



A Brief CSB Overview

Combustible Dust Flame Front Propagation in Pipelines – Didion Milling

P2SAC Fall 2023 Conference

December 6, 2023

Purdue University, West Lafayette, IN

Melinda M. Hartz, P.E.

Chemical Incident Investigator



The CSB



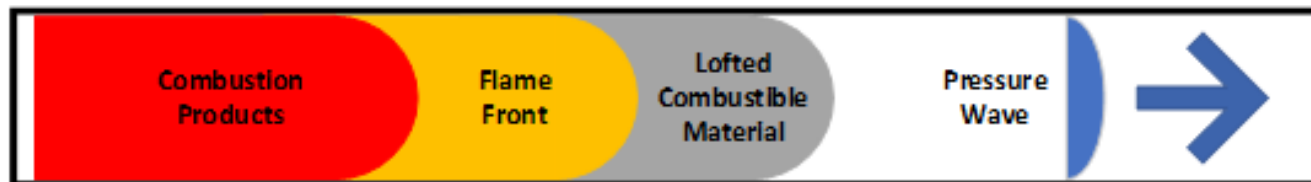
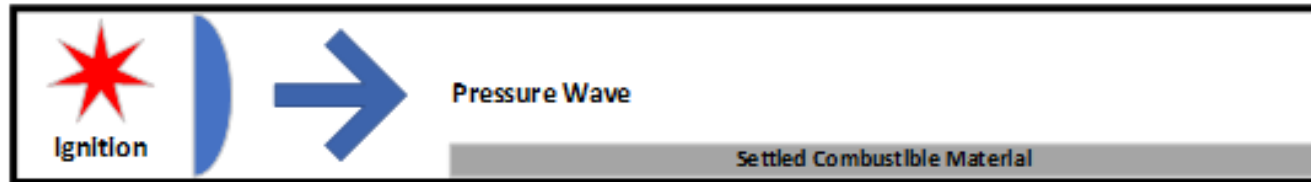
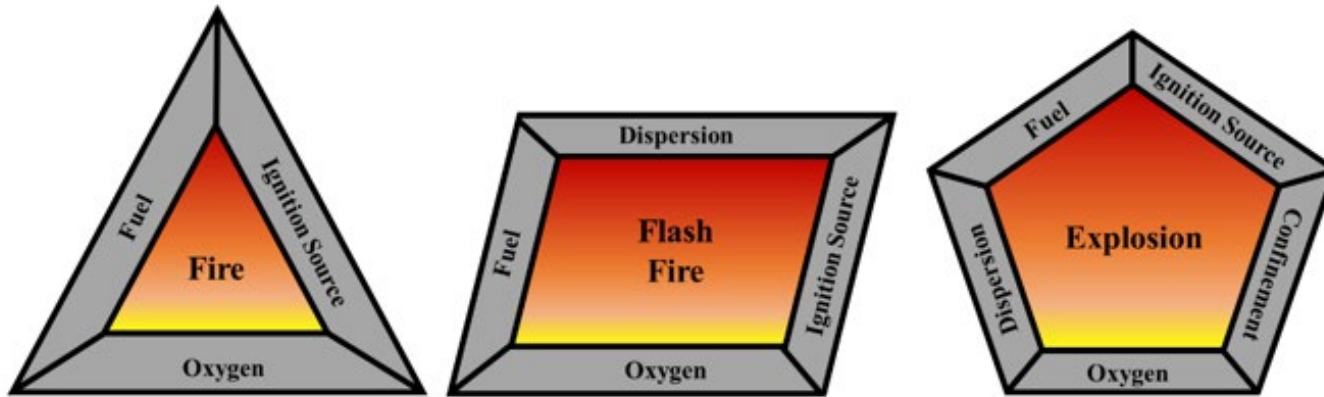
- **Independent Federal Agency**
- **Investigate only – not an enforcement agency**
- **Scope is for stationary sources**
- **5-member Board (including Chairperson)**
- **Mission** – Drive chemical safety excellence through independent investigations to protect communities, workers, and the environment.
- **25th** anniversary this year

