

## WATER METER VAULT INSULATION IN THE WOLF CREEK POA

To prevent your water meter from freezing, it helps to understand why meters freeze and how to insulate the vault properly.

In the winter, during very cold periods, the temperature of the ground only freezes to a depth of a couple of feet or less. During extremely cold periods, if you will be gone from your residence for a week or more, leaving one faucet barely open will help prevent a frozen water line or meter.

Meters are mounted at the bottom of a six-foot deep vault where the temperature of the earth is around 50-55 degrees. When a meter freezes, there are two contributing processes, convection and radiation heat loss.

The loss of heat in the vault due to convection is the air exchange between the air warmed by the earth in the vault by cold air at the surface and just under the lid – that sinks to the bottom of the vault. Protecting the vault works best by insulating near the lid, just under it or even above it. A deep blanket of snow early in the season is often enough protection to keep meters from freezing. Placing loose insulation at the bottom of the vault, around or on top of the meter does nothing to prevent the invasion of cold air into the vault. It also obstructs reading the meter.

Maintaining the meter's temperature - above freezing, is primarily due to radiant heat from the 55-degree earth. Radiant heat loss knows no up or down, but travels towards wherever it is the coldest. If your vault lid is not insulated, that's where the radiant heat loss will go. Additionally, the radiant heat in a vault with an un-insulated lid would be reduced due to the invasion of cold air from the surface. Here again, placing your insulation at the top of your vault, not the bottom will provide the most protection. Radiant heat can be deflected by shiny, reflective surfaces, so insulation with a foil surface, attached to the bottom of your lid or vault cover would provide the most protection from radiant loss.

For durability and effectiveness in a wet environment, ridged, closed cell foam insulation is preferred. It can be cut to size and glued under a lid or vault cover with construction adhesive. The Association has been offered a small supply of radiant barrier foil that you can have if you are making your own insulated lid. This could be attached with either glue or other mechanical means.

In the narrow meter vaults, doubled plastic kitchen bags, loosely filled with packing peanuts has also proved effective, when secured at the top of the vault, just under the lid.

Insulation that is attached to the lid and/or vault cover does not interfere with our need to read your meter. Neither does the bag of foam peanuts, which can be easily lifted out. Please check your meter to see that it is unobstructed and can be easily

read. As previously advised, if our water manager must take extra time to uncover your meter to be able to read it, there will be a service charge.

Additionally, members are reminded that any expense of repairs to your meter or water line – from the connection to the main line to your residence, are the responsibility of the member.