



CIRSA LOSS ALERT

Published by the CIRSA Loss Control Department

Providing Risk Management Solutions

Fires When Thawing Frozen Water Pipes

Due to the cold winter and sustained low temperatures, above and below ground water lines and piping may freeze if not properly installed or maintained. CIRSA has experienced several large claims with homes catching fire due to employees using welding equipment to thaw water lines. This practice was previously referred to in older welding manuals and is still discussed in some publications. It is not recommended by welding equipment manufacturers or CIRSA due to the risk of fires.

- Failure to physically isolate the frozen underground pipe from the meter/piping and ground wires of the structure can allow the thawing current to flow in unintended paths and cause the subject structure or a nearby structure to catch fire.
- An unknown underground piping connection can allow some of the thawing current to circulate through and ignite a nearby structure.
- Some of the thawing current may flow from the underground pipe inadvertently into nearby gas or other lines.

These claims have occurred when electrical resistance thawing was used. This involves using portable gasoline or diesel generators, welders, heavy service electrical transformers (110 or 220 volts), or AC or DC current at high amperage and low voltage (usually less than 15 volts). Many problems with electrical resistance thawing can occur since the operator may not be aware of situations that can lead to potential fires and claims such as:

- Thawing indoor plumbing is also not recommended because current can flow in unintended paths and ignite the structure.
- In addition, the solder in indoor plumbing joints may melt.
- Due to the above problems, electrical resistance thawing is not recommended. The potential for conductivity between known and unknown ground wires and service lines pose a great hazard.

Recommended Ways to Thaw Frozen Pipes:

Install heat trace systems. These systems are effective although the initial cost and continued operation is substantial.

Use a portable steam cleaner. Thaw from the exterior of the pipe if it is exposed. Do not thaw the center of the frozen spot. This can make an ice pocket where the trapped water can boil and explode the pipe. This method is not recommended for plastic pipes which could melt or be damaged.

Pump warm water into the service line. Service line thawing for small service lines can be achieved by pushing a flexible ½ inch or smaller plastic tube into the frozen pipe while pumping warm water into the tube. The water pressure can be obtained directly from a nearby building or through the plumbing system. A hand pump filled with warm water can also be used if connected where the meter is temporarily removed from the service line. Commercial units attached

by a special fitting produce a pulsating stream of warm water through a tube attached to the frozen pipe.

Frost bottom water meters can be used since the bottom will freeze and pop off before the line freezes, thus allowing water to drain from the line.

Vehicle exhaust can be directed into the meter pit with an attached hose. The heat will thaw the meter within a couple of minutes. Do not perform this in larger pits where one can physically enter due to the carbon monoxide exposure.

Heat cord or installing a portable heater can be used if the line is accessible.

Public works/water department staff should not attempt to thaw service lines that are the home/business owner's responsibility.

Source: U.S. Army Corps of Engineers
TM 5-852-5/AFR 88-19, Volume 5

<http://www.usace.army.mil/publications/armytm/tm5-852-5/chap6.pdf>