



April 13 - 17, 2020

Webinar Series

Jeffrey D. Decker

President / Owner

Decker Consulting & Investigations, Inc.



GRAIN HANDLING
SAFETY COUNCIL

Proudly Offering You Quality and Reliability!



DECKER

Consulting & Investigations, Inc.

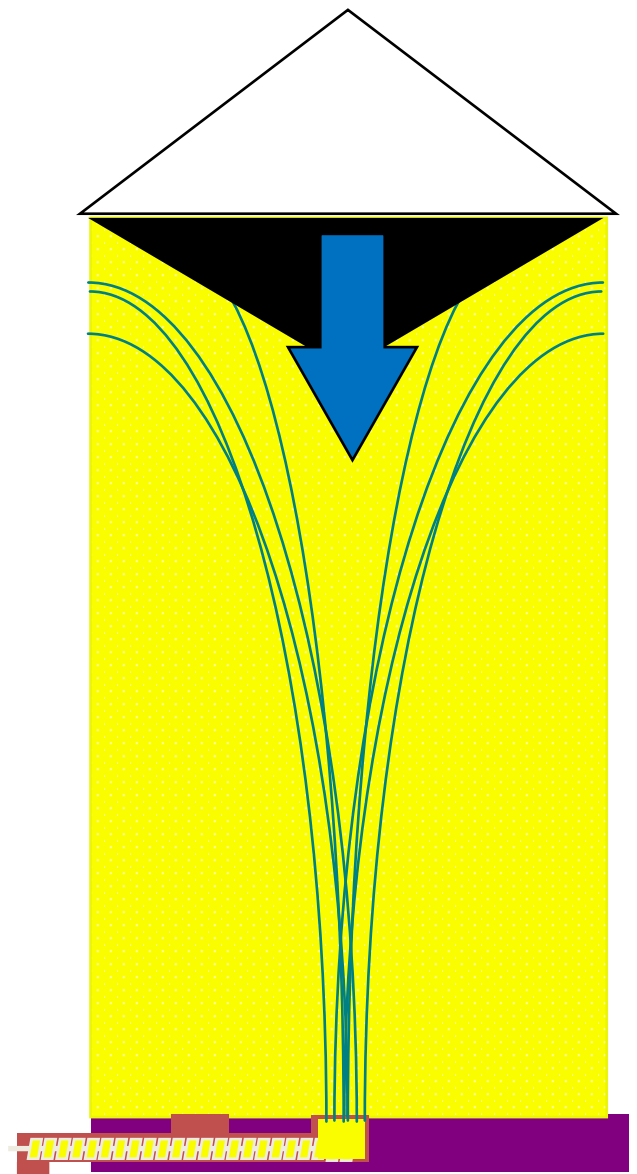
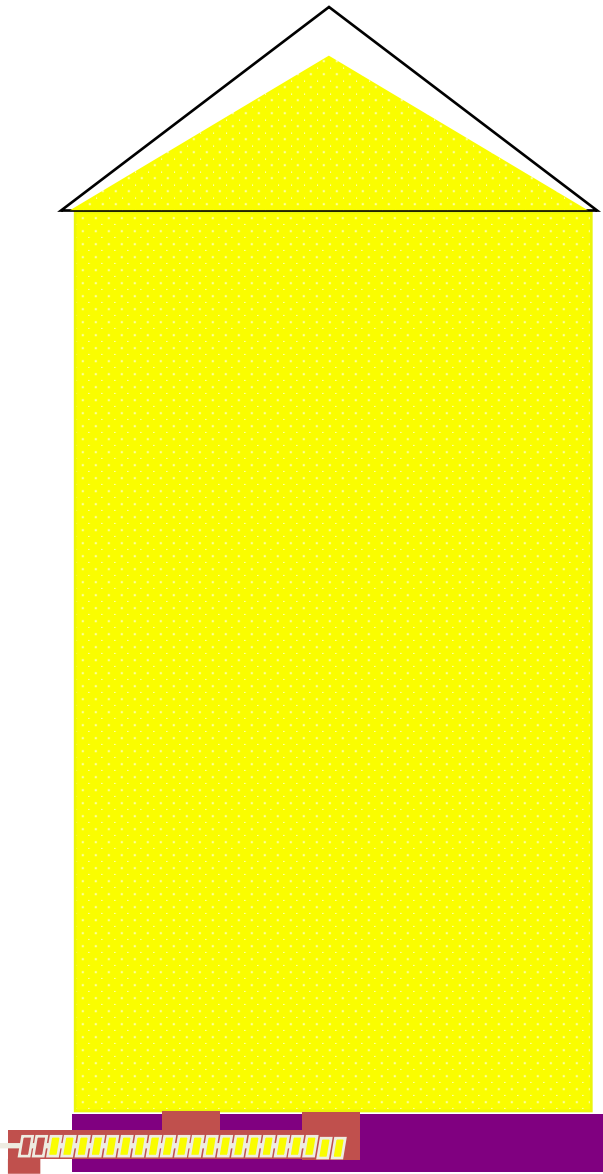
Best Practices
To Unload
Out-of-Condition
Grain



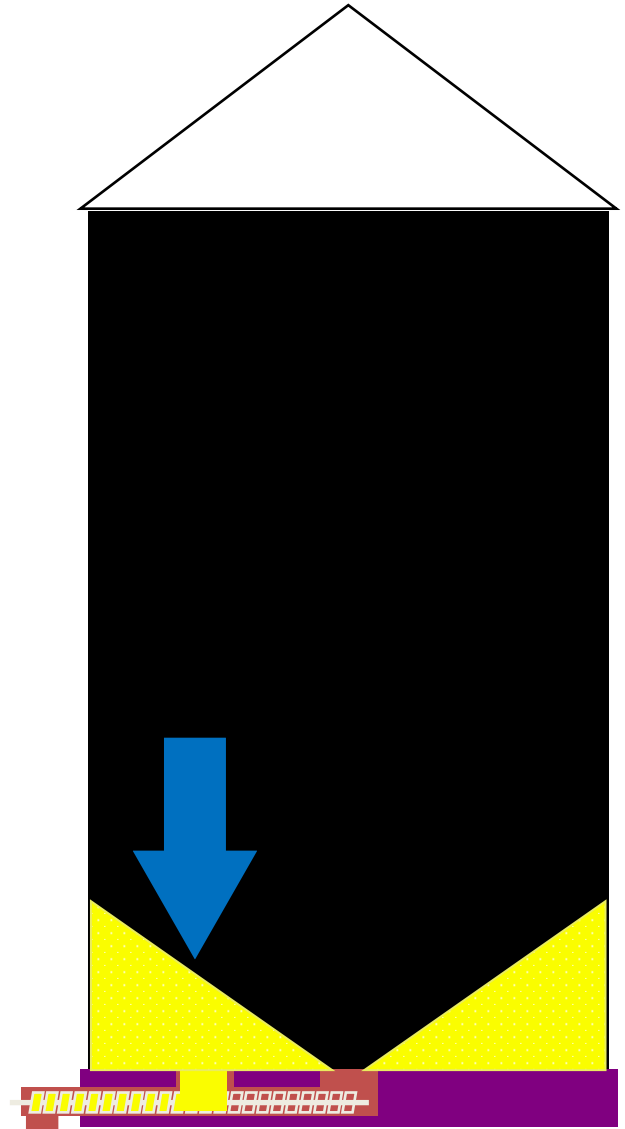
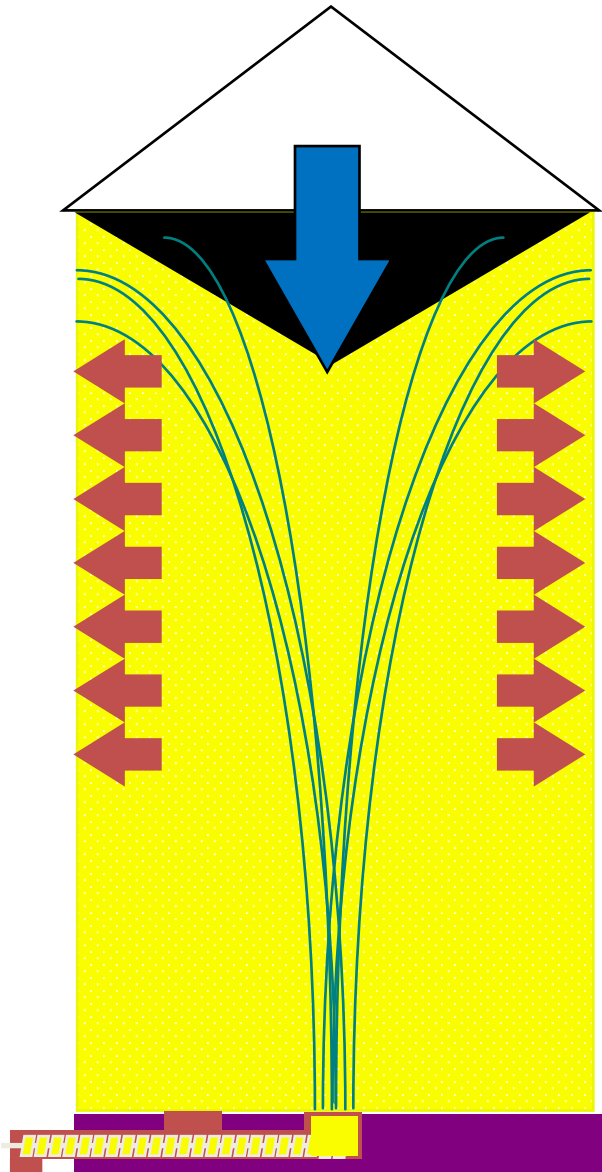
Will you let this change your life?



