does and is required to do under Homeland Security. However, when you learn that the number of terrorist attacks on industrial facilities which use highly hazardous chemicals and compare that to the releases, fires, and other emergency events at these facilities, it would appear that the greater potential harm is from the day to day operation.

There is a greater good to the public to be made aware of the seriousness of
the effects of a release of methyl isocyanate. The neighbors of this Bayer facility must know what the potential consequences are from a release and they need to know what to do in the event of a release of MIC to avoid the same tragic end as the residents of Bhopal. This is in part what CSB public meetings like this accomplish.

The future may have other companies using Homeland Security issues to mask disclosure of deadly chemicals on their premises. I conceive facilities claiming the same privacy rules as a matter of trying to cover any anticipated liability.

This process appears to be more the tactics of legal maneuvering than any concern of safety sensitive information being released.

There are many steps that can be taken to help a company not be a target of terrorist activities. Substitution of a safer Chemical is one step or reducing inventory to
a minimum for the process. In other words, cutting down on the amount of the hazardous material in storage. Redundant process controls and emergency disposals systems are other ways to minimize the chance of an on-site release.

Leaks, fires, and process upsets are happening on a weekly basis at our Chemical, refining, and gas plants. These issues of safe operations pose a greater hazard to the communities surrounding these facilities than an attack from the outside.

The failure of the facilities to adhere to the minimum requirement of safe operation directed by the government in the OSHA process safety management standard found in the Federal Code of Regulations 29, part 19, under 1910.119 has, in some instances, had deadly consequences.

A recent national interest program of OSHA inspections at the nation's refiners has shown a severe lack of compliance with the
process safety management standard.

Now, keep in mind that this no high performance program, but merely the bare minimum legal requirements and any fee for the nation's Chemical manufacturers is coming next year.

It's a sad fact that unless a body count is high enough to get public attention, few people notice the hazards killing workers on the job. Over the last five years, an average of 5,680 have died every year and we usually don't hear anything because they only die 1 or 2 at a time.

It is oftentimes only through the scrutiny of investigations conducted by the CSB that the public has an opportunity to learn of the potential health risks posed by facilities in their neighborhood.

The CSB does not issue penalties, but only strives to find all the underlying causes and make them known -- puts the results of their investigations into the public domain.
so that other companies can hopefully learn from these investigation without having to kill a handful of workers to discover failures in their management systems that allow these catastrophic events to take place. We cannot allow the legal manipulation of companies to trump critical safety information for the public.

Thank you for giving me the opportunity to address this group.

MR. BRESLAND: Phillip Nimkus? We like the comments to be addressed to the Board members. Please remember the three minute rule and if you have written comments, we'd be more than happy to take them and put them into the record.

MS. HENDRIX: Okay, well, I have an e-mail from Philip Nimkus, who is affiliated with the Coalition Against Bayer Dangers in Germany. He said that he was requesting to have it read into the record.

MR. BRESLAND: Fine.
MS. HENDRIX: But I will submit it. He sent me an e-mail and he said that the Congress's investigation was very good, but did not mention the early warnings and the involvement of Bayer's board of management. So he wanted me to read this letter and submit it to you.

He says Dear Chairman Bresland, The Coalition Against Bayer Dangers, an international network based in Germany has been monitoring Bayer for 30 years.

We're working on a broad range of issues. Emissions of Bayer plants, hazards caused by Bayer products, accidents in Bayer plants, corporate influence, etc.

The group was built up after an explosion in a German Bayer factory in 1978. In cooperation with groups from West Virginia, we've been working on the Institute plant for several years.

Last year, on March 10, we introduced a counter-motion to Bayer's 2008
shareholder meeting in which we stated, quote, whereas the volume of super toxic agents like phosgene and MIC stored at the German Bayer plants was reduced following the Bhopal catastrophe, the tanks in Institute remained as they were. They Bayer board of management, Bayer's responsibility for the high pollutant emissions, the frequent occurrence of incidents, and the constant risks caused by the storage of MIC and phosgene -- he says you can review the complete text on the Bayer website.

He says we also spoke in the meeting, which took place on April 25, four months ahead of the Institute explosion.

Attending were the Bayer board and supervisory board, the media, and about 4000 shareholders. Again, we criticized the frequent spills of chemicals and demanded to dismantle MIC and phosgene tanks at Institute.