2023 Investigations Closure Plan



	INCIDENT NAME	INCIDENT LOCATION	INCIDENT DATE	
First Half of 2023	Intercontinental Terminals Company (ITC)	Deer Park, TX	3/17/2019	Published
	Watson Manufacturing and Grinding	Houston, TX	1/24/2020	Published
	Bio-Lab	Lake Charles, LA	8/27/2020	Published
	Optima-Belle LLC	Belle, WV	12/9/2020	Published
	Wacker Polysilicon North America	Charleston, TN	11/13/2020	Published
	LyondellBasell	LaPorte, TX	7/27/2021	Published
Second Half of 2023	KMCO	Crosby, TX	4/2/2019	
	Yenkin-Majestic	Columbus, OH	4/8/2021	Published
	Wendland 1H Well	Burleson County, TX	1/29/2020	
	Didion Milling	Cambria, WI	5/31/2017	Published
	Foundation Food Group	Gainesville, GA	1/28/2021	

Didion Milling



Propagation through Pipelines

Cruz Redman, P.E., CSP
Melinda Hartz, P.E.



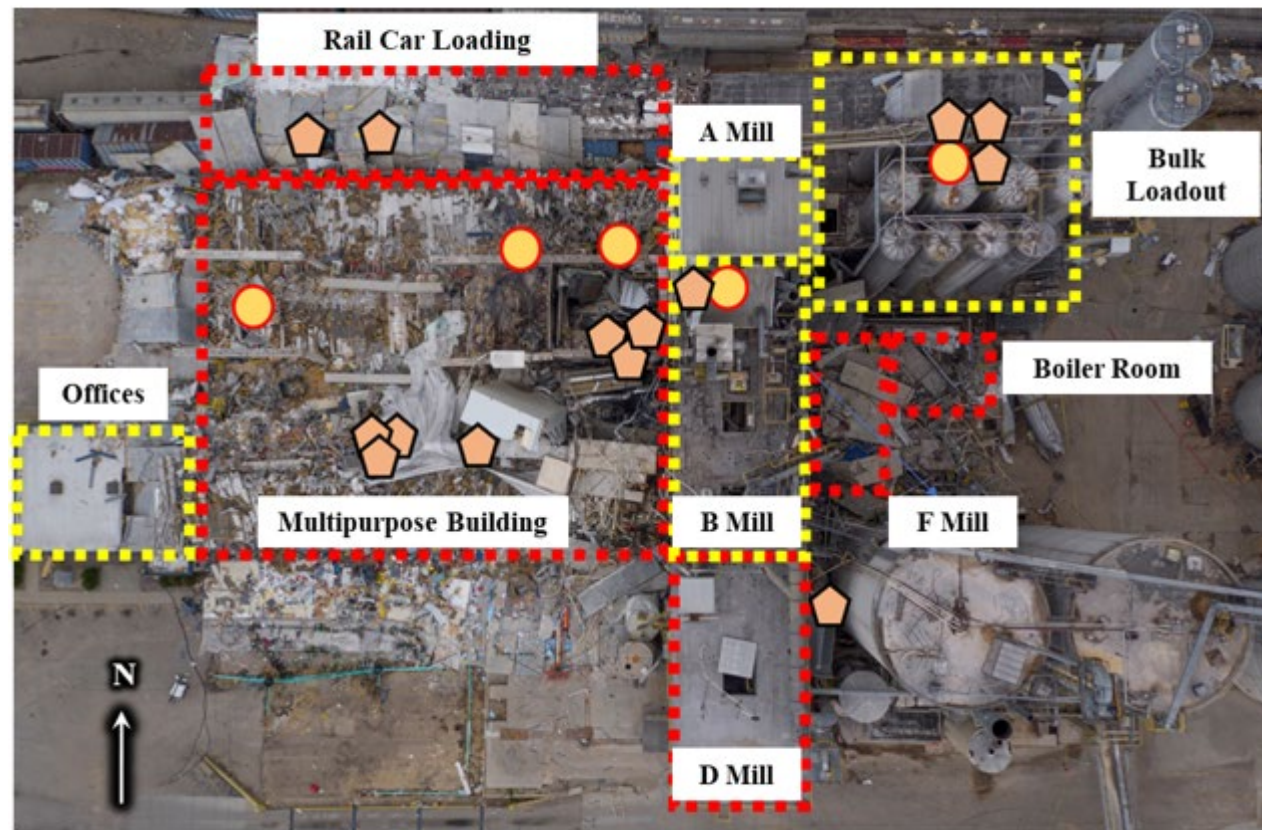
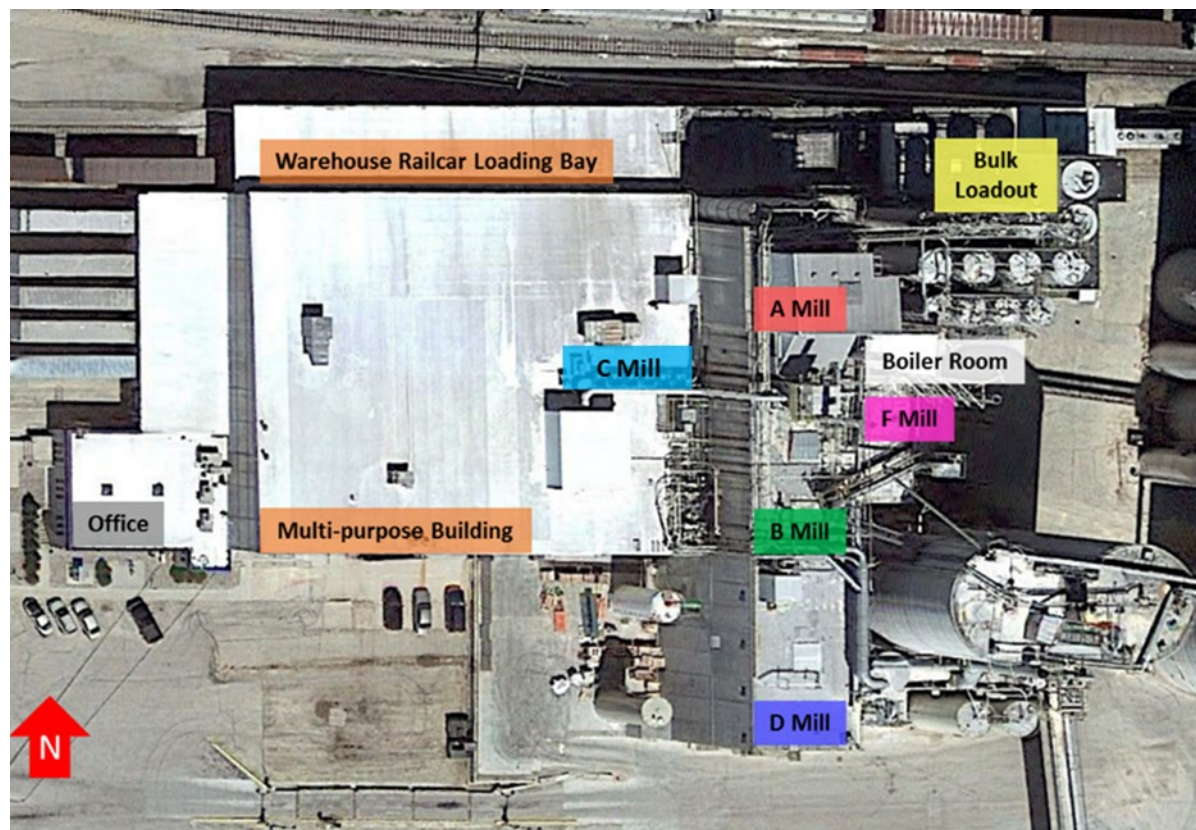
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Propagation – relief alone



