



# U. S. Chemical Safety and Hazard Investigation Board

## RECOMMENDATIONS STATUS CHANGE

### SUMMARY

<b>Report:</b>	Arkema Inc. Chemical Plant Fire
<b>Recommendation Number:</b>	2017-08-I-TX-R2
<b>Date Issued:</b>	May 24, 2018
<b>Recipient:</b>	Arkema Inc.
<b>New Status:</b>	Closed—Acceptable Action
<b>Date of Status Change:</b>	January 29, 2020

#### Recommendation Text:

*Within 18 months, develop a policy requiring that Arkema and its subsidiaries that manufacture organic peroxides or that have processes which involve more than the threshold quantities of highly hazardous chemicals (HHC) periodically (corresponding with PHA cycle), analyze such facilities to determine whether they are at risk for extreme weather events such as hurricanes or floods.*

#### Board Status Change Decision:

##### A. Rationale for Recommendation

On August 24, 2017, Hurricane Harvey, a Category 4 hurricane, made landfall in southeast Texas. Extensive flooding caused by heavy rainfall from the hurricane exceeded the equipment design elevations and caused the plant to lose power, backup power, and critical organic peroxide refrigeration systems. Consequently, Arkema used its standby refrigerated trailers to keep the organic peroxide products cool. On August 31, 2017, organic peroxide products stored 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 travelled across a public highway adjacent to the plant. Emergency response officials initially decided to keep this highway open because this road served as an important route for hurricane recovery efforts. Over the next several days, a second fire and a controlled burn conducted by the Unified Command consumed eight more trailers holding Arkema's remaining organic peroxide products that required low-temperature storage. Over the course of the three fires, in excess of 350,000 pounds of organic peroxide combusted. As a result, more than 200 residents living within 1.5 miles of the facility who had evacuated the area could not return home for a week.

As a part of its investigation, the U.S. Chemical Safety and Hazard Investigation Board (CSB) examined Arkema corporate policies pertaining to evaluating process safety risks due to weather events and determined that while the existing corporate policy addressed flooding, it was insufficient to provide a specific or a sufficiently conservative level of action to protect against the hazards posed by the magnitude of flooding that the Crosby facility experienced during Hurricane Harvey. Consequently, the Board issued a recommendation to Arkema to enhance their corporate policy for evaluating risks posed by extreme weather events.

##### B. Response to the Recommendation

In November 2019, Arkema Inc. responded to the CSB that it had developed a new corporate policy entitled "Natural Hazards Assessment" that describes the methodology that Arkema now uses for the assessment of natural hazards in order to determine acceptability of existing facilities against minimum

designs or regulations for specified natural disasters. The company provided relevant documents related to that policy to the CSB for review.

C. Board Analysis and Decision

After review of the above information submitted by Arkema, the Board voted to change the status of **CSB Recommendation No. 2017-08-I-TX-R2** to: **“Closed - Acceptable Action.”**