



U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATIONS STATUS CHANGE SUMMARY

Report:	MGPI Processing, Inc. Toxic Chemical Release
Recommendation Number:	2017-01-I-KS-R1
Date Issued:	January 3, 2018
Recipient:	MGPI Processing, Inc.
New Status:	Closed – Acceptable Action
Date of Status Change:	May 11, 2018

Recommendation Text:

Commission an independent engineering evaluation of the Mod B building and ventilation system and, based on the results of that evaluation, implement design changes and controls to protect occupants from a chemical release. At a minimum, the evaluation should assess the effectiveness of the building ventilation system, indoor and outdoor sources of chemicals, air intake locations, contaminant control methods such as filtration and removal, contaminant monitoring devices, and automation. The engineering evaluation of the ventilation system should consider airborne contaminants during normal operations as well as spills, releases, and chemicals produced from unintended reactions and inadvertent mixing.

Board Status Change Decision:

A. Rationale for Recommendation

On October 21, 2016, a chemical release occurred at the MGPI Processing, Inc. (MGPI) plant in Atchison, Kansas. The release occurred when a chemical delivery truck, owned and operated by Harcros Chemicals, was inadvertently connected to a tank containing incompatible material. The plume generated by the chemical reaction led to a shelter-in-place order for thousands of residents. At least 120 employees and members of the public sought medical attention. During the release, Mod B building personnel were not able to shut down ventilation in the control room or access appropriate respiratory protection and were forced to evacuate. This addresses one of two recommendations that the U.S. Chemical Safety and Hazard Investigation Board (CSB) issued to MGPI to address those issues.

B. Response to the Recommendation

On April 3, 2018, MGPI informed the CSB that they retained a third-party professional engineering firm to conduct an independent engineering evaluation of the Mod B facility building and ventilation system. They relocated and rerouted the heating, ventilation, and air conditioning (HVAC) air intake for the control room away from the chemical tank yard to a position on the southeast corner of the Mod B facility building roof; and moved the Mod B facility motor control center (MCC) room intake and the outlet fan for the make-up air so that they are further away from the chemical tank yard.

Additionally, MGPI installed actuated dampers in the control room inlet ductwork as well as the inlets to the reactor room and MCC room which serve as a physical barrier to air contaminants. The dampers were tied into the Emergency Shutdown Device (ESD) system. Additionally, new ESD buttons were installed at the following locations: chemical unloading pad, the control room, and outside the egress of the Modified B facility control room. Pre-existing ESD buttons at the Modified B facility are tied into the dampers as well.

MGPI also implemented an interlock system tied into air contaminant sensors and alarms that trigger engineering controls when activated. While the current air sensors include Phosphorous Oxide and Propylene Oxide (“PO”), these systems are tied to signal alarms at different levels dependent upon the concentration detected. MGPI added a PO interlock control that prevents any further unloading of PO into the tank farm system if a PO air sensor alarms. In addition, MGPI engineered the system so that if a PO sensor activates, this triggering event will automatically engage the deluge system in the PO tank containment area to prevent and mitigate exposures to plant personnel or offsite receptors.

C. Board Analysis and Decision

As MGPI has met the requirements of the CSB Recommendation, the Board voted to change the status of **CSB Recommendation No. 2017-01-I-KS-R1** to: **“Closed – Acceptable Action.”**