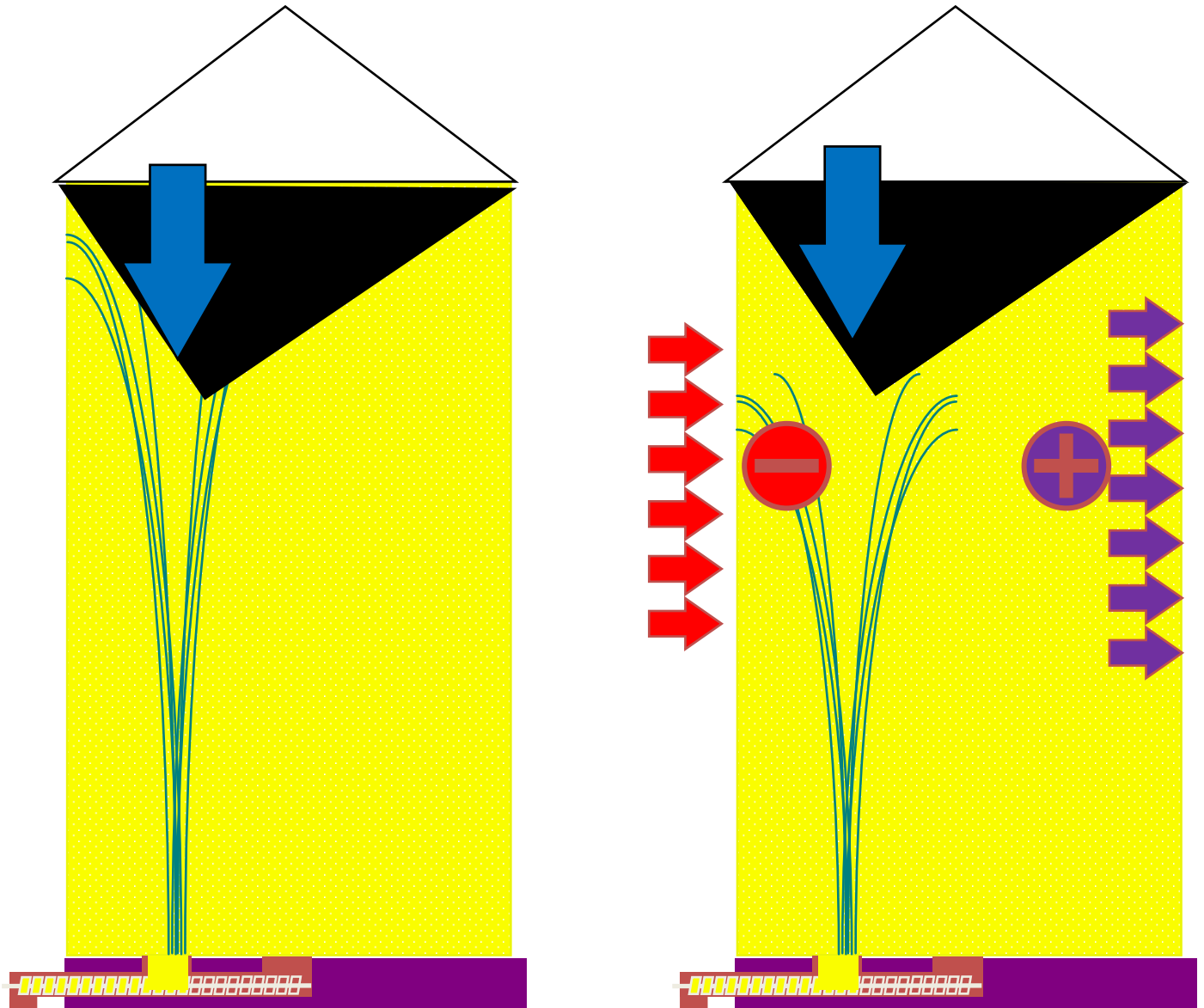
Silo Unloading - Center First



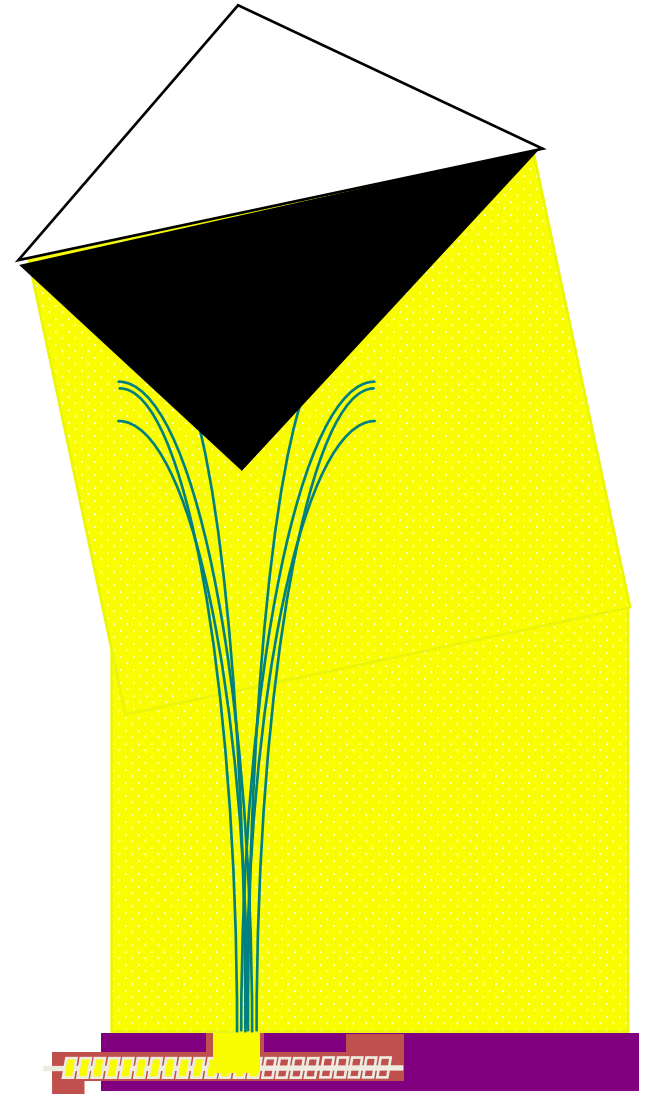
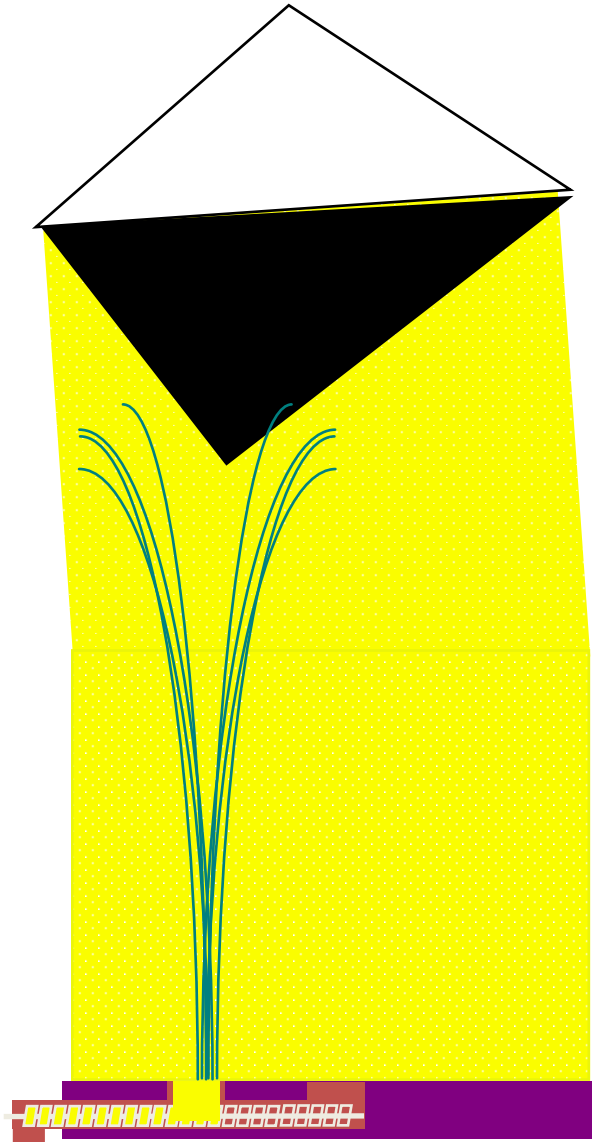
Silo Unloading - Intermediates Last



