



## Chemical Safety and Hazard Investigation Board

OFFICE OF GENERAL COUNSEL

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Memorandum

To: Board Members

From: Richard C. Loeb *RC*

Cc: Leadership Team  
Mark Kaszniak  
Christina Morgan

Subject: Board Action Report – Notation Item 2013-34

Date: April 29, 2013

On April 10, 2013, the Board approved Notation Item 2013-34, thereby designating Recommendation 2009-10-I-OH-R5, to Center for Chemical Process Safety (from the Veolia Environmental Services Investigation), with the status of Closed – Acceptable Action.

### Voting Summary – Notation Item 2013-34

**Disposition: APPROVED**

**Disposition date: April 10, 2013**

	Approve	Disapprove	Calendar	Not Participating	Date
<b>R. Moure-Eraso</b>	X				4/10/2013
<b>M. Griffon</b>	X				4/19/2013
<b>B. Rosenberg</b>	X				4/10/2013



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

<b>Report:</b>	<b>Veolia ES Technical Solutions, LLC: Explosion and Fire in West Carrollton, Ohio</b>
<b>Recommendation Number:</b>	<b>2009-10-I-OH-R5</b>
<b>Date Issued:</b>	<b>July 21, 2010</b>
<b>Recipient:</b>	<b>Center for Chemical Process Safety</b>
<b>New Status:</b>	<b>R5: Closed-Acceptable Action</b>
<b>Date of Status Change:</b>	<b>April 10, 2013</b>

### Recommendation Text:

*Revise control room siting guidelines to reflect the diversity of characteristics that Class 1B flammable liquids can exhibit (e.g., heavy vapor, and plant areas that provide congestion and confinement).*

### Board Status Change Decision:

#### A. Rationale for Recommendation

On May 4, 2009, an explosion and fire occurred at the Veolia ES Technical Solutions LLC (Veolia) facility in West Carrollton, Ohio. The facility provided hazardous waste services for industrial and municipal customers and was a state-permitted treatment, storage and disposal facility (TSDF). On the day of the incident, tetrahydrofuran (THF), a flammable organic solvent, was released from a solvent recovery process in a tank farm area. Uncontrolled venting of THF allowed flammable vapors to accumulate to explosive concentrations outside the process equipment, and the gas subsequently ignited. The initial blast injured four workers, two seriously. Multiple subsequent explosions significantly damaged the site, and nearby residences and businesses also sustained considerable damage.

The CSB investigation concluded that two natural gas-fired boilers in a lab/operations building located 30 feet away from the solvent recovery process were the likely sources of ignition. Unlike the solvent recovery process, the lab/operations building was not designed with explosion-proof electrical equipment.

As part of its investigation, the CSB reviewed the Center for Chemical Process Safety (CCPS) publication, "Guidelines for Evaluating Process Plant Buildings for External Explosions and Fires" (1996), with specific focus on the siting of buildings in areas processing Class 1B flammable liquids, such as THF. The information found in the publication suggested that Class 1B liquids do not pose an explosion risk. As the Veolia incident demonstrates, however, there are situations where Class 1B liquids can pose an explosion risk, and these circumstances should be taken into consideration when conducting a hazard assessment. The CSB therefore recommended that CCPS revise its siting guidelines to call for consideration of the physical hazards that Class 1B flammable liquids may pose.

B. Response to the Recommendation:

CCPS reported to the CSB that they revised and issued a second edition of "Guidelines for Evaluating Process Plant Buildings for External Explosions, Fires and Toxic Releases." The revised publication provides improved guidance for building siting analysis by calling for an examination of the inherent properties and quantities of chemicals to determine if there is an explosion, fire or toxic hazard. This information is then used in conjunction with consideration of site conditions such as nearby congestion, confinement, and ignition sources to determine if there are any serious consequences to property and human health and safety.

C. Board Analysis and Decision:

The Board reviewed CCPS' response and found their actions consistent with the intent of the CSB's recommendation. Therefore, the Board voted to change the status of Recommendation No. 2009-10-I-OH-R5 to: "Closed- Acceptable Action."