UNITED STATES CHEMICAL AND SAFETY HAZARD INVESTIGATION BOARD

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BAYER CROPSCIENCE EXPLOSION AND FIRE INVESTIGATION

PUBLIC MEETING

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THURSDAY, JANUARY 20TH, 2011

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INSTITUTE, WEST VIRGINIA

The above-entitled Public Meeting was held at 6:30 p.m., at the Multi-purpose Room of the Wilson University Union-Sullivan Hall, West Virginia State University, Institute, West Virginia, Dr. Rafael Moure-Eraso, Chairperson, presiding.

BOARD MEMBERS PRESENT:

RAFAEL MOURE-ERASO - CHAIRMAN
JOHN S. BRESLAND - BOARD MEMBER
MARK GRIFFON - BOARD MEMBER
WILLIAM E. WRIGHT - BOARD MEMBER

APPEARANCES:

PANEL MEMBERS:

KENT CARPER - President, Kanawha County Commission
JOE DAVENPORT - Director of Union health, Safety and Environmental, IAMAW LL656
DR. RAHUL GUPTA MD, MPH, FACP - Health Officer and Executive Director, Kanawha-Charleston Health Department
PAM NIXON - Environmental Advocate, WV Department of Environmental Protection
MAYA NYE - Spokeswoman, People Concerned About MIC
JIM PAYNE - President, United Steelworkers Local 5, California
RANDY SAWYER - Hazardous Materials Programs Director, Contra Costa County, California

INVESTIGATION TEAM:

JOHN B. VORDEBRUEGGEN
JOHNNIE A. BANKS
DAVID CHICCA
MARC SAENZ
LUCY SCIALLO-TYLER

ALSO PRESENT:

CHRISTOPHER WARNER, General Counsel for Chemical Safety and Investigation Board

A-G-E-N-D-A

Opening Statements
Chair Moure-Eraso: 4
Dr. Daniel Horowitz: 11

Presentation of CSB Reports

John Vorderbrueggen: 19
Animation Presentation: 19
Lucy Sciallo-Tyler: 49
Johnnie A. Banks: 55
David Chicca: 60

Board Questions to Investigators: 69

Panel
David Sawyer: 83
Jim Payne: 89
Kent Carper: 93
Dr. Rahul Gupta: 97
Maya Nye: 105
Pam Nixon: 116

Board Questions to Panel Members: 123

Public Comments: 146

Closing Statements 173

Adjourn

P R O C E E D I N G S

6:30 p.m.

CHAIR MOURE-ERASO: Good evening and welcome to this public meeting of the U.S. Chemical Safety and Hazard Board, the CSB.

I am Raphael Moure-Eraso, chairperson of the Board. And with me, today, are the Board members sitting with me here. We have a John Bresland to my right, and Mark Griffin to my left, and William Wright, to my further right.

We are missing another board member, Mr. William Wark, that has some medical problems and couldn't be with us here. Also joining us is our General Counsel, Chris Warner, sitting here to my left.

And, also, CSB staff members whose efforts have facilitated this meeting, that is, people that have, the investigating team, and also our communication staff that have set up this meeting.

Let me walk you through the

agenda. What we are going to do tonight is we are going to have some opening statements, from members of the Board.

And then we are going to have the presentation of the Chemical Safety Board report on the Bayer CropScience explosion investigation.

Then we are going to have questions from the Board to the investigators. Then we are going to seat a panel that will be introduced at the time that we sit it, of members of the community, and various other people that are going to be addressing issues raised by the report.

Then we have a Board discussion, the Board will have some questions to the panelists, and then we open the floor for public comment.

We are asking that when you have the public comment, identify yourself and address the Board. And, please, limit yourself to three minutes. If you use more

time you are, basically, taking time away from other people and you should be mindful of that.

Then we are going to have closing statements, and we adjourn, assuming that we will adjourn around nine p.m.

The Chemical Safety Board is an independent non-regulatory federal agency that investigates serious chemical accidents at fixed facilities.

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

Ultimately we use safety recommendations, which are designed to prevent similar accidents in the future.

The purpose of this evening's meeting is for the CSB investigative team to present, to the Board, their final report,

into the investigation of the August 28th, 2008 chemical procession tank explosion at Bayer CropScience, which fatally injured two workers.

Before we begin I would like to point out some safety information. Please take a moment to note the locations of the exits, in the back and on the side. And you have to know where they are in case of an emergency.

I also will ask that you please mute cell phones, so that these processors are not disturbed. Thank you very much. So please, if you can disconnect your phones?

On August 28th, 2008, a powerful explosion occurred within the Methomyl/Larvin unit at the Bayer plant.

The explosion occurred during the restart of the methomyl section of the unit. One of the main reasons we investigated this accident was the tragic loss of life.

The blast fatally injured two

employers of Bayer, Mr. Bill Oxley, and Mr. Barry Withrow. I would like to take a moment of silence to remember those two men whose lives were lost as a result of this accident.

(Moment of silence.)

CHAIR MOURE-ERASO: Thank you. One of the main reasons we investigated this accident was the tragic loss of life, as I said before, 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 to the west of Charleston. Chemical safety has been a major issue in the Kanawha valley for decades, fueled in part by concerns about the number of major chemical plants, the density of the settlement, the local geography, and the potential difficulty of evacuation for the area.

Many of you here, this evening, live in the Kanawha valley, and have personal interest in the safety of this facility.

If anyone in the audience wishes to comment, publicly, after the investigations and presentations, please sign up on a yellow sheet, on the check-in area, and I will call your name at the appropriate time.

I will first call those who have signed up, and then we will open the floor up for anyone who wishes to speak. And, as I said before, please note that we will have a limit of public comments of three minutes each.

Also note that we are not able to take questions for the investigators, directly from the audience, and so I will ask all comments to be directed to me, as the presiding official.

If there is a point that is raised, in your comments, where I believe the investigation staff can provide some immediate clarification, I will ask them to do so.

I would like to thank the team for their diligent work in this investigation.

And also I would like to thank our communications department and the people that do the complicated logistics of putting this meeting together, with also the press meeting this morning.

I will now recognize any other board members sitting here, if they have any opening statements. Mr. Bresland?

MEMBER BRESLAND: Thank you, Chairman Moure-Eraso. This investigation, for me, started on August 29th, of 2008, when I was the Board member who responded with the investigation team.

And a long time has passed since August 29th of 2008. We are now into January of 2011. But this has been, as you will find out this evening, this has been a very complex investigation, probably one of the most complex that the Chemical Safety Board has been involved with.

It involved very complex chemistry and technology. It involved a fair amount of,

or a lot of community concern, about the chemicals that were being used and stored at the Bayer facility.

It got involved with difficult political issues, which finished up with a hearing in Congress, that I testified at, and Bayer representatives testified at.

And, then, last but not least, certainly there were a number of emergency response issues.

So you will hear all about these, this evening, and the Board will, eventually, be voting on the recommendations that we have decided are the most appropriate to deal with all of the information that we have gathered in this long investigation.

Thank you.

CHAIR MOURE-ERASO: Thank you, Mr. Bresland. Mr. Wright?

MEMBER WRIGHT: Thank you, Mr. Chairman. I would just like to echo the sentiments that you expressed, earlier, with

respect to the victims and their families.

I also would like to thank the team for all their diligence, and time spent in preparing this report. And I would also like to thank the venue, West Virginia State University, and all the support personnel for helping us this evening.

Thank you, Mr. Chairman.

CHAIR MOURE-ERASO: Thank you. Mr. Griffon?

MEMBER GRIFFON: Thank you, Chairman Moure-Eraso. I would also offer my condolences to the family and friends of the victims of this tragic incident.

I believe this incident, once again, highlights the importance of the need for rigorous process safety assessment, in highly complex processes, involving toxic and highly reactive chemicals.

My hope is that the lessons learned, from this tragic incident, are not forgotten. Thank you.

CHAIR MOURE-ERASO: Thank you, Mr. Griffon. At this time I would like to introduce Dr. Daniel Horowitz, the Chemical Safety Board managing director, who will be going over the agenda, and will also be introducing the investigation team.

DR. HOROWITZ: Thank you, Dr. Moure-Eraso. Tonight's agenda involves, first, a detailed presentation of the Board'S findings from our two year investigation.

That will be given by our investigative team, up here to my left. And following that presentation, the Board will ask questions of the investigative team.

At that point we will then hear from our panel of outside witnesses, who will be talking about a number of subjects but, specifically, model programs for oversight of hazardous chemical facilities.

And we have a very distinguished panel, this evening, of seven members, traveling here from the East Bay of San

Francisco, and Contra Costa County, are Mr. Randy Sawyer, who is the Director of the Hazardous Materials Program, for the County, and has served in that role for a number of years.

And Mr. Jim Payne, who ius the President of United Steel Workers Local 5, also in Contra Costa County, which represents approximately half of the major facilities, chemical and oil facilities that are covered within the program.

Mr. Kent Carper, who is the President of the Kanawha County Commission, and who has been a stalwart of the Board's work here in the county, to improve the safety of chemical operations.

Dr. Rahul Gupta, who is the Executive Director of the Kanawha Charleston Health Department. Mr. Joe Davenport, who is the Director of Union Health, Safety, and Environment for the International Association of Machinists, and Aerospace Workers, Local

656, which represents the work force here at the Bayer CropScience facility.

Ms. Maya Nye, who is the spokesperson for People Concerned about MIC, and who testified at our previous public hearing. And, finally, Ms. Pam Nixon, who is the Environmental Advocate for the West Virginia Department of Environmental Protection and who, I believe, is or was a resident of Institute, for a number of years.

Welcome to all of you, and thank you for agreeing to participate in this evening's meeting.

After the panel presentation we will, again, have a round of questions from the Board, and then we will have our public comment period, which Dr. Moure-Eraso has described.

At this time I would like to introduce our investigative team. To my immediate left is Mr. John Vorderbrueggen, who is the investigations supervisor, and who has

led this investigation since its beginning.

And he has led a number of the Board's most significant investigations, including the explosion at Imperial Sugar, in Georgia, which took the lives of 14 workers back in 2008.

And he has juggled this important responsibility with the Imperial case, and has led a number of the Board's most significant investigations.

He has 35 years of experience in process safety, regulatory program development, business management, and in process maintenance improvement.

Mr. Johnny Banks, next to John has been involved, likewise, in a number of CSB accident investigations, and has led a number of cases, as well. He was involved in the 2005 BP Texas City Refinery investigation.

And of interest, here in the valley, he is leading our investigation of the serious incidents that occurred at the Dupont

Plant in Bell, back in 2010.

And we hope to be back here, within a short number of months, to present the final report here at another public meeting at the Kanawha valley.

Prior to joining the CSB Mr. Banks worked for 22 years at the Chevron Texaco Corporation Refinery in Richmond, California. And so he, actually, has experience of the local oversight programs we will be talking about in a moment.

Next, actually is Lucy Sciallo-Tyler, who worked in the oil industry as a health and safety specialist, focused on incident reporting and analysis, facility auditing, and chemical consequence analysis and has worked as an investigator for the Bayer, Dupont, and other investigations of the Board.

She holds a graduate safety practitioner designation from the Board of Certified Safety Professionals.

And our other investigators are Mr. Mark Saenz, who has over 20 years, and he is on my right. He has over 20 years of experience applying process safety and manufacturing production, capital projects in pilot plans, and he has worked in diverse technologies for many corporations, and he joined the Board approximately a year ago.

And, finally, the fourth over, is Mr. David Cicca, who is currently participating in several accident investigations, including our investigation at Dupont, and the investigation here at Bayer. He holds a degree in chemical engineering from the University of Maryland.

So I thank all the team for their extremely hard and diligent work on this case for two and a half years. And all of us, on the staff, certainly hope that we have produced a product that will help advance the safety of the facilities in the area. Thank you.

MR. VORDERBRUEGGEN: Chairman Moure-Eraso, Members of the Board, General Counsel, ladies and gentlemen.

Thank you, first of all, for taking the time out of your busy days, and evenings, to come to this presentation. We have worked hard to get it to this point, and we look forward to successful completion and Board acceptance of the Findings of the Investigation.

Very briefly, I -- the team will proceed with the facility and process overview. We will provide a brief summary of the incident.

We have about a four minute animation that we will be showing to the audience. We will then present the investigations findings and causes.

We have a discussion that will be presented on the methyl isocyanate day tank shield structure analysis that we performed as part of our investigation.

Please bear with me a minute. We will discuss state and local process safety oversight initiatives. And then, finally, we will go through each of the 12 recommendations that are being brought forward for consideration by the Board.

To begin, Bayer CropScience is headquartered in Germany. They employ, approximately, 18,700 employees, and are represented in, at least, 120 countries world-wide.

Their U.S. headquarters is in Research Triangle Park, North Carolina. Here in Institute they operate a multi-tenant facility. There are, approximately, 500 Bayer employees at this facility, that work at the facility.

There are approximately 200 tenant and contractor employees that work at the facility. And, certainly, at the time of the incident, and things have changed in recent days and weeks, because of some Bayer's

announcement, they were operating three manufacturing centers.

I'm going to move right into the incident animation. We have put together a three dimensional type animation that shows the events that led up to the incident, the explosion itself, and some early discussion on the aftermath of the explosion.

So if all goes well I will have it here.

(Whereupon, a four minute animation was played for the audience.)

The Bayer CropScience Plant is a large chemical complex of more than 400 acres, on the Kanawha River, near Charleston.

It is located in a populated area next to West Virginia State University. Bayer operated four manufacturing units, using highly toxic chemicals, including methyl isocyanate, or MIC, to produce carbamaid pesticides, and other products.