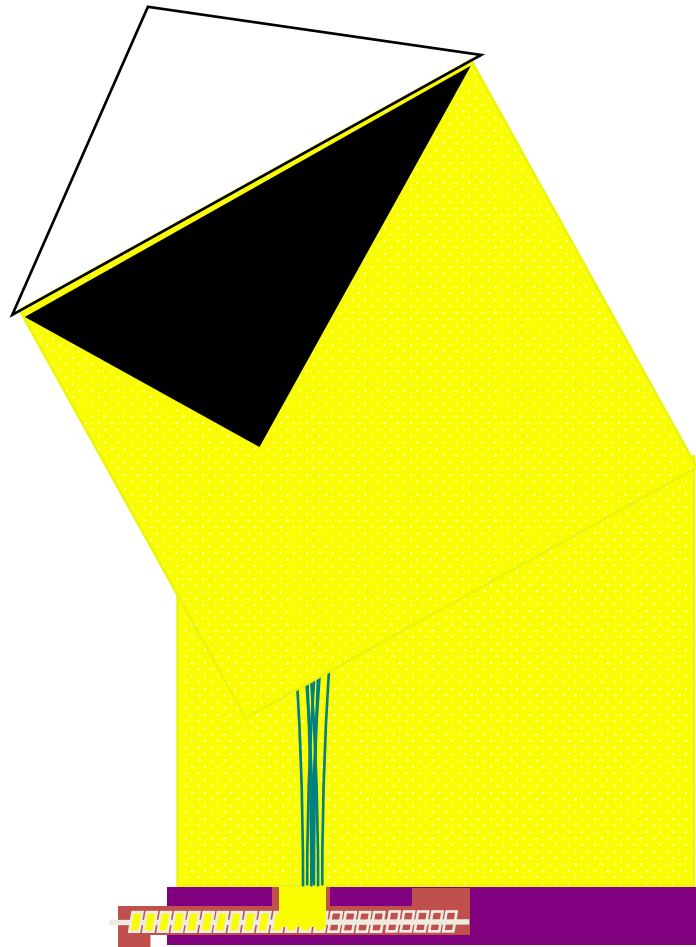
Silo Unloading - Off Center



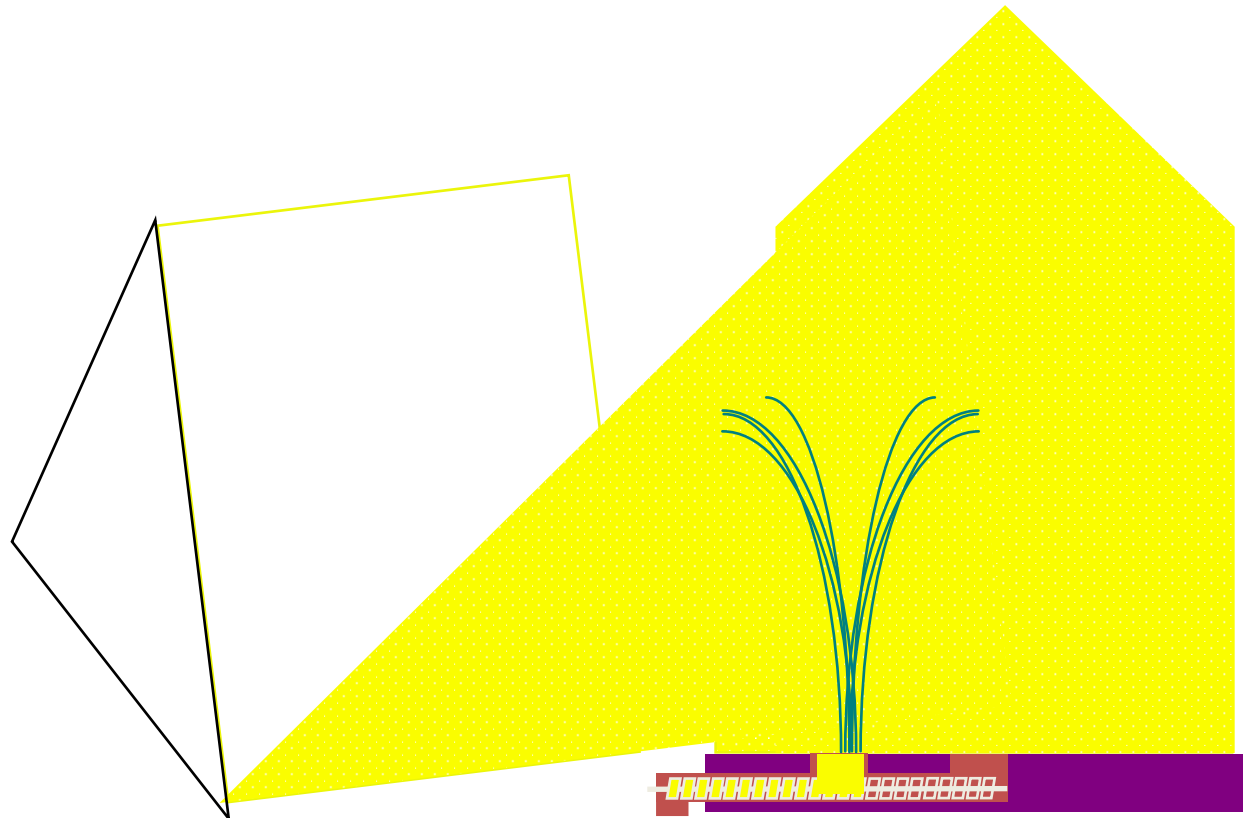
Silo Unloading - Off Center



Silo Unloading - Off Center

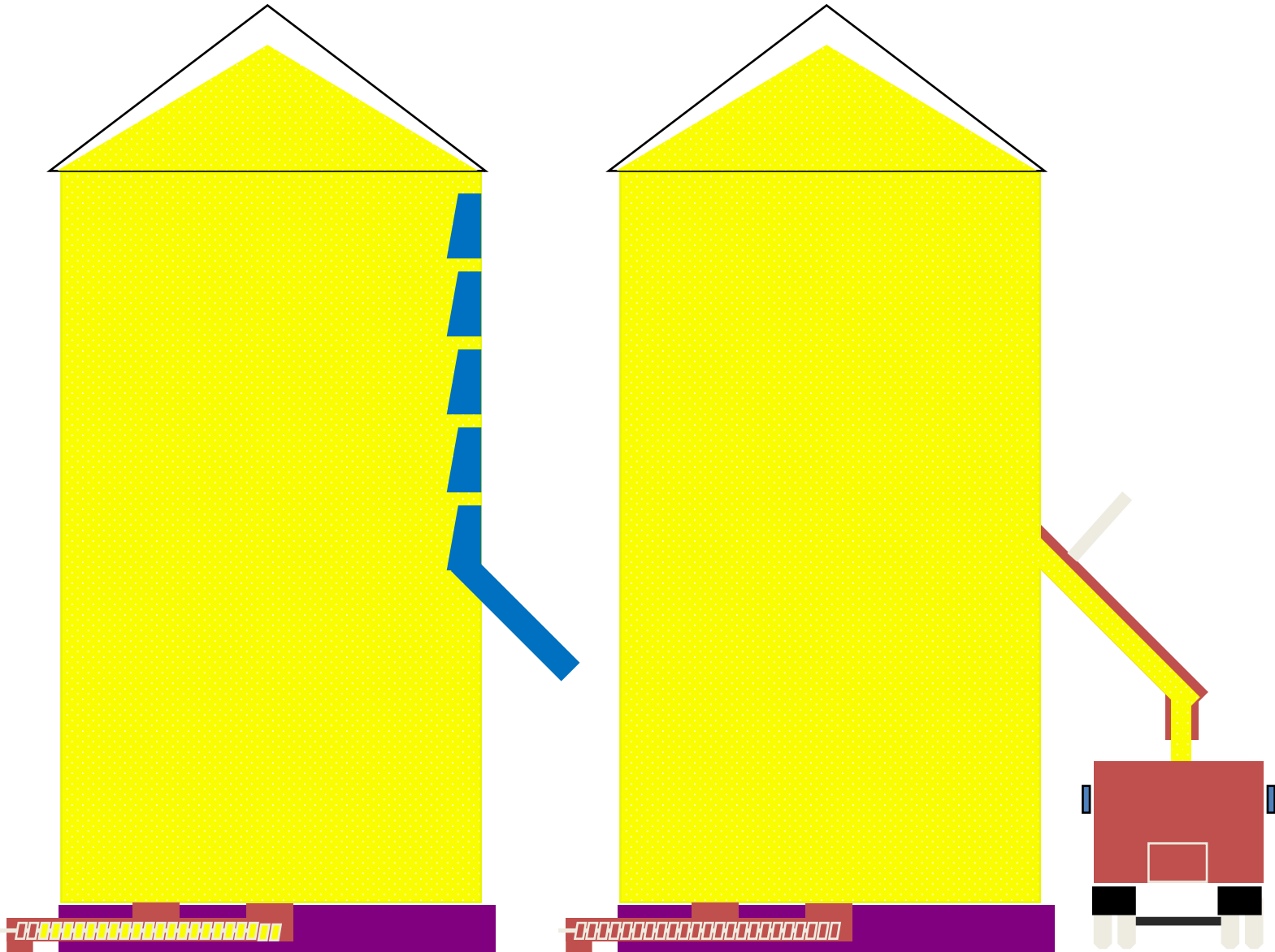


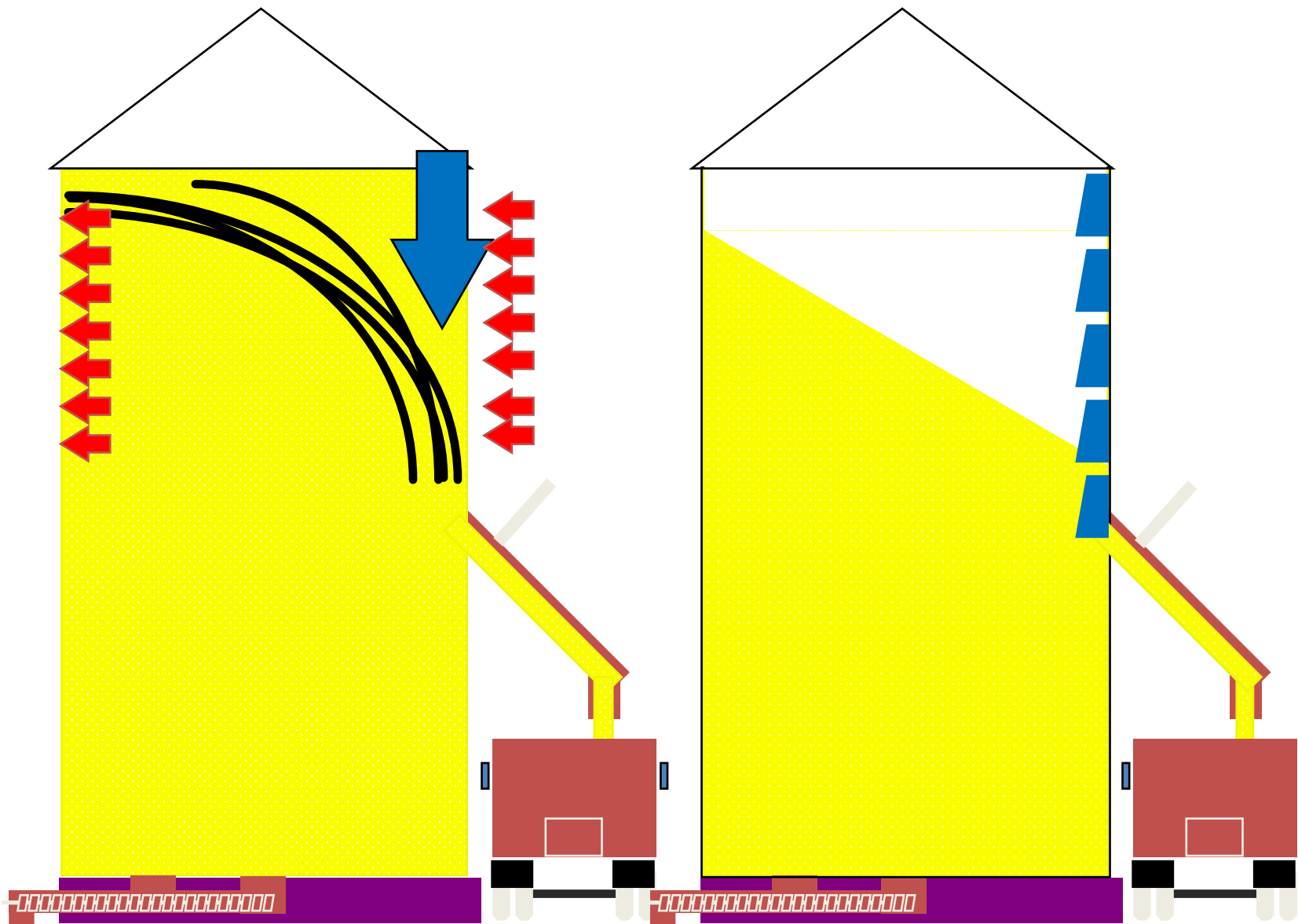
Silo Unloading - Off Center

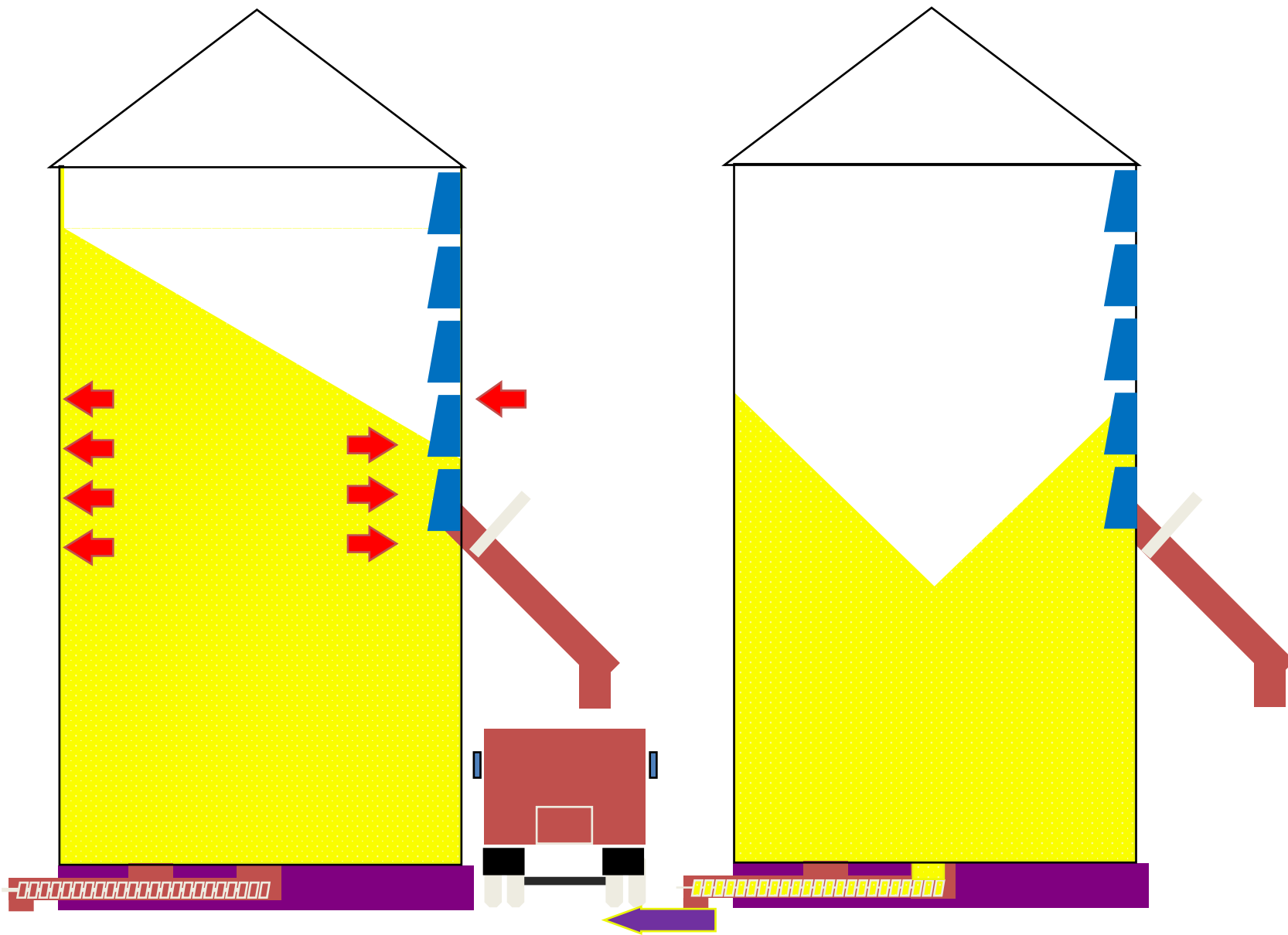


Side Draw Silo Unloading

- Tank must be designed for proper sidedraw unloading







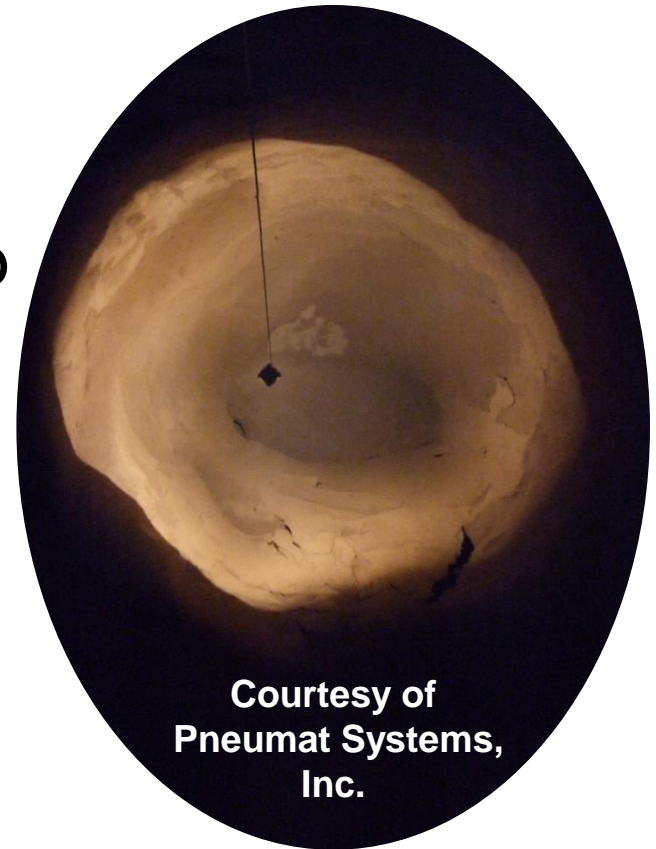
How To Get Sumps to Flow Without Entering

Alternatives to entering bin:

- Turn on fans.
- Rod grain from safety of tunnel beneath bin.
 - Repeat as needed.
- Use extendable utility pole to reach or knock down grain.
- Use a grain vac for clean out.