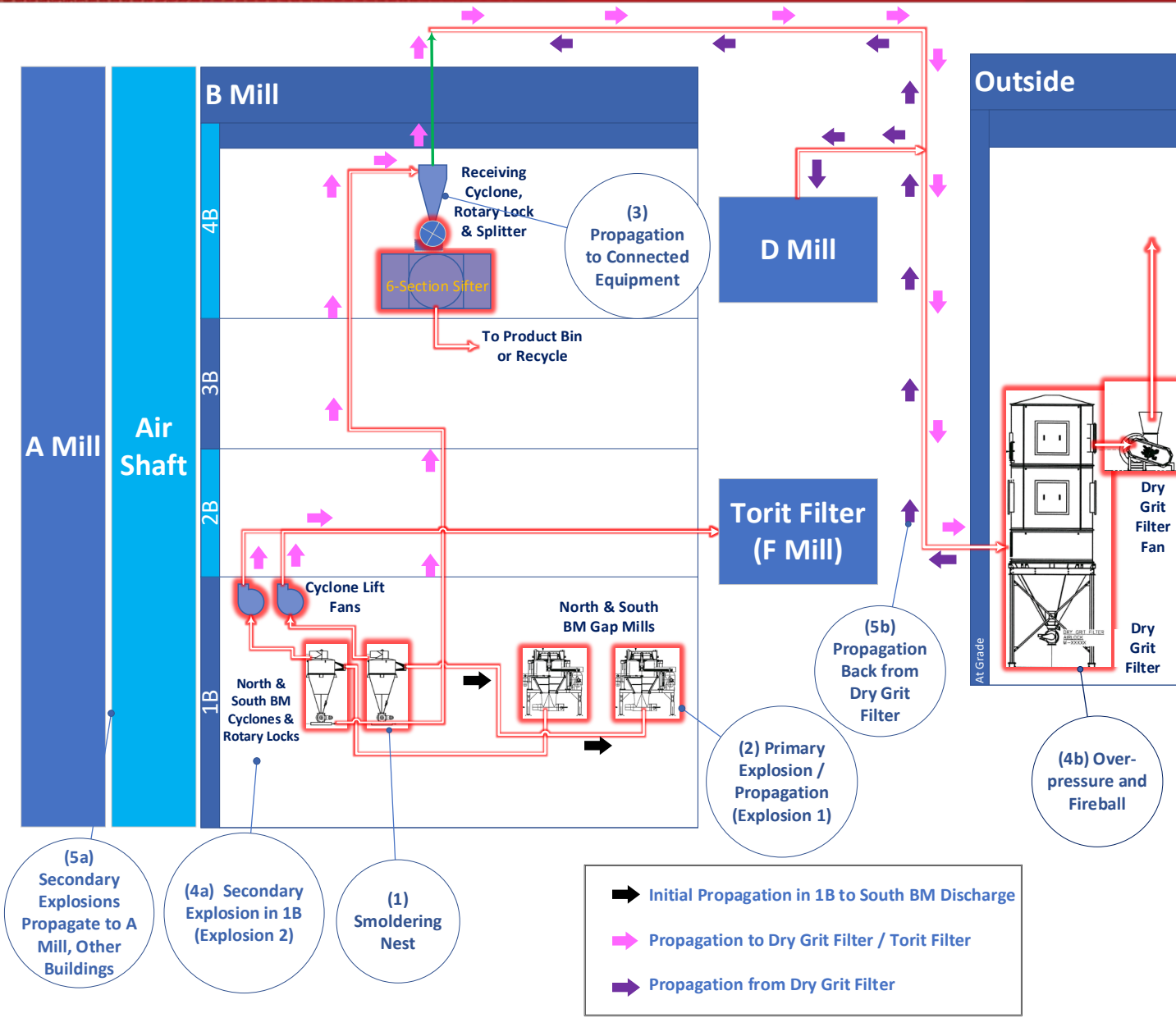
Credit:
Fike

What Happened?



Credit: Google Earth

What Happened?



