

Piping Dead Legs – Another hazard in plain sight!

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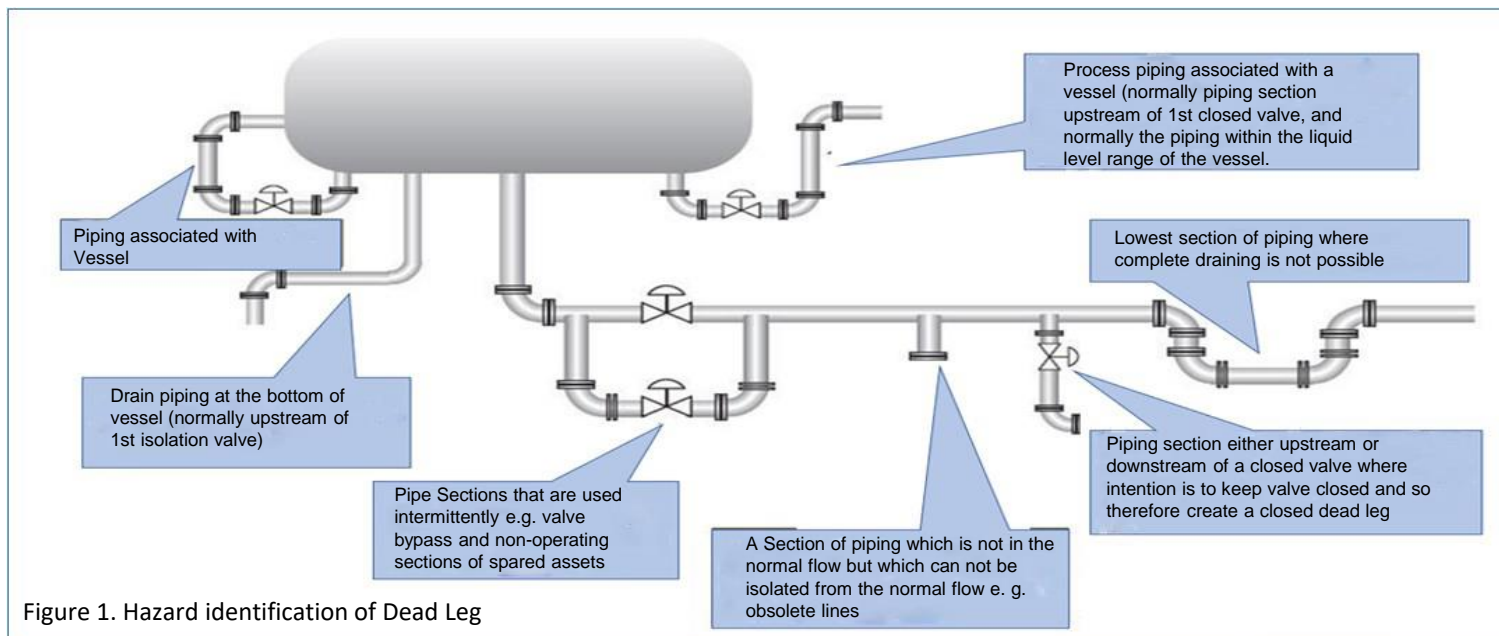


Figure 1. Hazard identification of Dead Leg

What Happened?

At a refining site, an x-ray examination was done on a 2" drain line connected to a 12" crude line. The x-ray showed deep pits beneath deposits of process material in a horizontal section of the drain line. Further inspection of other locations identified more areas with significant internal corrosion. These were typical cases of Dead Leg Corrosion. The Dead Leg Inspection in this case certainly prevented a Loss of Containment Incident.

Various dead leg piping configurations can form dead legs as shown in Fig. 1.

The Beacon Committee would like to thank Reliance Industries LTD. For providing the material for this Beacon.

Source for the Fig1: LinkedIn article by Mohammed Said Mechanical Integrity & Hazard Identification of Dead Leg

Did You Know?

- Corrosion in dead legs represents a significant threat to the integrity of process and utility piping.
- Dead legs can be left from initial piping installation when they were used for flushing, draining or pressure testing. They should have been removed before commissioning.
- Dead legs that contain potentially corrosive materials such as contaminated water, or deposits of solid materials require focused inspection attention. Even gases like H₂S can be corrosive.
- Piping that was flushed and drained may still contain hazardous materials. Opening these lines should require the same caution as if they were full.

What Can You Do?

- Dead legs should be identified and be subjected to a regular review to decide if they are still needed. Those that are not used should be removed following the Management of Change (MOC) procedures.
- The facility should have program for managing dead legs. The program should include:
 - A schedule for periodic flushing of dead legs
 - Inspection plan based on the anticipated corrosion rates
 - Review dead leg inspection results during Process Hazard and MOC reviews

Dead Legs can be very alive. Never assume that abandoned piping is not corroding.