- Use compressed air supply to dislodge grain.

Use alternatives instead of entry.

- Wait
- Run fans
- Open & close gates or 2nd sump
- Fill & empty bin
- Rod grain – tunnel or outside
- Grain vac
- Compressed air
- Whip
- Contract – Bin cleaning professional



Courtesy of
Pneumat Systems,
Inc.

Alternate – fill & empty.

Check grain frequently during unloading

- Without entering
- Discover hazards
- Run fans
- Alternate - Return grain & unload grain
 - Expose portion of pyramid
 - Break up grain from outside; top



Rodding Grain - SAFELY



Rodding the Grain – No tunnel



- LOTO
- Body Harness
- Lifeline
- Observer

Grain vac can rid bin of hazards

- Lock Out Tag Out
- Communicate to person operating



Potential hazards of grain vacs.

- **Do Not** vacuum grain from below person or feet
- **Exhaust**
 - Vacuum
 - Tractor
 - Truck
- **Assess PPE needs**



Whip cuts build-up & pyramids.



- No entry
- Usually portable
- Assess for other hazards
- Assess PPE needs
 - May create excessive dust

Courtesy of
Pneumat Systems,
Inc.

#1 Hazard - Flowing Grain



CAUSE:

- **Lack of LOTO**

WORK TASK:

- **Unplugging a Draw-off**
- **“Walking down the grain”**

Avalanche – Pyramids & Sidewall Build-up



CAUSE:

- Poor grain condition

WORK TASK:

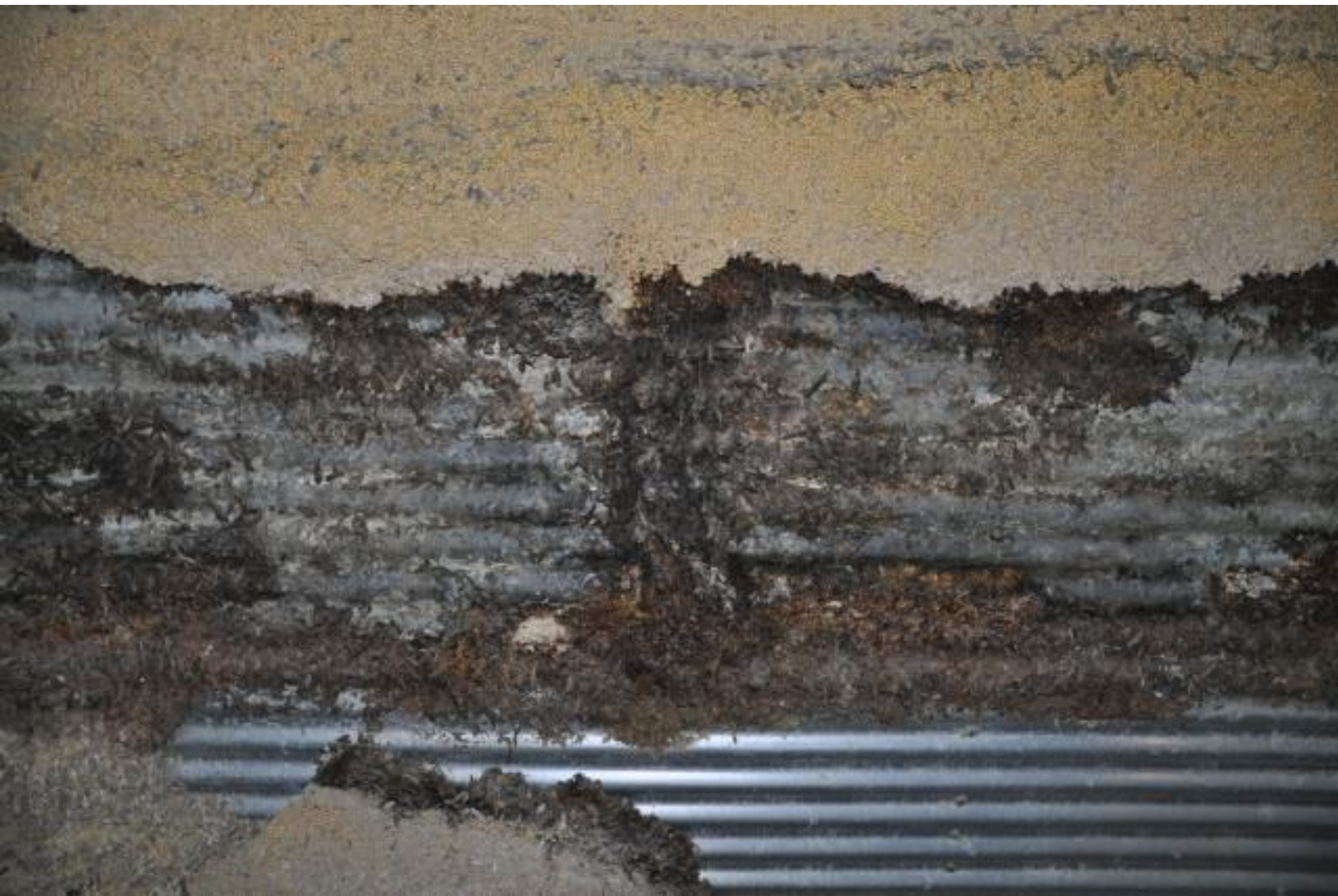
- Breaking up pyramid
- Knocking down grain













Grain Bin Entry Safety Starts with GRAIN QUALITY MANAGMENT

Is this a good place to be?