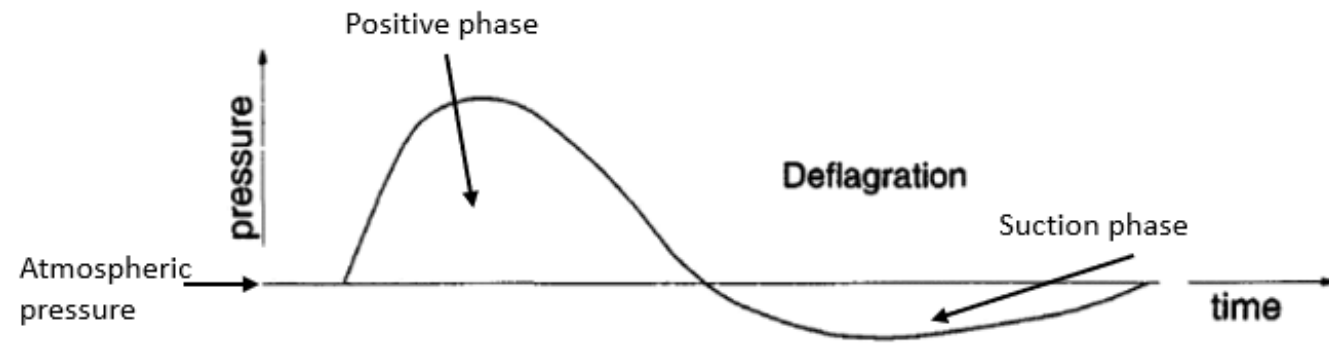
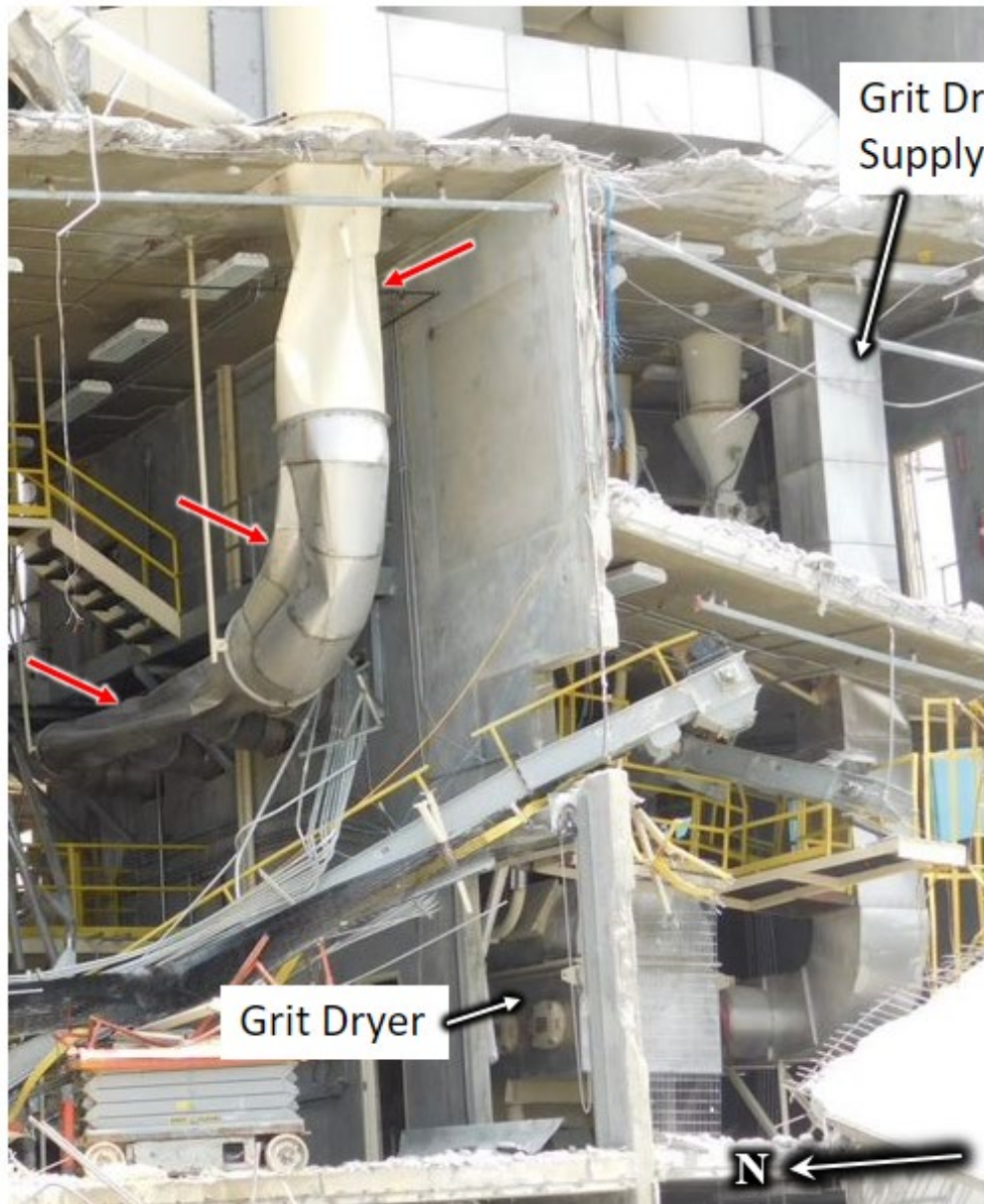
Background

