

**STAKEHOLDER PERSPECTIVES ON THE IMPORTANCE OF THE U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD**

---

**HEARING**  
BEFORE THE  
**COMMITTEE ON**  
**ENVIRONMENT AND PUBLIC WORKS**  
**UNITED STATES SENATE**  
**ONE HUNDRED SIXTEENTH CONGRESS**  
**SECOND SESSION**  
\_\_\_\_\_  
**JANUARY 29, 2020**  
\_\_\_\_\_

Printed for the use of the Committee on Environment and Public Works



Available via the World Wide Web: <http://www.govinfo.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

42-637 PDF

WASHINGTON : 2021

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

JOHN BARRASSO, Wyoming, *Chairman*

JAMES M. INHOFE, Oklahoma	THOMAS R. CARPER, Delaware,
SHELLEY MOORE CAPITO, West Virginia	<i>Ranking Member</i>
KEVIN CRAMER, North Dakota	BENJAMIN L. CARDIN, Maryland
MIKE BRAUN, Indiana	BERNARD SANDERS, Vermont
MIKE ROUNDS, South Dakota	SHELDON WHITEHOUSE, Rhode Island
DAN SULLIVAN, Alaska	JEFF MERKLEY, Oregon
JOHN BOOZMAN, Arkansas	KIRSTEN GILLIBRAND, New York
ROGER WICKER, Mississippi	CORY A. BOOKER, New Jersey
RICHARD SHELBY, Alabama	EDWARD J. MARKEY, Massachusetts
JONI ERNST, Iowa	TAMMY DUCKWORTH, Illinois
	CHRIS VAN HOLLEN, Maryland

RICHARD M. RUSSELL, *Majority Staff Director*

MARY FRANCES REPKO, *Minority Staff Director*

# C O N T E N T S

---

	Page
<b>JANUARY 29, 2020</b>	
OPENING STATEMENTS	
Barrasso, Hon. John, U.S. Senator from the State of Wyoming .....	1
Carper, Hon. Thomas R., U.S. Senator from the State of Delaware .....	2
WITNESSES	
Jahn, Chris, President and Chief Executive Officer, American Chemistry Council .....	6
Prepared statement .....	8
Responses to additional questions from:	
Senator Barrasso .....	12
Senator Inhofe .....	13
Senator Markey .....	13
Kadri, Shakeel, Executive Director and Chief Executive Officer, Center for Chemical Process Safety, American Institute of Chemical Engineers .....	15
Prepared statement .....	17
Responses to additional questions from Senator Barrasso .....	21
Sallman, Steve, Assistant Director, Health, Safety, and Environment, United Steelworkers .....	24
Prepared statement .....	26
Response to an additional question from Senator Barrasso .....	38
Responses to additional questions from Senator Markey .....	38
ADDITIONAL MATERIAL	
Letter to President Trump from the American Chemistry Council et al., January 29, 2020 .....	55
“Industrial Blast in Houston Kills at Least Two,” by Elizabeth Findell, the Wall Street Journal, January 24, 2020 .....	56



# **STAKEHOLDER PERSPECTIVES ON THE IMPORTANCE OF THE U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD**

**WEDNESDAY, JANUARY 29, 2020**

U.S. SENATE,  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,  
*Washington, DC.*

The Committee, met, pursuant to notice, at 10:04 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Carper, Inhofe, Braun, Sullivan, Ernst, Cardin, Whitehouse, and Gillibrand.

## **OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING**

Senator BARRASSO. Good morning. I call this hearing to order.

Today, we are going to consider Stakeholder Perspectives on the Importance of the United States Chemical Safety and Hazard Investigation Board, more commonly known as the Chemical Safety Board. Congress established the Chemical Safety Board in the Clean Air Act Amendments of 1990, and began funding the agency in 1998.

Its mission is to investigate the facts, conditions, circumstances, and cause or probable cause of accidental chemical releases that result in a loss of life and serious injury or serious property damage. The board also issues corrective actions and recommendations for the purpose of improving chemical production, processing, handling, and storage.

The board's main role is fact finding and analysis. For this reason, Congress excluded the board's findings, conclusions, and recommendations from use in litigation arising from accidents.

The board serves a critical role in helping us understand why chemical accidents take place and the steps needed to ensure these accidents do not happen again. The board also plays an important role in helping the Environmental Protection Agency and the Occupational Safety and Health Administration, help them better protect the general public and workers. It is in everyone's interest to keep the board functioning.

We should have a five member board, but currently, it is without a chairperson and has been reduced to two members. The term of one of those board members expires next Thursday, February 6th. By the end of the week, the Chemical Safety Board will have just one member. This is completely unacceptable.

Last summer, President Trump nominated Dr. Katherine Lemos, a former official of the Federal Aviation Administration and the National Transportation Safety Board, to serve as chairperson of the board. In September, this Committee approved her nomination unanimously. The Democrat hold has prevented her nomination from clearing the Senate. If this continues for another week, it will deeply impair the ability of the board to conduct such critical business as deciding which investigations to open and the finalization of reports.

These aren't my words; these words come from the EPA's Inspector General. We collectively cannot let that happen. We must get Dr. Lemos confirmed.

I would note that over the weekend, a chemical explosion killed two workers at a manufacturing plant in Houston. It made the front page of the Wall Street Journal. Here it is: "Blast at Houston manufacturing plant kills at least two."

We also need to fill the remaining vacancies on the Chemical Safety Board, because as I say, it is a five member board. This is an agency that needs strong, qualified, and impartial leadership.

EPA's Inspector General has stated that historically, the Chemical Safety Board has been plagued with leadership issues, such as tension among board members, disputes over the chairperson's authorities, and complaints of alleged abuses by board members or the chairperson. In the middle of the Obama administration, the board's former chairperson resigned, and its General Counsel and Managing Director were later forced out.

According to the EPA's Inspector General, management challenges continue to exist. More recent examples have included a board member filing public comments on an EPA proposed rule prior to the board adopting an official position on the rule. Also, a board member engaging in inappropriate communications with stakeholders. This behavior severely undermined morale among the board's personnel.

In response to these incidents, the Inspector General has recommended that the board develop guidance on board member responsibilities. It has also recommended that the board request that Congress amend the Clean Air Act to strengthen the role and authority of the chairperson.

For these reasons, I am glad that we have a panel of distinguished witnesses who represent the key stakeholders who are here with us today. They will help us better understand the board's role, mission, and performance, opportunities for improvement and reform, and how the work of the board is critical to their own safety initiatives.

I want to thank you all for joining us today.

I would like to turn to Ranking Member Carper for his opening comments.

**OPENING STATEMENT OF HON. THOMAS R. CARPER,  
U.S. SENATOR FROM THE STATE OF DELAWARE**

Senator CARPER. Thanks, Mr. Chairman. Thank for bringing us together.

I was talking with our witnesses beforehand and said that this is a board that is small, not well known, but it is a little bit like

my State, which punches above its weight. I am delighted that we are having a hearing and pleased to welcome each of you today.

We are here today to discuss the importance of the Chemical Safety and Hazard Investigation Board, an important Federal agency charged with investigating industrial chemical accidents. Coming from a State that is synonymous with the name DuPont and chemistry, this is something that is worth a little bit of interest to us and to me.

This board has investigated everything from BP oil spills to fatal refinery accidents to the chemical explosions caused by flooding during Hurricane Harvey in 2013.

Regrettably, the current Administration has failed to support the agency financially. In fact, each and every one of the President's last three budget proposals have called for the board's elimination.

Fortunately though, the Congress has rightfully rejected President Trump's repeated efforts to dismantle the Chemical Safety Board. After chemicals at the Arkema Facility in Texas exploded during Hurricane Harvey because there was no electricity to keep those chemicals cold, I asked the Chemical Safety Board to investigate. The board subsequently recommended that chemical facilities need to do more to plan for extreme weather events like hurricanes, like flooding, wildfires, that climate change is causing and will continue to cause.

The Trump administration is not requiring anyone to plan for or mitigate against the effects of climate change. As we all know, this Administration is doing just the opposite. President Trump even rescinded the Obama administration's executive orders that required federally funded projects to be built to better withstand flood risks and help communities rebuild stronger and smarter following extreme weather damage.

That leaves the Chemical Safety Board as the only Federal entity that is providing guidance to mitigate the costly and often dangerous impacts of climate change under this Administration. Similarly, the Chemical Safety Board is set to soon finalize the rule that will require immediate public reporting of chemical releases.

By contrast, the Trump administration recently weakened an EPA rule that would better inform communities about the potential dangers of chemicals stored nearby. The current Administration also weakened a portion of the EPA rule that would have required the chemical industry to consider whether alternative chemicals or processes could reduce the consequences of a chemical safety accident.

This EPA rule was developed after an explosion literally leveled the town of West, Texas. Not the western part of Texas; that is a town called West, Texas. It killed some 15 people in 2013. Many of us remember that. The Chemical Safety Board investigated the incident and determined that different ways of handling the chemicals could have prevented the accident from happening in the first place.

In addition to protecting communities, the Chemical Safety Board also plays a vital role in protecting workers. Right now, the board is reviewing seven serious chemical safety incidents that occurred in Texas, some of which resulted in worker fatalities. One of those incidents occurred just last week, when a chemical ex-

ploded at the Watson Chemical Facility in Houston, unfortunately claiming the life of one worker.

Other recent incidents took place at refineries, some of which store hydrofluoric acid onsite. Hydrofluoric acid is so dangerous that it can quickly kill or hurt literally tens of thousands of people or more if a release occurred in a densely populated area.

In fact, today the board is still investigating the massive explosion that occurred just north of where I live at the Philadelphia Energy Solutions Refinery in South Philadelphia, some 7 months ago. Thankfully, the explosion did not result in a large scale release of hydrofluoric acid, which could have caused mass casualties. I think the workers get great credit for actually stemming and preventing what could have been just a terrible disaster.

The Trump administration has weakened several environmental and safety rules that protect workers, again, leaving the Chemical Safety Board as the sole voice protecting recommendations to industry that could help protect workers and communities.

I believe that everyone here today agrees that the Chemical Safety Board must continue to be provided with the resources it needs to do its job. About that, there is little disagreement. High among the resources needed are five qualified, nominated, and confirmed board members, as the Chairman has mentioned.

Next week, when Rick Engler's term expires, there will be only one board member left. Even if the only nominee this President has nominated to the board, Katherine Lemos, is confirmed before then, the board will again be left with only one member in August when Kristen Kulinowski's term expires.

There are currently, as we know, 53 Republican Senators and only 47 Democrats. Our majority leader is free to schedule a vote to confirm Dr. Lemos anytime he wants, and frankly, I suspect he would have even more than 53 votes to do that.

The majority leader has found time in his schedule, in our schedules, to confirm a whole lot of nominees. For example, he scheduled a vote to confirm Aurelia Skipwith, whose confirmation hearing in front of this Committee was on the exact same date as Katherine Lemos's.

Let's set the record straight. The potential absence of a quorum at the Chemical Safety Board is, frankly, no one's fault except our President's, who has tried again and again to eliminate the agency entirely and failed for 3 years to nominate more than a single board member to serve.

I still find galling the confirmation of Aurelia Skipwith, and it is hard to get it out of my system. I will just lay it out here again. Here was a nominee who refused to respond to appropriate questions that were asked of her in person, questions for the record, and never did. We still let that nomination go forward.

I think that is a shame. That is a shame. If I were ever to have an opportunity to lead this Committee, I might not. We will try not to do that in the future.

Thanks very much.

Senator BARRASSO. Senator Inhofe, I know you have a conflicting action as Chairman of the Armed Services Committee.

Senator INHOFE. I appreciate it very much.

Just a brief comment.



I say to both my colleagues up here, I had a chance to come early and visit with all three of the witnesses today. The only question I would have is a question that I am sure will be answered in the opening statement of Mr. Jahn.

I think I have the distinction of being the only person up here that is a member of this Committee who was actually an original cosponsor of the Amendment to the Clean Air Act back in 1990, and we were very supportive at that time. We are going to make sure that we do everything we can to correct the problem and to get a workable committee that we can get things done, so that will be our effort, I think, of all of us up here.

Thank you, Mr. Chairman, for allowing me to get on the record. Senator BARRASSO. Thank you very much, Senator Inhofe.

Senator CARPER. May I just say one more thing, Mr. Chairman?

Mr. Chairman, I have been trying to schedule a meeting to meet for a couple of weeks now. There has been something getting in the way, so I am having a tough time clearing our schedule.

