



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	LyondellBasell La Porte Fatal Chemical Release
Recommendation Number:	2021-05-I-TX-R5
Date Issued:	May 17, 2023
Recipient:	American Petroleum Institute (API)
New Status:	Open – Awaiting Response or Evaluation/Approval of Response
Date of Status Change:	Not Applicable – Initial Status

Recommendation Text:

Revise API Standard 599 Metal Plug Valves—Flanged, Threaded, and Welding Ends as follows:

- a. State that there have been multiple incidents in which workers have inadvertently removed pressure-retaining components from plug valves while workers were attempting to remove the valve’s actuator or gearbox.*
- b. Recommend that facilities using plug valves establish written procedures detailing the correct way to remove the plug valve actuator or gearbox for each specific plug valve design at the facility.*
- c. For existing plug valves, require facilities to clearly mark all pressure-retaining components (for example, with paint, accompanying warning signs, etc.). Work with ASME and VMA to ensure a consistent methodology is specified across both API and ASME standards.*
- d. Require that new plug valves be designed, consistent with Prevention through Design principles, to prevent the inadvertent removal of pressure-retaining components when removing the actuator or gearbox. Evaluate past plug valve incidents, and the associated plug valve designs involved in those incidents, when formulating a new plug valve design. Work with ASME and VMA to ensure a consistent methodology is specified across both API and ASME standards.*

Board Status Change Decision:

A. Rationale for Recommendation

On July 27, 2021, three contract workers at the LyondellBasell La Porte Complex in La Porte, Texas were removing an actuator from a plug valve in the site’s acetic acid unit. While attempting to remove the actuator, the pressure retaining components of the valve were inadvertently removed causing the eventual ejection of the plug from the valve body and a release of acetic acid.

Approximately 164,000 pounds of acetic acid mixture was released from the unit. All three contract workers were sprayed with the acetic acid mixture fatally injuring two of the workers

and seriously injuring the third. An additional twenty-nine personnel were transported to offsite medical facilities for evaluation and treatment.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including a lack of procedures, hazard awareness, training, as well as the potential for improvement related to plug valve design. As a result of these findings, the CSB issued one recommendation to the American Petroleum Institute (API). This status change summary addresses **CSB Recommendation No. 2021-05-I-TX-R5**.