One unit, located adjacent to a

6,700 gallon capacity storage tank, of MIC, used a series of chemical reactions to synthesize the Bayer pesticide Methomyl and Larvin.

During the summer of 2008 the Methomyl-Larvin unit was shut down for several months of scheduled maintenance, a major control system upgrade, and replacement of a 25 year old pressure vessel called the residue treater.

Inside this vessel residual Methomyl was decomposed, at a high temperature, so the waste solvent could be used as fuel elsewhere in the plant.

This process released heat, and needed to be carefully controlled to prevent a runaway reaction. Bayer was eager to get the unit back on-line to meet increased demand for Larvin, with workers putting in extended hours to get the job done.

A decision was made to restart the unit, but this was premature. Workers faced

numerous equipment problems, and the new computer controlled system had not been fully calibrated, and was not ready for use.

This made the startup particularly risky. Five days into the startup of the unit, the residue treater was brought on-line. For safety reasons, the vessel needed to be pre-filled with clean solvent, and heated, to prevent a dangerous accumulation of reactive Methomyl during startup.

A safety interlock would prevent Methomyl residue from being fed to the vessel, if the temperature was too low. But some operators believed the heater could not reach the required temperature to open the valve.

Contrary to operating procedure, and with managers knowledge, operators used a password to bypass the safety interlock. This routine work-around increased the likelihood of a runaway reaction.

Other equipment problems diverted the operators attention. And on the day of

the accident they mistakenly did not pre-fill the vessel with solvent.

Adding to the dangers, problems with a crystallizer raised the concentrations of methamyl, in the residue, significantly above the safe operating limit.

During the day the over-concentrated methamyl, inside the vessel, began to decompose, releasing heat. As the temperature climbed, the rate of the decomposition reaction increased rapidly.

By 10 p.m., the temperature was approaching the safety limit. At 10:17 the pressure began to climb quickly, unnoticed by the board operator, who was dealing with other equipment problems.

At 10:25 the residue treater high pressure alarm went off. The board operator mistakenly believed pressure was increasing because the vent pipe had become blocked, as had occurred many times in the past.

He radioed two outside operators

to check the vent pipe, and set the vessel cooling system to full. But the runaway reaction could not be controlled.

At 10:33 p.m. the residue treater violently ruptured. The vessel careened into the production unit, ripping out piping, electrical conduit, and a large structural column.

More than 2,200 gallons of flammable and toxic material sprayed in all directions, and a massive fire erupted. Other debris struck the protective steel mesh surrounding the storage tank, which contained 13,700 pounds of methyl isocyanate.

The two workers, who had been checking the vessel's vent pipe, were fatally injured. Two other workers, and six volunteer fire fighters, were treated for possible toxic chemical exposure.

(End of animation.)

MR. VORDERBRUEGGEN: As the animation shows it was a sudden and violent

eruption that occurred that night. And it was a tremendous fire, and it took many hours for the emergency responders, at Bayer, to suppress the fire and get the situation under control.

We will talk more about some of the events and communications that went on that night. I'm going to move into incident consequences.

As Dr. Moure-Eraso mentioned, earlier, and as I think everybody in this room remembers, one outside operator died at the scene.

The second outside operator was seriously burned, and he died 41 days later at the burn center in Pittsburgh. There were other injuries reported as a result of this incident.

Chemical exposure symptoms were reported by five Tyler Mountain volunteer fire fighters, and one Institute volunteer fire fighter, who actually entered the unit to

assist in the fire suppression activities.

So they were close-in, in what we call the hot zone. There were also two Norfolk Southern Rail Road Employees, who were working at the Bayer property, the night of the explosion, and they reported various symptoms that were indicative of chemical exposure.

Other on-site physical damage, millions of dollars worth of damage, of course, occurred. The brand new residue treater was totally destroyed. You will see a picture of what it looked like after it was taken out of the unit.

Process equipment was destroyed by the sudden explosion, as well as the careening of the vessel as it went into the unit. There was also moderate over-pressure from the explosion event itself, that caused damage to the control room, and nearby structures.

But it was, really, primarily superficial damage. Ceiling tiles which,

really, have no robust capability to withstand shaking, and slight pressure changes came loose, lights came loose, things of that nature.

We also examined what happened off-site and there were businesses and homes that did sustain window breakage and minor structural damage, and that went as far as seven miles from this explosion.

Most of it was nearby but there were a few reported, and confirmed, as far as seven miles.

Moving into the findings. We have three areas that we are going to talk about. First, federal safety program compliance deficiencies at the facility.

We will then talk about the emergency planning and response issues, that manifested themselves the night of the incident. And then we will move into the actual incident causes.

Federal safety particular

compliance deficiencies. The OSHA process safety management standard, and the EPA risk management program regulation, are two regulations that have been in existence since the late '80, early '90s, that apply to, certainly, the Methomyl/Larvin unit, as well as virtually every one of the units at the facility.

An investigation team found a number of deficiencies in these, in compliance and in the implementation of the programs. These are, one for one, matches as far as the two programs.

They are two different programs, but they have one for one, in these elements, line item requirements. So we will talk about them as a group.

There are four areas in these two federal regulations that were involved. The first is process hazards analysis, next is operating procedures, third is the pre-startup safety reviews and, finally, management of

change.

And I will now move through those. The process hazards analysis, or the PHA, as we call it in the industry, is a systematic analysis of the process, its design, its operating procedures, it is intended to look at the preparation before you ever introduce the chemicals into the unit.

And because of the major modification of the -- Bayer totally replaced the control system on the Methomyl unit, as part of the changes. That drove the need to revalidate, and to rerun the process hazards analysis.

And that is conducted by a team of experts, chemical engineers, mechanical engineers, process experts, human factors experts, to go through this.

And we found numerous deficiencies in this activity prior to the event. Specifically, the team, the PHA team, did not address critical process safety information.

There were elements that were written into system descriptions, that were not addressed by the teams, to make sure those descriptions were effectively managed through operating procedures, and other elements.

Human factors reviews were inadequate. Human factors is the process of what makes sense, what is easier for a human and a machine interface? That is one of the primary elements of human factors reviews.

Is it easy to understand? Do I understand the language of the command sequence? Does the verb fit what I want to do, or what I need to do? Is the sequence logical?

Those are some human factors elements. The ability to use a mouse, versus a keyboard, is a human factors element. And these things were not effectively addressed as part of this major facility, again, control system chaNge.

The PHA team did not verify key

assumptions. They made the assumptions that safeguards were operational because the system description said there was a safeguard in place, a device to prevent doing something out of sequence, in this case.

But the team didn't go back and verify that that is how the operators operated the unit. And that is, again, they make the assumption, they accepted the condition, and moved on.

And, finally, the team did not resolve recommendations, even from earlier PHA activities, maybe in years earlier, in a timely manner.

So there were active outstanding recommendations from other PHAs that did not get addressed in the final PHA prior to this incident.

Operating procedures is the next area. The only way you can safely operate these complex systems is to have precise, simple to understand, easy to read, easy to

access, operating procedures.

The less frequent you do a task, the more important the procedure. If you do that task every 15 minutes you probably don't need to have it written down, and you don't have to follow the instructions.

But if you only do it once a month, once a year, once a turnaround, or once an outage, the sequence that you are following must be clearly written and followed.

Problems we identified: The operating procedure there the crews were working with, the night of the incident, had not been revised, even to include the new control system.

There were things as simple as the name of the manufacturer had not been changed. There were, also, important things that had not been changed, such as certain sequences of operation.

They had to actually switch variables, as we say, out of date process

variables. Process variables are pressure in the reactor, temperature in the reactor, flow, level, and of course, if you are thinking levelling the reactor, it might -- it could be measured in gallons of fill, percent of fill, weight in pounds or kilograms.

And some of those elements had actually changed in the new system, and the new controlled displace, but they had not been captured in either the written procedures or in even the training practices.

And some operators even had to put cheat sheets on their screens to say 50 percent full means 500 pounds, or 1,000 pounds, so that they could convert it in their head.

We also learned that the operating procedure was so voluminous, 1,200 plus pages of which only about 400 were really the meat of what they typically did.

The others were things associated with chemical descriptions, and where certain

components are and, maybe, emergency action, you know, where they keep their breathing apparatus if they had to evacuate.

But, certainly, the day to day operation was critical, and the operators did not routinely use that information, did not follow the procedure, partly because of its complexity, and it was cumbersome.

And, finally, related to procedures is that key steps, clearly, were not performed during that August startup. The animation pointed out that the critical step of pre-filling the residue treater, and you will hear this again tonight, pre-filling that residue treater with the clean solvent, making sure that it was at the minimum safe operating temperature, that was omitted from the startup the night of the incident.

That, combined with other activities we will go through, ultimately led to the event.

Pre startup safety reviews. When

a system is modified, like it was here with a new control system, there is a requirement, by the regulations, to review, literally, before you introduce the chemical, to make sure, have you closed out this item, did you complete the training element, did all the operators do their training? Did we revise our procedure?

Those things is what is called a pre-startup safety review. You physically walk the unit especially if you have removed equipment, removed devices, disconnected electrical circuits, and you physically check all of that before you add chemical.

That was incomplete in the weeks leading up to the event. There were things that were skipped, assumptions that were made, and the PSSR was not effectively completed.

In particular, they did not verify that the operating procedures were up to date, and ready to use. They did not involve operations personnel, and other subject matter experts, in some of those PSSR activities that

they had actually completed.

So they didn't have the experts, the folks that had to run the unit, necessarily, at every activity that was critical to a PSSR.

They did not verify all equipment that was critical to operation, was properly installed. We identified, through our investigation, that there were missing components that were only discovered as they were starting up, and as they were challenged with the startup.

They discovered that things were not in place, and they had to go back and fix those, so they were fixing things on the fly over five days.

And, again, those types of items should have been resolved before they ever went into a restart mode, where they introduced the toxic and reactive chemicals.

Management of change was the last area that we flagged a number of deficiencies.

Management of change is the process by which if something is changed, either physically, you can make a physical change, like they did, they replaced the residue treater, that was a physical change.

They replaced the control system. You can also have procedural changes, just word changes that might fall into what would be needed to have an engineering review to make sure that it has been properly implemented.

That is a formalized step by step process. And, again, operating procedures weren't focused on this. Bayer management, in the process involved in not address operating procedures deviations.

We learned that the operators sometimes deviated from the operating procedures in prior startups, in some cases, years earlier. These deviations were never reviewed by process system experts, or other people, to make sure; why are they deviating,

is it legitimate, is it okay, do we need to revise the procedure to make that deviation acceptable?

But there was not an engineering review. And, again, one particular deviation was critical, and that is the safety interlocks were bypassed.

Some operators, as the animation points out, were of the belief that they couldn't get to required safe minimum operating temperature.

So, in the past, there was evidence that they were within a couple of degrees, five degrees, so then they could start the process. But, unfortunately, the night of the event they were hundreds of degrees off when this happened.

But that interlock was bypassed, and other key startup procedure steps were, sometimes, skipped.

Let me kind of summarize the residue treater, and the key things that were

involved that night.

Down at the bottom left, what should have occurred was fresh clean solvent should have been introduced into the residue treater, the valve, the dark valve that is being pointed to on the picture there.

That would have allowed the operators to pre-fill the residue treater to about 30 percent full, which whatever the operating procedure expected it to do.

They could then have started the recirculation pump, run it through the heater on the lower right, and preheated the clean solvent to the required safe minimum operating temperature.

Then, with the required temperature, the temperature transmitter, on the lower right of the residue treater would have triggered that it is okay to proceed.

And when I say trigger, it would have actually been an electronic signal, over to the feed control valve on the left. The

flow transmitter would have detected flow through the recirculation, because that was critical for proper mixing.

And, finally, the pressure transmitter, at the top, would have said I'm not too high on pressure, so the feed valve can then open and under normal operating, it would have opened automatically.

However, the night of the event, again because of some pre-conceived, or predeterminations by some operators, they did not believe that they could get to the right temperature, so they bypassed the temperature transmitter, flow transmitter, and pressure transmitter, and manually opened the feed valve.

And, again, unfortunately it was opened when the residue treater was empty, so there was no dilution, which is a critical element, no dilution into clean hot solvent.

And they pre-filled with concentrated Methomyl residue which,

ultimately, self-reacted, and the vent system just could not keep up with the energy, the heat and the pressure, and catastrophically failed.

Emergency planning and response: There were critical and poor communications between Bayer and off-site response agencies. That was the big news that night. And it was, clearly, a problem.

Part of it was caused by the overwhelming load on the metro 911 call center phone system. That has been a historic problem throughout the country. When these big events occur, everybody is calling the systems, and the systems quickly are overwhelmed.

So part of the problem was, literally, the Bayer guard could not reach the call center. The call center couldn't reach the Bayer guard.

That went on for some 10 minutes while this fire is raging. Then it went into

a mode where once the actual communication was established, as we know from earlier reports, and our prior presentation, the information was not flowing.

The guard was not authorized to identify all of the details. He did not know most of the details. And so all he could say is I don't know, somebody will get back to you, and that went on for hours, we understand that.

There were also other communications breakdowns. We do know that at one point in time the emergency response coordinator -- the incident commander, I'm sorry, at Bayer did recommend a sheltering place.

This was about an hour into the event. But it went as far as the Bayer emergency operation center, and it got lost in the shuffle, and did not get communicated to Metro 911 call center. So there were significant breakdowns in communications.

The other thing that we looked at, that was inside the facility, and maybe it is partly why, as I mentioned, that some of the emergency responders, the Tyler Mountain and Institute fire fighters, had symptoms of exposure is because we learned that they did not wear respiratory protection, in the unit, during the event.

They did not have a basis to do that. They did not have their monitors to say it is safe. Again, their decisions were based on, we are standing upwind of the event, the event is away from us.

