MANAGING PRESSURE
Building Capacity to Manage Pressure
Toolbox Talk
BUILDING CAPACITY TO MANAGE PRESSURE

» Pressure is a common hazard, but are we always setup for success in the management of pressure?

» The Building Capacity to Manage Pressure program is an online course with three modules:
  1. Incident Review (video re-creation)
  2. Understanding Pressure
  3. Understanding Human and Organizational Performance (HOP)

» The goal is to build industry’s capacity to manage pressure by exploring new ways of thinking about safety performance.
DEFINITION OF PRESSURE

» Pressure is defined as the force exerted by an object per unit area. Therefore, both the force and surface area are critical in determining pressure.

\[
\text{pressure} = \frac{\text{force}}{\text{area}}
\]

\[
25\text{LBS} \div 0.0025\text{ in}^2 = 10,000\text{psi}
\]
There are two types of pressure:

- **Pneumatic pressure** - Pressure that is exerted by a gas. Gases expand to fill a space.
- **Hydraulic pressure** - Pressure that is exerted by a liquid. Liquids fill space based on their volume and exert pressure based on the height and density of the liquid.
These two types of pressure often exist together, creating hidden hazards like energized fluids, where gas has dissolved into the liquids.

Whether pressure is pneumatic or hydraulic, pressure is exerted equally in all directions.

Pneumatic

Hydraulic
LOW PRESSURE

» Never assume you are safe because you are operating in a low-pressure environment.

» Depending on the configuration of the equipment and the energy released, low pressure can be just as deadly as high pressure.

» Discuss where low pressure could be deadly in your work.

- 5 psi gas line
- 400 lbs of force
**STRESSING A VULNERABLE SYSTEM**

» A crucial concept related to understanding pressure is stressing a vulnerable system.

» Pressure systems are vulnerable when they are leaking, under additional stress (such as thermal stress), or modified.

» Adding more stress to an already vulnerable system is dangerous. Follow standard operating procedures to resolve the concern rather than introducing more risk.
SAFEGUARDS

» A variety of safeguards are used to mitigate risk from pressure such as:
  • Life Saving Rules
  • Exclusion zones (red and yellow)
  • Managing change
  • Safe operating limits
  • Pressure relief devices
  • Pipe restraints

» Discuss what safeguards are in use at your work and how they could fail to protect you.
QUESTIONS AND RESOURCES

» Identify situations where pressure risk may exist and bring it up for discussion and focused action in your company.

» Resources:
  • Building Capacity to Manage Pressure Program
  • Life Saving Rules
  • Potentially Serious Incidents Program