BREAKING THE LINE:

Best Practices for Safe Line Breaking

Line breaking is the intentional opening of a closed piping system. Use the following safety procedures to eliminate or reduce the risks associated with line breaking.

1. Know the potential hazards

- ☐ Struck-by flying objects
- ☐ Burns
- ☐ Fires and explosions
- ☐ Inhalation hazards
- ☐ Skin conditions

2. Obtain additional hazard information from client and/or MSDS

- ☐ Flammability hazards
- ☐ Health hazards
- ☐ Reactivity hazards
- ☐ Other special hazards

3. Complete a thorough walk-down

- ☐ Confirm type of service
- ☐ Identify tie-in points
- ☐ Determine how to safely isolate the pipe section
- ☐ Think about direct and indirect impacts of worst-case scenarios
- ☐ Determine what systems, tools, equipment, work areas or processes are affected by the line break

4. Follow safe work procedures

- ☐ Obtain required work permit (if necessary)
- ☐ Determine appropriate personal protective equipment beyond everyday PPE
  - Face shield
  - Any other specialized protective equipment, such as splash-proof safety goggles, impermeable coverall, hood and protective gloves
  - Respiratory protection

- [ ] Shut down and lockout energy sources
  - Electrical power
  - Upstream and downstream valves
- [ ] Clear the area
  - Establish barricades and use "Danger" tape to keep people out of the area
- [ ] Ensure emergency eye-wash station and safety shower are close by and fully functional

5. Break the line

- [ ] Depressurize and bleed-out the line
- [ ] Drain at the lowest possible point
  - Use the appropriate collection system to capture drainage
- [ ] Loosen flange bolts that are farthest from your position first
  - If line carries flammable or explosive substances, attach a bonding wire to each flange before removing them
  - Use flange spreaders or flange jacks when possible (use non-sparking wedges on lines containing flammable or explosive substances)
- [ ] Shield the line; stand aside to avoid any spray
- [ ] Proceed cautiously after the initial break, following procedures established by the facility and your company
- [ ] Follow established procedures for decontamination and removal of material or scrap

6. Procedure for extended down time

- [ ] Cap the system breaks with blind flanges made of appropriate material
  - Ensure that blind flanges are strong enough to withstand the pressure, temperature and service of the line and gaskets are the correct type
- [ ] Ensure lockout procedures remain in place during down time

7. Procedures to restart the line

- [ ] Test the system using the safest method possible
- [ ] Remove all lockout devices
- [ ] Re-energize the system and slowly open to begin normal operations

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