My hope is one of the things that we will have a chance to talk about face to face is this issue, this board, and how we can resolve the nominating process and get the job done. He wants to, and I want to, as well.

Senator BARRASSO. I would point out, in terms of things that are getting in the way right now, it is also getting in the way of spending time on the Senate floor getting anyone confirmed to any position. So the idea that our nominee Lemos, who has gotten through this Committee unanimously, has now been blocked on the Senate, or as someone had mentioned, should not go by unanimous consent, and should be called up and go through a whole process because of a previous nominee, Ms. Skipwith, seems to not be the appropriate issue to what we should be fighting that old battle on.

When we have somebody who by history, somebody that goes through the Committee unanimously, usually goes by unanimous consent to the floor, not file cloture and go through multiple series of votes. But if we really want to move forward with getting this nominee in place by the time that we are down to one member of the board, then any extension of the activity on the floor right now and the delays that it will cause will prevent either way getting that nomination filled.

So with that, I would like to turn to our witnesses.

Today, we are joined by Mr. Chris Jahn, who is President and Chief Executive Officer of the American Chemistry Council. He is very knowledgeable about these issues.

Nearly two decades ago, Chris sat on these benches behind us as a legislative assistant. He was responsible for environmental policy at that time. He continues to work along that line. It is always good to see staff doing well.

Also joining us is Mr. Shakeel Kadri, who is the Executive Director and Chief Executive Officer of the Center for Chemical Process Safety at the American Institute of Chemical Engineers, and Mr. Steve Sallman, who is the Assistant Director of the Health, Safety, and Environment Department at the United Steelworkers.

I want to welcome all of you. I want to remind you that your full, written testimony will be made part of our official hearing record

today, so we please ask that you keep your statements to 5 minutes so that we may have time for questions.

I look forward to hearing your testimony, and with that, we will start with Mr. Jahn.

**STATEMENT OF CHRIS JAHN, PRESIDENT AND CHIEF  
EXECUTIVE OFFICER, AMERICAN CHEMISTRY COUNCIL**

Mr. JAHN. Thank you, Mr. Chairman. I appreciate you and Ranking Member Carper for holding today's hearing on the Chemical Safety Board.

The CSB has the important job of independently investigating major accidents and making recommendations. The CSB's findings are very influential and a catalyst for safety improvements and ensure that the American Chemistry Council strongly supports the work of the CSB.

ACC believes the board plays a much needed role for safeguarding the public, the environment, and chemical facilities. In order to be effective in that role, the CSB needs the full five board members that Congress envisioned when it created the CSB. Furthermore, those board members should have a broad range of experience, particularly expertise in manufacturing operations, processes, and procedures that are essential to the safe operation of chemical facilities.

As you know, our industry is undergoing a major transformation to a new era of unprecedented growth and investment that is driven by new domestic sources of safe, affordable, and abundant natural gas. More than 340 new chemical industry projects valued at over \$200 billion worth of investment have been announced for construction in the past decade, just here in the United States.

So as we continue to build on this new investment, we must make sure that growth does not come at the expense of safety, either of our workers, our communities, or our customers. Safety must remain at the forefront of everything that we do.

Our commitment to safety as an industry is embodied in ACC's Responsible Care Program, the chemical industry's leading environmental, health, safety, and security performance initiative. Our program reflects a commitment by our member and our partner companies to prevent and mitigate the impact of chemical incidents.

One important component of responsible care calls on ACC members to evaluate the circumstances of each incident and learn from their own experiences as well as the experiences of other companies. To help collect and apply these learnings, ACC created regional networks all across the country that bring site safety personnel together on a regular basis to share process safety knowledge, effective practices and solutions, and encourage peer to peer networking.

More recently, we brought together a special group to examine the recent incidents that occurred in the Houston, Texas, area. The group made several recommendations, including ways to enhance air quality monitoring capabilities, emergency response, and the design and performance of above ground storage tanks. We take every incident seriously, and we seek to learn from each one by sharing information on the factors that led to the incident and

identifying excellent practices to prevent similar incidents from happening in the future.

To that end, we work with the CSB to ensure that there is broad awareness of the board's recommendations within our industry, and it is why we have undertaken safety initiatives that complement but do not replace the board's work.

ACC is committed to working with the Administration and Congress to ensure that we have a fully functioning and fully staffed CSB. Unfortunately, there is a very real prospect that has been pointed out this morning, that we very soon could have only one member of the board, a scenario which ACC and our members would like to avoid.

That is why we urge the Administration to nominate additional, well qualified industry and process safety experts to serve on the board, and we ask the Senate to confirm these nominees as soon as possible.

I close my remarks by thanking the current and past board members for their work to promote sound chemical safety practices. We look forward to working with you and with the Administration to fill the open positions at the CSB with capable and committed candidates and ensure the board has the resources it needs to fulfill its mission.

Thank you.

[The prepared statement of Mr. Jahn follows:]

**Written Statement of**  
**Chris Jahn**  
**President and Chief Executive Officer**  
**American Chemistry Council**

**To the**  
**United States Senate**  
**Committee on Environment and Public Works**

**Regarding a Hearing on**  
**“Stakeholder perspectives on the importance of the US**  
**Chemical Safety and Hazard Investigation Board”**

**January 29, 2020**

My name is Chris Jahn. I am the President and Chief Executive Officer of the American Chemistry Council (ACC), the national trade association representing chemical manufacturers in the United States. I am testifying today on behalf of our member companies and the more than 540,000 men and women who make up America's business of chemistry.

ACC represents the major chemical producers across the United States, including a diverse set of small and medium-sized companies. ACC members make and enhance products that are critical to the everyday health and welfare of our Nation. In fact, more than 96% of all manufactured goods are directly touched by our industry.

I would like to thank Chairman Barrasso and Ranking Member Carper for holding today's hearing to discuss the Chemical Safety Board (CSB).

The CSB has the important job of independently investigating major accidents and making recommendations. The CSB's findings are very influential and appropriately, a catalyst for safety improvements.

ACC believes that the Board plays a much needed role for safeguarding chemical facilities, the public, and the environment. In order to be effective in that role, the CSB needs the five Board members contemplated in the authorizing statute, and Board members should have a broad range of applicable experience and expertise, including experience in the operations, processes and procedures typically applicable in commercial chemical facilities.

ACC is committed to working with the Administration and Congress to help ensure that we have a fully functioning – and fully staffed – CSB. We want to encourage well-qualified industry and process safety experts as candidates to fill out the Board, the Administration in nominating appropriate candidates, and the Senate in confirming nominees as soon as possible.

Unfortunately, there is a very real prospect that the Board will soon have only one full member. We believe that the Board's investigatory functions should receive broad support from all stakeholders, the Administration, and the Congress.

As you know, our industry is undergoing a major transformation. The United States has become one of the premier places to manufacture chemicals, thanks to a new era of unprecedented growth and investment that is driven by new, domestic sources of abundant and affordable natural gas. More than 340 new chemical industry projects valued at over \$200 billion have been announced for construction in the U.S. since 2010, which will generate hundreds of thousands of jobs for American workers and billions of dollars in economic activity.

Even as we continue to build on this new investment, we must make sure that growth does not come at the expense of the safety of our workers, communities and customers. Safety must remain at the forefront of everything we do.

Our commitment to safety is embodied in ACC's Responsible Care<sup>®</sup> program, the chemical industry's leading environmental, health, safety, and security performance initiative. Participation in Responsible Care, including third party audits and certification, is mandatory for membership

in ACC. The initiative also extends to ACC Partner companies, including chemical transporters, distributors, warehouses, logistics planners, and others along the supply chain.

Our program reflects a commitment by our member and partner companies to prevent and mitigate the impact of chemical incidents. Our Process Safety Code<sup>®</sup> obligates companies to develop and implement a comprehensive process safety management system to manage risk and seek opportunities to improve performance. Companies are also obligated to identify and prioritize potential safety risks and ensure employees have the required knowledge, expertise, tools and training to manage those risks.

One of the other important components of the Code obligates all ACC members to evaluate the circumstances of incidents and learn from their own experiences, as well as the experiences of other companies. To help collect and apply these learnings, ACC created regional networks across the country that bring site safety personnel together on a regular basis to share process safety knowledge, effective practices and solutions, and allow for regional peer-to-peer networking.

More recently, we brought together a special group to examine recent incidents that occurred in the Houston, Texas area. The group made several recommendations, including ways to enhance air monitoring capabilities, emergency response and the design and performance of above ground storage tanks. ACC's Board unanimously approved those recommendations.

Under the Process Safety Code, member companies are obligated to apply lessons learned is also one of the reasons why ACC and its members find considerable value in the CSB's work – especially the reports, videos and other materials generated by the Board as part of its investigations.

The Board deserves credit for the improvements that have made over the years to share useful information at all stages of their investigations, including their factual updates and final reports. At the same time, it is critical that the Board communicate not just the hazards of processes they investigate (as their remit is to address incidents arising from inherently hazardous operations) but also to address risks and steps that can be taken to mitigate risks.

We take every incident seriously, and we seek to learn from each one by sharing information on the factors that led to the incident and identifying excellent practices to prevent similar incidents from occurring in the future. That is why we have worked with the CSB to ensure that there is broad awareness of the CSB's recommendations within our industry. And it is why we have undertaken initiatives that complement – but do not replace – the Board's work.

Our working relationship with CSB extends beyond just incident investigations. We regularly participate in the Board's stakeholder meetings, and just recently, we provided comments in support of the Board's new accidental release reporting rule and offered suggestions on how to make the rule even better.

ACC values the work of the CSB. We recognize how challenging that work can be especially when multiple investigations are being conducted at the same time. Historically, the Board has done a good job managing its workload and completing its investigations.

Unfortunately, the CSB has not been able to operate at full strength without a complete complement of five Board members. In just another week, the CSB will have a single Board member – something that has never happened since the CSB began operations more than two decades ago. We believe the Board will be well-served by members who reflect a broad range of experience and expertise, particularly expertise in chemical manufacturing process safety.

I want to thank you for inviting the American Chemistry Council to participate in this important hearing today. I would also like to use this opportunity to thank the current and past board members for their work to promote sound chemical safety practices.

This hearing is an opportunity to reinforce the value of the CSB, and the need for a full complement of Board members so that its work can proceed efficiently and effectively.

We look forward to working with you and the Administration to fill the open positions at the CSB with capable and committed candidates, and to ensure the Board has the resources it needs to fulfill its mission.

**Senate Committee on Environment and Public Works**  
**Hearing entitled, "Stakeholder perspectives on the importance of the U.S. Chemical Safety**  
**and Hazard Investigation Board"**  
**January 29, 2020**  
**Questions for the Record**

**RESPONSES OF CHRISTOPHER JAHN**

**Chairman Barrasso:**

1. In its 2019 report on management issues at the Chemical Safety Board, EPA's Inspector General acknowledged that:

*"The CSB authorizing legislation does not create a supervisory role for the Chairperson with respect to the other board members.*

*"Without the explicit authority for the Chairperson to hold board members accountable, an environment exists that enables behaviors that impede the CSB's mission and lowers morale among CSB career staff."*

EPA's Inspector General suggested the Board:

*"request that Congress...make necessary changes to give the Chairperson supervisory authority to hold board members accountable."*

What is your reaction to that proposal?

A: In order for the Chemical Safety Board (CSB) to meet its mandate – and ensure that its work is relevant to preventing and mitigating chemical accidents – the Board must operate as efficiently as possible. Supervisory authority for the Board Chair may well be one option to enhance the Board's operational efficiency.

2. Are there ways both the Chemical Safety Board and industry can communicate risk that better account for both the costs and benefits inherent in the production and use of chemicals?

A: ACC recognizes that the Board's accident investigation responsibilities require it to provide a detailed analysis of the events that lead to a particular incident, including any failures in process safety management systems, mechanical integrity, and equipment design or operation, among others. ACC believes that CSB investigation reports would be enhanced if the production and use of a chemical substance or process were put into an overall context, including a discussion of the costs and benefits inherent to that substance or process.



**Senator Inhofe:**

3. Mr. Jahn, as you highlighted in your testimony, the CSB needs to have a quorum in order to properly carry out its mission. I am especially concerned about a well-functioning CSB as it relates to refineries, which are an important part of Oklahoma's economy. We saw the impact of a mismanaged CSB under the Obama Administration that burdened refineries and other industry participants rather than constructively partnering with those in industry to promote safety. Refineries in Oklahoma and throughout the U.S. are working to do the right thing, and they should have the confidence in a properly managed CSB. But this can't happen if the CSB is operating without a balanced quorum.

