

## PIPE FREEZING AS AN ISOLATION TECHNIQUE

Carlo Mazzella

Wild Well Control/BTI Services, Houston, Texas

### Abstract

The most frequent use for pipe freezing is when a previous operation (wireline, cementing, workover) has left a situation where isolation from the wellbore cannot be completed because of valve failure. Wellhead and casing valves become inoperable for a variety of reasons and frequently need to be replaced. Performing a fluid kill or depressurizing a cavern is sometimes not feasible because of logistics and/or cost. When tools, inoperable valves, or another type of obstruction is located in the master valves, a freezing operation below the wellheads to isolate all the valves above the Braden head is proposed. After excavation and jobsite preparation, verification of a freezable fluid placement is performed before the freeze process begins. Cement filled conductors can either be frozen through or removed for the freeze process and reinstalled after the pipe has thawed. This multi-string isolation approach gives the client a safe opportunity to reinstall the valves necessary to maintain effective well control.

**Key words:** Pipe Freezing, Maintenance & Repair, Valve Failure, Nitrogen, Multi-String Freeze, Cryogenic Testing