Bayer CEO Werner Wenning replied, stating verbatim, that the plant had, quote,
the newest security installations and an excellent safety record since 2002, end of quote -- that the plant was, quote, explicitly lauded by authorities for its safety record and that no action was necessary.

After the August explosion, we demanded, in cooperation with local groups, that the Institute plant becomes an MIC and phosgene-free facility.

In Germany, Bayer produces carbonate pesticides without utilizing large quantities of MIC.

Until today, the company has not apologized for the gross negligence by which the methomyl unit has been operated for the past years.

Particularly disturbing to us is that Bayer's recently published annual report does not mention the Institute explosion and the death of their workers with a simple word.

We therefore again introduced a counter-motion to Bayer's next shareholder
meeting, which takes place May 12. Quote, highly hazardous substances like phosgene and MIC do not belong in mass production, and certainly not in the vicinity of residential areas.

Ever since the company became established, Bayer has endeavored by exerting pressure and making threats to suppress information and even more, criticism. It uses its economic power indiscriminately in order to protect its profits, the truth, and the interests of humans and the environment are left by the wayside.

The board of management and the supervisory board have not taken any steps to substantially improve the safety situation in Institute or to enlighten the general public.

We ask you to discuss these early warnings and Bayer's denials of any safety problems. Since Bayer dismantled their tanks with highly hazardous substances in Germany, we're demanding that they do so also at
Institute.

So I would like to submit this for the record. In the interest of time, I'll forego reading my statement, but my statement basically says that I've been so frightened by the incident with the chemicals here that I wouldn't live here and I'm moving. It was very, very frightening.

MR. BRESLAND: Okay, thank you very much. The next two people I have on the list are Regina Hendrix and Jenna Frazier.

MS. HENDRIX: That was mine, and I'm going to submit it for the record.

MR. BRESLAND: Okay, then we got you. The next person will be Janet Frazier from Marshall University, followed by Demetrius Paparuchas? Pardon my pronunciation.

MS. FRAZIER: First off, thank you, Chairman Bresland, for coming to us, this part of West Virginia to discuss the incident that happened at Institute in August.

I have been doing some research on
the MIC handling at the LaPort, Texas facility and I was hoping that in your investigation, that you evaluate as to what that sort of MIC handling and processing can't be done in Institute -- to see as to whether it's a financial issue or an economic issue. An economic issue being different in that it values more than just the dollar signs. It values the costs and benefits of its effect on human life and human health and welfare, as opposed to just finances.

So with that, I found that LaPort's handling of MIC -- how they make it on demand and in as-needed quantities, it's not very time consuming. It's often more efficient, although because the Institute plant make sit on-site and uses it on-site, it may not be as efficient, but generating it in smaller quantities has proven to be safer and has produced a better safety record at the LaPort, Texas facility owned by DuPont.

So investigation as to why that
sort of means of handling and creating MIC
can't work in Institute, I would greatly
appreciate it. I think that would highly
benefit the community as well. Thank you.

MR. BRESLAND: Thank you very much.

Mr. Demetrius?

MR. DEMETRIUS: Yes, sir. That would
be me. My original question was answered
earlier just by listening to what the panel
actually said. Realistically, I guess that
brings up another question.

How many more instances do we have
to have before something actually happens?
That's all I have to say.

MR. BRESLAND: Thank you. The next
two speakers are Gerald Hankins from West
Virginia State University and Rich Ford,
followed by Gary Zuckett. Three of you up
here.

MR. HANKINS: I would like to thank
you, Chairman Bresland and the rest of the
committee for opening up the floor for public
comments.

My name is Gerald Hankins. I'm an assistant professor of biotechnology at West Virginia State and secondarily an assistant professor of neurological surgery at the University of Virginia and a part-time resident of Saint Albans.

One thing I'd like to note from the earlier comments of the two fixed monitors that were in use. Neither one of these, from everything that I've heard and read in testimony, were located on the part of the perimeter of the plant to which the wind was blowing.