**Mr. Jahn, can you speak to the importance of a well-balanced, fully staffed member board at the CSB to develop productive relationships with industry?**

A: ACC agrees that a full Board would enhance the ability to build and sustain productive relationships with industry. ACC seeks to leverage the Board's work to augment our continuing efforts to promote process safety management improvements; a full Board will help increase the opportunities to partner with the Board. ACC complements the CSB on its efforts to date to engage the industry, and we look forward to continuing that effort as new Board members are nominated and confirmed.

4. While this hearing was not specifically focused on the Chemical Facility Anti-Terrorist Safety (CFATS) program, the issue is closely related and equally as important. In light of recent events in the Middle East that have elevated threat levels at our domestic facilities, I think it is worth getting your thoughts on this. I have chemical companies in Oklahoma that care very much about CFATS, like Brainerd in Tulsa – it's one of the few regulatory programs that actually works and is supported by the industry it regulates. It's a win-win as it also provides critical safety standards that protect employees and the public. **Mr. Jahn, do you and your member companies support the CFATS program as it exists currently, and what value does it provide the industry, as well as employee and public safety? Would you have concerns if the program were underfunded or made ineffective by misguided reforms?**

A: ACC strongly supports the CFATS program. We agree that the program has been an effective tool to assess potential security threats to chemical facilities and ensure that appropriate protective measures are considered and implemented. ACC has long advocated a multi-year reauthorization of the CFATS program, and full funding for its implementation.

**Senator Markey:**

5. Do you agree that human-caused climate change has increased and changed the landscape of threats to chemical industry workers and facilities?
- a. If not, why not?

- b. If yes, what steps has the American Chemistry Council taken to help its member facilities prepare for climate impacts?

A: ACC and its member companies agree that human activities have the potential to impact climate change. The U.S. business of chemistry has a unique interest in a number of the issues raised in the discussion around climate change. These issues include the industry's use of fossil fuels as feedstocks, our competitive vulnerability to volatility in natural gas and energy prices, interests in credit for early reductions and offsets, and the incentives and mechanisms for encouraging broad international adherence to some form of carbon controls. Perhaps most importantly, the chemical industry produces inputs to products that can reduce greenhouse gas emissions and save energy.

6. More than 2,500 facilities in flood-prone areas handle toxic chemicals, including 1,400 sites in areas with the highest risk of flooding. Do you agree that chemical facilities in floodplains should be required to take additional precautions against flooding? If not, why not?

A: ACC agrees that chemical facilities should systematically assess and understand process safety risks, including risks arising both internally and externally, such as from extreme weather events. That understanding is necessary for companies to design systems to manage and mitigate the identified risks with appropriate safeguards.

7. More than 100 chemical releases took place in Houston during or immediately after hurricane Harvey. Toxic chemicals were released on land, in water, and in the air, with many never publicized and never investigated by federal regulators. In just one of the chemical plants in Houston, nearly half a billion gallons of industrial wastewater mixed with storm water and leaked into the local water system. Do you agree with the CSB findings on the Arkema facility explosion that facilities should be conducting analyses of susceptibility to extreme weather events, applying conservative risk management approaches, and preventing against common modes of failure through protective redundancies?

- a. If not, why not?  
b. If yes, does ACC agree that it would improve safety to require facilities to adhere to these recommendations?

A: As noted in the answer to question 6, ACC believes that chemical facilities – and indeed all facilities that produce or use chemical products – should assess process safety risks, and design and manage their systems in order to mitigate the identified risks. The results of any specific process risk assessment should dictate what protective measures are relevant and necessary in a particular case.

Senator BARRASSO. Thank you very much, Mr. Jahn.  
Mr. Kadri.

**STATEMENT OF SHAKEEL KADRI, EXECUTIVE DIRECTOR AND  
CHIEF EXECUTIVE OFFICER, CENTER FOR CHEMICAL PROC-  
ESS SAFETY, AMERICAN INSTITUTE OF CHEMICAL ENGI-  
NEERS**

Mr. KADRI. Good morning Chairman Barrasso, Ranking Member Carper. Thank you for giving me the opportunity to talk about the mission and the role of CSB.

First, a little bit about my background. I am a chemical engineer. I have been working nearly 40 years in the industry in implementing a variety of engineering operation, environmental health, and process safety projects with the aim to reduce or eliminate process safety incidents, as well as environmental impacts.

I personally feel very strongly about this issue. In my 40 year journey, I have closely seen benefits be achieved from sound process safety implementation and severe impact from incidents where process safety failed. My current organization, the Center for Chemical Process Safety, or CCPS, is a technology alliance of the American Institute of Chemical Engineers.

AICHE is a 110 year old non-profit technical organization which is working for a safe, connected, inclusive community. CCPS is funded by corporate members, as well as self-funded through conferences, education, et cetera, as well as through the AIChE Foundation. Established in 1985 in response to the Bhopal gas tragedy in India, CCPS has about 225 corporate members around the world who are dedicated to preventing process safety incidents and improve process safety performance across the industry.

Over the past 35 years, CCPS has published more than a hundred books on the subject of process safety that are used as good practice guidance reference material. Our chemical and chemical processing industries stimulates the economy with high paying jobs and development of new and innovative materials that enables other U.S. companies and sectors to lead the world in scientific and technological advancement. We are a net exporter of U.S. products.

Many of these businesses, however, are dependent on the use of hazardous material and operate with the daunting challenges of preventing catastrophic accidents. Such accidents, though rare, have severe and far reaching consequences. Given this rarity, many companies often lack in house expertise of self-investigation, and concerns about potential liability inhibit willingness to share lessons learned.

Recognizing these issues, Congress created the Chemical Safety Board to provide all chemical users and producers the expertise needed to investigate major incidents and disseminate lessons learned, best practices, and technologies, with the common goal of minimizing and eliminating catastrophic incidents.

AICHE believes that this is a competence that must be maintained and a need that we collectively must continue to address. We urge you to provide and continue funding for the Chemical Safety Board so that they may continue to provide this vital service.

CSB has become an effective and important partner to our country's process industry, and it is this chemical energy and related companies that are so essential to our Nation's continued economic development and competitiveness. CSB has investigated more than 130 major chemical incidents across the country, has issued 841 safety recommendations, of which 83 percent of them are already closed.

The CSB safety reports, bulletins, and videos are widely used and cited by the industry community, academia, professional associations, first responders, labor, and community leaders. In fact, CSB's 68 videos have received 6.4 million views, and its YouTube channel has nearly 20,000 followers.

We believe that the CSB plays a critical role in keeping Americans safe and strengthening the performance of our industry.

Thank you very much.

[The prepared statement of Mr. Kadri follows:]

**Shakeel H. Kadri**

As a world leader in process safety, Shakeel Kadri, Executive Director and CEO of the Chemical Process Safety Center [CCPS®], brings nearly 40 years of broad industry experience, with a strong focus on improving process safety. Shakeel came to CCPS in January 2015 as their Executive Director. CCPS is an Industrial Technology Alliance of the American Institute of Chemical Engineers [AIChE]. In nearly 5 years at CCPS, Shakeel has been expanding CCPS globally and driving the CCPS Mission to minimize significant process safety incidents globally.

Before this role, Shakeel spent 36 years at Air Products and Chemicals, Inc. In his most recent role there as Director of Global Process Safety and Risk Management, which he held for twelve years, Shakeel was instrumental in building their global process safety team, raised company's process safety risk awareness and focus globally, revitalized process safety performance measurement culture and developed a strong industry engagement. Prior to this role, Shakeel also held leadership positions in Process Engineering, Technology, Operations, Quality and HSE.

Shakeel is a Fellow of AIChE and a Fellow of CCPS. He is very engaged with the industry and its stakeholder. Shakeel has actively served on process safety committees of the American Chemistry Council, the American Petroleum Institute, the Mary Kay O'Connor Process Safety Center, the International Council of Chemicals Associations, the Compressed Gas Association, the European Industrial Gases and Association, and the American Fuel and Petrochemical Manufacturers Association.

Shakeel has a BS and MS in Chemical Engineering and an MBA in Finance.

**Mission and Role of the U.S. Chemical Hazard and Safety  
Investigation Board (CSB)**

Testimony by

Shakeel H. Kadri, Executive Director & CEO, American Institute of Chemical Engineers (AIChE)® Center for Chemical Process Safety (CCPS)®, 29<sup>th</sup> January, 2020 presented to the Senate Committee on Environment & Public Works

Thank you Chairman Barrasso, ranking member Carper, and Senators for inviting the AIChE's Center for Chemical Process Safety (CCPS) to testify on the mission and role of the U.S. Chemical Hazard and Safety Investigation Board.

First, a little bit about my own background. I am a Chemical Engineer. I have been working for nearly 40 years in industry in implementing a variety of engineering, operations and environment health and process safety projects aimed at reducing and / or eliminating process safety incidents, and environmental impacts. I personally feel very strongly about this issue. In my 40 years journey, I have closely seen benefits we achieve from sound process safety implementation and severe impact from incidents when process safety fails.

My current organization, the Center for Chemical Process Safety®, or CCPS, is an Technology Alliance of the AIChE®, a 110 year-old non-profit technical organization,

which is working to form a safe, connected, inclusive community. CCPS is funded by corporate members, as well as self funded through conferences, education, etc., as well as through AIChE, especially its Foundation. Established in 1985, in response to the Bhopal Gas Tragedy in Bhopal, India, CCPS and its about 225 corporate members are dedicated to help prevent process safety incidents to improve process safety performance across all industries. Over the past 35 years, we published more than 100 books on the subject of process safety that are used as a good practice guidance reference material.

Our chemical and chemical process industries (CPI) stimulate the economy with high paying jobs and the development of new and innovative materials that enable other U.S. companies and sectors to lead the world in scientific and technological advancement. We are a net exporter of U.S. products. Many of these businesses, however, are dependent on the use of hazardous materials and operate with the daunting challenge of preventing catastrophic accidents. Such accidents, though rare, have severe and far-reaching consequences. Given this rarity, many companies often lack the in-house expertise to self-investigate, and concerns about potential liability inhibit willingness to share lessons learned.

Recognizing these issues, Congress created the Chemical Safety Board (CSB) to provide all chemical users and producers the expertise needed to investigate major accidents and disseminate lessons learned, best practices, and technologies, with the common goal of

minimizing and eliminating catastrophic incidents. AIChE believes that this is a competence that must be maintained and a need that we collectively must continue to address. We urge you to provide and continue funding for the Chemical Safety Board so they may continue to provide this vital service.

CSB has become an effective and important partner for our country's process industries. And, it is these chemical, energy and related companies that are so essential to our nation's continued economic development and competitiveness. We believe that this is a competence that must be maintained and that it is a need we must continue to meet.

CSB has investigated more than 130 major chemical incidents across the country and has issued 841 safety recommendations, 83 percent of which have been closed. The CSB's safety reports, bulletins, and videos are widely used and cited by the industrial community, academia, professional associations, first responders, labor, and community leaders. In fact, the CSB's 68 videos have received 6.4 million views and its YouTube channel has nearly 20,000 followers.

We believe that CSB plays a critical role in keeping Americans safe and in strengthening the performance of our process industries.





**CENTER FOR CHEMICAL  
PROCESS SAFETY**

120 WALL STREET  
NEW YORK, NY 10005

**SHAKEEL H. KADRI**  
Executive Director & CEO, CCPS  
TEL: +1.646.495.1370  
[www.aiche.org/ccps](http://www.aiche.org/ccps)

24 March 2020

The Honorable John Barrasso  
United State Senator  
Chair, Committee on Environment and Public Works  
Washington, DC 20510-6175

Dear Mr. Barrasso,

On behalf of the American Institute of Chemical Engineers (AIChE), I wanted to thank you and ranking member Carper again for giving me the opportunity to testify, on the mission and role of the U.S. Chemical Hazard and Safety Investigation Board, before the Senate Committee on Environment and Public Works on 29 January 2020. It is with pleasure I am including my responses to the two follow-up questions submitted by your office.

**1. In its 2019 report on management issues at the Chemical Safety Board, EPA's Inspector General acknowledged that:**

*"The CSB authorizing legislation does not create a supervisory role for the Chairperson with respect to the other board members."*

*"Without the explicit authority for the Chairperson to hold board members accountable, an environment exists that enables behaviors that impede the CSB's mission and lowers morale among CSB career staff."*

EPA's Inspector General suggested the Board:

*"request that Congress...make necessary changes to give the Chairperson supervisory authority to hold board members accountable."*

What is your reaction to that proposal?