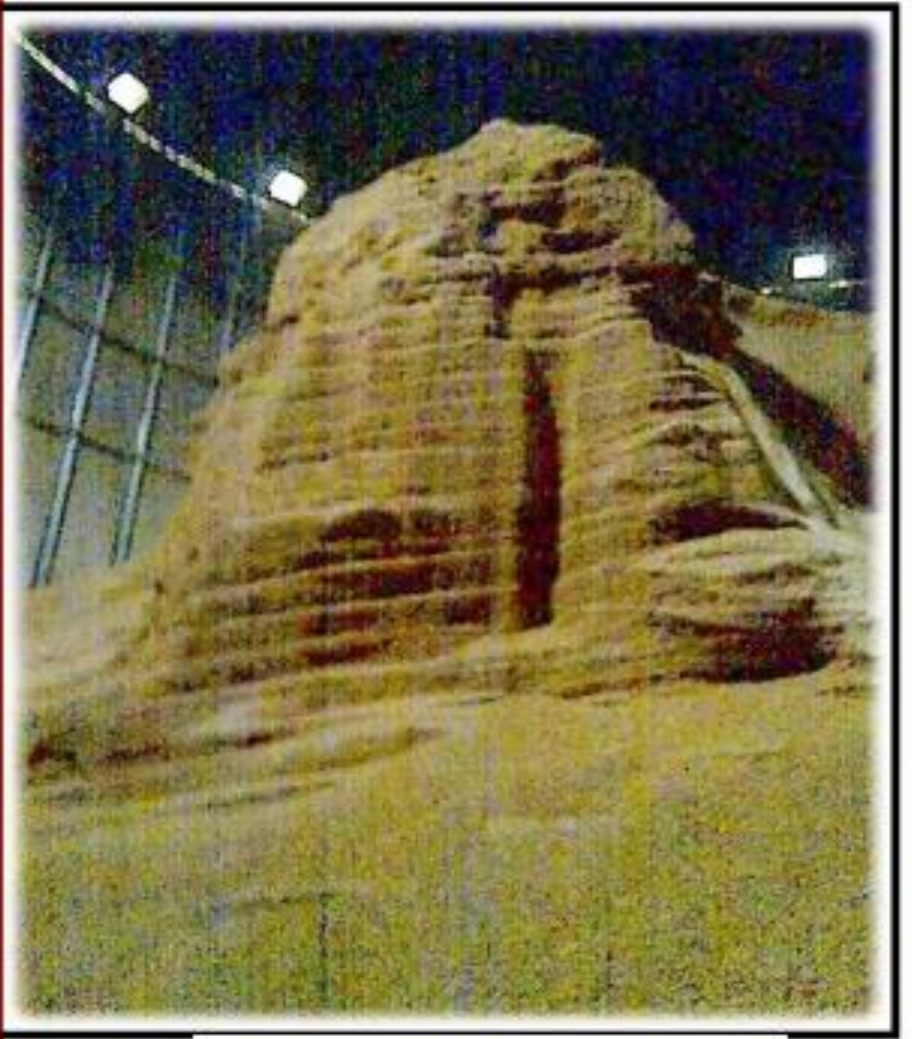
Two workers breaking up crusted grain. Is this a good place to be?

Rodding grain to unplug the sump while equipment is running is the #1 cause of grain engulfments.





Towers/Columns
Grain



Grain Tower
(65')

Bridging Condition





Cliffing Condition

Rodding the Grain - SAFELY



Reclaim Tunnel

Access
opening for
rodding.