It was blowing toward Saint Albans. The monitors are not there. That is not where the cloud was observed by the Saint Albans fire chief and therefore, any toxic chemicals that were blowing outside of the plant would have not been detected by those monitors. So they were totally inefficient and ineffective to have two monitors there.
The second point that I would like to make -- and economics and cost has been mentioned quite a bit and you might expect that I was going to talk about effects on the nervous system or of the chemicals -- but we are in a situation and it's been alluded to in the past, earlier, where the economics is a situation.

Historically, people out of power -- blacks and other forepeople have effectively subsidized the industries that have been placed in their midst in order to keep their false love.

So to the extent that cost and economics is a consideration, the question is to what extent do people have to subsidize the operations of the plant with their health and financially, actually, through the extra costs that the people have to bear and the institutions -- not just the University -- in order to try to protect themselves against the hazards that are produced in the plant?
So I certainly hope that these economic consideration also consider the fact that Bayer is being subsidized by the community and by this University.

MR. BRESLAND: Thank you. Mr. Rich Ford?

MR. FORD: Hi. Richard Ford, member of the West Virginia State University community, and more to the point, I live and work downwind of the Bayer plant.

Mostly, I want to thank the Board for taking a serious interest in this and underlying most of the panel testimony.

Dr. Hankins said less money to save, but to be very clear, is there any reason why the chemical industry should not bear the cost of West Virginia State University's preparation for such emergencies? It's going to cost us an awful lot to deal with that. Thank you.

MR. BRESLAND: Mr. Gary Zuckett, who will be followed by Mr. William Taylor.
MR. ZUCKETT: First of all, I would like to thank you for providing the public with a forum today. Just a couple of questions.

At Kanawha Putnam emergency planning committee meeting discussing this incident, the Charleston area medical center safety director CW Sigmond confirmed that Bill Oxley, the worker who was severely burned, was not decontaminated prior to being transferred off-site.

Unfortunately, the first casualty, Barry Withrow, had cyanide in his blood, according to the New York Times. I'm wondering if this is going to be taken under consideration in your investigation?

Also, I would like to know if the CSB will investigate all of the toxic Chemical processes and storage at the Institute site, including MIC, not just the part that exploded? Thank you.

MR. BRESLAND: Thank you. Mr.
William Taylor? We'll pass. Donna Willis?

MS. WILLIS: As a resident of Institute for 54 years, I have been through the blowing out of windows by Carbide and the chlorine leak in Carbide and the numerous other leaks of Carbide and Rhone Poulenc and Aventis and Bayer and -- I just want to know how much chemicals can the human body take and not show some physical effect that's not associated -- to cigarettes? Okay, because there is not a physician in the state of West Virginia who has been certified by our board who can stand up and say that we are suffering cancer, that we are suffering lung diseases, that we are suffering heart ailments or anything else all because of cigarettes and second-hand smoking.

Who is out here testing these drugs and these chemicals and what effect it will be on our bodies. I had a child who was lying in a bed, sleeping infant, when it happened that the MIC leak happened. What effect is that
going to have on my child 30 years from now. Is he going to live to 40?

I'm not going to make it 70. See, my heart's gone at 41 years old. No rhyme, no reason, no medical.

The concern that I have is that a lot of people believe that they can put things in black communities and think that we're nothing. I'm high maintenance. My whole family is high maintenance. So if that's the idea that there's still working with today, there's a rude awakening. Black people are no longer the pit of the valley of America.

When I hear intelligent people trained in the field of engineering, chemical engineering, stand up and say, well, there was a disconnect here, there was a wrong here. There was mis-communication, la di da. If anybody else had said that on their job, they would have been fired.

When economics, no matter what the problem is in America -- I don't care about
the money. I don't care about the money Bayer can make. I don't care about the money they can pay their employees. I don't care because human beings are God's gift to this earth and when you diligently pick at them and tear them apart in order to make a product, you have scorned the reason why we exist as human beings.

For years, we have sat up here and we have listened and we have watched people ignore Institute -- ignored the last three days. If anybody was snubbed, raise your hand because it's been all over.

And the excuses. I called to tell them there's a huge smell of flowers over on my street. They send over a person who tells me that I have a gas leak. I live on an all electric facility. There is no gas.

So that kind of stuff really irritates us, but it so good to see the representatives from the county commission here because they know we've been through this
the last 40 years. They never once spoke up for us. It's good to see that, finally, that these people who have been working jobs to help us in the fire and everything else, they are finally getting somebody to listen to them to help us.