So they did not have a basis, and they proceeded without respiratory protection. And we also learned that emergency responders that worked inside the unit, and that is who we are talking about, not folks who stayed out of the fence line, or even folks that stayed in what we would call the warm zone, or cold zone.

They did not properly

decontaminate their gear before they left the facility. So if any of the smoke that was blowing across their bodies from the burning fire had left any kind of contamination, that was carried to their homes, to their vehicles, to their homes.

And that, again, is contrary to the proper way to close out an emergency response. So those are two of the on-site deficiencies that we identified in our investigation.

Another element that made the news, and this is very accurate. The air monitoring was ineffective for evaluating possible airborne toxic materials during the release.

We know that emergency responders inside the facility were unaware that the Methomyl unit MIC, air monitoring system was not operating. It had not been operating for, approximately two months.

They had equipment problems with

the device that actually analyzed the data. The responders were unaware of that, but they were making decisions based on what they thought was information saying the alarm isn't sounding, therefore we don't have an MIC release, therefore we can do this, this, and this.

So that was a significant shortcoming in their ability to respond to the incident. We also know that there were only two active fence line monitors working at this facility.

They were what we call four gas monitors, carbon monoxide, help me folks, H2S, oxygen concentration, and I forgot -- anyway, there were four.

They were generic, they do a generic detection. And the closest one was some 800 feet away. Not very effective, especially since most of the smoke tended to go straight up.

Monitors only work if they are in

the line of what is occurring. And those fence line monitors provided no reliable data as to what might have been releasing the night of the incident.

Finally, we identified five top level, if you will, incident causes to the event of that night. The standard pre-startup safety review, PSSR, and the turnover practices, were not properly implemented, and the unit was restarted before the equipment was properly tested, properly calibrated, and even verified to be installed.

The second key principal incident cause, operations personnel were inadequately trained to operate the unit with the new control system.

They had informal training, but there was not a prescribed, defined, written training process, and verification that they understood how to operate it.

Management relied on their experience on the Larvin unit that had the new

system installed a year before, but they never looked at it as it related to Methomyl.

Manufacturing equipment and the inadequate checkout prevented the operators from achieving the proper order and correct process operating conditions.

What we are saying here is that heater, that was claimed to be incapable of getting to the right temperature, that was never evaluated to determine whether that was a valid concern, and resolved before the start.

Over-concentrated Methomyl in the used solvent, that is the solvent that was being fed to the residue treater, was fed to what turned out to be essentially empty at the starting point, and it was unheated.

And, again, critical, critical operating parameter was minimum operating temperature had to be in place. The safety interlock would have prevented that flow, had it been active.

And, finally, reaction products from the uncontrollable runaway decomposition of Methomyl, overwhelmed the relief system and, ultimately, it took less than ten minutes, when that last -- it was only a minute or so when it finally over-pressurized the residue treater and it violently exploded.

We will now move to the methyl isocyanate day tank shield structure analysis, and I will ask Ms. Lucy Tyler to present this section. Lucy?

MS. SCIALLO-TYLER: Good evening. Due to the proximity of the residue treater to the MIC day tank the CSB conducted an analysis to estimate the potential for an MIC release, if the residue treater impacted the side of the day tank shield structure.

This analysis was based on a hypothetical condition that the residue treater, upon its rupture, on the night of the incident traveled in the opposite direction, towards the MIC tank.

Here is an overhead view of the Methomyl Larvin unit that points out the location of the MIC tank with respect to the residue treater.

The MIC tank was located approximately 70 feet to the south of the residue treater. The next two photos show a close-up of the blast blanket, and blast blanket support structure.

The photo on your left is a closeup of the blast blanket. It is two layers of one half and five eighths of an inch thick woven cable.

It was installed in 1982 and upgraded in 1994. It was chosen due to its resistance to high energy detonations. The photo on your right is the MIC day tank, and surrounding frame structure without the blast mat.

This photo was taken by CSB investigators in October of 2008, shortly after the incident. the MIC tank was not in

service at the time this photo was taken. Bayer had taken down the blast blanket for cleaning and refurbishing.

Based on the explosion characteristics, and the material properties of the residue treater vessel, the CSB used a series of empirical formulas to estimate the energy produced by the explosion, which was equivalent to 17 pounds of TNT at the explosion source, some 70 feet away from the MIC day tank.

The blast blanket, itself, is capable of withstanding an energy many orders of magnitude higher than the explosion on August 28th, 2008.

The CSB concluded that the blast blanket was robust enough to protect the MIC tank from this event. However, it was also necessary to examine the structural frame that surrounded the tank, and supported the cable blast blanket.

After reviewing design

documentation for the frame, dating back to when the facility was Union Carbide, the CSB concluded that the original design for the blast blanket only considered dead weight and wind loading, and did not analyze dynamic impact from a projectile.

So an analysis to evaluate the frame response to a hypothetical projectile impact was performed, using the estimated over-pressure values, and the weight of the residue treater, which was 4,000 pounds, which included the residue treater shell and top head.

The CSB estimated the initial velocity of the residue treater, from the vessel's dynamic energy. The fragment, shown here, had an initial velocity of 55 miles per hour when it began to travel into the Methomyl Larvin unit structure.

The CSB used the same values in the hypothetical frame impact scenario, with the residue treater traveling in the opposite

direction.

Using the vessel's dynamic energy, and other values consistent with the mass and the shape of the fragment, calculations and computer modeling software, estimated the fragment energy, and displayed the trajectory of the fragment at various launch angles, 70 feet away from the 22 foot high MIC tank shield structure.

The circled impact point on the frame would be considered the worst case impact point, because this would cause the greatest deflection of the frame, towards the vent line that comes out of the top of the MIC tank.

Ignoring other equipment in the path of travel, and taking into account aerodynamic drag, the fragment would have impacted the frame at 127 foot pounds, which is equivalent to a standard car colliding with the structure at 32 miles per hour.

The structural frame analysis

failure criteria consisted of a possible pipe break from the frame, if the frame deflected, or moved to the point that it contacted the vent pipe on top of the MIC tank.

The vent line is connected to the MIC tank, and protrudes above the frame, through metal grating.

The results of the analysis revealed a four inch deflection that could have resulted in a possible MIC vapor release, from the vent line, under these hypothetical conditions.

It is important to note, here, that there is no longer any above-ground storage of MIC at the Institute facility. The subject of this analysis, the day tank, as well as the Methomyl process, have been decommissioned and are no longer in service.

The impact scenario, that I just described, did not occur on the night of the incident, and is hypothetical.

Since the August 2008 explosion,

there have been a number of process changes at the Bayer Institute facility that I will summarize.

Bayer has reduced its MIC inventory by 80 percent, as part of significant process changes and upgrades made to the MIC production unit, which is scheduled to restart in February 2011.

Last week Bayer announced that as a result of a business decision, they will voluntarily stop making carbamate pesticides by mid-2012. And by doing so will abandon MIC and phosgene storage at the Institute Manufacturing Industrial park, by mid 2012 as well.

This concludes my portion of the presentation. And now Investigator Banks will come to the podium to talk about state and local process safety oversight initiatives. Thank you.

MR. BANKS: Thank you, Ms. Tyler, and good evening.

The next portion of our presentation will cover the state and local process safety oversight initiative, that the team became aware of, over the course of this investigation.

As with most CSB investigations, we considered agencies such as OSHA, and EPA, the challenges they face in inspecting chemical plants, and the roles they play in preventing incidents at these facilities.

These challenges include limited funding, and limited resources, and inspectors, to conduct inspections at facilities that run into thousands across the United States.

It is important to note that there are dozens of plants in the Kanawha Valley, that fall under the regulations that the OSHA PSM standard, and the EPA RPM-RMP regulations cover.

There are limits to audit process where the OSHA inspectors won't likely come

into a facility, until an incident has occurred, or there has been a referral or an accident.

There is limited public or government, or local government involved in the inspections. Over the course of the investigation we examined several programs, throughout the United States, that are involved in conducting investigations in facilities, one of which was in New Jersey, one was in Massachusetts, and one that we looked at closely, that exists in Contra Costa County, California, the Contra Costa County California Hazardous Material Safety Ordinance.

There are many similarities in the Contra Costa County to the Kanawha Valley. There are a number of industries that produce and process highly hazardous, and highly toxic materials on a daily basis.

These activities go on in chemical plants and refineries. The geography of the

area are very similar, in that there are major waterways that supply resources to and from these facilities.

These waterways also provide recreation and sporting activities for the local citizens. Over the course of the years these plants have existed in excess of 50, 60, to 70 years, and communities have built up to the fence line.

And because of an ongoing concern about these facilities ability to operate safely, there were groups that voiced those concerns, and those concerns were heard by the State Legislature, in California, who in 1999 authorized Contra Costa County to implement the ordinance.

The state legislature authorized this in 1999 and the funding for this program is self-funded, and fee-based. Which means that the fees for these services are provided by the companies that are receiving this service.

The regulated industries are required to include the public's participation in the investigation and evaluation of these programs, and there is a provision for public comment.

Each facility submits a written safety plan to the county. Also, in this ordinance, there is a requirement that the facility hold periodic safety facility plans, and public meetings.

And there are provisions in that, that allow the public to challenge the facility's plan. The authority is given to these facilities to conduct facility incident investigations, by the ordinance, and to conduct tri-annual audit of facilities safety plans.

In this graph, that is on the screen now, the graph shows the number of incidents that occurred in the Contra Costa County or major chemical accident releases since 1999.

The trending can be seen going in a downward direction since 1999. More details on the specifics of this ordinance will be provided by one of the presenters, on the panel, shortly.

The next phase of our presentation will be the recommendations generated by this investigation, and that will be conducted by Mr. David Chicca. Thank you.

MR. CHICCA: Thank you, Mr. Banks, and good evening.

Recommendations are the CSB's primary tool to improve industrial safety. They can be issued to government agencies, be they federal, state or local, to trade associations, labor unions, and other groups.

Recommendations call for actions, to specific parties, issued with the intention of future accident prevention. They are based on lessons derived from each investigation, and they can be found at the conclusion of each report.

Each recommendation is monitored by CSB staff from the time it is opened, until it is closing. And to track the recommendations from this report, and to learn more about how recommendations are closed, please visit our website, at Chemical Safety Board.gov/recommendations.

To begin, recommendation number 1 is directed to Bayer CropScience Research Triangle Park, North Carolina.

Revise the corporate hazard analysis policies and procedures to require validation of process hazard analysis assumptions, to examine the risk of intentionally bypassing safeguards.

Address all phases of operation, and special topics, included those cited in the Center for Chemicals Process Safeties, Guidelines of Hazard Evaluation Procedures.

Retrain all process hazards analysis facilitators, and ensure all process hazards analysis are updated to conform with

the revised procedures.

Recommendation number 2 is directed to Bayer CropScience, Institute, West Virginia. Review and revise all Bayer production units, standard operating procedures, to ensure they address all operating modes, and that they are accurate and approved.

Recommendation number 3 is also directed to Bayer CropScience, Institute, West Virginia. Ensure that all facility fire brigade members are trained in the National Incident Management System.

Recommendation number 4 is also directed to the Bayer CropScience, Institute, West Virginia.

Evaluate the fence line air monitoring program against federal, state, and local regulations and upgrade, as necessary, to ensure effective air monitoring.

Recommendation number 5, directed to Bayer CropScience, Institute, West

Virginia.

Commission an independent human factors and ergonomic study of process control rooms, to evaluate the human control systems interface, operator fatigue, and control system familiarity and training.

Develop and implement a plan to resolve all recommendations, from this study. That includes assign responsibilities, require corrective actions, and completion dates.

Now, before I do recommendation number 6, for those of you who have received any draft versions of this presentation, please note that the recipients for recommendation number 6 and 7 have changed.

Recommendation 6 and 7 address the very important issues my colleague, Mr. Banks, discussed earlier in the presentation, specifically, about state and county ordinances taking an active and public-centered role in safety and accident

prevention in their local industry.

As such, recommendation number 6 is directed to the director of the Kanawha, Charleston Health Department.

Establish a hazardous chemicals release prevention program to enhance the prevention of accident releases of highly hazardous chemicals, and optimizes responses in the event of an occurrence.

Ensure that the new program implements an effective system of independent oversight, and facilitates the collaboration of multiple stakeholders, in achieving common goals of chemical safety.

And increases the confidence of the community, the workforce, and the local authorities to prevent and respond to accidents of highly hazardous chemicals.

Define the characteristics of chemical facilities that will be covered by the new program, such as the hazards and potential risks of the chemical processes,

their quantities, and similar relevant factors.

Work with the Secretary of the West Virginia Department of Health and Human Resources, and the State Department of Environmental Protection, to ensure that covered facilities develop, implement, and submit for review and approval, written safety plans with hazard controls, safety culture abuse, human factors evaluations, inherently safer system studies, emergency response plans, and performance indicators addressing the prevention of chemical incidents.

Ensure that the designated agency has the right to examine the documents submitted by the covered facilities, and has the right of entry, to covered facilities, to conduct periodic audits of safety systems, and investigations of chemical releases.

Establish a system of fees sufficient to cover the oversight related to the services to be provided.

And, finally, ensure that the program provides reasonable public participation with the designated agency staff, and review of facility programs.

Ensure that the program will require periodic review of the designated agency activities, and issue a periodic public report of its activities, and recommendations of action items.

Recommendation number 7 is directed to the Secretary of the West Virginia Department of Health and Human Resources, and the State Department of Environmental Protection.

Work with the director of the Kanawha, Charleston Health Department for the successful planning and implementation of the hazardous chemical release program, as described in the previous recommendation 6.

