

Didion Milling: Factual Investigative Update

Cambria, WI, May 31, 2017

Facilitator Resources

See the overall CSB Facilitator Guide here: <https://mwc.umn.edu/>

Link to 2006 Combustible Dust Study by CSB:

https://www.csb.gov/assets/1/20/dust_final_report_website_11-17-06.pdf?13862

Link to the CSB Investigative Update for the Didion explosion:

https://www.csb.gov/assets/1/20/final_didion_factual_investigative_update.pdf?16220. The investigation is on-going; this exercise will be updated when it is complete. As the report is 13 pages, it is recommended that copies be available at each table, and participants access the report electronically. There is no 2-page summary.

OSHA web resource:

<https://www.osha.gov/dsg/combustibledust/guidance.html>

Graphics taken from the report are on the last page of this Guide.

Dust explosion pentagon

Table of particle sizes

Burning increases with decreasing size (log, kindling, explosion)

Mechanism of dust fire/explosion

Key Points and Discussion Questions and Answers follow below.

Key Points

- Five killed, 14 injured as a result of explosions in a dry corn milling—everyone on the night shift.
- There had not been a dust fire previously, but there were reports of belts burning.
- Workers smelled smoke, but one reported that it did not smell like corn. They explored to find the source.
- One of the Millers radioed the control room to shut down.
- Superintendent directed the Miller to get out.
- Communication was on three different radio channels.
- Superintendent spoke no Spanish, but workers spoke in Spanish during the emergency.
- 200 emergency responders (fire, rescue, EMS) participated; termination occurred June 2, 2 p.m. without additional injuries.

Questions

1. What would have helped the workers prior to the first explosion?
2. What challenges did the Superintendent face?
3. Show how the dust explosion pentagon can be applied in this example.
4. What questions would you ask now?

Representative Answers

1. A plan for investigation to a possible fire including frequent check in at the Control Room at each step of the search for the source, buddy system. Would practicing various escape routes have decreased the time to exit? Should there have been an evacuation of non-essential personnel earlier? Why did someone report it did not smell like corn, if there had not been a corn fire?
2. No prior dust explosion, so there was skepticism—was it justified based on past experience? Evacuation may have been delayed due to language barrier.
3. Fuel—Corn
Heat/ignition source—in the gap mill, but source not identified
Oxygen—air
Dispersion—product was moving in the wrong direction due to pressure
Confinement—Milling unit, Mill structure
4. Was HazCom training in English or Spanish?
Had fire/EMS trained with the plant?

Acknowledgement

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