- Cambria, Wisconsin
- May 31, 2017
- 5 fatalities, 14 injured
- Combustible dust explosions inside and outside processes

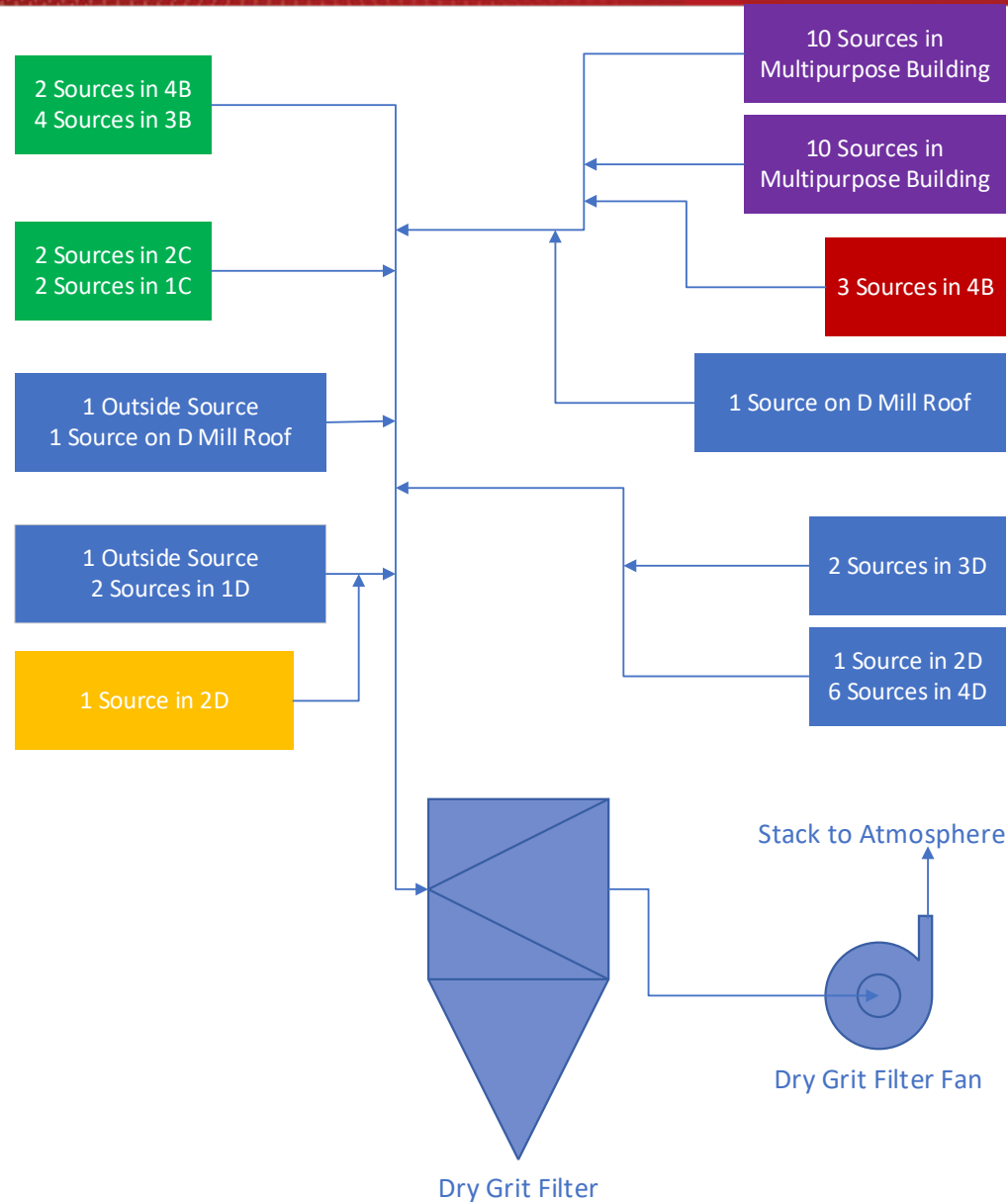