Personally, I think that Bayer can have Institute. They can have the vegetables we grow -- feed their families that mess. They can breathe in the air that we breathe. They can live in the chemically-infused homes that we live in.

Give us a ticket to anywhere and we will go because it is no use having this happen to our community over and over again for decades and our state doesn't acknowledge us, our county doesn't acknowledge us, and President Carter, I am so glad to see you here because now I know he cares about the college.

MR. BRESLAND: Thank you. The next speaker is Steve Irwin. Steve Irwin is declining. Jesse Johnson? Jesse Johnson? Sue
Davis? Sue Davis followed by Mike Harmon.

MS. DAVIS: Can you hear me, I hope? First of all, I'd like to just read something that my daughter sent me today because it's interesting that I saw that the headlines in the paper where it says that Bayer does not like to be compared to Bhopal. They don't want it to be compared to us.

Yet, of all of the failures and all of the things that were broken, either before or after the incident, here's what I read -- it was a National Geographic documentary. This was supposedly what took the place the night before Bhopal occurred.

None of the plant safety systems were in operation. Flare power was disconnected. The vent gas scrubber was out of caustic soda and undersized. The water curtains on the side, the pressure valve was not working. The run-off tank already contained MIC. The mandatory refrigeration for the MIC unit was turned off to save money.
You know what? I asked one of the former plant managers in a public meeting for community safety assessment -- I said, end this question for me. Why do you have to store such large amounts of MIC rather than to bring it in as you need it or do it any other way?

He didn't say anything that any of you said. He said because it's more economical. So in other words, they equate money with my life and your life.

I want to say one thing. First of all, I want to start with Dr. Carter's welcome. You said that you talked about this being a laboratory of living relations. I'm a lab rat. I've been a lab rat for 60-some years, starting when the first US government rubber plant was bought here.

How in the world did they find this community when Institute was not on anybody's map? Someone had to look for some lab rats. It has been that way ever since, ever since, and it's only getting worse.
You know what I think of being a lab rat because when I look at a lot of the MSDS sheets, they don't have any stats. They say known to cause cancer in rats, and they're talking about the ones that crawl on the ground. But the long-term effects on humans, not yet known -- not yet status. Those two awful letters, capital N-E -- none established, no permissible level exposure established. So they're testing through us.

Dr. Carter, you said you were training your students for their future roles. I know one student of yours that will not have a future woe because two or three days following the explosion, the young kid, a freshman, just beginning his life, went to the hospital -- lived on this campus -- went to the hospital because he couldn't breather. He was having trouble, gets to the hospital, and they tell him you're all right. They send him back to the dorm.

A couple of days later, he goes
back because he still can't breathe. He never
returned to the campus.

You know what? When we had our
meeting here, People Concerned About MIC, I
stood out in that hallway and I begged
students to come in here. I said, please come
and learn something. We've invited the plant
official. We've invited the governor. We
invited everybody. Come and learn something. I
said, there are things you need to know to
protect yourself. I said, we don't want to see
you sent home to your parents in a box. And
four or five days later, that kid was sent
home in a box. That breaks my heart.

It breaks my heart, Mr. Crosby,
that your men die at that plant. A Chemical
facility or a chemical tank -- it doesn't have
a brain. But the people who man those things
have the brains. That's where the problems
come from. Nothing wrong with their brains,
but what are they doing?

And Mr. Crosby, you said -- and
I'll turn to you if you want me to and I'll try to end it -- but you said that you've done all that you can to assure that this kind of thing will not happen again. I have heard that for 40 years and it continues to happen.

MR. BRESLAND: Can we move on?

MS. DAVIS: Mr. Hendershot? You looked up the words in the dictionary that you needed to know. I looked up some words too -- I looked up one word and you know what it was? Terrorist. Terrorism.

And you know what? It relates to people who instill fear in those around them. Who fits that description?

The Right to Know act is fine. The problem is, when we call the plant to know something, they say it's nothing to know. The former plant manager told me, in writing, and I still have the letter that I plan to submit to you all with some other things -- he told me, when I wrote him a letter -- and I had asked him about an incident that we had -- and
under FOIA, he told me that they're not subject to FOIA and they didn't have to tell me anything. They're private.