Omitted from the slide is the following: Include the provision of services to all eligible facilities in the state.

Recommendation number 8 is directed to the Kanawha-Putnam Emergency Planning Committee.

Work with the Kanawha-Putnam County's emergency response plan and annexes, to address facility emergency response, and incident command.

Recommendation number 9 is directed to the West Virginia State Fire Commission. Revise the administrative section matrix for the fire department evaluation, specifically requiring the periodic inspection of local fire departments, to include a requirement for inspectors to examine and identify the status of national incident management system, fire department, personnel training.

Recommendation number 10 is directed to the Occupational Safety and Health Administration.

In light of the findings of this report conduct a comprehensive process safety

management inspection of the facility. Coordinate your inspection activities with the Environmental Protection Agency.

Recommendation 11 is also directed to the Occupational Safety and Health Administration.

Revise the chemical national emphasis program and targeting criteria to expand the coverage to all ten regions. Modify the targeting criteria to include all facilities that have certified process safety management corrective actions, and require inspections to examine the status of compliance of certified corrective actions.

And, finally, recommendation number 12 is directed to the Environmental Protection Agency.

In light of the findings of this report, conduct a comprehensive risk management plan inspection of the facility, and coordinate your activities with the Occupational Safety and Health Administration.

This concludes the recommendations portion of this report. Mr. Vorderbrueggen?

CHAIR MOURE-ERASO: Thank you, Mr. Chicca.

Following our agenda, the next item is that the Board members will have questions for the investigation team. So I will start with Mr. Griffon, please.

MEMBER GRIFFON: Thank you, Chairman Moure.

I just have a question on the air monitoring. In the report you noted fence line monitoring and process monitoring.

Notwithstanding the question of the location of the monitors, on the fence line, can you tell me if you determined whether the area ray fence line air monitors were appropriate for this type -- were they the appropriate type of air monitor, to detect the potential off-site emissions of concern?

MR. VORDERBRUEGGEN: Ms. Tyler will respond to this question.

MEMBER GRIFFON: Sure.

MS. SCIALLO-TYLER: The CSB investigators reviewed the air monitoring data and also, based on documentation from the company, learned what chemicals that the area rays are capable of detecting.

And a lot of the chemicals were kind of your basic four gas meter chemicals, and a few others, I believe hydrogen cyanide was one, carbon monoxide.

There is an LEL meter, there was an oxygen meter, and maybe sulfur oxides was another possibility. But a lot of the byproducts of the explosion of the methomyl larvin unit are very specific.

And there really isn't a lot of technology available that could really pick up some of those complex chemicals, only some of the derivatives.

So there may have been some interference on the monitor data that they might have picked up portions of those

chemicals. But there really isn't an actual monitoring device that could, for example, detect methomyl, an electronic monitoring device.

MEMBER GRIFFON: And could I have just a follow-up question?

On the process specific monitoring, your report notes that there was continuous air monitoring initiated. And then, apparently, there was analyzer malfunction, causing spurious alarms.

And then I guess the night of the incident all these monitors were -- they were bypassing these because of these spurious alarms.

How did you conclude that it was analyzer malfunctioning, rather than actual readings that were causing the alarms?

MS. SCIALLO-TYLER: I can answer that one as well.

We actually requested, from the company, the monitor data dating back, I'm not

exactly sure, but several months prior to the incident.

And that data, that Bayer provided, you could tell that there were a lot of spurious readings. There were readings that were kind of off the charts, and then there were negatives.

So there is, definitely, an indication that there was a problem with the monitor data, that continued up until the point that those monitors were taken out of service for some sort of maintenance.

MEMBER GRIFFON: Thank you.

CHAIR MOURE-ERASO: I have a question for Mr. Vorderbrueggen, please.

We have been focusing, a lot, on the issue of the presence of MIC during the time of the explosion in 2008.

But I am aware, also, that there are a number of other chemicals in the facility. And I wonder if -- what research did your team do to establish the specific

amounts of other dangerous chemicals, like phosgene, or chlorine, for example, that could be present in the Kanawha Valley?

MR. VORDERBRUEGGEN: We did not get into details of those other raw chemicals. As you mentioned phosgene, there is chlorine, there was ammonia. There were other of the chemicals used to manufacture methamyl.

There are chemicals used to manufacture MIC over at the other side of the facility. We certainly focused on what was going on in the methamyl unit.

We do know what the general total quantities are, at the time of the incident, as far as what they were authorized to hold.

We looked at the EPA risk management program, a list of chemicals, which we actually summarized those chemicals in our report.

But we didn't get into the details of how they used those, or rates of use, or anything like that.

CHAIR MOURE-ERASO: Thank you. And a second question. You mentioned the issue of human factors as one of the causes of the incident.

You mentioned issues of training, you mentioned issues of fatigue, and stress. Could you expand on those issues, and talk a little bit about what you meant specifically?

MR. VORDERBRUEGGEN: Well, the training was the most obvious. The operators had operated this system for many years, with the computer control circuit that actually used key stroke entry to tell the computer what to do, to open valves, close valves, and things of that nature.

They made a total replacement in that summer. That was the major work that was done on that unit. They went from this keyboard featured system, with very specific information on the various screens that the operators used.

And they went to a more modern

control system that actually went to a mouse control. And I think most of us in this room have had to struggle with -- you know, most of us learned on keyboards, and then a mouse became a human interface device.

And now we have to figure out where to point. And what happens when -- what does that icon on the screen mean? I want to print something, I have to think, is that a printer icon, or is that an ink blotter?

So these are the training issues that came up. And there was no formal training process for the operators to familiarize themselves with actual very basic control commands that the system had to take.

So that was, really, the focus there. We also, we did look at the fatigue issue. Every major unit turn-around, or unit outage maintenance modification program, it is fair to say involves many, many man hours of work.

A lot of this is around the clock

type work. And that is, essentially, how this process went on the methomyl larvin unit. They were looking to return this unit to service, and returning it to a profitable operation.

There were new opportunities for the market and that, actually, was one of the drivers for them investing in the changes that they had made.

We know that some of those operators worked 12 to 14 hour days, day in, day out. The problem with trying to examine whether fatigue, specifically, played into the event, is very, very complex, when you are involving dozens of people doing activities.

It is relatively straightforward if you are looking, and I will use the NTSB comparison, an aircraft. You might have only two people in the cockpit, maybe three.

Or worse case, those of us that drive cars, that end up driving late into the night, after a long day. It is pretty easy,

in those scenarios, to say you know the person fell asleep at the wheel, the pilot did something, the co-pilot did something.

And it can be directly attributed to fatigue, to literally falling asleep in some cases. You don't have to fall asleep to have a fatigue problem.

But when you get into the control room unless a staffer in the control room has literally dozed off, and missed a critical function, or unless a person will acknowledge, through the interview process, you know I was so tired my head was bobbing, and I pushed the wrong button when I got this information to me.

Unless you have that level of direct evidence, in a control room situation where many people are involved, you can't pinpoint fatigue as a direct cause.

I know it is an issue for the Board, it is going to continue to be an issue. And we are hoping that as we learn more

through this, we have actually gone through some training programs, our investigators, how to evaluate for fatigue influences, we hope that one of these days we can turn the fatigue dilemma into meaningful improvement processes.

CHAIR MOURE-ERASO: Thank you, Mr. Vorderbrueggen. So Mr. Bresland?

In your presentation you say that Bayer is restarting the MIC units next month. What changes have they made since the accident?

MEMBER BRESLAND: Of course Bayer, I think, held a public, a press conference, I believe it was last August time frame, late summer.

They have proceeded with reduction of, approximately, 80 percent of the original stockpile, so they are down to about 20 percent of what it was back at the time of the incident.

Bayer has completely eliminated all above-ground storage, in the above-ground

storage tanks, one of which was the MIC day tank that we talked about in the explosion analysis, in the frame performance analysis.

They also have replaced, rebuilt all of their underground storage, and upgraded the leak detection systems, the protection devices on that equipment.

There are, probably, other things that they have done. And we also know that they have embarked on redoing their PHAs, we know that directly, that they have been working on re-examining their PHAs for the processes that are going to be, that are currently in service, because there are some processes that are operating today.

And then before they introduce the raw chemicals to make MIC, in the rebuilt or upgraded MIC production unit, the PHA revalidation is intended to have been complete, and those critical action items that the PHA teams identified, will have been corrected and resolved before they start

production.

Is there any, was there anything else, team, that I missed? I think that was the primary elements.

CHAIR MOURE-ERASO: Thank you, Mr. Bresland. Mr. Wright?

MEMBER WRIGHT: Thank you, Mr. Chairman. Mr. Vorderbrueggen, I was wondering if you could opine on the likelihood that our sister agencies, OSHA and EPA, are likely to conduct PSM and RNP surveys of this facility, in light of the fact that our report is two years in the making, i.e., circumstances have changed.

As you pointed out, they have made some improvements in process hazard analysis, and in elimination of above-ground storage of MIC.

I was just wondering what you think the likelihood of OSHA and EPA are to conduct those? And, at least my understanding, they have to have a particular

violation and/or particular referral, as opposed to this en masse, they have problems, go look at them.

MR. VORDERBRUEGGEN: This is my opinion.

MEMBER WRIGHT: Yes, absolutely.

MR. VORDERBRUEGGEN: Okay. It is going to be a challenge for either agency to move into a comprehensive examination of programs. As you mentioned, OSHA certainly has authority to enter a facility if there is a complaint, if there is an accident, if there is -- if it is even perceived to be a concern even though it might not, ultimately, be a concern.

OSHA has the right of entry. OSHA, it is my understanding in talking to OSHA representatives, they do not have the right come knocking at any door and saying, we are here, we want to examine any one of our elements of our very broad worker safety standards, including fall protection, or

whatever.

So -- and we also know that OSHA has conducted a comprehensive examination after the fact. After the explosion OSHA was in, and their finding were made public, they cited Bayer for numerous things that were in parallel to what we cited.

They went off into some of their other regulatory authority that we did not address. And there was monetary penalties, and there were negotiations, etcetera.

So there has been some of that, already, done. So it is unclear to me how they will respond, and what action they will take.

EPA, in general, is similar to that. And I know that EPA had embarked on an examination of the incident. But EPA doesn't have a statutory time limit.

Neither do we, and it took us more than two years. OSHA had a six month statutory limit to publish their findings.

So I, personally, have not seen EPA actions. That may be something forthcoming.

MEMBER WRIGHT: Thank you. Thank you, Mr. Chairman.

CHAIR MOURE-ERASO: Any other comments from the Board? No, okay.

So we continue with the agenda. I think we are going to move to the panelists. And the first panelist that I would like to invite to join us, in the front table, your names are there, you have to check out where your name is, first is Mr. Randy Sawyer.

Mr. Randy Sawyer is the Director of the hazardous materials program in Contra Costa County, California. Mr. Sawyer, please proceed with your statement.

As a matter, all the people can join Mr. Sawyer in the panel, Mr. Davenport, Mr. Gupta, and Ms. Nixon, and Ms. Nye, you can step forward, please, and sit at the front table, Mr. Carper.

Mr. Sawyer?

MR. SAWYER: Chairman Moure-Eraso, and honorable members of the Board, thank you for inviting me to participate in today's hearing.

As mentioned, my name is Randy Sawyer, and I'm the Contra Costa County hazardous materials programs, and I'm also, at this time, the interim Environmental Health Director in Contra Costa County.

Contra Costa County is a safer place to work and live because of the actions taken by the citizens of the county, the County's Board of Supervisors, the United Steelworkers Local Union, the hazardous materials program staff, and the regulated industry.

The safety culture of the petroleum refineries, and chemical facilities, has dramatically improved over the last 19 years.

Contra Costa County is located on

the San Francisco Bay Estuary, and it is home to four petroleum refineries, and several small to medium sized chemical facilities.

In the 1990s there were many chemical accidents and releases, some of which caused the death and injury of workers and/or impacted communities, the local communities.

These accidents included release of spent lube acid that ignited, where a worker was killed and another was seriously injured. A release of sulfur trioxide from an oil tanker, that resulted in over 20,000 people seeking medical attention.

A release of an absorbent called catacorg, over a 16 day period, that resulted in over 1,200 people seeking medical attention, at a medical clinic set up after the incident.

A runaway reaction from a hydrocracker unit that caused the failure of the outlet piping, and caused an explosion fire, where one worker was killed, and 46

contract workers were injured.

A flash fire from a crude unit, that occurred at the taskaway oil refinery, where four oil workers died, and another was seriously injured.

At that time the Contra Costa County hazardous materials program staff performed an incident investigation, including a root cause analysis of this accident.

Also Contra Costa County hazardous materials program hired an independent contractor to perform a safety culture evaluation at the facility.

The Chemical Safety Board also performed an investigation of this accident. As a result the county, and the City of Richmond, implemented the most encompassing accidental release prevention program in the country, because of the concerns raised by the community, and the county's Board of Supervisors.

The industrial safety ordinance

requirements go beyond those required by the USA EPA risk management, and the federal OSHA process safety management programs.

These regulations are the most stringent in the country. The industrial safety ordinance requires regulated sources to consider other safer alternatives, perform root cause analysis as part of the accident investigations, performed human factors analysis, and performed a safety culture assessment at least once every five years.

The Contra Costa County health services hazardous materials program engineers have industrial experience, and perform in-depth audits of the regulated sources at least once every three years.

These audits may take five engineers four weeks to perform, and may be the most thorough audits in the country.

When the Industrial Safety Ordinance was passed, the ability to charge fees to cover the ordinance, implementing the

program, was established.

Fees are based on the potential hazards of the chemicals that a regulated source handles, the complexity of the regulated source, and recent history of accidents that occurred at the regulated source.