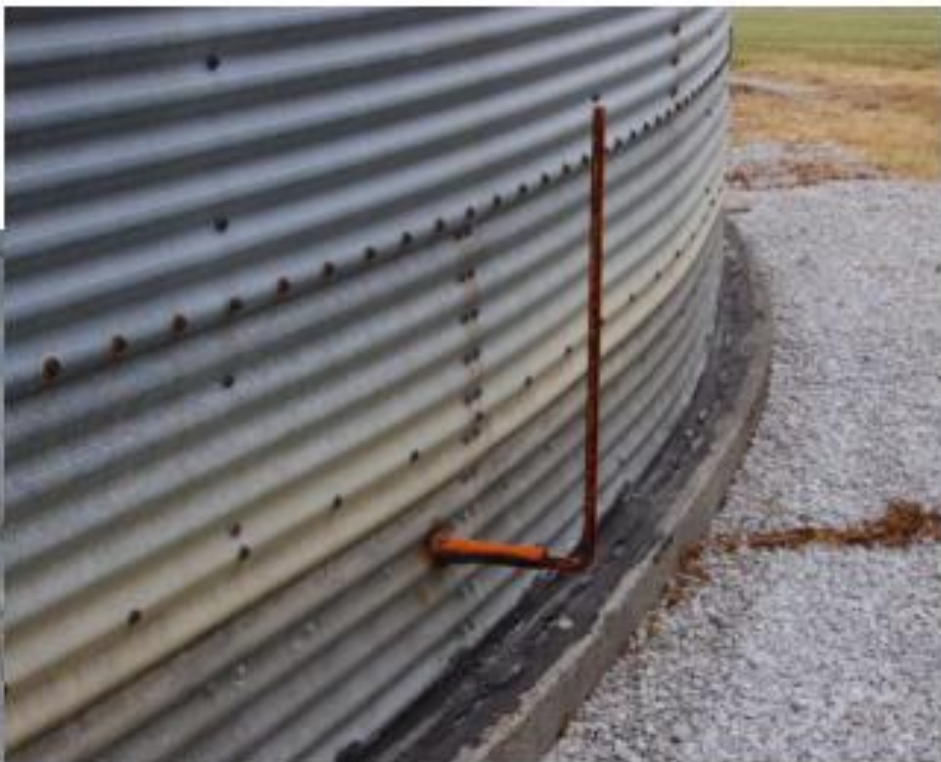
Rodding the Grain - SAFELY



Built-in Rodding Pins



Slide gate with
rods

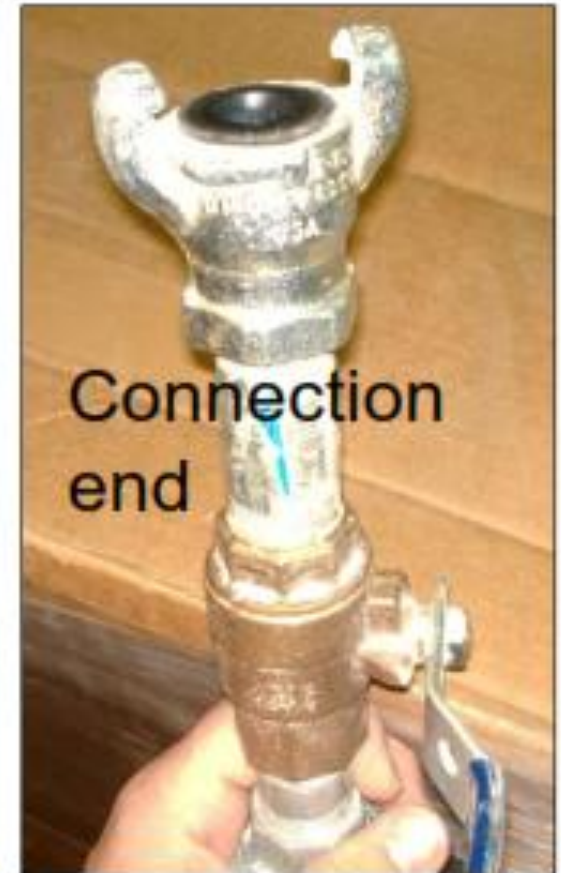


Using Compressed Air

- Control & safety mechanism
- Guard against flying objects
- Assess PPE needs



Compressed Air Needs Correct Hardware

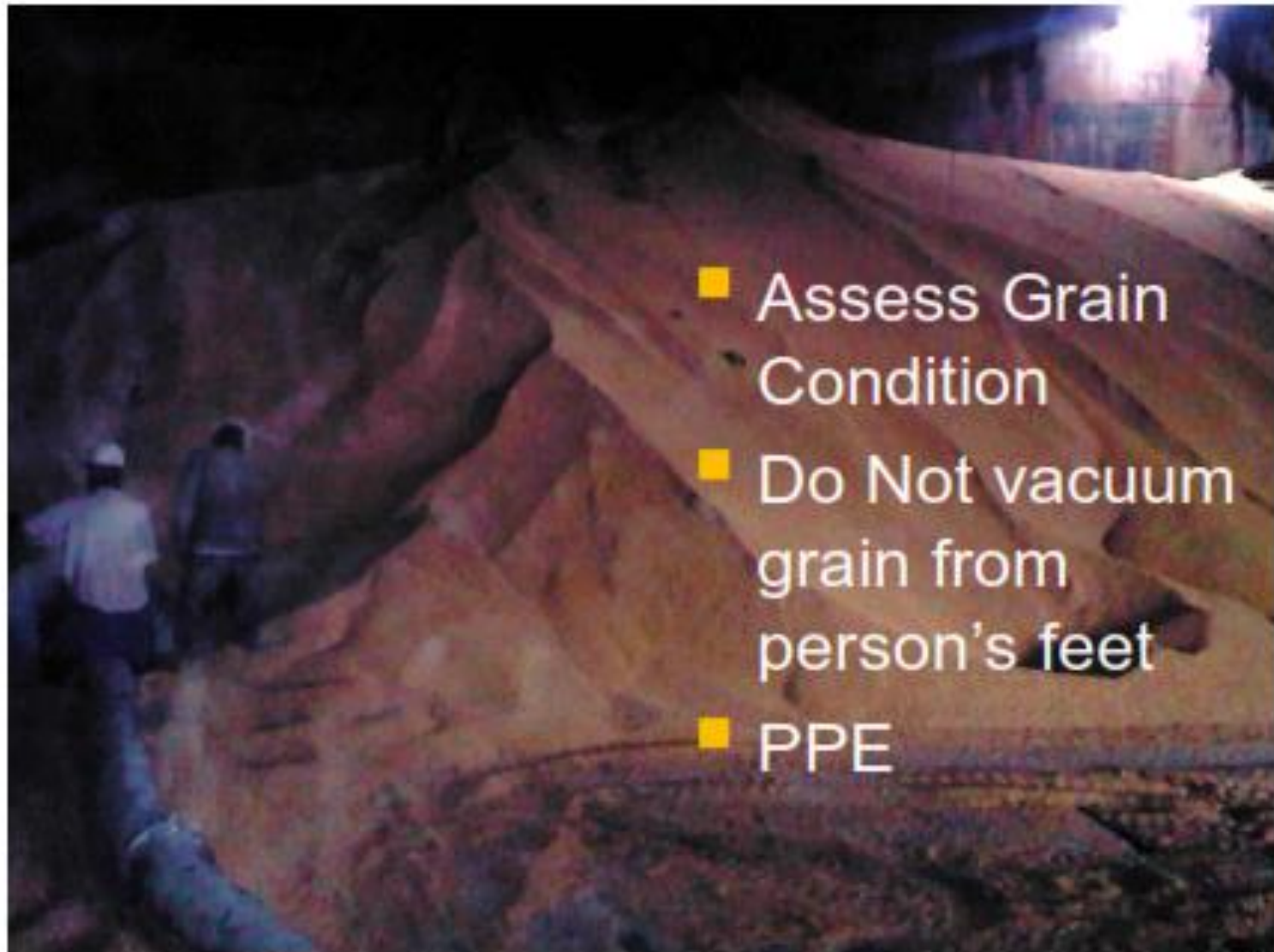


Avoiding Entry Using Grain Vac



- PPE
- Communicate to person operating

Safe Grain Vac Use



- Assess Grain Condition
- Do Not vacuum grain from person's feet
- PPE

Stage Cutting Bin Sidewalls



Inserting Auger Above the Floor/Foundation

- **Locate an Horizontal Auger**
- **Leave 3' – 5' of Exposed Flighting**
- **Mark Tube in 5' Increments**
- **Reinforcement Around Area of Opening - Angle Ring**
- **Cut Round Smooth Hole Inside Reinforcement**
- **Chain Auger Power Head to Loader**
- **Shove in as Far as Possible (Needs to be $\frac{2}{3}$ to $\frac{3}{4}$ of Radius)**
- **Wire Up and Run Auger to Pull in Further as Needed**

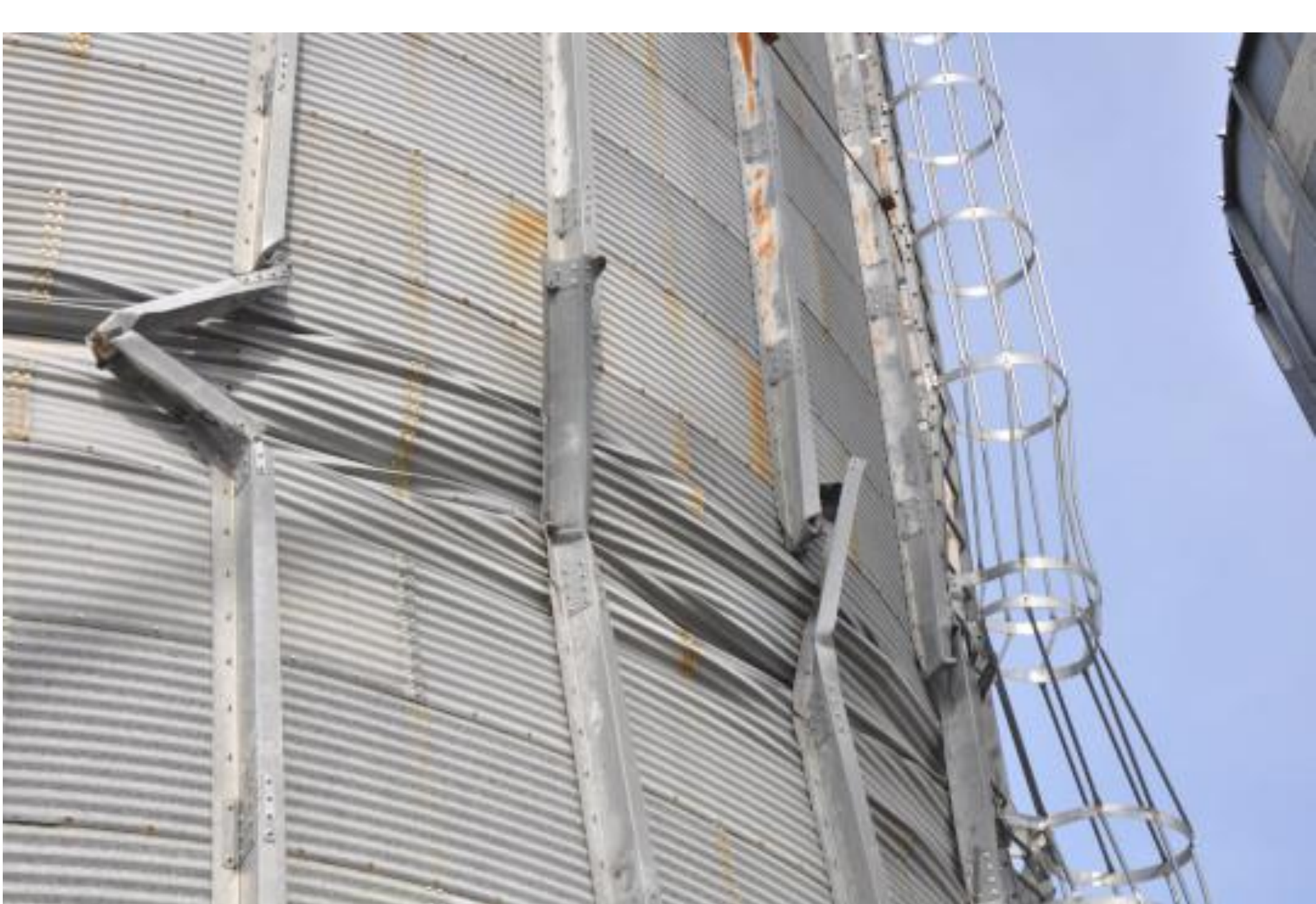
Inserting Auger to Stage Down Unload

Combination of Prior 2 Options

CAUTION

- **Dust**
- **Ignition Sources**
- **Explosions**
- **Collateral Damage from Grain Collapse**
- **Do Not Unload into Equipment if Possible Fire**
- **Analyze Bin Structure**
- **Take into Account Grain Facility and Surrounding/Attached Equipment**
- **Utilities Locations**
- **Remote Operation of Equipment**