I don't understand that. They're private till it comes to sending their things over here. I think that means that they're not probably going to say one more thing. I was -- and it's kind of like what Donna said -- when I was pregnant with one of my children, my youngest, in fact, and I worry about her to this day -- but when I was pregnant with her and I stayed in a house on Lincoln Avenue and I was upstairs and in the middle of the night, this awful smell had filled that house as it does all the time in the same smell -- all the time.

I was so sick, I couldn't walk. I couldn't turn. It was terrible. I somehow managed to contact the plant. I think that was probably one of my first calls to that plant. I asked them, I said what on earth do you have in the air? I said it is all in my house. I
said I am pregnant. I don't know what to do. Is it going to harm my child? Do I need to get up and go to the doctor? He said I'll call you right back and I'm still waiting and she's 28 years old now.

I found out also that my brother who lived in Dunbar had called at the same time. They had problems in their house and they never called him back. I could go on and you all know I could go on. But I thank you. Thank you so much for what you're doing. Thank you for what you're doing.

I'm going to say one thing to you and I think I said it to you today and that is, it seems like -- to me, this is being turned into an MIC problem. MIC is going to wipe us all out fast, right? But if it doesn't leak, what about the problems that we're having to endure every single day.

I am sick half of the time. What about those problems? I don't care whether you close MIC down. That's not what I'm asking you.
to do. I'm asking you to pack Bayer up and
ship them out of here. Send them back to
Germany. Send them back to Germany because
they're in this country, just like they're in
Institute because we are lab rats and we are
back.

They are in this country because
they know that our country will allow them to
do in this nation what their own government
will not let them do in their own nation.

MR. BRESLAND: Ms. Davis, thank you
very much. Thank you. Mike Harmon? Mr.
Harmon?

MR. HARMON: Hi. My name is Mike
Harmon. I live in Saint Albans in the house
that I grew up in. I've been there for 54
years. I can really identify with the lady
that just spoke who talked about living here
for 54 years.

And like Mya, I'm roughly a mile
from the plant here. So over the years, I've
certainly witnessed a number of incidents,
including the one that happened last August here.

I want to personally thank Maya Nye for re-convening People Concerned About MIC. I was a member of People Concerned About MIC. I started attending the meetings in 1985 because of the leak that Maya described that sent over 100 people to emergency rooms here in the local area -- same plant, different owner.

When I looked at the newspaper this morning, this headline caught my eye. It says cutting MIC is doable, but costly. I looked at that and I thought, you know, this is a golden opportunity for a full employment program for the chemical industry here in the Valley.

In 1985 -- and I was happy to hear the questions that you folks raised tonight about air monitoring, which is obviously completely deficient here at this plant.

But in 1985, I made an urgent plea then that we implement a comprehensive air monitoring system here in the community so
that the residents of Institute and other neighborhoods that are in close proximity to chemical plants would be able to know for certain what it is that they're breathing on a daily basis.

Over the years, we've had a number of meetings and discussions with chemical plant people, union folks, environmental protection people, public health officials and so forth, and everybody has said, almost to the letter, that we don't have enough information about chemical exposures here.

In other words, we don't know what causes this or that illness. We don't know whether certain emergency responders were exposed to toxic chemicals. That's an issue that you're struggling with in this investigation. We don't really know whether residents should shelter in place because we don't get that information.

When Carl Beard, the former director of the West Virginia Air Police
Control Commission retired, he spoke passionately and eloquently to his commission about the need to do more air sampling here in the Kanawha Valley because when we did do the air sampling, we found chemicals in the air that were not supposed to be there in concentrations that exceeded safe standards for human exposure.

Anyway, so we talked about the headline in the paper. I do applaud Congress woman Capito's attendance at the hearings in Washington and for her apparent concerns for the safety of the employees and residents of the local area.

I urge her and this body to require that Bayer Cropscience immediately cease operations at the plant involving MIC until it has achieved the highest level of safety achievable in this facility.

We could call it the Bayer Cropscience Stimulus Package and Full Employment Program. I would think that that
would make all of us happy -- the union members, the plant management, public officials, and so forth. Thanks.

MR. BRESLAND: Thank you. I have one final speaker, Mr. Bill DePaulo. He's making his way up, and then, that's the end of the list of speakers.