Propagation to other processes



Propagation to other processes



Interconnectivity



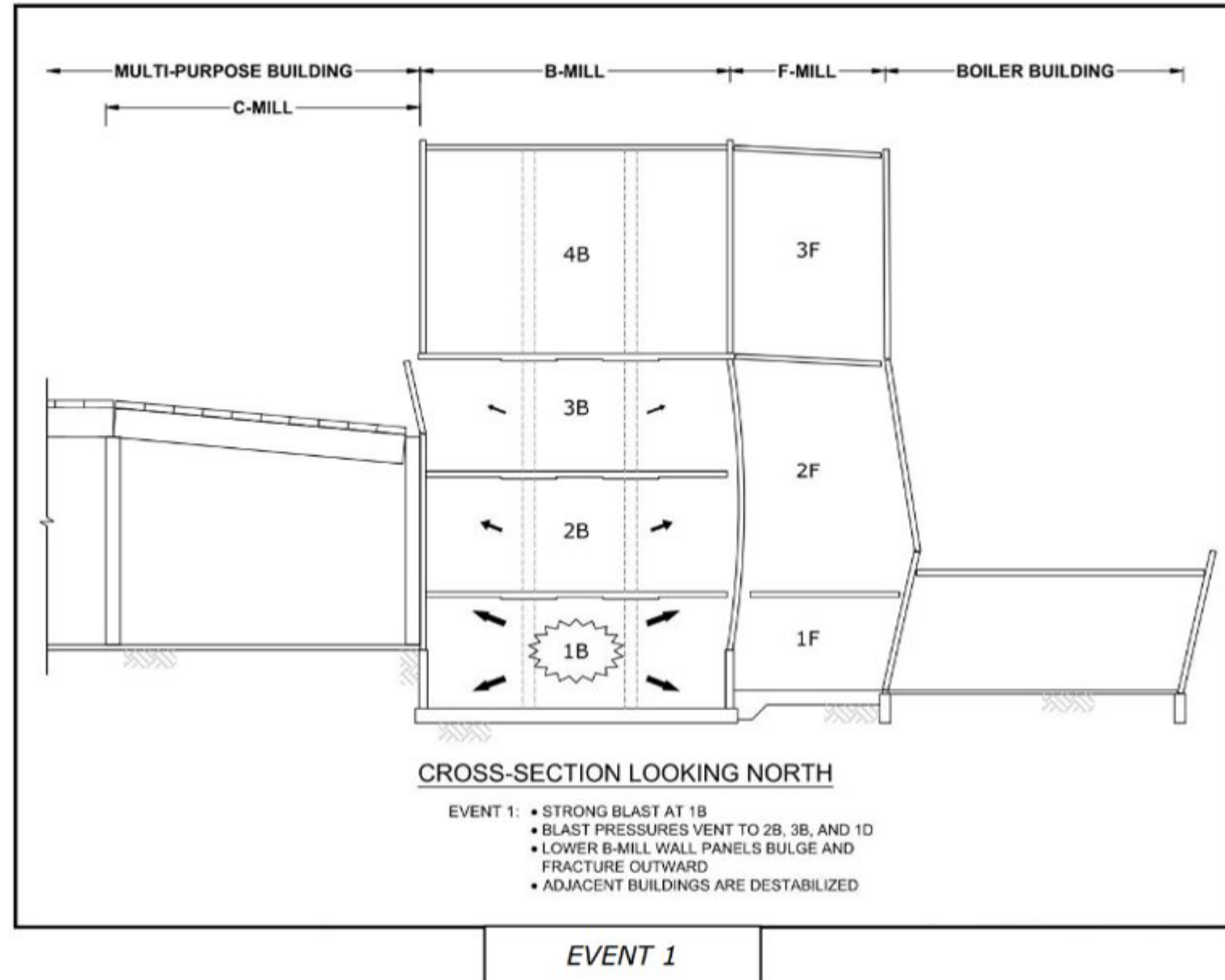
Dry Grit Filter connected to:

