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## Snow and Ice Hazards – they can cause more than slips and falls!

For many of us, it's that time of the year again!

Snow and ice build-ups on equipment and buildings can have undesirable consequences when they finally decide to fall. Damage can include bent/broken sections of tubing, small piping and cable trays; injury to personnel can occur if someone is in the area at the time. But, did you know snow and ice “slides” have opened valves?



### INCIDENT DESCRIPTION

A release of material occurred from a ¾” drain valve on piping connected to an atmospheric storage tank. How the valve opened was unknown. The incident was investigated; a theory was developed that melting snow slid from the top of the tank and landed on the straight handle of a ¼ turn ball valve - and this caused the valve to open. There were skeptics – and more than one! So, the investigation team carried a bucket of snow to the top of the tank and let it slide in the direction of the valve. The theory was proven! - Snow falling from the top of the tank can open a ¾”, “straight handle” ball valve.

In a similar situation at another facility, a mass of ice broke away from a structure and landed on a similar ¼ turn straight handle condenser drain valve. Again, release of material followed.

### ACTIONS TAKEN

These incidents prompted a review of the plant's piping and valve installation practices. Modifications were made, drain valves were installed in the vertical position, lever-style (straight) handles must be installed such that the valve is opened by pulling up on the lever, not by pushing down. Circular style handles offer similar protection.

### LESSONS LEARNED

Snow and ice build-up represent significant hazards – for a number of reasons. While the consequences in most cases will not be major, there is potential for events of concern. Obviously, the best preventive measure is installation of equipment that will not allow snow or ice to accumulate. Where this is unsuccessful, controlled removal (e.g., carefully cut small pieces with steam and allow them to safely fall to grade) is an action to consider. When this cannot be done, precautions should be taken which limit damage when the material eventually does fall to grade.

Also, inadvertent operation of ¼ turn drain valves has occurred in many facilities, this example is for falling snow/ice. **Other causes include:** inadvertent contact with moving objects (hoses, people, ladders or materials), vibration, etc. Experience indicates that round handles are an effective means to prevent a number of releases. Many locations have also adopted a practice of installing a mechanical plug (or blind flange) in all valve openings, which could allow release of a hazardous material.