MR. DEPAULO: Hello. My name is Bill DePaulo. I live in Charleston. I'm a lawyer. I'm with the Sierra Club. We're frankly, at the Sierra Club, we're Concerned that we've neglected this whole topic and haven't done as much as we should have.

I'm glad to see that you all have taken a very serious interest in it. It's been a massive information dump for those of us who are not chemists and don't know as much about it as you do. So that's a great public service and we thank you for it sincerely.

I know -- I'm not here to kick anybody around. I want to ask a few questions that hopefully will move your analysis
forward.

Ms. Sciallo -- I hope I'm pronouncing that correctly --

MR. BRESLAND: Excuse me. If you have a question, please direct it to me and then we can decide where to take it.

MR. DEPAULO: Okay, that's fine. I'm not trying to cross examine her. She mentioned the Risk Management Program, which had complied a worst case scenario.

It was based, I believe, as was explained here this evening on the assumption of the rupture of the largest vessel, which was a 200,000 gallon vessel, I believe, as it was described.

There are other vessels on the site, as I understand. The day vessel has a 26,000 gallon capacity, I believe. There are multiple vessels there. Wouldn't the worst case scenario assume the rupture of multiple vessels. In fact, the worst case scenario, no matter how improbable it is, would assume the
rupture of all the vessels present. So isn't that the way the question ought to be asked?

Secondly, the assumption that would affect 300,912 people was based upon the computer model, which was limited to 25 miles. Is that a satisfactory assessment? In other words, was it Cropscience's computer program or the EPA's or some others?

It just seems to me that if that's a limit on the computer program, that's not an acceptable analysis of the worst case scenario.

There's another component to this. Although a whole range of adverse impacts on individuals were described from difficulty breathing to death, I've never seen these kinds of analysis done where you didn't actually have probabilities of outcomes. How many people would have asthma? How many people would get nauseated? How many people would die? That's not a trivial and it's not intended to be an inflammatory question.
The information you gave us today was truly helpful, but you need to, if you will, to truly let the chips fall where they may. In other words, don't sugarcoat the ending, the last chapter on this.

I'm certain that some computer person somewhere has sat down with a probability study and said, okay, if we're exposing 300,000 people to this, how many of them are going to be dead? That's a number that as a community, we're entitled to know because we make the decision what risk, as a community, are we willing to absorb to get whatever economic benefits Cropscience offers us. We need to know the ratio.

It's relevant and all we're talking about is perusing pesticides here -- a pesticide. We need to know what the pesticide homicide ratio is if we're going to accept the risk.

Now, there's another item, which, I know Mr. Chairman, you live in the state, but
you don't live in this area. There's a
geological or a topographical fact that may be
relevant.

There's a very, very significant
steady wind that blows west to east through
this valley. The people who complained about
the impacts -- and local communities are
certainly correct to make those observations --
but if there is a rupture or multiple tanks
with significantly more than 200,000 gallons,
it's going to be blown to the largest
population center here, all the way back to
Charleston and beyond. That needs to be
factored in to your analysis. That is not a
trivial part of the puzzle.

I know people who are considering
locating wind turbines, not on the mountain
ridges here, but down in the valley because
the Venturi effect that's generated by the
valley on the wind makes the wind blow through
more powerfully. Thank you.

MR. BRESLAND: Thank you very much.
Could you state your name and spell it?

MS. JAMES: Yes, I will. My name is Pam James. This is totally not planned, so I promise to go under the three minute rule, unlike everyone else.

I would also ask for respect in what I say because I am on the other side of the fence tonight. I'm a Bayer employee's wife.

I am only here to support Nick Crosby and the plant. My husband has a chemical engineering degree. My husband is Rod James and I think I can pretty much say he's well respected in the plant by all employees that know him.

I have sent my husband to this plant for ten straight years. We're both born and raised in West Virginia. He was a chemical engineer. He was also on a nuclear-powered submarine as an officer, and those aren't safe either. There's lots of dangers in jobs.

But what I wanted to say tonight
was I've also sent my daughter into the plant numerous times on Take Your Daughter to Work Day. These men and women don't go into this plant with unsafe environment. There are just all kinds of things that can happen in numerous jobs. Teachers have gotten shot in schools. There's things that happen.