**CCPS Response:**

CCPS recommends that the issues identified by the inspector general be reviewed on a case-by-case basis to determine if they reflect a failure of execution rather than lack of structuring of authority. It is critical to note that any restructuring that diminishes the independence of the board members, in terms of the qualifications noted below, will degrade the CSB's impact significantly.



**CENTER FOR CHEMICAL  
PROCESS SAFETY**  
120 WALL STREET  
NEW YORK, NY 10005  
**SHAKEEL H. KADRI**  
Executive Director & CEO, CCPS  
TEL: +1 646 495-1370  
[www.aiche.org/ccps](http://www.aiche.org/ccps)

Administrative authority and technical authority must remain separate.

The administrative authority of the chairperson already exists to address the issue (see below - 42 U.S. Code § 7412 (6) Chemical Safety Board (B)), and Congress should simply reaffirm it. Procedures and protocols internal to the CSB can be revised to strengthen and clarify this authority if needed.

The technical authority and independence of all Board members must be maintained in order to derive the best evaluation and recommendations from the CSB investigations. There must be technical independence and the board members must not be beholden in any way, directly or indirectly, to the chairperson's views on technical matters. The independence of the board members is what makes the whole of CSB to be a respectable body. One paragraph of the document establishing CSB makes this perfectly clear and is quoted below.

*42 U.S. Code § 7412 (6) Chemical Safety Board*

*(B) The Board shall consist of 5 members, including a Chairperson, who shall be appointed by the President, by and with the advice and consent of the Senate. Members of the Board shall be appointed on the basis of technical qualification, professional standing, and demonstrated knowledge in the fields of accident reconstruction, safety engineering, human factors, toxicology, or air pollution regulation. The terms of office of members of the Board shall be 5 years. Any member of the Board, including the Chairperson, may be removed for inefficiency, neglect of duty, or malfeasance in office. The Chairperson shall be the Chief Executive Officer of the Board and shall exercise the executive and administrative functions of the Board.*

The inspector general's report summarized in the 4<sup>th</sup> June 2018 document ([https://www.epa.gov/sites/production/files/2018-06/documents/epa\\_oig\\_20180604-18-n-0208.pdf](https://www.epa.gov/sites/production/files/2018-06/documents/epa_oig_20180604-18-n-0208.pdf)) says that "CSB Chairperson does not have the statutory authority to take corrective action against other board members for inappropriate behaviors or to hold them accountable". However, based on the examples provided, this appears to be simple case of corrections as the team leader that the chairperson is already authorized to make, without the need for an act of Congress.

The 2019 report dated 20<sup>th</sup> May, repeats some of the above, with a statement "we reported that there were multiple instances when a board member acted inconsistently with established practices or inappropriately provided information to outside entities." The report goes on to say that "guidance is needed to define the roles of the board members" – pointing at the behavior of the board members inconsistent with established practice.

Please refer above to the statement that the board member can be removed for "malfeasance in office."



**CENTER FOR CHEMICAL  
PROCESS SAFETY**  
120 WALL STREET  
NEW YORK, NY 10005  
**SHAKEEL H. KADRI**  
Executive Director & CEO, CCPS  
TEL: +1-646-495-1370  
[www.aiche.org/ccps](http://www.aiche.org/ccps)

CCPS recommends that the following practices be adopted internally by CSB, if not already in place. If in place, these practices should be reinforced as needed by the chair.

- a) The practices of the board must be documented clearly as was planned.
- b) They must be followed by all board members rigorously.
- c) Violators are subject to removal. This is an administrative function, and it can all be done by the chairperson under the currently granted authority.
- d) In case there is any doubt, Congress should simply affirm it without restructuring the reporting relationship for other matters.

**2. Are there ways both the Chemical Safety Board and industry can communicate risk that better account for both the costs and benefits inherent in the production and use of chemicals?**

**CCPS Response:**

The mission of the CSB is to drive chemical safety change through independent investigations, in order to protect people, property and the environment, and to disseminate this information freely and widely to industry and the public. As such, discussion of risk is not appropriate to their mission, and would divert resources from their primary investigative purpose.

Industry, and non-governmental technical associations, such as CCPS, have provided, and regularly use risk assessment tools, which foster discussion at the local level. Tools are published in various guidelines, such as the CCPS publications of "Guidelines for Risk Based Process Safety", "Process Safety Metrics", "Risk Analysis Screening" and "Developing Quantitative Safety Risk Criteria.", etc. CCPS believes that discussion between companies and stakeholders at the local level is the appropriate place to improve risk communication, and that it is not a part of the CSB's mission.

If I can be of any additional assistance, please do not hesitate to contact me.

Sincerely,

Shakeel H Kadri  
Executive Director & CEO, Center for Chemical Process Safety (CCPS)

cc:  
The Honorable Tom Carper

Senator BARRASSO. Well, thank you very much for your thoughtful testimony. We appreciate your being here today, and we will be back with questions in a few moments.

Mr. Sallman, could I call on you, please?

**STATEMENT OF STEVE SALLMAN, ASSISTANT DIRECTOR,  
HEALTH, SAFETY, AND ENVIRONMENT, UNITED STEEL-  
WORKERS**

Mr. SALLMAN. Good morning, Chairman Barrasso, Ranking Member Carper, and members of the Committee. Thank you for the opportunity to testify today.

Our union is the largest industrial union in North America, representing 850,000 members across a wide variety of manufacturing and service sectors. Most relevant for this hearing, we are the predominant union in oil refining, chemicals, rubber, plastics, paper, steel, and other metals. Many of the CSB investigations have taken place at facilities represented by our union.

Our union believes that every worker deserves a safe workplace. The CSB's mission and investigations are imperative to reaching that goal.

The importance of the CSB is prominent with us. We want to emphasize four major points: The importance of the CSB, the need to fill vacant seats on the board, the necessity of appropriate funding, and the need to have the agency sufficiently staffed to investigate accidents. The CSB investigations and videos have prevented future injuries and saved lives.

My first experience with the CSB involved a triple fatality at a paper mill. In July 2008, a tank containing a mixture of recycled paper pulp and water exploded, killing three workers. The CSB found the contents of the tank contained highly flammable hydrogen gas, a byproduct of bacterial decomposition of organic fiber waste inside the tank.

One of the CSB's recommendations was using combustible gas monitoring prior to performing hot work. The CSB eventually developed a safety bulletin on the hazards of hot work.

Although we were pleased with the CSB issuing a safety bulletin, we were disappointed when they were unable to produce a full report and video about the incident due to understaffing at that moment of CSB history.

In February 2017, I again worked with the CSB on another triple fatality. Their investigation, in part, exposed how OSHA's Process Safety Management Standard is too limited in scope.

CSB reports and videos have led to changes in industry practice and regulations. The CSB reports and videos are applicable across many industries. We show the CSB produced videos at our trainings and safety meetings to prevent future incidents.

In order for the CSB to produce high quality investigations and videos, the board must have members who support the mission. The board's primary function is to deploy investigative staff to perform root and contributing cause investigations. Board seats need to be filled with a diverse slate of qualified individuals.

There is longstanding bipartisan support in Congress and among a number of labor and industry stakeholders for a fully funded CSB. However, over the last several years, the Administration has

proposed eliminating funding for the CSB. The agency has fewer than 50 staff and a budget of \$12 million to accomplish an important mission.

Our union has worked hard to ensure that Members of Congress understand how important the work of this small agency is. Historically, the quality of the CSB reports have been high, and the dedication of the professional staff is obvious, in our experience.

However, the CSB currently does not have sufficient staff of investigators. We are concerned that understaffing will lead to an increased backlog of open investigations and the inability to deploy to needed investigations. Our union supports CSB investigators, and the value, the thoroughness of the investigations they conduct.

In conclusion, our union hopes that all the members of this Committee understand the importance of this small agency. Bipartisan support has contributed to the CSB's success and its mission to make the Nation's workplaces and communities safer.

We look forward to continuing to work with lawmakers and the CSB to protect our members, communities, and prevent future incidents.

Thank you again for the opportunity to testify.

[The prepared statement of Mr. Sallman follows:]



Testimony

Of

Steve Sallman  
United Steelworkers

before the

Senate Committee on Environment and Public  
Works

On

Stakeholder Perspectives on the Importance of the  
U.S. Chemical Safety and Hazard Investigation  
Board

January 29, 2020

Chairman Barrasso, Ranking Member Carper and members of the committee, thank you for the opportunity to testify today. My name is Steve Sallman and I am the assistant director of the United Steelworkers' Health, Safety and Environment Department. Our union is the largest industrial union in North America, representing approximately 850,000 members across a wide variety of manufacturing and service sectors. Most relevant for this hearing, we are the predominant union in oil refining, chemicals, rubber, plastics, paper, steel, and other metals – the industries most likely to experience a catastrophic chemical accident. Many U.S. Chemical Safety Board (CSB) investigations have taken place at facilities represented by our union.

I have worked in our union's safety department for 16 years and in the safety field for 28 years. I also serve as a labor representative on the National Advisory Committee on Occupational Safety and Health (NACOSH) and NFPA's 652 Technical Committee on the Fundamentals of Combustible Dust. I began advocating for worker health and safety when I was a member of USW Local Union 310 and worked at the Bridgestone/Firestone Plant in Des Moines, Iowa, where I served as the fulltime safety & health committee chairperson for 8 years. After that, I spent nearly 5 years as a safety and health consultant for the Iowa Division of Labor-OSHA. Over the course of my career I have investigated many fatalities and life-altering incidents, provided technical assistances to local unions, and worked closely with employers' safety and health professionals. I have extensive experience in the paper sector. ..

Our union believes that every worker should return home at the end of their work day with the same health and life quality they had at the start of the day. The Chemical Safety Board's mission and investigations are imperative in reaching that goal. Through



my testimony I want to emphasize four major points: the importance of the CSB, the need to fill vacant seats on the board, the need for sufficient funding, and the need for the agency to have sufficient staff to investigate incidents.

### **Importance of the CSB**

As a fact finding, non-regulatory, agency the CSB investigations have provided lessons learned for industry that have assuredly prevented future injuries and saved lives. Many Chemical Safety Board investigations have taken place at facilities represented by our union. I would like to highlight some of my firsthand experience with the CSB involving a triple fatality incident at Packaging Corporation of America (PCA), a USW-represented paper mill. Paper mills are essentially chemical plants that manufacture paper, where our union has experienced some of the highest number of fatalities. In July, 2008, A tank containing a mixture of recycled paper pulp and water exploded, killing three workers. The CSB investigators and their resources were invaluable to the employer and the union in the fact-finding after the incident. CSB investigators assisted with sampling and analyzing contents of the tank involved with the explosion. The CSB cataloged evidence, conducted in-depth interviews, and researched similar incidents within the industry; ultimately developing a safety bulletin on the hazards of hot work.<sup>1</sup> During this incident, the 80-foot tall storage tank at the mill contained highly flammable hydrogen gas, a by-product of bacterial decomposition of organic fiber waste inside the tank. The CSB helped bring the industry's attention to the largely unrecognized hazard of recycled paper pulp and water in tanks. The CSB found

---

<sup>1</sup> [https://www.csb.gov/assets/1/17/csb\\_hot\\_work\\_safety\\_bulletin\\_embargoed\\_until\\_10\\_a\\_m\\_3\\_4\\_101.pdf?14329](https://www.csb.gov/assets/1/17/csb_hot_work_safety_bulletin_embargoed_until_10_a_m_3_4_101.pdf?14329)



this mixture decomposes to form flammable hydrogen and necessitates using combustible gas monitoring prior to performing hot work. Although we were pleased with the CSB issuing the safety bulletin, we were disappointed when they were unable to produce a full report and video about the incident itself due to understaffing and the heavy workload CSB had at that time.

Similarly, In February 8, 2017, I worked with the CSB on another triple fatality, that also injured 7, at a paper mill in Louisiana. That incident involved hot work and an explosive vapor space, containing air and flammable turpentine vapor in the headspace of an atmospheric tank. The CSB investigation exposed how OSHA's Process Safety Management (PSM) regulation is too limited in scope for this facility. The PSM regulation does not apply to the mill's foul condensate tank and equipment. The CSB released a comprehensive report and video about the incident.<sup>2</sup> The investigation results improved our members' awareness with hazard recognition and the importance of having proper engineering controls. The CSB is producing a second video about this incident that will bring much needed attention to Process Safety Management in the paper industry and its application to atmospheric tanks.

