

## About this Bulletin

When normal fluid flow through Flexpipe spoolable composite products is shut-down during freezing ambient temperature events, the information in this document should be referenced.

These instructions are intended to be in addition to the pipeline owner's operating instructions for dealing with possible frozen pipelines, for example inspecting high pressure shut-off devices, control valves, etc.

## General Guidance

- When fluid flow is shut-down during freezing ambient temperatures, the Flexpipe spoolable composite products should be drained when possible, similar to other equipment and piping.
  - Although Flexpipe spoolable composite products are very flexible and ductile, if trapped water is blocked inside the pipeline and then freezes, it may burst the pipe.
  - Above ground pipelines (or pipeline segments) are at higher risk of freezing than buried pipelines.
- Surface lines with high water content and located in low lying areas may be more prone to the formation of ice plugs.
- Steam lances shall not be used on Flexpipe spoolable products for thawing the pipeline.
- Hot water lances may be used but must follow the guidance for hydrovaccing with water lances that is found in section 14.1 in the Flexpipe Spoolable Products Installation Guide. Do not spray water on fittings (see Flexpipe Installation Guide section 5).
- Low flame propane torches may be used but must use a sweeping motion, not exceeding a pipe temperature of hand warm (or less than 60°C/140°F).
- Low temperatures may increase the likelihood of a wax plug forming. Refer to the Flexpipe Paraffin (wax) Removal Bulletin 08-4112.
- Fittings should also be inspected but are not expected to suffer damage.

## Inspecting and Repairing Frozen Pipelines

- Inspect the pipeline for damage, splits, or bulges. A typical split in the pipeline is shown in Figure 1 below.
- If the pipe is damaged, split, or a bulged portion without a split is found, the section of pipeline should be marked immediately and must be repaired prior to putting the pipeline back into operation.
- To repair the pipe, follow the methodology in the Flexpipe Installation Guide 14-1096, referencing section 5 (checking for wet reinforcements) and section 6.7.

## Bringing a Suspected Frozen Pipeline Back into Operation

- For any lines that have been shut-down and are being restarted (whether frozen fluids are expected or not), introduce fluids with a very low pressure (i.e. less than 100 psi) and a low flow rate. This will significantly reduce the potential for damage from a sudden re-introduction of pressure and flow.
- Check the opposite end of the pipeline for fluid communication.
- If the pipeline is suspected to be blocked (i.e. no evidence of fluid communication), do not exceed the pipeline MAOP. As much as possible, reduce or avoid pressure cycling. Pressure cycling may be detrimental to the integrity of the pipeline.
- It is preferable to circulate warm fluids or otherwise eliminate the blockage, vs trying to dislodge the blockage with high pressures.

If you are uncertain about the integrity of the pipeline or have questions regarding this bulletin, please contact your Flexpipe Account Manager.



Figure 1. Example of a burst pipe damage