I would also like to say that Barry Withrow -- and many of you don't know Barry Withrow and it really hurt me tonight -- everybody has their opinions. I'm here for Bayer -- but it really hurt me to night to hear the other side sit back here when Nick Crosby was talking or things were being said that went wrong that night. Things went wrong. Does everybody not agree?

Nick has admitted communication was a problem that night. What was so funny about that? Why do you take joy in lives that are lost? And that's how I took that sitting there. People laughing. Things went wrong. Let's move on. Let's learn from it.
Barry Withrow was a personal friend of ours. We went to church together. I sit in church Sunday after Sunday watching his wife cry. She misses him, but it could be a happy song. She's looking forward to going to heaven to meet Barry one day.

But this is what hurts me is that — let's work together as a community. Let's be adult about this. I lost a friend that night. When I got up and was woken that there's been an accident. I may not have a job to go to tomorrow. That's what my husband told me.

I said what about Barry? That's the first thing I said when he said it might be the larvin unit. He said no, I think Barry has gone to a different unit. Well, Barry's wife was also at home thinking I might call Rob and see if he knows anything.

So you people that are here for the other side didn't know Barry. I didn't know Bill Oxley, but also know that my husband is well-respected. He's a smart man and he
wouldn't go into an environment that's unsafe.

So I would just ask -- I don't know what the future holds for any of this, but I wanted to speak on behalf of Bayer and my husband because I trust my husband. I don't think -- I know that he wouldn't hide things and I would hope that he doesn't work for a company that does.

I don't know all the technical stuff about all this stuff that's gone on. I don't understand it. He tries to explain it to me, but again, I just wanted to say that lives were lost that night. It was sad and it was very disrespectful to me tonight to hear people laugh and carry on about this kind of stuff.

MR. BRESLAND: Thank you.

PASTOR LEWIS: Hello. My name is Jim Lewis and I'm an Episcopal minister and this is a real challenge to ask a preacher for three minutes.

I'm going to really try and do it
in less than that. I've got a statement and I'll give it to you. The ending of the statement talks a little bit about something that's not been mentioned and that's the legislation that was just done here in West Virginia, the 15 minute rule. It was 10 minutes in Bhopal, the people were dead. We need something more than that, so I'll submit that.

I'm here, really, as a pastor because I serve a church in which about 3/4 of the people in that church live in Institute, Dunbar, South Charleston, and in this region here, Dunbar. I also am a part of the group that Maya represents here, People Concerned About MIC.

I'm a pastor in that church and Margo Holt -- the name hasn't been mentioned here tonight -- is also in that church. I mention her name and I want to thank the Charleston Gazette for making the Freedom of Information Act really work for us because in
their article using the Freedom of Information Act, we were able to understand that this has been a public relations game with us. It's really a public relations game.

That report opened up to us exactly what's going on. Mr. Crosby, you said today or Mr. Crosby said here this evening that he wants dialogue with the community. Well, if he wants dialogue and his company wants dialogue with the community from all of us, every single one of us, then don't pit us against one another.

To pit Margo Holt against Maya Nye is not right. You won't get to the truth. Mr. Hendershot said that management needs to hear bad news and welcome it. We all need to get together and find good news and be able to look at some of the bad news.

To pit Mildred Holt as a longtime person here who wouldn't get real active about this like Maya Nye has -- it's a younger woman here -- is just no way to create dialogue in
this community.

A report that came through from the Freedom of Information Act told us that the company is trying to marginalize those of us who are raising these difficult questions -- Maya and People Concerned About MIC. There will be no dialogue if we have that kind of attitude. We will not be marginalized.

I want to thank Maya for the inspiration and the work she's done for us. I came back to live here in my community, West Virginia, where I'd been away on 9-11.

When I came back here -- by the way, having worked in the Dunbar peninsula where Bayer was with antibiotics and chickens and to come here and find them here and to find the leadership that I find with Maya and this group of people who have been working for 25 years around this problem is real encouraging to me, an older guy.

Do not pit us against one another.

That's no way for dialogue interviews his
community. I tell you, Mildred Holt, a member of my parish, a black woman and Maya, a dear friend now, a new person -- a new person in my life -- was here. Those two people seem to me to have a great deal to contribute to this discussion. Do not pit us against one another, That's no way for dialogue.