More recently, in the early morning of June 21, 2019, the Philadelphia Energy Solutions Refinery in South Philadelphia suffered a massive explosion and fire. The incident centered in the alkylation unit, where thousands of gallons of highly toxic hydrofluoric acid were in use. Had the acid been released, it could have caused an immense catastrophe, with a lethal vapor plume extending for miles. However,

---

<sup>2</sup> [https://www.csb.gov/packaging-corporation-of-america-hot-work-explosion-/](https://www.csb.gov/packaging-corporation-of-america-hot-work-explosion/)

members of USW Local Union 10-1 quickly diverted the acid to a secure dump tank. Other members worked to swiftly shut down other hazardous processes, and acted as first responders, playing a significant role in containing the fire, avoiding a toxic release and preventing any loss of life. Despite these heroic efforts to minimize the damage of this incident, over 1,000 USW members are now out of work because the refinery is not operating. The CSB has an ongoing investigation and we continue to work cooperatively with them. This incident is another example of how uncontrolled hazards can, and do, shut down workplaces. In today's economy, we cannot afford to lose living and saving wage jobs, not to mention, the impact this has on the surrounding communities and businesses.

Many CSB recommendations from investigation reports have led to changes in industry practice or government regulations, for example the new California rules for safety at oil refineries.<sup>3</sup> But facility owners are not the only ones who benefit from CSB investigations. Many of the root cause findings are applicable across sectors with highly hazardous substances and processes including many USW represented workplaces. Specifically, our union has used many of the CSB reports and videos in our trainings and safety meetings in places like BP Texas City, MGPI Industries, and the Formosa Plastics Vinyl Chloride Explosion, to name a few. We show CSB-produced videos and cite CSB conclusions in trainings and safety meetings with rank-and-file workers to prevent future incidents in the areas of process safety management, hot work, combustible dust, and inadvertent mixing.

---

<sup>3</sup> See <https://www.dir.ca.gov/oshsb/process-safety-management-for-petroleum-refineries.html>

Many of the CSB reports and videos illustrate how the “normalization of deviation” led to an incident. One example is BP Texas City where hazards and alarm fatigue were normalized, fatigue factors were real and workers were doing more with less. We also continue to use the CSB’s combustible dust video to bring attention to this illusive hazard.

The videos that the CSB produces are of excellent quality and are understandable to stakeholders from a wide range of experiences. Our members learn a lot from these videos, and we hear reports from all around the world about other safety professionals using the lessons demonstrated in CSB videos to prevent catastrophic incidents at industrial facilities worldwide.

#### **The Need to Fill Vacant Board Seats**

In order for the CSB to produce its high quality investigations, recommendations, and videos, the Board must have members who support and uphold its mission to **“drive chemical safety change through independent investigation to protect people and the environment.”**<sup>4</sup> The five-member board’s primary function is to deploy investigative staff to perform root cause investigations of chemical accidents at fixed industrial facilities.

When Congress created the Chemical Safety Board in the Clean Air Act Amendments of 1990, it gave the CSB a unique statutory mission and provided in law that no other agency or executive branch official may direct the activities of the Board. Following the successful model of the National Transportation Safety Board and the

---

<sup>4</sup> <https://www.csb.gov/about-the-csb/mission/>

Department of Transportation, Congress directed that the CSB's investigative function be completely independent of the rulemaking, inspection, and enforcement authorities of EPA and OSHA.

Board seats need to be filled with a diverse slate of qualified individuals for the CSB to continue to carry out its mission. Historically, the board had some leadership challenges that resulted in a large backlog and delay in incident investigations, like the four years it took to finish the investigation into the explosion at a USW-represented refinery in Anacortes, WA.<sup>5</sup> However, our union is very pleased that the most recent slate of members has successfully cleared an investigation backlog and improved administration.

The five member board has been operating for some time with only three members.<sup>6</sup> Former board member Manny Ehrlich's term expired in December of 2019 and current board member Rick Engler's term expires in just a few weeks in February. Board member, and Interim Executive Authority, Kristen M. Kulinowski, Ph.D's term expires in August of this year.

Last year, this committee advanced Catherine Lemos's nomination to be chairperson of the CSB.<sup>7</sup> Yet even if confirmed, she will be the only member of the board by August 2020 if the White House does not nominate and the Senate does not confirm other qualified individuals to serve on this board.

---

<sup>5</sup> <https://publicintegrity.org/inequality-poverty-opportunity/workers-rights/leadership-at-chemical-safety-board-questioned-amid-investigation-backlog/>

<sup>6</sup> <https://www.csb.gov/about-the-csb/board-members/>

<sup>7</sup> <https://www.epw.senate.gov/public/index.cfm/press-releases-republican?ID=6CAC354C-CC6C-4876-9D00-88A6056FB9EA>

**Funding the CSB Must be a Priority**

There is longstanding bipartisan support in Congress and among a variety of labor and industry stakeholders for a fully funded CSB. However, over the last several years, this Administration has proposed a budget that does not fund the CSB.

The CSB is a very small agency with fewer than fifty staff and a budget of approximately \$12 million to accomplish a very important mission.<sup>8</sup> Our union believes this is a bargain, and we work hard to ensure members of Congress understand how important the work of this agency is to preventing loss of life and costly damage to infrastructure from catastrophic chemical incidents.

In April 2017, the CSB released a report titled "Safety Business Case" aggregating the results of four of its investigations: West Fertilizer Company, the Chevron Richmond Refinery, the Deepwater Horizon/Macondo Well Blowout, and the BP Texas City Refinery.<sup>9</sup> The cost of these disasters ranged from \$247 million to \$32 billion dollars. While our union often hears employers dispute the cost of safety upgrades, those costs pale in comparison to that of disasters we have seen.

We support appropriations sufficient for the continuation of CSB deployments to incidents. With the Administration's recent roll back of the Risk Management Program's (RMP) Chemical Disaster Rule (CDR), the CSB stands as one of the last lines of defense in providing root cause analysis investigations and recommendations to prevent future catastrophic incidents. It is important for Congress to show continued bi-

---

<sup>8</sup> [https://www.csb.gov/assets/1/6/justification\\_2020.pdf](https://www.csb.gov/assets/1/6/justification_2020.pdf)

<sup>9</sup> [https://www.csb.gov/assets/1/6/csb\\_business\\_case\\_for\\_safety.pdf](https://www.csb.gov/assets/1/6/csb_business_case_for_safety.pdf)

partisan support for the CSB and its mission to protect working people and American communities.

#### **The Need to Increase Investigative Staff**

Historically the quality of CSB reports has been high, and the dedication of the professional staff is obvious in our interactions with them. However, despite this, the CSB does not currently have a sufficient staff of investigators. We are concerned that this shortage will lead to an increased backlog of open investigations and the inability to deploy to needed investigations. Our union supports CSB investigators and values the thoroughness of the root and contributing causes investigations they perform.

As I previously mentioned, the CSB was so understaffed over the last decade that investigators were not able to complete their work. In addition to the 2008 investigation mentioned above, the CSB leadership cancelled other investigations in 2015. Our union raised concerns in a letter to the House Oversight Committee highlighting three of these investigations cancelled for lack of staff. Two of these investigations were at USW-represented facilities:

- The CSB initially deployed to a July 2009 fire and release of hydrofluoric acid (HF) at the Citgo refinery in Corpus Christi, TX. HF is a very hazardous chemical that is widely used in oil refineries across the country. CSB issue a "Urgent Recommendations" document about five months after the incident but never completed a full investigation.<sup>10</sup>

---

<sup>10</sup> <https://www.csb.gov/citgo-refinery-hydrofluoric-acid-release-and-fire/>



- An explosion at the Horsehead zinc plant in Monaca, PA killed two workers and resulted in the closure of the facility in July 2010. CSB deployed three days after the incident and promised a full investigation. However, the CSB cancelled its work on the root and contributing causes investigation in January 2015.<sup>11</sup>

Our union does not want to see a situation like this in the future where promises are broken and needed lessons are not learned. We also do not want a situation where investigations are not being undertaken, putting workers and communities at greater risk. The CSB has many ongoing investigations dating as far back as 2016. Timely completion of these and future investigations by a fully staffed CSB will provide the lessons learned and reduce risk of future tragedies for government, industry, unions, and other stakeholders.

Following the CSB mission, investigators perform "root cause" investigations. Root causes are usually deficiencies in safety management systems, but can be any factor that would have prevented the accident if that factor had not occurred. Our union has significant experience and expertise in conducting incident investigations through the Triangle of Prevention Program ("TOP"). A 2015 white paper called, "Looking for Trouble: A Comprehensive Union-Management Safety and Health System," outlines the ways that root cause analysis prevents future incidents by looking beyond the immediate cause of an accident, thereby allowing the facility to identify and address the true reasons for the release, fire, or explosion.<sup>12</sup> Most incidents have multiple causes –

<sup>11</sup> <https://www.csb.gov/horsehead-holding-company-fatal-explosion-and-fire/>

<sup>12</sup> <https://www.usw.org/get-involved/hsande/resources/looking-for-trouble/LFT-11202018.pdf>

things that led directly to the accident – as well as contributing factors that did not directly cause the accident but made it more likely or more severe.

Root and contributing causes incident investigations are not about who or what caused an incident but about how the conditions allowed a tragedy to occur. CSB investigators complete high quality investigations looking for these root and contributing causes. By finding these causes CSB strives to ensure that facilities or entire industries address hazardous conditions, work organization factors and management system failures.

The CSB's materials, developed from their root and contributing cause investigations, help our workplaces prevent future tragedies and incidents by illustrating the need for workers to be set up for success. The reports and videos identify both system and organizational failures. The investigations show the importance for preventative, predictive and periodic maintenance of process equipment that is too often allowed to run to failure. Hierarchy of controls, inherently safer design and human factors engineering play a critical role in preventing incidents at workplaces and allow for facilities to "fail safely". Our members gain an increased ability to recognize and understand system failures, increased hazard recognition skills, identify and address work organization factors, and recognize the importance of engineering controls needed to prevent recurrence of incidents. In addition, the reports and videos bring much-needed information to families of the workers whose lives were taken from them.

However, without the proper funding and staffing, we will continue to learn about hazards incident-by-incident or even worse, fatality-by-fatality. For this reason, we strongly support efforts to hire and retain more qualified investigators at the CSB.



**In Summary**

In conclusion, our union hopes that all of the members of this committee understand the importance of this small agency. Bipartisan support has contributed to the CSB's success in carrying out its mission to make the nation's workplaces and communities safer by conducting investigations and providing analyses that accomplish those goals. We look forward to continuing to work with lawmakers, and the CSB, to protect our members, communities and prevent future incidents. Thank you again for the opportunity to testify.

Senate Committee on Environment and Public Works  
Hearing entitled, *"Stakeholder perspectives on the importance of the U.S.  
Chemical Safety and Hazard Investigation Board"*  
January 29, 2020  
Questions and Answers for the Record for Mr. Sallman

**Chairman Barrasso:**

1. In its 2019 report on management issues at the Chemical Safety Board, EPA's Inspector General acknowledged that:

"The CSB authorizing legislation does not create a supervisory role for the Chairperson with respect to the other board members. "Without the explicit authority for that Chairperson to hold board members accountable, an environment exists that enables behaviors that impede the CSB's mission and lowers morale among CSB career staff."

EPA's Inspector General suggested the Board:

"request that Congress...make necessary changes to give the Chairperson supervisory authority to hold board members accountable."

What is your reaction to that proposal?

To my knowledge, USW has not taken a position on recommendations like these related to the day-to-day operations and activities of board members. Over the decades of the Board's existence, we have sincerely valued the diversity of perspectives among board members that have contributed to investigations, recommendations, and other decision-making. With limited exceptions, the collegiality and collaboration among board members has led to strong recommendations that have prevented further catastrophic chemical incidents.

**Senator Markey:**

2. Given that the Trump administration has weakened several environmental and safety rules that protect workers, the Chemical Safety Board remains as one of the last lines of defense in providing analysis and recommendations to protect workers and communities.
  - a. How have workers benefited over the years from CSB recommendations to improve safety and what might happen if the Chemical Safety Board cannot function next year?

Workers have benefited from the lessons learned from the CSB incident reports and videos. Specifically, our union has used many of the CSB reports and videos in our trainings and safety meetings in places like BP Texas City, MGPI Industries, and the Formosa Plastics Vinyl Chloride Explosion, to name a few. We show CSB-produced videos and cite CSB conclusions in trainings and safety meetings with rank-and-file workers to prevent future incidents in the areas of process safety management, hot work,

combustible dust, and inadvertent mixing. These lessons learned and trainings prepare our members to better identify incident causation factors in the workplace. Workers have also benefited from safer workplaces where sites have implemented changes and where regulations have been updated to reflect CSB findings.

