



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

Report:	Williams Olefins Case Study
Recommendation Number:	2013-3-I-LA-R2
Date Issued:	October 19, 2016
Recipient:	Williams Olefins Geismar Facility (Williams)
New Status:	Closed – Acceptable Action
Date of Status Change:	June 19, 2017

Recommendation Text:

Develop and implement a permanent process safety metrics program that tracks leading and lagging process safety indicators. Consider available industry guidance, such as the guidance presented in the Center for Chemical Process Safety (CCPS) book Guidelines for Process Safety Metrics and the example metrics provided in the book's accompanying CD. Design this metrics program to measure the effectiveness of the Williams Geismar Olefins Facility's process safety management programs. Include the following components in this program:

- a) *Measure the effectiveness of the Williams Geismar Management of Change (MOC) program, including evaluating whether MOCs were performed for all applicable changes, the quality of MOC review, and the completeness of the MOC review;*
- b) *Measure the effectiveness of the Williams Geismar Pre-Startup Safety Review (PSSR) program, including the quality of the PSSR review and the completeness of the PSSR review;*
- c) *Measure the effectiveness of the Williams Geismar methods to effectively and timely complete action items developed as a result of Process Hazard Analyses (PHAs), Management of Change (MOC), incident investigations, audits, and safety culture assessments; and*
- d) *Measure the effectiveness of the Williams Geismar development and implementation of operating procedures.*

Develop a system to drive continual process safety performance improvements based upon the data identified and analysis developed as a result of implementing the permanent process safety metrics program.

Board Status Change Decision:

A. Rationale for Recommendation

On June 13, 2013, a fire and explosion occurred at the Williams Olefins, Inc. (Williams), Facility located in Geismar, Louisiana, when a reboiler, which supplied heat to a propylene fractionator column, ruptured due to an overpressurization event while it was isolated from its pressure relief device. Two Williams employees were killed and 167 employees were injured. The 167 injured employees consisted of three Williams employees and 164 contractor employees.

As a part of its investigation, the United States Chemical Safety and Hazard Investigation Board (CSB) examined the facility's process safety management program as well as the facility's process safety culture. The CSB found significant weaknesses in the Williams process safety culture that were demonstrated by a series of deficiencies in implementing the site's process safety management programs as well as weaknesses in the written programs themselves. These deficiencies included: (1) poorly conducted Management of Change and Pre-Startup Safety Reviews; (2) ineffective safeguard selections, insufficient safeguard evaluation requirements, and poor implementation of action items in Process Hazard Analyses; (3) inadequate focus on developing and maintaining operating procedures; and (4) uncontrolled field equipment manipulations without a hazards assessment prior to the development of a procedure.

To address these areas, the CSB Board issued three recommendations aimed at improving the facility's process safety management program and process safety culture. This status change summary only addresses the recommendation to improve the facility's process safety metrics program (2013-3-I-LA-R2).

B. Response to the Recommendation

In April of 2017, Williams responded to the CSB that it had developed and implemented twenty metrics to evaluate and monitor the process safety management program at its Geismar facility. The facility utilized metric parameters listed in the Center for Chemical Process Safety (CCPS) publications (e.g., "Guidelines for Process Metrics" and "Process Safety Leading and Lagging Metrics") for a number of the chosen metrics. In addition, the facility is utilizing environmental, health, and safety (EHS) management system software to assist in compilation and review of these metrics and provided representative examples of reports generated by this software.

C. Board Analysis and Decision

Based on the information submitted by Williams, the Board voted to change the status of CSB Recommendation No. 2013-3-I-LA-R2 to: **"Closed—Acceptable Action"**