

**U.S. Chemical Safety and
Hazard Investigation Board**

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July 12, 2023

Federal Emergency Management Agency
500 C Street S.W.
Washington, DC 20473

RE: Docket Number: FEMA-2023-0009-0001

Dear Sir or Madam:

The U.S. Chemical Safety and Hazard Investigation Board (CSB) supports the Federal Emergency Management Agency's (FEMA) Notice and Request for Information (RFI) concerning the implementation of the Community Disaster Resilience Zones Act of 2022 (CDRZ). Additionally, the CSB commends FEMA for soliciting input on potential updates to the methodology and data used for the National Risk Index (NRI).

As FEMA updates the methodology and data for the NRI, the CSB urges FEMA to include the location of chemical facilities and the proximity of chemical facilities to surrounding communities as factors to be considered in the NRI.

In recent years, the CSB has investigated two incidents where catastrophic weather events presented serious hazards to chemical facilities that, in turn, impacted the surrounding communities. These incidents are briefly described below:

- 1) On August 24, 2017, Hurricane Harvey, a Category 4 hurricane, made landfall in southeast Texas. The storm produced unprecedented amounts of rainfall over southeast Texas and southwest Louisiana, causing significant flooding. The extensive flooding caused the Arkema, Inc. chemical plant in Crosby, Texas, to lose power, backup power, and critical organic peroxide refrigeration systems. The organic peroxide products inside a refrigerated trailer decomposed, causing the peroxides and the trailer to burn. Twenty-one people sought medical attention from exposure to fumes generated by the decomposing products when the vapor traveled across a public highway adjacent to the plant. Ultimately, three fires burned at the plant over the next few days, resulting in the combustion of over 350,000 pounds of organic peroxide. Over 200 residents were evacuated from surrounding communities for more than a week and multiple highways were shut down. The CSB investigated the incident and found that Arkema did not

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effectively analyze their susceptibility to extreme weather events.¹ In response to the CSB's report and recommendations, the Center for Chemical Process Safety (CCPS) produced a guidance document to assist facilities that handle, produce, and store hazardous chemicals with evaluating extreme weather risks and planning for natural disasters.²

- 2) On August 27, 2020, extreme winds from Category 4 Hurricane Laura caused severe damage to buildings storing trichloroisocyanuric acid³ (TCCA) at the Bio-Lab, Inc. Lake Charles (Bio-Lab) facility in Westlake, Louisiana. After the buildings at the Bio-Lab facility were damaged by Hurricane Laura winds, water contacted the TCCA stored inside, initiating a chemical reaction and the subsequent decomposition of the TCCA. The heat produced from the reactions initiated a fire, and the decomposition reaction released a large plume of hazardous gases, including toxic chlorine, into the air. The TCCA decomposition reaction destroyed several structures at the Bio-Lab facility. A portion of nearby Interstate 10 was closed for over 28 hours, and a shelter-in-place order was issued due to the release of the toxic gases. The CSB investigated the incident and found that Bio-Lab did not learn the importance of preparing for extreme weather after the 2017 Arkema incident in Crosby, Texas; did not implement the CCPS guidance developed following the Arkema incident; and, as a result, was unprepared for the winds produced by Hurricane Laura.⁴

In 2022, the U.S. Government Accountability Office (GAO) issued a report, *Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change*.⁵ The GAO stated in the report that over 11,000 facilities across the nation have extremely hazardous chemicals in amounts that could harm people, property, or the environment if accidentally released. The report also referenced Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, which was issued on January 27, 2021, by President Joseph R. Biden, and calls for a government-wide approach to “drive assessment, disclosure, and mitigation of...climate-related risks in every sector of our economy...”⁶

The CSB has observed that chemical facilities are often located near communities, including those that are socially and/or economically disadvantaged. The CSB has investigated incidents where extreme weather events have caused serious incidents at

¹ See Final Report: Arkema Inc. Chemical Plant Final Investigation Report at <https://www.csb.gov/arkema-inc-chemical-plant-fire/> (accessed June 28, 2023).

² CCPS Monograph: Assessment of and planning for natural hazards. <https://www.aiche.org/sites/default/files/html/536181/files/downloads/Assessment%20of%20and%20planning%20for%20Natural%20Hazards.pdf> (accessed June 28, 2023).

³ TCCA is a chlorinating agent often used as a sanitizer to kill algae and bacteria in large volumes of water, predominantly swimming pools and hot tubs, and sold in tablet, stick, and granular forms.

⁴ See Final Report: Trichloroisocyanuric Acid Reaction, Decomposition, and Toxic Gas Release at Bio-Lab, Inc. at <https://www.csb.gov/bio-lab-lake-charles-chemical-fire-and-release/> (accessed June 28, 2023).

⁵ Available at <https://www.gao.gov/products/gao-22-104494> (accessed June 28, 2023).

⁶ Available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/> (accessed June 28, 2023).

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these facilities, and, as a result, residents of nearby communities have been negatively impacted.

The CSB believes that proximity to a chemical facility strongly impacts all three risk components of the NRI.

Additionally, the U.S. Environmental Protection Agency (EPA) requires owners or operators of facilities to report specific quantities of extremely hazardous substances and other hazardous chemicals under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). Additionally, under the Risk Management Program, which implements the 1990 amendments of Section 112(r) of the Clean Air Act, the EPA requires owners or operators of facilities with large quantities of specific toxic and flammable substances to submit a Risk Management Plan. Both sets of data contain location information which can be used to determine proximity of extremely hazardous, toxic, and flammable substances to communities. The CSB therefore urges FEMA to use the information collected by the EPA to better inform the NRI in future updates.

The CSB believes that the inclusion by FEMA of the location of chemical facilities and the proximity of chemical facilities to surrounding communities as factors to be considered in the NRI is needed to help protect communities from chemical disasters caused by extreme weather events. FEMA also should utilize the data collected by EPA when updating the NRI.

We thank you for this opportunity to provide comments. If you have any questions regarding our comments, or if we may be of further assistance, please contact Charles B. Barbee, Director of Recommendations, at 202-261-7621 or via email at charles.barbee@csb.gov.

Sincerely,



Steve Owens
Chairperson



Sylvia E. Johnson, Ph.D.
Board Member



Catherine J.K. Sandoval
Board Member

cc: Stephen J. Klejst, Executive Director - Investigations & Recommendations, CSB