**b. How would the proposed EPA rollback to the Accidental Release Prevention Requirements in the EPA's Risk Management Program affect worker safety?**

There are many ways that the rollback of this rule, commonly called the Chemical Disaster Rule, would impact worker safety. The rollbacks remove many of the accident prevention requirements that require facilities to look into safer processes or ways to operate that would prevent an incident or reduce its magnitude.

However, one of the most critical parts of this rollback is the elimination of the requirement for a root cause analysis investigation following a catastrophe or near miss. These analyses and the lessons we learn from them are the basis of the work at the CSB and other investigative agencies. Root cause incident investigation identifies the contributing causes of an incident or near miss, as opposed to simply blaming workers. It looks at how something happened so a facility can fix that particular piece of equipment, management system failure, maintenance and inspection schedule, or whatever the hazards may be. If facilities fail to identify, eliminate and control hazards, the chance of reoccurrence of an incident or near miss is increased.

**3. Safety improvements often require additional investments, whether it is buying new safety equipment or implementing new training classes. What are some examples of how the safety benefits to workers from CSB recommendations outweigh potential costs?**

The cost of a human life cannot be quantified. Workers directly benefit from safety upgrades with lessened lost/restricted work time, fewer injuries, fewer workplace deaths and the impacts that has on families and our communities. The potential monetary savings to employers can be measured as well. In April 2017, the CSB released a report titled "Safety Business Case" aggregating the results of four of its investigations: West Fertilizer Company, the Chevron Richmond Refinery, the Deepwater Horizon/Macondo Well Blowout, and the BP Texas City Refinery.<sup>1</sup> The cost of these disasters ranged from \$247 million to \$32 billion dollars. While our union often hears employers dispute the cost of safety upgrades, those costs pale in comparison to that of disasters we have seen.

**4. How have you seen human-caused climate change affect worker conditions?**

---

<sup>1</sup> [https://www.csb.gov/assets/1/6/csb\\_business\\_case\\_for\\_safety.pdf](https://www.csb.gov/assets/1/6/csb_business_case_for_safety.pdf)

Our members have certainly seen the effects of climate change impacting working conditions. Across the country USW members have a range of stories. Below are a few examples.

1. Refinery workers in Houston who slept in the refinery for days during Hurricane Harvey to guard against catastrophic conditions.
2. The municipal workers in Puerto Rico continuing to recover from Hurricane Maria.
3. Healthcare workers in California helping ease patients' lung conditions during wildfires.

Our members' communities have suffered flooding that has impacted their ability to get to work, destroyed their homes, and encroached into their workplaces. And our members who work in hot industrial processes have experienced the added heat of the warming planet. It's no longer a guarantee that they can take a break outside to cool down from the job. Overall, USW members have experienced the impacts of climate change at home, at work, in their communities, and in nature. The critical question is how we deal with that crisis while also combatting economic inequality and ensuring that USW members continue to have good, union jobs.

**5. How should the Chemical Safety Board take a role in protecting workers from the effects of human-caused climate change, including flooding, heat waves, or extreme weather events?**

The CSB has to take a wholistic approach to investigations, including climate considerations. A great example is the investigation CSB completed at the Arkema Inc. Chemical Plant fire in Crosby, TX. On August 31, 2017, a fire erupted at the Arkema facility in Crosby, Texas, when refrigerated organic peroxides decomposed following the effects of Hurricane Harvey. Although the Arkema Crosby facility is located within the 100-year and 500-year flood plain, extensive flooding from heavy rainfall exceeded equipment design elevations and caused the plant to lose power, backup power, critical organic peroxide refrigeration systems, and standby refrigerated trailers needed to keep the organic peroxide cool. This flooding also eventually forced all of Arkema's employees to evacuate from the facility.<sup>2</sup> At incidents like this, as at all incidents, the CSB should be looking at all of the causes that contributed to the incident and its severity. And the recommendations should reflect the hazards, perhaps from extreme weather, that the facility operator should have planned to control that would have prevented or mitigated the severity of the incident.

---

<sup>2</sup> <https://www.csb.gov/arkema-inc-chemical-plant-fire/>

Senator BARRASSO. Well, we all, in a bipartisan way, appreciate all of you being here today, and especially the attention you have to the urgency of the issue.

Mr. Jahn, can you explain how the work of the Chemical Safety Board complements the safety initiatives of your own organization, and vice versa? Because it works both ways.

Mr. JAHN. Certainly. I am happy to discuss that, Mr. Chairman. As I mentioned in my opening testimony, our Responsible Care Program actually has a process safety code in it that requires them to look at their site specific risks and develop plans to mitigate that.

The CSB's work, in terms of its investigations and its studies, very carefully informs our members of those risks and previous incidents, and allows them to take appropriate steps to try to mitigate that in the future. Not only does that help in terms of the program itself, but we also, as I did mention, we have seven regional networks within ACC where we share this process safety information among those site safety professionals.

We share that, and we also have topical workshops. We have a variety of other ways to educate our members on the CSB's work.

We also engage them through their stakeholder outreach. We just had a meeting with the CSB to share some additional information on responsible care as recently as 2 weeks ago, I believe, so we are actively engaged with them. Again, we very much feel like their efforts complement what we do, but do not duplicate them.

Senator BARRASSO. Mr. Kadri, can I ask you the same question; how the work of your organization complements the safety initiatives with the Chemical Safety Board, and vice versa?

Mr. KADRI. Absolutely. Thank you. If you look at the mission of the Chemical Safety Board, it is really to prevent process safety incidents by learning from it.

Similarly, if I look at the mission of my organization, it is to prevent major process safety incidents. We do it in two different ways, but really come to the same conclusion. What the Chemical Safety Board does is really to understand what went wrong, create the learning, and then bring out the help to the industry for the future to improve.

What CCPS does is to really do more forward looking, as we understand the risk, identify the safeguards, and make sure that we prevent those incidents. Really, what we have been doing with the Chemical Safety Board is taking a lot of the learning, many of our books have really taken the learning from the Chemical Safety Board and included it into those learnings.

Many of those incidents have been included in our process safety incident data base, and at the same time, we also help CSB in implementing some of their recommendations. The one I would mention here is, one actually Senator Carper just talked about is Hurricane Harvey. The extreme weather response and extreme weather risk involved, Chemical Safety Board actually asked CCPS to develop guidance so that the industry can kind of look ahead of time and be prepared, so that has been doing.

Second one, actually, a few years back, the Chemical Safety Board asked that we initiate chemical process safety education in undergraduate chemical engineering organizations. That rec-

ommendation has actually included now, that now that process safety is applied in all engineering curriculum.

Senator BARRASSO. Thank you.

Mr. Jahn, here is another question. Looking at the last past decade, the EPA's Inspector General and the House Committee on Oversight and Government Reform have identified numerous instances of mismanagement at that Chemical Safety Board. Could you explain why it is so important that we have a strong, qualified, impartial leadership at that level at the Chemical Safety Board?

Mr. JAHN. Again, the process safety information that they share with our industry is vital in terms of our industry's performance. So we agree that the CSB, its board members, and including its chair, should be held accountable for their work and their performance.

Just to demonstrate our industry's commitment to accountability and transparency, and one thing I did not mention in my earlier answer was that we require members as part of responsible care to record and report process safety, emissions data, water consumption, and other metrics that we then report on our website, publicly. So we live by that, and we feel like the government partners that we work with should have similar accountability.

Senator BARRASSO. Well, thank you all.

We will have a chance to hear from some of the other members.

Senator Carper.

Senator CARPER. Thanks, Mr. Chairman.

I don't ask a lot of yes or no questions, but I am going to just ask a couple of them today, so we can move along.

We will start with you, Chris. Would your organization oppose a proposal to completely eliminate the Chemical Safety Board like the proposals that were included in the President's last three budgets?

Mr. JAHN. We would not support the elimination of the Chemical Safety Board.

Senator CARPER. Thank you.

Mr. Kadri.

Mr. KADRI. We will not support that recommendation.

Senator CARPER. Steve.

Mr. SALLMAN. We would not support that.

Senator CARPER. OK, thank you. I have no more questions.

No, I have more questions.

[Laughter.]

Senator CARPER. Second question: Do you all agree that it would be best if the, well, for everybody, the folks that work there, the owners, stakeholders, shareholders, people in the communities, first responders, do you all believe it would be best if the board had five qualified, independent, confirmed board members?

Mr. JAHN. Yes, sir, and I would add just that, again, from our experience, we do not have someone on the board right now who has industry safety process experience, so I would add that caveat.

Senator CARPER. Thank you.

Mr. Kadri.

Mr. KADRI. I will actually add one more thing to the question that Senator Barrasso asked. It is not only that you need a strong and technical expertise, but you also need the impartiality. Because

the recommendation and the outcome coming out from the board has far reaching impact, and maintaining the impartiality will create credibility and gives that implementation much more success.

Senator CARPER. All right, thanks for that.

Mr. SALLMAN. I would like to add that the board should be made up of a diverse slate of people with process experience, investigative experience, and dealing with various stakeholders, so that everybody brings a different view to the board to make it well rounded. That experience, I believe, and we believe, would help this board succeed in being able to view what failed, how we could improve to go forward with lessons learned, and prevent those tragedies from happening again.

Senator CARPER. OK, thank you.

One more, if we could, and this is for each of you. Do you believe that the President's repeated efforts to eliminate the agency would probably make it harder to find qualified and independent experts who are willing to serve, or easier?

Mr. JAHN. Our position is that the CSB, not only does it need to be full of board members and fully staffed, but it has to have the resources it needs to do its job, so it needs to be fully funded; an appropriate budget and human resources are absolutely necessary.

Senator CARPER. Thank you.

Same question, Mr. Kadri.

Mr. KADRI. Yes. I will say that those who are coming in from the industry and other areas to support the board membership and also the staff, they also need some support from the Government and also from the support structure, that the risk they are taking to go in, there is a reward there.

I think currently, because of the environment, I think there is a lot more resistance in that area. So I believe strongly that we need a five member board, and it should be very diversified and impartial.

Senator CARPER. All right, thank you.

And Mr. Sallman, just really quick, same question. Do you think it makes it easier or harder to find suitable replacements on the board if this Administration 3 years in a row has been trying to eliminate the board?

Mr. SALLMAN. Certainly harder, when, why would you want to apply for a job when it has been proposed to be eliminated and not funded? This is critical work, and when these people are going to be responding, they are going to be dealing with a loss of life. They are going to be dealing with coworkers who signed a job application to go in and go to work, not see what they have seen. Those people have to bring a special talent to this position.

Senator CARPER. Thank you.

One last question this round. When the Chemical Safety Board published its report following the Arkema Incident, it found that the explosions occurred in part because Arkema had not planned for this kind of flooding that we know climate change has caused and will continue to cause.

I was on the phone last night with a young man, not so young anymore, but whose roots were in Delaware, his father had been our Congressman, and been our Mayor, Republican, but a close friend. The son now lives in Australia, and we talked about what



they are going through there in terms of wildfires that are destroying large swaths of the country, killing hundreds of millions of animals, birds, and so forth.

The question is, I want all of you to try to answer this. Do you believe that climate change is real, that is caused largely by humans, not entirely, but largely by humans and that it has the potential to cause future costly and dangerous chemical safety accidents if steps aren't taken to analyze the risks and protect against them?

Mr. Sallman, would you go first?

Mr. SALLMAN. Climate change already has and continues to cause problems in workplaces, not only from a chemical standpoint, but also just working conditions. More and more of our members talk about heat stress, heat stroke. When you look at the fires that have happened in California, what does that do to the electrical grid? If we don't have backup systems to protect us when things go wrong, worse things will happen.

Senator CARPER. All right, thank you.

Mr. Kadri, please.

Mr. KADRI. I would say that climate change has impacted. I do not have the expertise in that area, but I do believe that the, as we see, the temperature rise, that would have ultimate impact.

Senator CARPER. Same question, Mr. Jahn.

Mr. JAHN. ACC believes that climate change is a global challenge that requires long term commitment and action by every segment of society. When we talk about extreme weather events like Hurricane Harvey, clearly, we need to have disaster mitigation and prevention to take those types of events into account.