- 46 pieces of equipment
- 11 different locations
- 3 buildings
- 4 processes

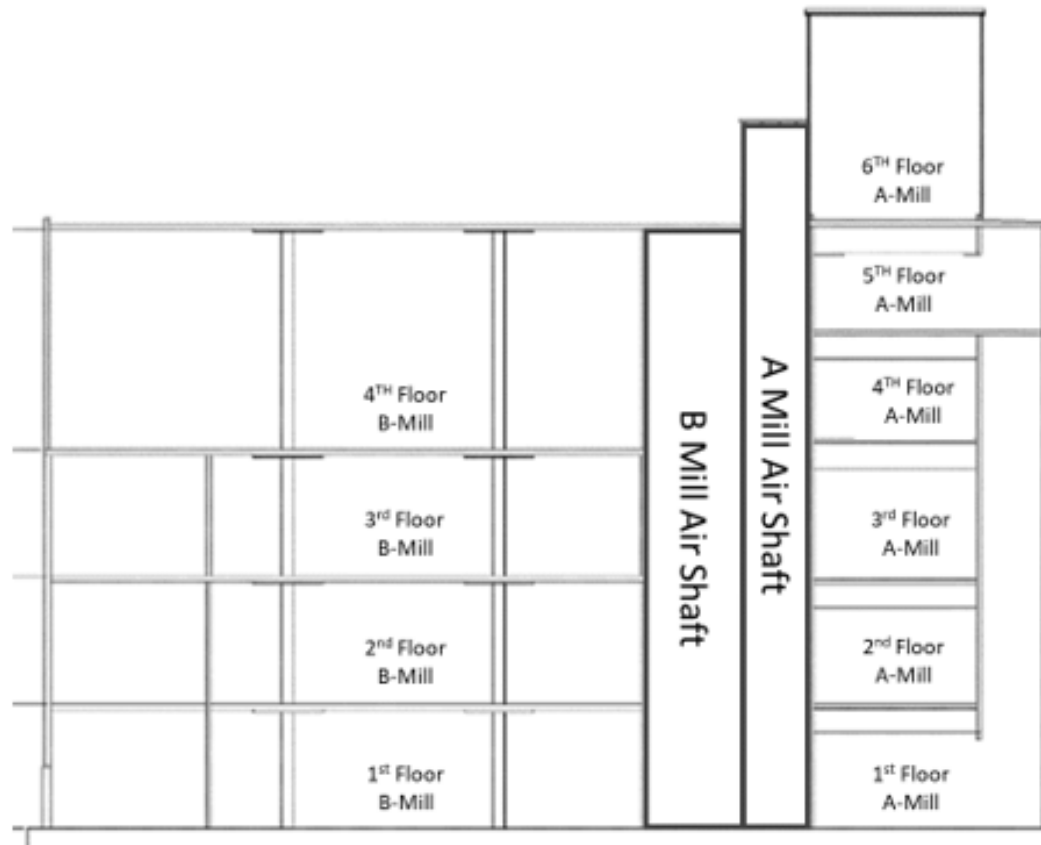


Structural Design

- Cast-in-place vs precast, tilt-up construction
- Air shafts running through all floors
- Location of first explosion



Fugitive Dust



- **Process Hazard Recognition**
- **Dust Hazard Analysis**
- **Engineering Controls**
- **Structural Design**
- **Fugitive Dust Management**
- **Management of Change**
- **Incident Investigation**
- **Process Safety Information**
- **Management of Audits and Inspections**
- **Emergency Preparedness**
- **Personal Protective Equipment**
- **Process Safety Leadership**
- **Regulatory Coverage of Combustible Dust**



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www.csb.gov

youtube.com/USCSB



Information Collection Request Reactive Hazards Survey

CSB is updating the 2002 Study
Improving Reactive Hazard Management

Draft Survey:

https://www.csb.gov/assets/1/6/csb_survey_draft_2023.11.02.pdf

Comments:

<https://www.federalregister.gov/documents/2023/11/08/2023-24693/information-collection-request-30-day-notice>

Send comments to:

Email: OIRA_submission@omb.eop.gov

By 5 p.m. EST on Friday, December 8, 2023



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