The result of these actions is a change in the way industry does business in Contra Costa County. Instead of putting safeguards in place, they are looking on how to avoid hazards altogether.

The permits that Contra Costa County health service follows is the only way that a facility will prevent accidents from occurring, is that that facility have a solid and good safety culture.

With a solid and good safety culture, the regulations are used as tools in the prevention of accidental releases. As a result, in the last 12 years, there has not been one accidental release, from a regulated

source, that has had a major impact on the surrounding community, or cause serious injury, or death, of a regulated sources worker.

The industrial safety ordinance has made a dramatic positive impact on refinery and chemical facility safety in Contra Costa County. This has made a safer work environment for the employees of the petroleum refineries, and chemical plants, and a safer community for our citizens to live.

That is all I have to say at this time.

CHAIR MOURE-ERASO: Thank you, very much, Mr. Sawyer.

I would like to proceed with the second panelist, Mr. Jim Payne. Mr. Jim Payne is the President of the Steelworkers Local 5, in California, which I believe is in Contra Costa County.

So Mr. Payne, Please.

MR. PAYNE: Thank you, Mr. Chair,

Members of the Board. My name is Jim Payne, I'm the President of U.S.W. Local 5, in Contra Costa County, California.

I'm also the vice-chair of the Contra Costa County Hazardous Materials Commission, which is an Advisory Board to the County Board of Supervisors.

A lot that Randy has already covered I'm not going to bother repeating, but I completely concur with his assessment of the value of the ordinance.

Things were really bad in Contra Costa County prior to the ordinance. We had a lot of folks that just really didn't think, didn't have a safety culture when it came to operating their facilities.

The community reached a point where enough was enough. They weren't going to -- I mean, if it meant shutting down the facilities to fix the problem, that was going to happen.

The Hazardous Materials Commission

is made up of members from the public, environmental community, industry, and labor.

The Board of Supervisors tasked the Hazardous Materials Commission with coming up and drafting the Industrial Safety Ordinance, working along with county staff.

And what we came up with was, basically, an enhancement of existing federal and state regulations. If the facility had one process that was covered, and even tough they might have another process that didn't quite meet the threshold, there was still some pretty nasty stuff.

If they had one process that was covered, everything in the facility was covered. Also adding in the tankage, because in the federal program tankage is exempt, not in ours.

We also looked, in depth, at human factors, and required that the facilities develop a human factors program and train their folks, and then later on the safety

culture portion of it was added as well.

Because we discovered that if you don't have a safety culture, it doesn't matter what kinds of procedures and plans you have in place.

You could have a perfect plan in place, but if you don't have the safety culture there, to follow it, it doesn't matter, you are still going to have the same kinds of problems.

The Ordinance has been a great tool for our members. Our members do not go to work to die. And it is our obligation, as a union, to do everything in our power to make sure that they have a safe place to work at. And I believe they now do.

We have a great working relationship with the county regulators. Our folks in the plant know that if they have a problem, that they can call one of the members of Randy's staff, and get a response.

So I'm very appreciative of having

that tool available to us. And I will answer any questions if I can.

CHAIR MOURE-ERASO: Thank you, Mr. Payne. We will now hear from Mr. Kent Carper, the President of the Kanawha County Commission. And he has been, I would like to add, very much engaged during the time of this investigation.

And we have had a lot of interactions, very positive interactions with him. So Mr. Carper.

MR. CARPER: Mr. Chairman, thank you. I really don't have any prepared reports. I haven't really had an opportunity to really read your report.

I think I got draft number 8 last night about 7:30. Listening to the presentation today my comments will be very brief.

Number one, I appreciate, on behalf of the citizens of Kanawha County, the very hard, professional, and methodical

investigation you took.

I think you recall, Mr. Chairman, I was a little critical because it took a little longer than we would have liked. One problem we have now is sandwiched in between two significant events, the start-up, and the previous notification by Bayer.

And as I understand it Bayer has made it absolutely clear that either your work, or any of the activities that took place, the decision by the legislature, the fire officials had nothing to do with the announcement they made.

In fact that announcement started in 1995. And so this evening, really, has nothing to do with that. But to some extent it has everything to do with that.

So our responsibility, on the county level, is to listen to CSB. When I met with you, Mr. Chairman, and others you approached this idea.

If you recall my initial reaction

I was surprised that the federal government didn't do this to begin with. Why doesn't the federal government take care of this? You have the EPA, you have OSHA, you have CSB.

You know, how would a county health department do this. And you pointed out that you would at least like you to take a look at it. I referred you to Dr. Gupta, who is independent from us.

But Dr. Gupta has talked to you all. The two concerns that I had at the beginning, still remain. I think Kanawha County, I would like to see us be, and like every worker of every chemical plant in this county, wants a safe place to work, as do the citizens who live here.

The question I would still have is do they have the authority to do it? I think California's scenario required an act of the legislature.

If you recall, Mr. Chairman, I thought you might have some resistance getting

that support. I don't know if that is true or not.

Second of all, the cost of it, it is a fee-based system, and I don't know if the industry would support it or not. And I suggested to you that you would have to have the support of, I would think, of the industry to proceed further with this.

Having set that aside, you know, the genie can get out of the bottle, despite technology, despite best efforts, despite having the best and fines workforce in the world, that we have here, we know that.

I am concerned about one last thing. As I recall we were supposed to have a model of what would have happened had there been a leak.

And I was hoping we would see that, to put it in context, as to the seriousness of it. I understand you all decided not to do that. I was surprised by that.

But other than that I want to commend you, again, and thank the team. I thought your work was absolutely excellent. Thank you.

CHAIR MOURE-ERASO: Thank you, Mr. Carper. The next person that we have is Dr. Rahul Gupta, from the Kanawha Charleston Health Department.

Dr. Gupta, please proceed with your statement.

DR. GUPTA: Thank you very much, Mr. Chairman. I appreciate the opportunity, and I welcome you all to be here.

You know, I'm going to be brief because I hadn't gotten a copy of the report, although we have discussed before, as you know. And I don't really have any prepared remarks.

But I will say this. I'm a medical doctor. So yesterday I saw a patient that had a blood sugar over 500, that was almost going to go into a coma.

I knew what to do with him, took care of him. But when I saw your, you know, what you demonstrated today and what happened and, possibly, what Mr. Carper said could have happened, that scares even me.

So this is serious stuff. And so there is no doubt that there is a need for something to be done in terms of having some sort of hazardous material safety ordinance, or something similar.

What concerns us, obviously, is that the responsibility is a mutual, shared, responsibility between the industry, government, and the public.

And it is very important that everybody is on board with this. So I share those same concerns because, you know, Kanawha Charleston health department is the largest health department in the state.

It does have more resources than many others and is governed by an autonomous local board of health. However, what is

important to understand, here, is that we do need some sort of legislative authority in order to be able to carry out what is recommended, and what is demanded, rightfully so, of us to help protect the safety, as well as the public health of the community.

As far as funding, obviously, we have to work that out, because there is no way that we would like somebody in Fairmont to be paying for the citizens of Kanawha County.

We wouldn't accept that, and I'm sure the feeling is mutual elsewhere, when you go. So these are some of the things. But I think it is a well done, you know, I'm very appreciative of folks from California coming here, and sharing their information with us.

I have had plenty of opportunity to look at their work. And when I hear no serious injury, or death in the last 12 years, no serious leaks, that gives me hope.

Because, you know, I have been here two years and I have seen enough already,

myself, when you talk about leaks, and serious injuries and deaths.

So we look forward to moving on with this, and working on this.

CHAIR MOURE-ERASO: Thank you, very much, Dr. Gupta. The next panelist is Mr. Joe Davenport.

Mr. Joe Davenport is the Director of the Union Health and Safety, and Environmental, from the Machinist Lodge number 656 that represent the workers at Bayer.

So Mr. Davenport, please.

MR. DAVENPORT: Mr. Chairman, we would like to thank you for allowing us to have a seat on the panel. And we would like to thank the investigation team that came to the plant and investigated the incident.

In my position I respond to incidents that involves the EOC when there is an emergency that happens at the plant, and that the EOC is activated.

The union safety committee has a

seat on that so we respond, also, when incidents happen. And I responded that night.

And it is our obligation to ensure worker's safety. And not just worker's safety. The workers at the plant want to work safely. They want to make sure they are safe, themselves.

We don't want to hurt our other coworkers, and we certainly don't want to hurt the people that live in the community.

I'm a member of the community, my church is about, maybe, a mile from the plant, or half a mile from the plant. So we go to church there, so we care about the community.

We have a few members on each shift that respond to employee safety issues. We have around the clock shifts, A, B, C, D shifts that cover all the shifts, and a day shift and an evening shift.

We take safety very seriously at our local. In the course of finding out what happened on the night of August 28th, when I

responded to the plant, I kept praying, please let everybody be okay, please let everybody be okay.

And when I found out my two long-time friends were injured by the blast, my heart sank like a ton of bricks. Barry was a friend of mine. And Bill, he was on our safety committee.

And so the loss is heartfelt. That day families were devastated, wives lost their husbands, sisters and brothers lost their dads, fathers and mothers lost their sons.

And now they have to live with the fact that they are no longer there. Incidents do have a human cost, and that is what my talk is about today, is a view from the personal side.

These were close friends that we worked with over the years. We pulled together. Employees, at the plant, pulled together to help each other through the

aftermath of the incident.

Even family members of the slain employees came into the site to pray for people inside the plant. And even at the funerals they were hugging us, and encouraging us.

And I think that is very awesome of the family. And numerous times they would come into the plant just to talk with the employees, and encourage them, and tell them to go on, and I salute them for that.

And it has been a stressful time. Although it was a very stressful time we worked through the media reports that seemed to come out every day.

And we worked our way through the various investigations that we willingly participated it, whether it was OSHA, whether it was CSB, whether it was ATF. We willingly supported that, or CSB.

And going through those things, next I learned, through regulatory actions,

that the registration for our products were being pulled from products we produce.

This will have a very serious economic impact on our people, and our community. Every manufacturing job that you have supports seven jobs, in a community like ours, the suppliers, and vendors, and people that support you at the sites.

We understand the challenges that we face. And we ask that, you know, all parties pull together and communicate, be inclusive and be transparent, and try to understand one another's perspective.

And to help build a climate, or a culture, where businesses will want to locate here, and build, so that our residents can be employed.

We ask you to find value in others, don't just seek to find the things that are wrong, but try to find value in others.

And work with our community

groups, our federal and state legislature, and our county governments, and municipal governments, to help build a place where we can employ our residents. Thank you.

CHAIR MOURE-ERASO: Thank you, Mr. Davenport. The following member of the panel is Ms. Maya Nye, who is the spokesperson for People Concerned about MIC.

We have communications, through the years, with Ms. Nye that has been, also, very helpful to do our work, too. So I appreciate your help, and I appreciate you being here talking to us.

So, please, Ms. Nye, your statement.

MS. NYE: Chairman Moure-Eraso, Board members, and team members, and community members. My name is Maya Nye, and I first want to extend my deepest heartfelt sympathies to you, and to your friends that you lost, and to their families.

Again, my name is Maya Nye, I'm

the spokesperson for People Concerned About MIC. We are a community group, as you well know, 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.

I also did not have a chance to really review the information that was presented this evening, prior to the presentation, so I did prepare some information based on what I did know.

Bayer's recent decision to remove MIC and phosgene, is actual a monumental step in our 26 year campaign for a safer community. We regret that there is loss job associated with the changes in global demand.

And as the daughter of an ex-Carbider, I know from personal experience what it is like to be part of a family that is worried about job security.

I remember my dad coming home many

times saying I hope we survive this round of layoffs, and I hope that we don't have to go half across the country, or half across the world, in order to save my job.

So lots of the people in this room know these first-hand realities, and our hearts go out to the workers who will be losing their jobs over the next several years.

Bayer's failure to adapt, and to clinging to antiquated processes that continue to endanger not only its workers, but the lives of the community, has resulted in a precarious economic situation for the valley.

And, perhaps, coupled with a new safety ordinance, we can partner with government officials, and with labor organizations, to generate some serious discourse about the economic future of this valley, including the role of the chemical industry within it.

While understandably, much of the public focus of this investigation has been on

MIC, and in the near eclipse of another Bhopal, we are very happy that the Chemical Safety Board has not forgotten that MIC is not what caused the explosion that occurred in August of 2008, and that killed two union workers.

Negligent management decisions to manually bypass safety protocol are what caused the explosion.

While, overall, we do recommend a safety ordinance be implemented, and think that it can bring many benefits to our community, please also understand that this is actually a real compromise to those community members who favored an immediate shutdown of the plant following the explosion.

While the focus of this investigation is on Bayer, we are happy that the Chemical Safety Board has chosen to recommend a safety ordinance similar to the one in Contra Costa County.

Because, as we understand it, it

will take a comprehensive look of the apparent inherent safety problems that exist in this valley.

Such a safety ordinance will help us address other major lapses in safety, such as the ones that occurred at the Dupont Plant, in Belle, that also killed a worker back in January of 2010, when he was sprayed in the face with a World War I nerve gas, phosgene.

It is our understanding that a safety ordinance would give the public greater access to information that is currently, as a result of post 9-11 laws, only made available in piecemeal fashion.

In fact, I wonder how many people, in this room, know that there is actually more than 20 million pounds of ammonia, and more than three million pounds of chlorine, that are currently stored in this valley.

They probably don't know that because, unlike me, they didn't travel to Washington, to the EPA reading room, to spend

hours taking copious notes, of the off-site consequences analysis portion of the risk management plan.

This information should not be kept lock and key away from the people whose backyards it lives in. Companies should be required, by law, to reduce the national security threat that they actually pose by stockpiling these toxic chemicals in our backyard.