Thank you all for coming down here. We really needed this kind of outside help to come in here and listen to us and give us this presence here tonight. Thanks a lot.

MR. BRESLAND: Thank you very much. Reverend Lewis.

MR. FOOCE: One more person.

MR. BRESLAND: Please state and spell your name.

MR. FOOCE: Kevin Fooce.

MR. BRESLAND: How do you spell your name?

MR. FOOCE: F-O-O-C-E.

MR. BRESLAND: Okay.

MR. FOOCE: I was on a phone
conference one night and I got asked about this situation. Maya, I believe, was one of the ones asked. She didn't have any help. You all, all of a sudden, come to help these people.

The next day, I called OSHA to get the report for what happened. I say that Bayer --

I've taken people to the hospital before in these past two incidents. Bayer did not have protocols. They did not train their people. They did not give them safety equipment. They did not give them training on safety equipment, and they had been cited before for this problem.

This is the facts. This is what OSHA has cited for. Am I correct? This has not been brought up tonight, but this needs to be brought up.

It is because somebody willingly did not write the protocols, willingly did not train their people, and they created an
accident. This accident could have been prevented. It should have been prevented, and these two people should have gone home to their families that night.

That is the whole point of this.

Thank you.

MR. BRESLAND: Thank you very much.

Please state your name and spelling.

MR. ANOPOLIS: Yes. My name is Doug Anopolis. I lived on campus when this happened. I'm not here to point any fingers. I don't know anything. I'm not that bright if a human being really -- well, okay.

But all joking aside, what's unfortunate to everybody here is you all became the faces of something bad that's happened. It's not every -- you can't point the fingers at one person. It's not everybody's fault.

Yes, I don't want people to lose jobs, but also, I don't want people to lose lives. I'm only 23 years old. That's pretty
young, at least last time I checked. I just want people to get together and go, maybe we should try a little harder. I think there's a famous song -- I can't remember who did it -- but it goes this song is not about you.

This song is not about you guys. It's not about you guys. It's about us, students, workers, so please put petty things aside, both of you. Let's try to work something out so I can be really proud to be American again and be in the state of West Virginia.

That's all I ask. Thank you.

MR. BRESLAND: Thank you. Thank you very much. Do we have anyone else who would like to be part of the public comment period?

If not, I thank all of you very much for your -- do we? Oh, here we go. Hold on. State your name and spell it, please.

MS. JACKSON: My name is Gertrude Jackson. G-E-R-T-R-U-E. I would just like to state that the night of the accident -- I live
at 110 Vernon Street, which is at the end of
the golf course in the little community of
Institute.

I parked my car and I walked
towards the steps and I witnessed the
explosion, the noise, and then what looked
like a mushroom cloud. I was out and we were
trying to inquire whether or not it was any
chemical leaks that night. I was out for about
an hour close to the college campus.

We weren't told anything. My
feelings are there wasn't a large staff
available to give us any answers. I saw that
you had a time frame of 10:39 --was that
correct? When it happened? It actually
happened 10:24 or 10:25, not 10:39 -- not that
it makes any difference.

My heart goes out to the family of
the men that were killed. I'm really saddened
by that. I retired in -- I love to work out in
the yard. I love my flowers and when I'm out
there, I have such peace of mind -- at least,
I did.

But this frightens me. I'm like this lady. I don't know if I want to live in Institute anymore and I constantly smell odors, constantly. So whatever it's worth, I felt led to say that. And the explosion was 10:24 or 10:25, not 10:39.

CLOSING STATEMENT

MR. BRESLAND: Thank you very much. Going once? I think we're all out of speakers, so just let me make a few closing remarks.

I'd like to thank each of the board members and the investigation team for their participation. I'd like to thank the panel members again for their participation.

All of us share a strong interest in preventing these tragic explosions from occurring. Our hope is to make sure that workers, the community, and emergency response personnel are not forced to experience an instance similar to this one.

Our investigation is continuing and
we expect to complete our final report with safety recommendations by the end of the year. The CSB plans to return to Institute to release its final report and recommendations.

I would like to thank all of today's participants. I'd like to thank the audience. You've been very, very patient. It's been a long evening. I'd like to thank you all, and you're now allowed to go home. Thank you very much.

(Whereupon, the hearing concluded at 10:36 p.m.)