



U.S. Chemical Safety and Hazard Investigation Board



The Chairman's  
FY 2020  
Chemical Safety Board  
IMPACT  
REPORT



## BY THE NUMBERS

**7** Deployments

**6** Investigators  
Hired

**15** Recommendation  
Status Changes

**4** Factual Updates

**1** Investigation Closed

## CHAIRMAN'S MESSAGE

The U.S. Chemical Safety Board (CSB) has successfully carried out its core mission work in FY 2020, despite an unprecedented impact from COVID-19. To this end, I am pleased to share that the CSB continued to deploy to chemical incidents, advance investigative factual and final reports, advance and close on critical safety recommendations, put forth high-priority safety messages and web-based products for maximum impact of our findings and recommendations, and to share these outcomes via public business meetings. In addition, to meet our mission most effectively, we have made significant progress in hiring and training a diverse team of investigators distributed throughout the nation. We continue to prioritize the safety of our employees in carrying out our mission.



**Katherine A. Lemos, PhD**  
*Chairman and CEO*

As Chairman, I am proud of the work that the agency has accomplished in FY 2020. Since starting late April, I have engaged heavily with stakeholders and our federal counterparts to communicate the CSB's vision and promote action on the agency's Critical Driver's List (CDL): participating in committee meetings, symposiums and conferences, delivering keynote presentations and accepting media interviews, visiting refineries, and discussing safety assessment processes and process safety practices across the communities in the chemical industry. I have also worked closely with the staff leadership and their teams, gaining an intimate understanding of CSB's day-day operations.

In FY 2021 I look forward to an even more productive set of outcomes, as we work transparently and with accountability in fulfilling the CSB's mission to "drive chemical safety change through independent investigations to protect people and the environment." Our top priorities are to:

- Focus on the mission: Continue delivering high-quality safety product to the community
- Drive efficiency of operations within the agency, expanding our workforce and improving business partnerships
- Strengthen stakeholder and federal counterpart relationships to maximize our resources

I look forward to both the challenges and progress which will come in this new year, and I continue to be impressed by the commitment from staff to achieving our goals and objectives. Already in these first few months of FY 2021, we have made unprecedented progress on advancing and closing safety recommendations. This type of dedication is essential to meeting our vision of **a nation safe from chemical accidents.**



## FY 2020 DEPLOYMENTS

Investigation	Location	Incident Date
Aghorn Energy Fatal Chemical Release	Odessa, TX	October 26, 2019
TPC Group Chemical Fire and Explosion	Port Neches, TX	November 27, 2019
Watson Grinding Massive Explosion and Fire	Houston, TX	January 24, 2020
Wendland 1H Well Fatal Explosion	Burleson County, TX	January 29, 2020
Bio-Lab Chemical Fire Following Hurricane Laura	Westlake, LA	August 27, 2020
Bio-Lab Chemical Decomposition	Conyers, GA	September 14, 2020
Evergreen Packaging Mill	Canton, NC	September 21, 2020



## SAFETY VIDEOS

The CSB develops computer-animated safety videos, which are available on the CSB website and on YouTube for public viewing. In FY 2020, the CSB released three incident animations, two safety videos and one safety message.



Superior, WI



Texas City, TX



Philadelphia, PA

- Incident animations include the 2018 refinery explosion in Superior, WI, the 2005 BP Texas City refinery explosion, and the 2019 fire and explosion at the PES refinery in Philadelphia, PA.
- A training video for the onshore drilling industry titled, “*Blowout in Oklahoma.*”
- A safety video titled, “*Uncovered Hazards: Explosion at the DeRidder Pulp and Paper Mill.*”
- Released a video safety message focusing on extreme weather and hurricane season



Animation still from “*Blowout in Oklahoma.*”



Animation still from “*Uncovered Hazards: Explosion at the DeRidder Pulp and Paper Mill.*”

## RECOMMENDATIONS

In FY 2020, the CSB:

- **closed 8 recommendations**
- **advanced 7 recommendations.**
- **83% of the agency’s recommendations are closed successfully.**

## KEY RECOMMENDATION CLOSED

On August 31, 2017, fires erupted at the Arkema Chemical Plant in Crosby, Texas, as a result of heavy rain from Hurricane Harvey. Plant equipment flooded and failed, causing chemicals stored at the facility to decompose and burn, releasing fumes and smoke into the air. Twenty-one people sought medical attention from reported exposures to the fumes. More than 200 residents living near the facility was evacuated and could not return home for a week.



*View of the 2017 fire at the Arkema Chemical Plant in Crosby, Texas*

The CSB's investigation found a significant lack of industry guidance on planning for flooding or other extreme weather events and called on the CCPS to produce such guidance so that incidents like the one at the Arkema plant can be prevented. In FY 2020, the CCPS released that guidance, titled "*Assessment of and Planning for Natural Hazards*," which provides an updated approach for assessing natural hazards, the means to address the hazards, and emergency planning information.

The CSB issued a **safety alert** and **video safety message** to broadly communicate the CCPS guidance and outline specific procedures to assure safe restarts following a severe weather event. For example, facilities are urged to follow established startup procedures and checklists, as well as to recognize that "human performance may be compromised due to crisis conditions." This guidance, and the CSB's outreach to promote it, is a prime example of how the CSB and its recommendations have a **national** lifesaving impact across the industry.

## ADDITIONAL ADVOCACY:

Throughout FY 2020, the CSB targeted its outreach to advance strategic safety topics described in the agency's *Drivers of Critical Chemical Safety Change Program*. This program identifies the most critical chemical safety improvements needed to protect both people and the environment. The CSB staff and board members use this program to target outreach opportunities and optimize the agency's limited resources to address the most critical chemical hazards facing the nation. In addition to outreach events, the following documents were published to promote the CSB's investigative work:

**April 2020** - "*CSB Best Practice Guidance for Corporate Boards of Directors and Executives in the Offshore Oil and Gas Industry for Major Accident Prevention,*" which targeting safety improvements at the executive level.

**May 2020** - "*Implementation of a Safety Management System is Key to a Safer Chemical Industry,*" which highlighted positive safety changes resulting from an investigation into a fatal explosion at an Airgas facility in Pascagoula, Florida.

## COMPLETED INVESTIGATIONS

In December of 2019 the U.S. Chemical Safety Board (CSB) released its [final investigation report](#) on two pressure vessel explosions that occurred at the Midland Resource Recovery (MRR) facility in Philippi, West Virginia. Two workers were fatally injured, and another was severely injured during the first incident, which occurred on May 24, 2017. During the CSB's investigation of the first explosion, the MRR facility experienced a second explosion on June 20, 2017. The second explosion fatally injured a company contractor employed to investigate the May 24th incident.

The CSB's report included the following key lessons:

- Companies need a robust safety management system in place to prevent reactive chemical incidents. If a process has the potential for uncontrolled chemical reactions to occur, the company should conduct a formal evaluation of the reactive chemistry, perform a hazard analysis, and ensure that sufficient safeguards are in place to prevent reactive chemical incidents.
- Companies should have a thorough and complete understanding of their reactive chemistry under design conditions and under all foreseeable abnormal conditions. For example, companies should avoid treating uncharacterized waste materials with sodium hypochlorite because of the potential explosive hazards associated with its complex chemistry.



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## ONLINE OUTREACH



### YouTube

@USCSB: The CSB's safety videos have totaled over 30 million views with more than 154,000 subscribers



### Twitter

@chemsafetyboard: more than 8,500 followers



### Facebook

@US Chemical Safety Board:  
more than 15,100 likes and 16,300 followers



### Website - [www.csb.gov](http://www.csb.gov)

Our website provides information on investigations, status of recommendations and information on Board activities.