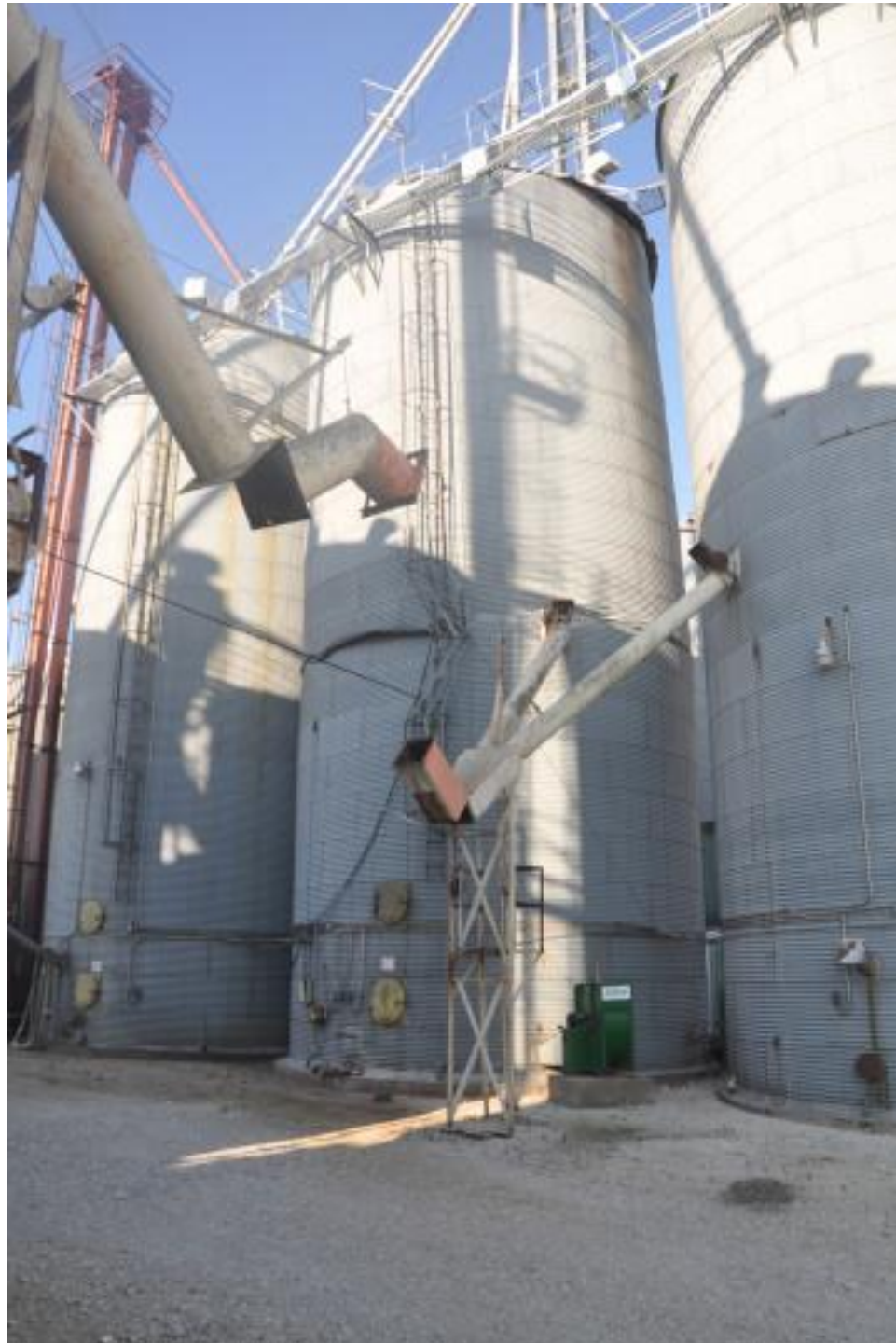
















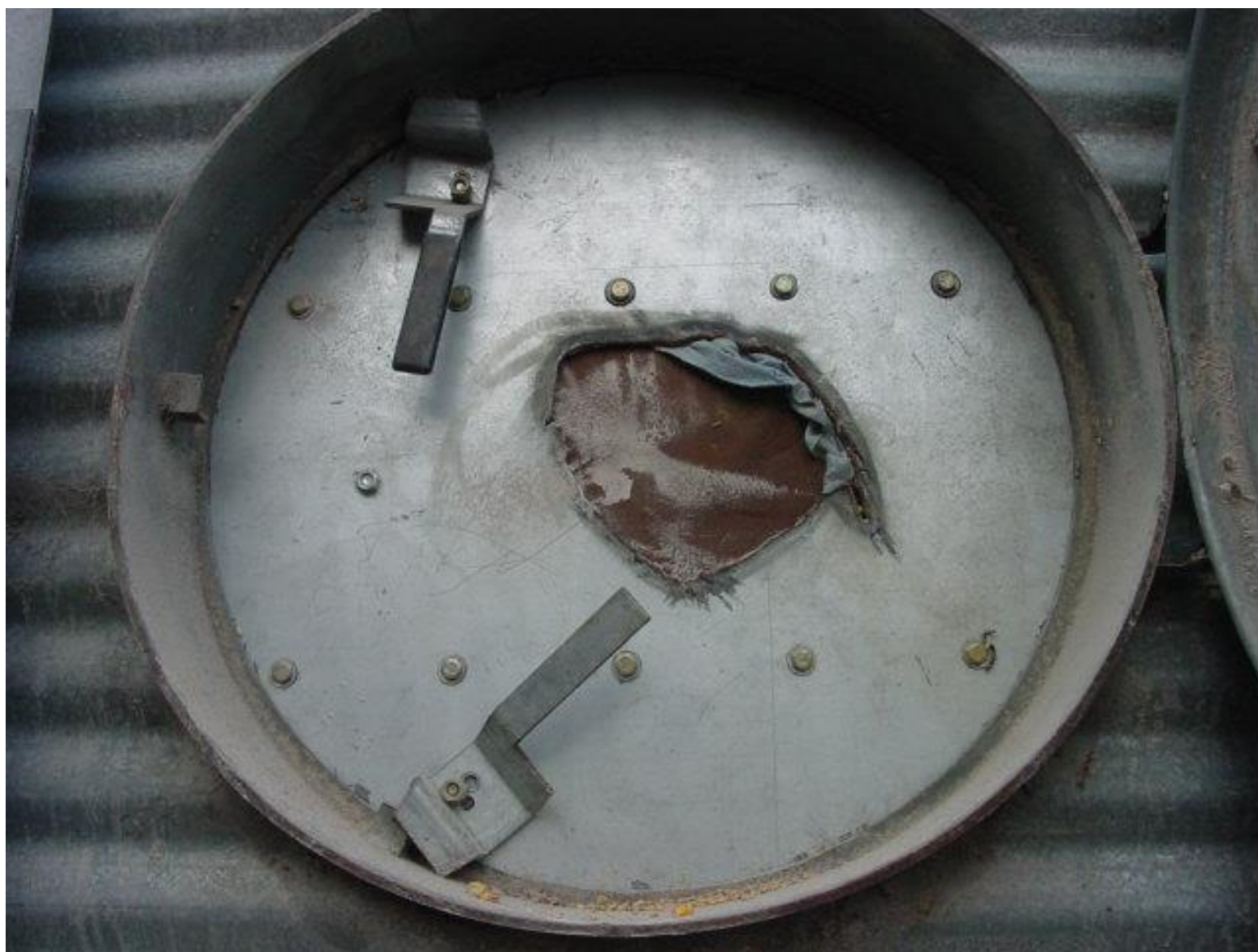






Don't Let This Happen Where You Work!







CAUTION
DO NOT ATTEMPT TO REPAIR OR MAINTAIN THIS EQUIPMENT WHILE IT IS ENERGIZED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.

NOTICE
DO NOT ATTEMPT TO REPAIR OR MAINTAIN THIS EQUIPMENT WHILE IT IS ENERGIZED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.

⚠ DANGER

Keep clear of all edges.
DO NOT ENTER this slot.

If you must enter this slot:

- 1. Wear eye protection and gloves.
- 2. Do not touch any energized parts.
- 3. Do not touch any moving parts.
- 4. Do not touch any energized parts or equipment.

Failure to heed these warnings will result in serious injury or death.

Spreading Vertical Seams



Industry Standard Decals

Developed By: The Grain Bin Manufacturers Council



DANGER



Rotating flighting will kill or dismember.



Flowing material will trap and suffocate.



Crusted material will collapse and suffocate.

Keep clear of all augers. DO NOT ENTER this bin!

If you must enter the bin:

1. Shut off and lock out all power.
2. Use a safety harness and safety line.
3. Station another person outside the bin.
4. Avoid the center of the bin.
5. Wear proper breathing equipment or respirator.

Failure to heed these warnings could result in serious injury or death

DC-GBC-1A



WARNING



DON'T



DO

UNLOADING INSTRUCTIONS:

1. Use **CENTER FLOOR OUTLET ONLY** until **NO** grain remains above this outlet.
2. Side floor outlets to be used **ONLY** when above condition is satisfied.
3. Lock all side floor outlets to avoid accidental premature use.
4. See manufacturers instructions for proper use of factory supplied sidedraw (wall) discharge systems.

Failure to heed these warnings could result in serious injury, death, structural damage or collapse of tank.

DC-GBC-2A





Safety Is No Accident!

Take the Time!

or

You May Not Have It?



*If a Picture is
Worth a
Thousand
Words - This
Says it ALL!*



**Protect our most
valuable resource
Our Workers!**



**GrainSafety.org
StandUp4grainsafety.org**



GRAIN HANDLING
SAFETY COUNCIL



**Train, Equip, & Execute –
So at the end of each day –
We all go home safe!**

ALWAYS PROTECT YOURSELF FIRST!

Thank You!