The community has a right to know what dangers exist in their community. As we also understand it, a safety ordinance will provide a third party audit that will allow experts, and other stakeholders outside of Bayer, to review process safety protocol, and to help ensure Bayer's adherence to this protocol.

For 26 years People Concerned About MIC has requested, we have requested such an audit, and for 26 years we have been denied. So thank you for that recommendation.

The creation of this safety ordinance, if properly implemented, has the potential to do much, to create good will in our community, and it will establish a clear line of communication, it sounds like, with the health department, other emergency personnel, and quite possibly even Bayer's neighbors.

Please note that community concerns do still remain about this potential relationship, based on years of coaptation, and industry led conversations, that have been guised as "community-driven".

We are hopeful, however, that with such an ordinance those days will remain in the past.

Additionally, the following points must be incorporated into a safety ordinance for it to provide effective and useful guidance. And I think some of it is, actually, already incorporated into some of your recommendations.

But that community members who actively express their concern with industry standards, must be guiding participants in the development and execution of this ordinance.

Representatives from labor organizations must also be active participants. A provision for the most dangerous facilities to transition to inherently safety technology must be included.

And I know that it is mentioned, but the facilities, I think that the facilities must have a burden of proof to show the lack of feasibility, if one is claimed.

Doing business as safely as possible should just be, should just be the cost of doing business in our community.

The company should not have the right to put the community at grave risk, because they chose to reject safety upgrades.

So adopting safer technologies is imperative in so many ways. It is important not only to create a safer work environment

for the workers, a safer living environment for the community, but also let us not forget that stockpiling of the world's deadliest chemicals is putting a terrorist target over the valley.

To reiterate, these companies should be required, by law, to reduce national security threat that they pose by stockpiling toxic chemicals in our backyard.

And one last thing about developing safer technologies, I think it might actually put some unemployed chemical engineers back to work in the valley.

As the Contra Costa County ordinance illustrates, programs like these can effectively reduce the amount of accidents at plants which, in turn, makes our community safer.

Denny Larson, of the Global Community and the Reformer Fineries Campaign, in Contra Costa County, attributes a lot of the success of their ordinance to community

activism, trade union support and, also, the implementation of a good neighbor ordinance, which is probably something that we might need to look at, in the beginnings of this.

A safety ordinance in this valley will allow for fresh eyes to view an industry that, to this point, has essentially been ineffectively monitored by OSHA, EPA, and our West Virginia State DEP. Sorry, Pam.

Once again we want to acknowledge Bayer's stand alone decision to remove MIC and phosgene from our community. It is a monumental step in our campaign to make the community safer.

I'm sorry to see that Bayer chose to opt out of the panel discussion, actually today. Because it leaves us with grave concern in their desire to cooperate with regulators, and the community, on moving forward with your recommendations.

To close, if clinging to these jobs, if we keep clinging to these jobs that

are constantly under threat of being automated, and shipped overseas, this valley is always going to have an unstable economic outlook.

We are hopeful that instead of going back on their commitment to safety, our political representatives will see the true benefit of implementing a safety ordinance, stronger than the one in Contra Costa County, by including provisions for adopting inherently safer technologies.

Thank you for including our voice on the panel today. Thank you for attentively listening to our concerns, and acting on them. And I'm actually, I'm happy to answer any questions that you have.

CHAIR MOURE-ERASO: Thank you, Ms. Nye. The last person in our panel is Ms. Pam Nixon. She is an environmental advocate for the West Virginia Department of Environmental Protection.

And, again, I would like to add

that she has been very helpful in discussing, with us, these issues during these last two years. And, also, we are very appreciative that she has agreed to be in our panel.

So, Ms. Nixon, please.

MS. NIXON: Thank you so much for allowing me to be able to speak to you tonight. As many of you know I have been a lifelong resident of the Kanawha Valley.

And I live here in West Dunbar from the late 1970s until the early 1990s. And as Maya said, for the past 25 years, many of the near neighbors, of the Institute complex have demanded reductions of emissions, discharges, and risks to their health and safety.

They requested process safety audits to be done by a third party, not associated with the company. And they educated themselves, as you can see from Maya, and they educated themselves about the potential health impacts of fugitive and

episodic emissions and odors that have, in the past, and still do waft through the communities.

The incident that you described, here tonight, the causes stated, did not surprise me and, probably, many members in the community.

Much of the time many of them thought that their shouts were just blowing in the wind, just like the odors, and other things that have come through the communities.

During the recent 25 years the neighborhoods in the Kanawha Valley has suffered through facility fires, and explosions. And not to forget, as I said, the unexplainable odors.

And then there were times of relative calm. However, my grandmother used to say, what is done in the dark will come to the light.

So to paraphrase that, what was done behind the fence line was made public

tonight. The recent chain of events that occurred on August 28th, 2008, didn't just begin then, in recent times, I will say.

In December of 2007 there were episodes of decomposition of the phyotocarb, which is a highly toxic insecticide, that occurred in the production section of the Larvin unit, that sent smoke and odors into the nearby communities.

And that unstable product, of phyotocarb that caused, there was that unstable product that caused pressure and temperature increases, in the packaging hopper, and other equipment, at the Larvin plant.

Both of these warranted the DEP to issue notices of violation. Then, of course, there was the August 2008 explosion and fire, that caused the death of Bill Oxley and Barry Withrow.

This accident was heard and felt greater than ten miles away, and forced tens

of thousands of Kanawha County residents to shelter in place, as we heard in your report.

Then there was the incident that may have slipped under the radar, and that was the 336,924 dollar settlement between Bayer CropScience, and DEP, West Virginia DEP, in 2010.

That settlement was the result of a routine inspection that was done by DEP, that occurred in June of 2009, and August of 2009, one year after the tragic fire and explosion.

The inspectors were on the hazard waste management underground storage tank, and they were inspecting the tanks that contained MIC.

The DEP found that Bayer CropScience was out of compliance with the cathodic protection requirements that ensured that all the required control measures were in place to prevent the potential of an MIC incident to occur underground.

It is noted that these inspections were not in response to the 2008 explosion. Bayer CropScience agreed to pay the penalty, without admitting to any law, nor any liability arising out of the allegations that the DEP had in its underground storage tank checklist, and associated notices of violations.

Plus the hazardous waste compliance evaluation inspection, and associated violations. Over the past month or so we have heard about the units being closed at the Institute plant.

And I regret the number of jobs that are going to be lost as a result of the closures. But this -- because of these closures, this does not mean that the residents of Kanawha Valley can actually breathe a sigh of relief, and feel that all risks have been removed.

Accident prevention, oversight, and accountability are still key components of

making the valley safe. We still have hazardous and toxic chemicals being produced and emitted, and discharged, from facilities like Bayer CropScience, Bayer MaterialScience, Dupont, and Catalyst Refineries Corporations, just to name a few.

Some are large facilities, and some are small. Within the past year there has been the death at the Dupont plant of Carl Danny Fisher, and other employees that have also been injured there over the past year.

There are still millions of pounds of hazardous and toxic materials being handled here, in the midst of hundreds of thousands of residents and students.

And past studies and audits at area plants, recommendations have been made on process safety, by process safety auditors. And some of the recommendations have been ignored, and maintenance has been delayed due to bean counters looking at them as an acceptable risk.

Had some of these recommendations been, actually, implemented the lives -- possibly the lives of the three workers lost at Bayer CropScience, and at Dupont, could have been saved.

It is time for the companies to accept accountability, at least follow the recommendations that are made today. We have what is needed in this valley, and has been needed for decades, is a panel of qualified individuals to oversee the process safety management plans, risk management plans, and emergency response plans, to all mesh together in a way to prevent these horrific incidents in the future.

We thank you, also, for enhancing your recommendations to include the Department of Environmental Protection, because on the night of August 28, 2008, Mike Dorsey, one of our employees, was one of the first here.

He is also a part of the Homeland Security, he is part of the Homeland Security

Emergency Response team. He and I also went to DC and spoke before Congress.

So I was happy that you didn't, that you are leaving out our names in the draft that I received earlier yesterday evening, has been enhanced to include the DEP.

And I thank you for allowing me to speak tonight. Thank you.

CHAIR MOURE-ERASO: Thank you very much, Ms. Nixon. I would like to thank all the members of the panel, the people that come from the Kanawha Valley, different institutions of the Kanawha Valley, including the unions, including the state officials, and the county officials.

I also, especially, would like to thank the two panelists from Contra Costa County that have come here from a very long distance, to share their experiences with us.

The next item of the agenda is we give an opportunity to the CSB Board to have questions to the panelists. So I would like

to first ask if anybody, starting with Mr. Wright, if he would have some questions to the panelists. Go ahead.

MEMBER WRIGHT: Thank you, Mr. Chairman. I, too, would like to echo the Chairman's sentiments in thanking you all for appearing before us this evening, it has been very helpful.

Part of our job, as Board Members, is to assure that not only our recommendations are realistic, obtainable, but they have to be effective in preventing accidents.

And I share, with Mr. Payne, that nobody should have to go to work with the threat of death hanging over them, or the fear of being killed on the job.

With that said, let me ask Mr. Sawyer, since you have 19 years of experience with this scheme, if you will, the Contra Costa County scheme.

Surely there was a learning curve in terms of implementing this, it didn't occur

overnight. And I also see, from your major chemical accidents and releases, that it kind of went up right after you authorized this ordinance, and then decreased over time.

In your opinion how long would it take a neophyte organization, like the Kanawha Valley, that doesn't have the structure in place, to sort of put this mechanism in place if, in fact, they are able to agree upon a fee schedule, and have the industry pay for it, and don't lose jobs, and are able to effect this.

MR. SAWYER: Based on my experience I would think it would take, at least, two to three years to have a good program in place, to start implementing it.

To get to know the industries, here, to get the right people to work there, and for them to know the industries and start looking at the facilities, and I would say two to three years.

MEMBER WRIGHT: And then you and I

discussed, earlier, and you say it is not true in California, with California EPA, and California OSHA, my fear is that this scheme will not necessarily augment or compliment OSHA and EPA, but replace them.

Or at least, maybe, OSHA and EPA may view it as, hey, these guys have a Contra Costa County scheme out here, they are covered, they are looking over those facilities, we will focus our efforts on other facilities.

And my hope is that that won't happen. Is there a way to sort of ensure that the federal government regulators are still involved and engaged, if the Contra Costa County scheme is implemented in the Kanawha Valley?

MR. SAWYER: Our programs, we actually have two programs in the county's industrial safety ordinance, which expands on the federal risk management program, and the California accident release prevention program

which is, basically, the same as a risk management program.

But we are not delegated, in Contra Costa County, to implement the federal risk management program. So their requirements, legislative requirements, and stuff, and regulatory requirements, still exist and they are still required to audit the facilities, and make sure that they are operating according to the federal law.

And, as I mentioned earlier, the federal, the EPA's hearings, regional headquarters, is just across the bay from us. It is very easy for them to come over and audit, and inspect our facilities.

Which they do, and a number of times they have done that, and we work closely with them when they do that.

MEMBER WRIGHT: And then a final question for you is, have you realized, during your 19 year tenure, any decrease in the number of facilities and/or companies within

the Contra Costa County area, did anybody leave because of this onerous scheme?

MR. SAWYER: I'm not aware of any business leaving because this scheme was put together, that the regulations and requirements they have.

There have been facilities who have left, because of business climate, or business reasons. But there is, also, new businesses that have come in.

So, overall, the facilities that are required, under these regulations, are about the same that they have been in the last 10 to 15 years.

MEMBER WRIGHT: Thank you. Just a couple of questions for Dr. Gupta. This is, probably, an unfair question, and I apologize up front.

But you have seen the recommendation, but you haven't had a chance to really analyze it. Obviously, you are a medical physician, and you are familiar with

medical injuries, and how to approach those kinds of cases.

And this is, now, something new for you to adapt to, and handle. But, as was explained, it is based on a fee schedule for the industry to pay for its monitoring of itself, if you will.

The unfair part of this question is, do you think that you can develop a fee-based schedule that would allow you to implement a Contra Costa County model in the Kanawha Valley?

DR. GUPTA: Well, I don't think it is difficult to develop the schedule. The real question is, are people going to play?

And that is where, you know, to have a program in place that has been there for multiple years, and there is new industry coming in, leaving, going out, it evens out.

And people pretty much know what is expected. I do believe it is challenging to develop a program de novo in an industry,

in an area that has a history of having an existing industry.

To put it, change is difficult for anybody. One has to be able to convince that the extra expense that will go, with this program, will be worth the, will be worth one life saved, one leak prevented, would be worth it.

And I think this convincing begins in two different directions. One, it is toward the industry, but it is also towards our legislators. That they do understand, as well, that this is something that has a sense of urgency, that needs to be done.

So I think it is all about if people do get to understand, that you don't want to put a dollar value to a life lost, or otherwise, serious injury.

MEMBER WRIGHT: Thank you, that is all I have, Mr. Chairman.

CHAIR MOURE-ERASO: Thank you, Mr. Wright. Mr. Bresland?

MEMBER BRESLAND: Thank you, Mr. Chairman.

I don't really have a question, but let me just see if I can put what we have discussed, this evening, in some context.

First of all, obviously, there is concern here at the local level, and at the community level, with the issue of safety in the chemical plant. I speak as someone who worked in chemical plants for many years.

The second point is that there is certainly a lack of resources at the federal and, probably, at the state level as well, to oversee the chemical plant in any sort of really serious way.

I mean, one of the examples I use, and my statistics may not be completely accurate, but there are 100 nuclear power plants in the United States, approximately, plus or minus one or two.