Senator CARPER. I spoke to our witnesses, colleagues, before this started, and told them I am always looking for, as a member of this Committee, I have always looked for ways to do good things for our health, cleaner air, cleaner water, better public health for our planet with respect to climate change. The intersection I always look for is making progress on those fronts, creating jobs and economic opportunity, and that is the Holy Grail, the one that we are pursuing, and maybe we will have a chance to talk with you about that some more later on.

Thank you.

Senator BARRASSO. Senator Whitehouse.

Senator WHITEHOUSE. Thank you, Chairman, and welcome to the witnesses.

Two questions for Mr. Jahn.

First of all, welcome to your first hearing as the new president. We had a very good working relationship on a bipartisan basis with your predecessor, Mr. Dooley, and I want to recognize that and thank him for that.

One of the areas in which we had a very good bipartisan working relationship with Mr. Dooley was on TSCA reform, chemical safety reform. After the bill passed with strong bipartisan support and with your support and good work, your organization's support and good work, we then ran into administrative problems that I believe violated the bipartisan spirit of the legislation over at EPA.

We think we have solved those problems. I have confidence in Alexandra Dunn, who is the new person over there.



Can I ask your commitment that you and your organization will help support a fair and thorough administrative process to support TSCA in the same bipartisan spirit that the bill was passed?

Mr. JAHN. Senator, I thank you for that warm welcome as the next victim here at ACC, and we look forward to working with you. I noticed that Senator Sullivan was here earlier. We are working together on some things.

Senator WHITEHOUSE. That is my next topic, so go ahead on about TSCA.

Mr. JAHN. OK. I didn't want to steal your thunder; I apologize. So yes, we will commit to working with you to make sure that the amendments to TSCA that were passed in 2016 move forward in an appropriate manner. That is absolutely very important for us as an industry.

Senator WHITEHOUSE. I think it is important when you have bipartisan agreement on something to reward, encourage, and honor that bipartisan agreement by then not hopping over to the executive administration of that and trying to undo and cause damage and problems over there.

I don't think that the ACC has been involved in that. I think you have been helpful, actually, at trying to get through that, and I hope you will continue, so thank you for that.

So your second topic, of course, was another area where we have made significant bipartisan progress, and that is on the question of marine plastic waste, ocean plastic waste. It was with Cal Dooley and ACC's support that we were able to get the first Save Our Seas bill passed, which was a very minor piece of legislation in terms of its effect, but it established the proposition that the Senate and the Congress on a bipartisan basis were willing to legislate in this space, something which was not then a proven proposition.

So we proved that proposition, and we focused on the worst offenders, which are the five Asian countries, and the ten foreign rivers that produce, respectively, 50 percent and nearly 90 percent of the ocean plastic waste.

We then moved on and just recently, in the Senate, again, unanimously passed Save Our Seas 2.0, which still has to work its way through the House, and they have seven committees that want a piece of it, and it takes a little bit of doing, procedurally, but which I have a lot of confidence will actually get done.

So, Senator Sullivan, my friend and my colleague in these efforts, and I are already starting to put on our thinking caps and organize with our staffs what Save Our Seas 3.0 should look like, because while 2.0 was real legislation that created a real difference, it is a huge problem, and it is one where I think we need more support from the industry. I think there is more room for bipartisan and perhaps even unanimous progress on this issue.

I want to ask you your thoughts about a SOS 3.0. Do you believe there is more that needs to be done? Are you willing to support us in finding those things that can be done in a bipartisan, even unanimous fashion?

In that regard, let me just put into the record also the July 19th letter of welcome that Senator Sullivan and I wrote to you on this topic.

[The referenced information follows:]



July 19, 2019

Christopher Jahn  
President & CEO  
The Fertilizer Institute  
425 Third Street, S.W., Suite 950  
Washington D.C. 20024

Dear Mr. Jahn:

We write to offer our congratulations on your appointment as President and CEO of the American Chemistry Council. We look forward to working with you on areas of mutual concern, including the marine debris crisis.

As you may know, each year eight million metric tons of plastic enters the oceans from land. This unmanaged waste is not only unaesthetic, but also harmful to wildlife and commercial fisheries. It has been encouraging that the issue of marine debris has not only found bipartisan support in Congress, but also strong support from private industry.

In recent years, we have appreciated ACC's willingness to engage members of both parties to combat marine debris. We worked with your predecessor, Cal Dooley, to pass the Save Our Seas Act in 2018 with strong bipartisan support. We are excited to have introduced the Save Our Seas 2.0 Act last month. The bill will improve domestic waste management and marine debris programs, while supporting innovation and bolstering U.S. leadership to address the plastic debris crisis on a global scale. ACC's efforts and support for Save Our Seas 2.0 is much appreciated.

It is our sincere hope that the productive relationship we have had with ACC will continue during your tenure. We believe the issue of plastic waste in our oceans is solvable, and look forward to working with ACC and a broad coalition of stakeholders and experts to end the flow of waste into the ocean and protect our coasts for future generations.

Once again, congratulations. Please feel free to reach out to our staff if we can be of any assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sheldon Whitehouse".  
Sheldon Whitehouse  
United States SenatorA handwritten signature in blue ink, appearing to read "Dan Sullivan".  
Dan Sullivan  
United States Senator

Mr. JAHN. Thank you very much, and thank you for your leadership on this important issue. As you said, it is a significant global challenge, and you have our full commitment to work with you.

I hope that you are correct, we will be able to work through those seven committees in the House, we will get that bill done and have some meaningful change, and then we can move on to 3.0. As you know, and I know you agree—

Senator WHITEHOUSE. That 2.0 doesn't do the trick. There is more to be done. It was good, but not sufficient.

Mr. JAHN. Absolutely. As you well know, in regard to the Alliance to End Plastic Waste that our members have created in the past year and committed, publicly, private funds of \$1.5 billion throughout the chemical supply chain to solve that issue. So we are putting real money behind this. We are dedicated to the proposition, and we will work with you to move forward.

Senator WHITEHOUSE. We look forward to working with you. If I could note for the Chairman, I went to the Our Oceans Conference in Oslo as a congressional delegation of one. It was a strong focus at that international conference on marine plastic.

Unilever, which is one of the biggest consumer products corporations in the world, and which has a very, very significant footprint in the United States, pledged then that they were going to go to a point where for every ounce of plastic that they put into the economy through their products, they were going to extract the same amount of plastic from the environment and bring it back to proper disposal, which does two things.

First of all, it makes them plastic waste neutral, which is a very important thing for a company. And second, it creates a market for the plastic waste that is out there and gives somebody some encouragement to find, now somebody who is picking that stuff up has a business model to go to Unilever and say, you are going to need to buy a lot of this stuff to honor that pledge.

So for both of those reasons, I just wanted to call out Unilever as one of the international players in this for having made what I think was a particularly strong proposal. Of course, I support that kind of an effort, so thank you very much, Chairman.

Senator BARRASSO. Well, thank you.

Senator WHITEHOUSE. By the way, let me thank you, because a lot of this happened because of your support and leadership as Chairman and because of the support of our Ranking Member. If it weren't for the leadership of the Chairman and the Ranking Member, none of this stuff gets done, so while I talk about Dan, and we do a lot of this work together, I also want to make sure it is clear that it is a unanimous effort.

Senator BARRASSO. Unanimous support of the Committee, everybody together. Also I point out, and you may have noted what Bill Gates had announced the other day, and I talked to him about it on Sunday, this program for Microsoft which is very similar to what you just described with regard to Unilever and plastics. He has said that about the carbon footprint that has been left by Microsoft, not going forward, but going back to the founding of the company in 1975.

To do it, he is making a huge investment in the technology that we had been working on for carbon capture and sequestration and

actually air capture of carbon dioxide in the atmosphere to then go to sequester or putting into products the sorts of things that we looked at in Aberdeen, Scotland, with the research laboratories there trying to make those products commercially competitive. So it is not just in plastics that it is happening; it seems to be happening, and this may be a new model.

Senator WHITEHOUSE. Yes. Making sure that the market works in these areas is, I think, our top responsibility.

Thank you.

Senator BARRASSO. Senator Carper.

Senator CARPER. Just a follow up on Senator Whitehouse's comments. I think he mentioned at Oslo, he was a delegation of one. I would point out he probably had them outnumbered, even as only one.

I want to commend Sheldon and Danny for their great leadership and work on this.

There is another Senator, Senator Udall that from out in New Mexico has a strong interest in this issue as well. He focused a little bit more on root causes, which is actually one of the things that the Chemical Safety Board does, it focuses on root causes.

It is not the time to have the conversation now, but I think there has to be an economic opportunity for someone to come along and invent, I know work is going on right now, probably all over the world, to come up with plastics that meet our needs as consumers, but actually do not degrade our environment. Whoever can come up with that, they will do just fine.

Go ahead, Mr. Jahn.

Mr. JAHN. If I could interject on that, that work is already underway, and that is happening. Members are literally invested billions of dollars in what we call circular economy, in bringing those products back in as feedstock to produce new product. So we are going as quickly as we possibly can on that issue.

Senator CARPER. I would urge you, Mr. Jahn indicated to us he is just now beginning to do member calls, and we welcome those. There was a death in his family, which we mourn and regret. Now that you can start seeing us, we would welcome that. That is maybe one of the things we can talk about, and you can share with us what is going on.

I would also urge you, early in your visits here, customer calls with members, go see Senator Udall, just to kind of understand what he is thinking. I think he would welcome hearing what you just shared with all of us.

Mr. JAHN. Thank you.

Senator CARPER. The idea to create a virtuous cycle, virtuous circle, is something I always look forward to doing. If we can find ways to harness economic forces that actually do the right thing, that is all the better.

There is just one more issue I want to touch on, if I can. It is not just climate change risk that the Chemical Safety Board reports have made recommendations about. Many of the reports point out systemic safety, or chemical process failures, that should result in industry making changes to prevent similar accidents from occurring in the future.

My question, this is really a question for all three of you, if you would. Since we currently have an Administration that we can safely assume may never take regulatory action to require measures to mitigate against climate change, or other chemical safety risks, could each of you just say a couple words about how important the continued existence of a fully funded Chemical Safety Board with five qualified and independent board members is?

Mr. Jahn, would you like to lead off?

Mr. JAHN. Certainly. So, a fully funded, fully staffed effective board is vital to our industry in both the investigations that the CSB conducts and the studies that they share with our industry. We feed that into our process, into those regional networks that we have that we share that process safety information, as well as the topical workshops and other education that we have for our industry and the requirements that they have under responsible care to plan, prepare for, and drill on response to potential incidents.

So we take that very seriously, and it is a top priority for us.

Senator CARPER. Thank you.

Mr. Kadri.

Mr. KADRI. Yes. CCPS actually has seen the advantage and benefit of a fully functional Chemical Safety Board. We also have seen a bit of a disadvantage when the board is not functional. So I believe that having a fully functional Chemical Safety Board is very beneficial to all stakeholders. It is industry, it is academia, it is community, and also regulated sites.

Senator CARPER. You get the last word.

Mr. SALLMAN. Sure. It is critical that we have a full board and a chair, and I say this because we have a few plants that we are waiting on for those reports to come. Philadelphia, Port Neches, Texas, where our members were exposed to the flash fires and the hazards.

It is not only important to learn and improve, but it is also the community. Our members live in those communities, and when you have seen the devastation that was going on, that is our members' homes that you are seeing.

This isn't just a workplace issue. This is also an environmental issue that is important to our members because people live in those communities.

We are also watching the inspection that is going on and the investigation with the box company, where a pressure vessel exploded. We are the largest union in the paper sector, that we don't represent that workplace, but we are eagerly awaiting the results of that, so that we can take those lessons learned and apply it to all of our other workplaces, so that nobody has to go through that again, or the community.

Senator CARPER. Mr. Sallman, at one point in your testimony, I think you used a term, hot work, I think you called it hot work. Would you just take a minute and tell us what that means?

I have some ideas in my own life what hot work is. I used to be a midshipman in the Navy. My freshman midshipman cruise, I was on a destroyer, and they put all the young midshipmen down in the engine room. There was one large blower that actually brought cool air down to one place. The Chief Petty Officer always stood there, and the rest of us just sweltered, and that was some of the hottest

work I have ever done, but I want to hear what you are talking about when you say hot work.

Mr. SALLMAN. Sure, great question, and I can elaborate. Hot work is anytime you are doing cutting, grinding, welding, anything that could produce a spark or heat as a source of ignition.

And that is important to us because we have learned the hard way. As I have mentioned in my testimony, my very first exposure to a triple fatality involved hot work, where one of our members noticed that there was a problem with a flinger on top of the tank. He knew that the bolts had broken loose on the flanges, and so they had to go up there and repair that by welding.

