Process Equipment and Piping Isolation Procedures

Purpose

To ensure that personnel, the environment, and equipment are protected from unintended releases of potentially hazardous substances or energy while performing process equipment and piping repair, service or maintenance activities.

Scope

This program covers the proper isolation of process equipment and piping during repair, service or maintenance in which unexpected release of hydrocarbons, potentially hazardous substances or energy could cause injury to employees, damage to property or the environment.

Applications

Hazardous liquids or gas must be safely contained to prevent movement throughout a process system. This may occur during:

- Confined space entry.
- Hot work.
- Pressure testing of piping.
- Welding or hot tapping.
- Piping maintenance, repair or decommissioning.

Hazards

- Under-rated skillets/blinds may fail.
- Failure to use properly manufactured skillets.
- Failure to use blinds with proper gaskets.
- Failure to use skillets/blinds may result in a hazardous atmosphere spreading to an undesired and unexpected location or equipment.
-Disconnected lines and double block and bleed may still allow a hazardous atmosphere to escape and are not as effective as blinding.

Responsibilities

*Person in Charge (PIC), Lead Operators, Consultants or Production Superintendent* –

Must evaluate the process to be isolated with all affected personnel to ensure that all process systems and piping are properly isolated and identified.
Isolation Procedures

Double Block and Bleed – means the closure of a line, duct, or pipe by closing and locking and tagging two in-line valves and by opening and locking and tagging a drain or vent valve in the line between the two closed valves.

- Block valves must be tagged and locked closed (per LOTO policy)
- Bleed valves must be locked open and monitored
- Provisions must be made for indication that depressurization between the block valves has been achieved.
- The bleed valve shall be vented to a safe location.

Slip Blind (Skillet) or Spectacle Blind – a solid plate that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

- Field fabricated skillets are only allowed with prior written approval from the Apache Construction Department
- Skillets shall have a handle, stamped with material grade and ANSI class. Handle should allow for placement of a tag.
- Slip Blinds (Skillets) or Spectacle Blinds should be the correct size and thickness for the ANSI-class piping on which they are being used (See chart below).

<table>
<thead>
<tr>
<th>ANSI Class</th>
<th>NOMINAL PIPE SIZE (NPS)</th>
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<tbody>
<tr>
<td></td>
<td>2”</td>
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<tr>
<td>150</td>
<td>1/4”</td>
</tr>
<tr>
<td>300</td>
<td>3/8”</td>
</tr>
<tr>
<td>600</td>
<td>3/8”</td>
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</tbody>
</table>

(Assumes steel plate with ASTM A-36 yield strength or better)

- Slip blinds (skillets) for ring type joint (RTJ) flanges should only be purchased from approved manufacturers and be designed specifically for the size and rating of the flanges.
- No slip blinds (skillets) manufactured on-site that are not approved by the manufacturer (for RTJ Flanges) or that do not meet the specification in the Blind Rating Chart located in this section will be allowed.
Blind Flange – a machined flange designed to match the size and rating of the corresponding flange which it is isolating.

A blind flange should be installed with three major considerations:

- **Location:**
  a. Will the blind flange effectively isolate the equipment in the selected location?
  b. Is there access to the selected location?
  c. Can the blind flange be safely removed at the time such removal is required?
- **Rating:** Is the blind flange properly rated per manufacturers specifications?
- **Size:** Does the blind flange size match the size of the line being blinded?

**General Requirements**

If blind flanges, slip blinds (skillets), or spectacle blinds are installed, a list should be kept to indicate placement location. This is to ensure that all isolation points are removed after the job is completed and prior to re-pressurization of the line and/or platform. Blind flanges, slip blinds (skillets), or spectacle blinds should also be tagged or marked for identification with the following information:

- Date of blind installation
- Reason for installing the blind
- Equipment being isolated
- Person installing the blind

Do not confuse blinds with spacers, screens, or orifice plates.