There are about 150 oil refineries. The Nuclear Regulatory Commission

that oversees the nuclear power plants has, approximately, and this is a number that was quoted to me this week, about 2,800 experts, in nuclear power, who can go into a nuclear power plant and say yeah or nay.

OSHA, EPA, at the federal level, between them, how many do you think, Ron? I don't want to put you in the spot. It is not 2,800, it is in the 10, 20, 30, 40 range.

It is a very, it is a low number. They have a lot of facilities to cover with a limited number of people.

We, at the Chemical Safety Board, in the investigation and discussions with the people in Contra Costa County, saw this, saw their program, and were impressed by it.

And saw it as a potential solution to the disparity that we see. But now that we turn it over to you it becomes a political issue, it really is, it is between the state government, the local government, the industry, certainly the industry has a major

say in this, and the community members, as well.

And we will walk away from here and we will leave it to you to fight it out. And, hopefully, in a very agreeable manner, now that everybody in Washington is working happily together.

But I think, you know, we are hoping that we have shown you a direction that works, and we have made that recommendation. And, hopefully, you can take it from there. Mr. Carper?

MR. CARPER: First of all, with all due respect, I don't think we would try to sell it as a scheme, we would give it the safety ordinance name.

This was you all's proposal to us. My job, as I recall Mr. Chairman, was to approach Dr. Gupta and he was kind enough to meet with you all. And he has a very receptive attitude on this, as do I.

But, as a practical matter, I

believe it is an important thing to do. I think it makes sense to do this. I was, and continue to be, surprised that no one, to my knowledge, monitors independently, the air after there has been a chemical leak.

Not the state government, not the Federal Government, it is all voluntary kind of a catch as catch can. And I really didn't want to get too much into what happened here.

But I have to say, when you see something like this happen, and the monitors weren't working, they thought they were working, and no point in going back through your report again.

It does cause a reasonable person to think that, perhaps, there needs to be additional oversight. But while your recommendation is clear and, in my opinion, we ought to do everything we can to try to implement it, I really do think it is going to take the support of the legislature.

Apparently California had it, as I

understand it. I read part of it. And I think it is going to have to take support of the industry which, apparently, you had in California.

So, yes, I understand your recommendation and I'm committed to try to implement it as best I can. And I don't think the problem will be coming up with a fee schedule.

I think the problem will be gaining a unified support between the three tools, industry, the public, and government. And I think it is going to be state government, as well.

At least that is my impression, Mr. Wright.

MEMBER WRIGHT: Could I have a follow-up, Mr. Chairman?

CHAIR MOURE-ERASO: Yes.

MEMBER WRIGHT: With that said if we didn't make this recommendation, and I say scheme because this is just one method that

can be employed by you.

And I differ with my peers on how prescriptive it is, because we are very specific on what we want you to do, or they.

My preference is to say consider these things and adopt something that fits your requirements, so that you are not constrained to that particular model, if you will.

But if we didn't make that recommendation do you think you would have arrived at the same conclusion, that you need to have that combination of industry, government, and unions, and local workers, to be able to effectively make the change?

MR. CARPER: We should have, a long time ago.

MEMBER WRIGHT: Thank you, thank you Mr. Chairman.

CHAIR MOURE-ERASO: Okay. I will have a question for Mr. Payne.

I am interested if you could share

with us your experience in the development of the industrial safety ordinance and, especially how worker participation, minimal worker participation was a part of it.

MR. PAYNE: When the County Board of Supervisors directed the Hazardous Materials Commission to draft the proposal, it was given off to a Subcommittee of Hazardous Materials Commission.

I happen to be on that subcommittee, with several members from industry, and members from the public, specifically an environmental group.

And actually one of the things, the Industrial Safety Ordinance was developed, and the authority we used to implement it, wasn't derived from state legislature, but under the Police Powers Authority.

In fact, early on, somebody said to the Health Director, that Police Powers means guys with guns. And he said, if you want me to give my inspectors guns, okay.

But the CALARP portion of it derived from the state legislature, in that they assigned the enforcement, or not only of the California Accident Release Program, but also the underground storage tanks, and a number of other things, under a program called the Certified Unified Program Agency.

So what it did was it took a number of things that the State had been doing, and gave local authorities the option of stepping up and saying we will do those, instead of the state doing it.

And that is what Contra Costa County did, they stepped up and took over those authorities. But the Industrial Safety Ordinance, which expanded that, was done under their own separate authority.

You know, we had many, many meetings over the development of the ordinance, like I said, I myself personally was involved from the start of that.

I know we talked about it with our

members, a lot. All of the other stakeholders went back and spoke with their groups, so that there was a lot of buy-in from a lot of people.

And it mainly stemmed from the community outrage over what was happening, particularly with a couple of groups.

And even the other members of industry realized, wait a minute, if we don't do something to bring our other members of industry kind of in line with something that is reasonable, we are either going to get saddled with something we really don't want to deal with, or we are going to have difficulty operating altogether in this environment.

So we were involved in the process from the very start, and have been very supportive of it.

One of the things that took so long after the ordinance was actually adopted, you know, the facilities had to be given a period of time to actually develop the plans,

and so forth, that were required.

Before they could do that county staff had to develop the guidance document that they worked from. So I know the stakeholder groups worked with county staff for, probably, a year and a half or so, just developing that guidance document.

So that is one of the explanations of why you kind of see the spike continue to go up after it was adopted, and then it goes down, because it didn't get fully implemented until after that guidance document was developed.

CHAIR MOURE-ERASO: Thank you, Mr. Payne. Mr. Griffon?

MEMBER GRIFFON: Thank you. I had a comment, and then a question.

The comment was sort of a follow-up on Mr. Carper's comments, and Mr. Bresland's statement regarding the necessity of working with the state legislature in order to implement the hazardous chemical release

prevention program.

I would just slightly disagree with Mr. Bresland, that we are not going to completely walk away, I don't think, from the process.

That the CSB's role, now that we have made, assuming we vote these recommendations through, is to follow-up on these recommendations, and to the extent we can we will help work with the state legislature, explain the model, explain what is in our recommendation, and do all we can to assure that there is adequate response to our recommendation.

So that is sort of one big role of the CSB, is to follow through on these recommendations and make sure we effect change. So I just wanted to say that.

And then a quick question to Mr. Sawyer on the Contra Costa County program. I think some of this has sort of been discussed a bit.

But since the development of the program I was wondering what metrics you -- people have talked about how things have gone up and sort of come down over the years.

But since the beginning of your program what metrics have you looked at to measure the success of the program?

And, you know, what can you report, I guess, after ten plus years of having your program in place, on the safety of the covered facilities?

MR. SAWYER: Well, one of the metrics was shown in the graph, the presentation earlier, in what we call major chemical accident releases, which is defined, under the Ordinance, as basically releases that meet --

One of the things that we also have, in the county, is a warning system. And it actually, at a refinery, or a chemical facility, there are six facilities in the county that can push a button and sound sirens

to warn the community that there is an accident release, and it also notifies the local responders, and gets information to new media within seconds.

And it activates telephone ring-down systems, and a number of other tools. In the process of this we have also defined different levels of activation.

We have what we call the Community Warning System, level 3 and level 2 are the more serious incidents, where it starts to impact the community.

If they meet those criteria then they are what we call major chemical accident release. Also, if there is a worker injury, where they had to spend over 24 hours, I think 3 workers 24 hours in a hospital, after an incident, that also meets a major chemical accident release.

Or if there is a fatality, that meets it. Or if there is 5,000 pounds of flammable material, material -- gases

containing flammable materials, that meets the definition.

So that is the definition of major chemical accident releases. And under that we have also put different levels of what that means. Severity 1, severity 2, and severity 3.

Severity 3 is where there is, actually, a fatality and/or there is a major impact to the community, there is a health impact to the community, whether to seek medical attention, or something like this.

So we have had a number of accidents. Those are the metrics that we have established. And the graph showed that it went up. But if you look at the bottom line of the severity level 3, there was actually, from the regulated community, there has not been that type of accident since 1989.

There has been a number of severity level 2s and 1s. And they actually went up. And as Jim said, there was some time

to implement the program, and get it in place.

And there is, also, better reporting of that time. So that is one of the reasons that you can account for the numbers to go up.

But you can see all of them going down at the end of it, and that is some of the metrics.

But other metrics we have looked at, we worked with the Center for Chemical Process Safety and they have performance indicators out, that we have asked the facilities to follow, within Contra Costa County.

And at least it is some kind of indication of what they are doing. And we have also developed our own metrics that we use internally, looking at audits, and audit results, and our engineers look at the results after an audit.

And it gives a score, basically, on the different elements that they audit, and

see how well that facility is doing and keep that over a period of time, also.

MEMBER GRIFFON: Thank you, thank you.

CHAIR MOURE-ERASO: Thank you. Now we move to public comments. The first person of the people that have signed the list here, the first person that I'm calling is Mr. Steve Hedrick.

Mr. Steve Hedrick is the Vice President of the Bayer CropScience Corporation. He works here, at Institute, West Virginia. I appreciate, very much, Mr. Hedrick coming to address us, and please give us your statement.

MR. HEDRICK: Good evening, Mr. Chairman, Members of the Board.

I'm Steve Hedrick, Vice President and head of the Bayer CropScience Institute Industrial Park. I want to thank you for the opportunity to speak to you this evening, not only on behalf of Bayer CropScience, but also

as a member of the Kanawha Valley community.

Nearly two and a half years ago we suffered a tragic incident at Institute, which claimed the lives of two of our colleagues.

Although some time has passed we recognize, fully, that nothing can ease the pain experienced by the Withrow and Oxley families, over their loss. And our thoughts and prayers continue to go out with them.

As a manufacturer we have an obligation to ensure our operations are conducted under the highest standards of safety.

On that night in August we did not live up to those obligations, or to the expectations of our community.

We appreciate the work that the Chemical Safety Board does to address industrial incidents. Bayer CropScience has cooperated, fully, with the Board, and is committed to operating our facility with the safety of our employees, our neighbors, and

our community, as our highest priority.

Since this incident we have taken many steps to improve safety at the Institute Industrial Park.

Among these we have established new communication processes with Metro 911. We have created additional unit managers, and shift supervisory positions.

We have hired an emergency services leader to enhance coordination within our community. We have provided monitoring, and modeling equipment, to our area emergency responders.

We have intensified emergency drills, and exercises, to enhance our overall preparedness. We have increased outreach and transparency with the stakeholders within our community.

And, clearly, we have implemented significant steps to reduce the storage and transfer of MIC within our plant.

Today we are seeing the final

recommendations from the Chemical Safety Board. We will carefully review these, and we are committed to continue to cooperate with the Board, regarding the next steps.

Last week Bayer CropScience announced the eventual closure of certain operations within our industrial park.

This decision was based on strategic and economic factors, and it is fully in line with the company's long-term focus to deliver innovative solutions to modern agriculture, and replace older products within our portfolio.

And although our footprint at this site will be reduced, we are committed to finding new business opportunities, and tenants, at the Institute Industrial Park, and we hope to build on the partnerships which we have established, within this community, to achieve that goal.

Finally, I would like to say how proud I am of the employees of our site.

Since my return to West Virginia, about a year ago, I have found their response, to the tragic incident in 2008, to be both steadfast and professional.

And although we look back with sadness, on that event, I'm confident we can look forward with a commitment to safety, and success, in our future. Thank you.

CHAIR MOURE-ERASO: Thank you very much, Mr. Hedrick. The next person that I have here on the list is Mr. Barry Kemerer. I would like to ask Mr. Kemerer to step forward, identify himself, and also remind him that we have a limit of three minutes for a comment, please.

MR. KEMERER: Thank you, Mr. Chairman. My name is Barry Kemerer, I own a business in Cross Lanes Precision Pump and Valve.

Although this audience, any time you get up in front of an audience makes me a little bit nervous, it pales in comparison to

what I normally do at our church, and that is stand up in front of the congregation, as stewardship chairman, and ask for people to pledge money for the next year.

Joe, and Steve, I too have lost employees, not through an industrial accident, but through catastrophic highway accidents. Employers feel pain, too.

Not as severe as, perhaps, the family member, or a friend, but as an employer you always feel somewhat responsible when there is a loss of life.

In 1956 my father, while working at Union Carbide started the company in the basement of our home, only two miles from this plant. He started repairing pumps and safety valves from the plants that were, normally, scrapped.

Our company has grown over the last 55 years, choosing to stay in the area and, currently, have a 25,000 square foot facility, located just two and a half miles

from here.

We employ 42 and our payroll generates two and a half million dollars per year. Our customers are our lifeblood. Their success is our success, their demise is ours.

I am here to voice my support for an extremely member of our community, Bayer CropScience. Our every day lives are touched, in a positive way, by Bayer and other plants in West Virginia.

Our company, in recent months, along with Bayer and many other customers, have accelerated the benefits of modern technology, and the state of the art computer programs that by tracking information, associated with mechanical equipment repairs, including frequencies, predictability of servicing requirements, and parts replacement. This information is compliant with OSHA, EPA, and other regulatory agencies.

My point is that we have seen major improvements, with our customers'

approach to preventive maintenance, and record keeping associated with safely operating their facilities.

Am I here tonight to support Bayer because of my business and employees? Absolutely. There is another reason.

I wholeheartedly believe a chemical plant, and other industrial facilities can operate safely and efficiently, without being overly regulated.

My wife and I live two and a half miles from this plant. I go to work, every day, two miles from this plant. My mother lives three miles from the plant, in Dunbar. And some of my employees even live closer.

My grandson attends this university. Hopefully he will be the fourth generation in our family business. I have a right, for my employees and my family members, that they should live in a safe environment.

I believe this is attainable. I see Bayer, and many of our other customers,

looking through a continuous improvement process to accomplish this.