In the headspace of that tank was hydrogen, and our members did not know. They were thinking it is water and recycled pulp, I mean, boxes that you would collect from anywhere in a store, you would put it in there, you basically heat that up. Then that basically decay created that hydrogen gas in the headspace of the tank. So while they were welding, all of a sudden, they felt the tank start to rumble, and they heard noises, and then it literally blew up on them and ended up taking the lives of three members.

The importance about understanding the hot work, I will tell you how far this went, we not only followed that from the tank, we followed it through the entire process, where that content went. And lo and behold, we found out, even on our process machines, that we were having that hydrogen gas elsewhere in the facility. So now we had to expand our hot work, not only from tanks, but also to the process of equipment.

Had we not had the learnings from the CSB, we may not have been able to make those corrective actions using the hierarchy of controls.

Senator CARPER. All right, thank you. Thank you for that explanation. We have some hot work of our own to do later today. We thank you for your testimony and for the work that you do.

Mr. SALLMAN. Thank you.

Senator CARPER. We look forward to working with you on other issues.

Chris, congratulations on being named to succeed a very good man.

Mr. JAHN. Thank you.

Senator BARRASSO. Let me just finish off with a couple of questions. One for all of you.

Currently we are out a chairperson, only two sitting members. Last summer, President Trump nominated Katherine Lemos to serve as chairperson; the Committee approved her nomination, unanimous basis in September. If she is not confirmed by next week, the board will lose its quorum and will be severely impaired.

Is it fair to say that you all agree that we should not let the Chemical Safety Board be reduced to one member?

Mr. JAHN. Yes.

Mr. KADRI. I agree.

Mr. SALLMAN. Yes.

Senator BARRASSO. And then, the other issue is how you can recruit good people to serve in some of these Government positions. What we continue to hear is, there is just so much uncertainty that the confirmation process itself can in some way discourage highly

qualified individuals from seeking to serve on the Chemical Safety Board. I would just be interested in hearing from the three of you on that.

Mr. JAHN. I would salute you all, and the House as well, in terms of your leadership of continuing supporting the mission of the board, fully funding it, and in fact, increasing funding for that and sending that message out to this community that this is a priority. It is an important mission, and that it has had the full faith and support from this Committee.

I think that sends a tremendous message, and that we try to amplify to our community.

Mr. KADRI. I think you picked up a good point, as how would you attract the right level of people. Now, CCPS has 225 corporate members, and each of those corporate members actually provide us the lead process safety individual in our committee.

Many of them would be well qualified individuals and would be interested. But I think that the current environment actually would have some resistance.

Senator BARRASSO. Mr. Sallman, anything you would like to add?

Mr. SALLMAN. I would encourage outreach to find people and help them understand what these positions are, and look for a diverse group of people. We have even talked to management counterparts that we have good relationships and work well with them, and some of those people have since retired out of the health and safety movement.

There is a lot of talent on there that could be harvested and work at these facilities. But if they are going to go to this agency, and work, they need to know that Congress has their back, that they are going to be funded, and that they are going to have the support and the resources that they need to perform their jobs and do it well.

Senator BARRASSO. I ask for unanimous consent to enter into the record a letter from the American Chemical Society in support of confirming Dr. Lemos and advancing additional nominees.

Without objection, that will be added.

[The referenced information follows:]



External Affairs & Communications

Glenn S. Ruskin  
Vice President

January 27, 2020

The Honorable John Barrasso  
Senate Committee on Environment and  
Public Works  
410 Dirksen Senate Office Building  
Washington, D.C. 20510

The Honorable Thomas Carper  
Senate Committee on Environment and  
Public Works  
410 Dirksen Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the American Chemical Society (ACS), I am writing to underscore the importance of the U.S. Chemical Safety and Hazard Investigation Board (CSB) to the safety of our members and the chemistry enterprise. ACS represents over 150,000 chemists and chemical engineers and was chartered by the U.S. Congress in 1937 to provide well-founded recommendations on issues of importance to the nation and scientific community.

CSB has a critical mission to "drive chemical safety change through independent investigation to protect people and the environment." The ACS strongly supports safety in the chemistry enterprise<sup>1</sup>, and the CSB provides an essential safety resource by conducting root cause investigations of chemical incidents. Since its inception, the Board has deployed to more than 130 incidents, including three in Delaware, and issued over 800 recommendations to make the chemical enterprise and our communities safer. The Board also performs investigations of general chemical hazards, providing an important preventative function to supplement their incident investigations. Safety organizations, trade associations, corporations, educational institutions, and many others rely on CSB recommendations to improve the safety of processes for workers, students, and the public.

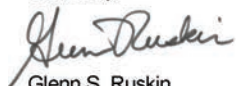
As the number of confirmed members on the Board dwindles, ACS is gravely concerned about the ability of CSB to continue carrying out its vital mission. By February there will be only one remaining board member out of five to decide when to deploy incident investigators, approve the release of final safety reports, and lead public outreach efforts. Currently there are 11 open investigations awaiting release of final reports. Additionally, there will could be new incidents requiring a CSB response. A full Board, containing a variety of experts, is essential to support the ongoing mission of CSB to improve safety in the chemical enterprise.

<sup>1</sup> <https://www.acs.org/content/acs/en/policy/publicpolicies/science-policy/safety-in-the-chemistry-enterprise.html>



The Society encourages the Senate and the Administration to work together and ensure the CSB can return to full operational capacity as quickly as possible by confirming Dr. Lemos and advancing additional nominees for the board. Should you have any questions, please do not hesitate to contact me or Will Hartwig ([w\\_hartwig@acs.org](mailto:w_hartwig@acs.org)).

Sincerely,

A handwritten signature in dark ink, appearing to read "Glenn Ruskin", with a stylized, cursive script.

Glenn S. Ruskin

Senator BARRASSO. There are no more questions. You may get questions in writing—there may be another question.

Senator CARPER. Not a question, just a quick thing.

I said as an aside to the Chairman, several minutes ago, that we are going to meet, hopefully soon when the impeachment process has concluded.

But one of the things that I hadn't thought would be on an agenda, a good agenda item, just this is figuring out how we get not just avoid having one person on the board, we really need five. We need five, fully well qualified people.

I understand that, and correct me if I am wrong, but if the board is reduced to one member in August, it will be reduced to one member in August, if Kristen Kulinowski is not confirmed, I think that is true. Can you check me on that?

Mr. JAHN. We will follow up on that.

Senator CARPER. OK, if you would, for the record, thank you.

Thanks so much.

Senator BARRASSO. Thank you.

Senator Whitehouse, anything else?

Senator CARPER. Maybe if she is not renominated, I think.

Mr. JAHN. I believe that is correct.

Senator CARPER. I think that is correct.

All right, thank you.

Senator BARRASSO. Well, members may submit questions for the record. I know a number of members are at the White House for the signing of the USMCA.

The hearing record is going to remain open for 2 weeks.

I want to thank all of you for being here, for your time, and your testimony.

The hearing is adjourned.

[Whereupon, at 11:05 a.m., the hearing was adjourned.]

[Additional material submitted for the record follows:]

January 29<sup>th</sup>, 2020

President Donald Trump  
The White House  
1600 Pennsylvania Ave, NW  
Washington, DC 20500

Dear Mr. President,

Our organizations urge you to restore a quorum to the U.S. Chemical and Hazard Investigation Board, commonly known as the Chemical Safety Board or CSB, by nominating new Board members. We support CSB's mission to drive improvements in process safety in the petroleum and chemical sectors through independent and credible investigations. However, with three current vacancies and a fourth only weeks away, the Board may be unable to fulfill its important mission due to lack of quorum.

Our organizations and members are committed to the safety of our employees and the communities where we operate. Industry initiatives to continuously improve process safety often exceed regulatory requirements, and although our members may not always agree with the CSB's recommendations, the candid collaboration with the CSB sharpens processes, thinking, and ultimately safety outcomes.

Under the leadership of former Chair Sutherland and current Interim Executive Authority Kulinowski, the CSB has made significant progress in restoring professionalism and integrity to investigative protocols and forging lines of communication with affected industries. This progress is the result of efforts by an active CSB and an experienced, professional staff.

It is imperative that qualified nominees with a broad range of experience, including with operations, processes and procedures used in affected industries, be put forward for Senate consideration as quickly as possible.

We appreciate your continued leadership on this issue of national importance.

Sincerely,

American Chemistry Council  
American Fuel & Petrochemical Manufacturers  
American Petroleum Institute  
National Association of Chemical Distributors  
National Association of Manufacturers  
U.S. Chamber of Commerce

1/29/2020

Industrial Blast in Houston Kills at Least Two - WSJ

YOU HAVE BEEN SELECTED

WSJ wants to hear from you. Take part in this short survey to help shape The Journal. [Take Survey](#)

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

<https://www.wsj.com/articles/houston-blast-kills-at-least-two-11579886106>

U.S.

## Industrial Blast in Houston Kills at Least Two

Officials suspect leaking propylene tank caused explosion



The explosion at Watson Grinding & Manufacturing in Houston leveled buildings, damaged hundreds of homes and shook the ground for miles. PHOTO: DRONE BASE/REUTERS

By Elizabeth Findell

Updated Jan. 24, 2020 5:21 pm ET

HOUSTON—When an explosion jolted Julio Garcia from his bed early Friday, he feared Houston was being bombed. His windows were blown out, his ceilings and walls were cracked and broken glassware littered his floors.

The damage wasn't from a bomb. It was an explosion at a nearby manufacturing plant that killed two men, the latest in a city where industrial blasts have become a common occurrence.

The explosion, at around 4:30 a.m. at Watson Grinding & Manufacturing Co., leveled buildings, damaged hundreds of homes and shook the ground for miles. The cause is under investigation. Fire officials said it appeared a tank of propylene gas was leaking.

<https://www.wsj.com/articles/houston-blast-kills-at-least-two-11579886106>

1/3

1/29/2020

Industrial Blast in Houston Kills at Least Two - WSJ

The company couldn't be reached for comment Friday. Its website says it provides full-service manufacturing and precision grinding of large parts and exotic alloys.

Authorities said they suspected the two men killed were Watson employees, Police Chief Art Acevedo said at a news conference. An ambulance took another man to the hospital with cuts after the blast sent his truck flying. Hospitals reported 18 people checked themselves into emergency rooms with minor injuries.



Maria Giraldo stands in the backyard of her neighbor's home one street away from the explosion in Houston. PHOTO: MELISSA PHILLIP/HOUSTON CHRONICLE/ASSOCIATED PRESS

Mr. Garcia and his parents were among more 100 people who came throughout the day to a Red Cross shelter set up at a nearby Church of Jesus Christ of Latter-day Saints, shelter workers said. Authorities said they were working on plans for an overnight shelter and longer-term temporary housing, as many homes won't be safe to inhabit for weeks or months.

The blast scattered debris for at least half a mile on the city's northwest side. Rescue crews canvassed about 190 homes, finding significant damage and many off their foundations. Chief Acevedo urged anyone within a mile of the site to check for debris, or even human remains, to report to authorities.

Officials with the Bureau of Alcohol, Tobacco, Firearms and Explosives are assisting Houston police, and a criminal investigation is under way, but Chief Acevedo said there is no reason to

<https://www.wsj.com/articles/houston-blast-kills-at-least-two-11579886106>

2/3

1/29/2020

Industrial Blast in Houston Kills at Least Two - WSJ

believe the explosion was intentional.

Officials said air quality seemed fine. They didn't evacuate nearby residents.

A 2016 Houston Chronicle investigation found that industrial explosions and chemical releases occur about every six weeks in the greater Houston area. In November, explosions in nearby Port Neches blew out windows miles away and led to evacuations due to dangerous chemicals in the air.

Melissa Alvarez said Friday's explosion collapsed the ceiling in her son's room, shattered sliding-glass patio doors and sent ceiling fans and televisions hurtling to the floor. She huddled her children, 10 and 4, together and tried for 10 minutes to call 911 but couldn't get through, she said.

Ms. Alvarez, a Houston native who has owned her townhome seven years, said she knew accidents sometimes occurred at the city's petrochemical plants. Like many of her neighbors, she didn't think there was anything dangerous at the quiet grinding and manufacturing company.

About a third of a mile from the explosion, Bob Peugh said the blast blew out windows and cracked ceilings in the house he had owned 17 years.

"When you move to Houston, that's just part of the territory," he said.

Copyright © 2020 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

