



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

Report:	Veolia Environmental Services Flammable Vapor Explosion and Fire
Recommendation Number:	2009-10-I-OH-R2
Date Issued:	July 21, 2010
Recipient:	Veolia ES Technical Solutions LLC (Veolia)
New Status:	Open - Unacceptable Response/No Response Received
Date of Status Change:	June 27, 2019

Recommendation Text:

During the rebuild, design and install a closed relief system and develop a policy for safe venting (e.g., use of a flare) for relief systems to the atmosphere.

Board Status Change Decision:

A. Rationale for Recommendation

On May 4, 2009, flammable vapor (e.g., tetrahydrofuran (THF), a flammable, organic solvent) released from a solvent recovery process ignited and exploded at a state-permitted treatment, storage and disposal facility (TSDF) that provided waste disposal services for industrial and municipal customers operated by Veolia ES Technical Solutions LLC (Veolia) in West Carrollton, Ohio. The initial blast injured four workers, two seriously. Multiple subsequent explosions significantly damaged the site; nearby residences and businesses also sustained considerable damage.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigation concluded that uncontrolled venting of THF allowed flammable vapors to accumulate to explosive concentrations outside the process area. The investigation found that all relief valves and rupture discs for pressure vessels at the facility relieved directly to the atmosphere. The CSB issued three recommendations to Veolia. This status change summary addresses Recommendation No. 2009-10-I-OH-R2.

B. Response to the Recommendation

Veolia informed the CSB that during the retrofit of the West Carrollton facility that vents and other relief devices were evaluated during the design process to ensure that potential discharges are directed to safe locations. The pressure safety valves (PSVs) for each piece of equipment in the process area were sized by considering the various relief scenarios and calculated using API Standard 521, *Pressure-relieving and Depressuring Systems*. Veolia stated that the PSVs for each unit were connected to a header system that runs to the inlet of the Blowdown tank. A constant nitrogen purge follows through the headers to prevent flammable vapors collecting. A low flow alarm on each nitrogen line alerts the operator if there is a failure in the nitrogen supply. The vent from the Blowdown tank is open to the atmosphere and discharges

approximately 38 feet above ground level. Veolia supplied the CSB with design data, calculations and drawings for the PRVs, header system and the blowdown drum/stack plus a stack dispersion study.

C. Board Analysis and Decision

After a thorough analysis of the information submitted by Veolia, the CSB determined that the emergency relief/blowdown system installed during the retrofit of the West Carrollton facility does not meet the intent of the CSB Recommendation and in its current configuration does not satisfy the requirements outlined in API 521. Consequently, the Board voted to change the status of CSB Recommendation No. 2009-10-I-OH-R2 to: “Open – Unacceptable Response/No Response Received.”