Do we all have a right to expect an environmentally safe community? Absolutely. I believe we can, by working in a cooperative manner, and communicating, communicating, and communicating.

Let's not draw battle lines, but let's sit down together as partners for success going forward.

In closing I would like to add that operating a business is very challenging today. I believe that the people in this room, for the most part, want our valuable community partner, Bayer, to stay here, and to operate a safe and profitable facility.

Kent, one thing I have learned from you and others at the county level, this is from past experiences, is that getting all sides together, success can be achieved.

I'm sure our community wants to see a win-win outcome. For all those folks

here from Bayer, I know you care. Thank you for being a valuable part of our community, we appreciate you.

There is a lot of smart people in this room. Many will be leaving, but there are many smart and dedicated people still in West Virginia. We will solve these challenges. Thank you.

CHAIR MOURE-ERASO: Thank you, Mr. Kemerer. The next person on my list is Mr. Aaron Jones. I would like to, again, point out that we have a lot of people on the list here, and if you go over your three minutes, what you are doing is taking time from people after you. So please be mindful of that.

MR. JONES: Thank you, Mr. Chairman. I hadn't intended to talk tonight, until I saw some of your recommendations. I would like to talk about a couple of them.

But, first off, I should tell you who I am. I am the Board President of Jefferson Volunteer Fire Department. I was

the Fire Chief for 17 years, during the time of Bhopal, and up through the mid-'90s.

If you looked at your overview of the plant, the Coal river runs south of the plant, and on the south side of the river everything you saw was the Jefferson Volunteer Fire Department District.

So we are very close to the plant. I don't think there is, actually, a fence on the river side. But anyhow, anything that comes off that plant is going to cross that river, and get into Jefferson very quickly.

My home is about 1,500 feet from the plant bank of the river. But your recommendation number 3, which says that the fire brigade should use a national incident management system, and also your recommendation number 9, says that the fire department should be monitored to make sure they also use it.

I can tell you, right now, that the volunteer fire departments that are around

this plant, and we call them stations 17 through 24, 19 is the one I'm from, and Institute is station 24.

We practice that incident management system daily. We use it in our radio communications, we use it to train and practice with.

But now, as far as the plant, the recommendation number 3 that they use, of the national incident management system, I've been trying for years to get them to use a common radio system with the volunteer fire department, all the way back to 1984, when I was kind of pushed into the forefront with my fellow fire chief.

I can't remember his full name, his name was Erick. But we were really pushed into the grinder after Bhopal, because we were both right beside the plant that had MIC, which killed all those people in Bhopal.

But right now, if there were an incident, at this very moment, my volunteer

fire department would respond if they were dispatched, they probably would be, especially as bad as it was last time.

The Institute fire department, the Tyler Mountain, but once they responded there would be no communication with the plant. The plant has their own internal radio system that they use.

And it is not compatible with the county systems that we have, we have two systems. But the one that is currently being used, on the western end of the county, is not compatible.

Now, the plant did give the county fire coordinator one of their plants. But he is on vacation down at the Caribbean right now, and won't be back until, probably, Monday.

But this recommendation, if the plant were to follow it, and actually implement it, they would change over to a radio system that would be compatible with

their fire brigade, and the volunteer fire departments that would be respond.

Now, as how it is operating right now, they are going to call Metro, through a hot line. Metro is going to relay the information to the fire department, to tell them what is going on.

Well, if the same thing were to work between the volunteer fire departments and we would respond, let's say, on a structure fire, which is really --

CHAIR MOURE-ERASO: Mr. Jones, you have 30 seconds.

MR. JONES: 30 seconds. This was a structure fire, and if we did the same thing when one volunteer fire department responded on a structure fire in our area, and brought another fire department in, but had to communicate through Metro to find out what was going on, it wouldn't work.

So if they do actually implement the national incident management system, it

would be a great thing in this valley. Thank you.

CHAIR MOURE-ERASO: Thank you very much, Mr. Jones. The next person on the list is Mr. Mike Harmon. Mr. Mike Harmon, calling once, calling twice.

So let's go down on the list to Mr. Daniel Chiotos. Yes.

MR. CHIOTOS: No place to put my papers. My name is Daniel Chiotos, don't worry, it is a weird last name.

I moved to Charleston about three years ago, a little bit more than three years ago. I moved from Jefferson County, West Virginia, where there is farming, there is a little bit of industry, but there is mostly farming and housing development.

There is not a chemical industry up there. There is old apple orchards, which caused some sickness, but there is not a chemical industry. There is not a chemical industry that is causing cancer.

There is not a chemical industry that is making people sick, there is not a chemical industry that is operating because companies do operate to make their investors money, that is operating to make its investors money.

Companies are not making decisions, voluntarily, unless they are forced to, as Bayer was with the MIC decision.

So what I came up here to say, and encourage, is for the people. I don't whether you are Republican, a Democrat, a Libertarian, Mountain Party, or West Virginia. It is for the people, for everybody in this room to watch out for your health, watch out for your community, and to organize.

To get involved, whether it is the People Concerned about MIC, or a group that you form, to get involved, and to hold companies accountable.

I have seen the DEP -- sorry Pam, but I have seen the DEP myth things before,

myth incidents, before, that have made people sick, because there was not the community groups that needed to be present to hold people accountable.

Whether it is an organized union, a church, whatever. The community groups are necessary to hold people accountable, and that is why I came up here today.

To encourage, and encourage you to get in touch with the People Concerned About MIC to get involved, and hold people accountable.

If what comes out of today is a set of recommendations that are all well and good, and I love what I'm seeing from the Contra Costa County, what comes out of today is just a set of recommendations, and we leave it to Bayer, which is looking out for profit, and to make investors money, to implement, they are going to fall by the wayside.

We have to get involved, we have to be involved, we have to build the community

groups. Whether it is churches, unions, whatever, we have to build the community groups, and we have to hold them accountable.

So that is why I came up here today, to encourage you to be involved, and hold them accountable.

CHAIR MOURE-ERASO: Thank you very much. I would like to ask you, if you could please spell your name for the recorder, please?

MR. CHIOTOS: My handwriting is as bad as my name. It is C-H-I-O-T-O-S.

CHAIR MOURE-ERASO: Thank you very much. The next person in my list is Cheney Estrada, and following Tely Rivers. So if both of them could just start coming up to the microphone, we can probably expedite things.

Cheney Estrudre? No. Tely Rivers? No. Tican Rivers? Vivian Stockman? Could you please spell your name for the court recorder, and also tell us who you are, who you represent, and remember the three

minutes, please.

MS. STOCKMAN: My name is Vivian Stockman, that is V-I-V-I-A-N, S-T-O-C-K-M-A-N. I work for the Ohio Valley Environmental Coalition.

I'm very concerned that we will probably never know what was released from the explosion and fire that night. And I wonder what future health effects we will see.

We need to know that, if there ever is another future incident. We need monitors working, working monitors, that are accessible by second and third parties, monitors that can detect a wide variety of toxic emissions.

While I understand that the CSB cannot issue citations, I wonder if you can make recommendations to agencies that can. You have catalogued a host of failures by Bayer, tonight; operating procedure failures, failures of safety equipment.

And I wonder if you can recommend

some sort of criminal investigation. I think we will amp up the safety if the company is held accountable with such serious matters.

And I'm curious how often your recommendations are implemented, and followed-through on. And if you have some sort of procedure, or guidance, for communities to see that your recommendations are followed through.

Thank you.

CHAIR MOURE-ERASO: Thank you very much, Ms. Stockman. The next person I have, here on the list, is Mr. Daniel -- Mr. Christiansen?

Please spell your name and, also, tell us who you represent.

MR. CHRISTIANSEN: My name is John Christiansen, spelled C-H-R-I-S-T-I-A-N-S-E-N. I work as an advocate for the environment for the West Virginia Environmental Council.

And I was just outside retrieving some articles for a friend of mine, and I

noticed some unexplained odors present, right now, as the snow falls.

I want to ask a few questions here. How can the state and federal regulators allow the operation of a plant like this, so close to a land grant university, and surrounding neighborhoods?

From what I understand this university was here well before any plant was built, before Union Carbide was built.

The second question, with all the problems surrounding the unusual procedure, which led to the catastrophic event, why was the operation allowed to proceed?

Who gave the order to proceed with all the problems present? New control system, process variables out of date, not a routine procedure.

My third question, the pre start-up review showed gross negligence that contributed, tremendously, to the subsequent tragedy. Who was in charge? Who was in

charge? Does he or she still hold an employment position with the company?

I mean, you get all these people getting laid of, I hope it is the guy that was in charge. Why haven't they been charged with criminal negligence homicide, and attempted murder of the whole city of Charleston?

That is attempted murder. Finally, after the explosion, and the tragedy of errors showed that the employees were not properly trained to handle an emergency of this magnitude, how could regulators allow a company, like Bayer, to even operate, to even hold a permit?

I thank you very much.

CHAIR MOURE-ERASO: Thank you, Mr. Christiansen. And the last person that we have is Mr. Steve Irving.

MR. IRVING: Thank you for allowing me to speak today. I tried to speak in '08, but some of the things, I didn't know how to outline things properly.

But I started out as a -- I'm a former employee there, as a lab technician. I was hired shortly before the -- well, actually, 9-17-84, then the December 3rd, '84, Bhopal explosion happened.

And then shortly thereafter I recall an oxide leak. And one of the lab technicians had deliberately moved the water peak on the gas chromatograph.

And when I asked why he said he wanted to keep everybody on their toes. Afterwards there was another explosion, in August 18th. I had just come off a 28 hour shift.

And we were in a safety meeting. During that process of investigation I testified on behalf of a coop student, in a race discrimination case.

And during that investigation one of the lab technicians was caught sleeping in the women's bathroom, during the night shift. Two other lab technicians approached me, and

wanted to show me where he was caught sleeping, and I saw a colored sign, on one of the sinks, in the women's bathroom, for colored women to use.

I don't know what else to say, I have been penalized for reporting all of this, and I have remained unemployed, in the chemical industry, after working 15 years. Thank you, that is all I have to say.

CHAIR MOURE-ERASO: Thank you very much, Mr. Irving. Anybody else, in the public here, that would like to speak? Go ahead, please proceed to the podium, please give us your name, and who you represent, and remember you have three minutes.

MR. HILL: My name is Alfred Hill, former employee of Bayer CropScience, 31 years, retired. Barry and Bill were my friends.

My question is this, if I understood correctly, next month the unit is going to startup again. My specialty, or my

passion, I should say, I was an instrument tech at the plant, at the FMC Larvin/Methomyl unit.

If they are allowed to startup are there any safeguards that the monitoring equipment will be working? I understand that there will be downsizing, layoffs, who is going to monitor to make sure that everything is working correctly? Thank you.

CHAIR MOURE-ERASO: Thank you very much, I appreciate it. I thank everybody for your comments.

And now we are going to proceed to the formal part of this session, in which we vote, the Chemical Safety Board members vote on the report, and the recommendations.

So I would like to pass it to the General Counsel, Mr. Warner.

MR. WARNER: Is there a motion?

MEMBER GRIFFON: Yes, I will make a motion to adopt the report, and the recommendations, if I can read that motion,

Mr. Chairman?

CHAIR MOURE-ERASO: Yes, please.

MEMBER GRIFFON: The Motion to approve the CSB investigative report and recommendations, report number 2008-08-I-WV, January 2011, regarding the Agency's investigation into the runaway chemical reaction, explosion and fire that occurred in the Methomyl Unit at the Bayer CropScience facility in Institute, West Virginia, on August 28th, 2008.

CHAIR MOURE-ERASO: Is there a second?

MEMBER BRESLAND: Yes, I second the motion.

CHAIR MOURE-ERASO: So there is a motion on the floor that has been second. Is there any discussion from the Members of the Board?

(No response.)

CHAIR MOURE-ERASO: Having heard nothing, we proceed with a vote. So Mr.

Bresland?

MEMBER BRESLAND: I vote yes.

CHAIR MOURE-ERASO: Okay. Mr. Wright?

MEMBER WRIGHT: If I may, Mr. Chairman, just a quick comment before I cast my vote.

I do question the validity of some of the recommendations to our sister agencies and, also, wonder about the correctness of the prescriptiveness of the recommendation to the Kanawha Valley to adopt the Contra Costa County scheme, if you will.

As has been pointed out, this evening, we are a very small agency, we have had a lot of competing requirements, and very limited resources.

And with that, because of the extensive benefit to be derived from this case, I vote yes.

CHAIR MOURE-ERASO: Thank you, Mr. Wright. Mr. Griffon?

MEMBER GRIFFON: I vote yes, Mr. Chairman.

CHAIR MOURE-ERASO: I understand that Mr. William Wark, that is another member that is absent today, has given a authority proxy to Mr. Wright for vote. So how do you vote?

MEMBER GRIFFON: Yes, Mr. Chairman, Mr. Wark votes yes.

CHAIR MOURE-ERASO: Thank you. And my vote is also yes. So I believe there is unanimous approval of the report and the recommendations. Thank you very much.

I would like to thank each of the Board members 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 respond personnel are not forced to experience an incident similar to this one.

In the next few months the

Chemical Safety Board will be working with recommendation recipients, that we have identified here, to create safer working environments condition here in this community.

I would also like to thank Senators Rockefeller and Manchin, and Congresswoman Capito, that have supported us in our work.

And I believe that with that -- also I forgot to mention, I would like to again recognize the work of the staff of CBS, in the organization of this meeting, the communications department, especially, and also the investigation department for their good work.

In addition to that I would like also to thank the West Virginia State University for having hosted us in this proceedings.

So, with that, this meeting is adjourned.

(Whereupon, at 9:24 p.m., the

above-entitled matter was concluded.)