Description of Incident:
Recently, three threaded wellhead tubing bonnets failed while in service on producing gas wells equipped with plunger lift systems. The bonnets were sent for a failure analysis. Additionally, information from discussions and reports gathered from other operators regarding similar failures were used to determine the cause of failure. On one location a shack was over the wellhead; this had the potential to impede the ability to control the well. The results of the investigation and analysis provide several answers for the failure.

The incident investigation and analysis revealed several causes for failure:

- Lateral (side) load on the tubing bonnets was the most likely cause of the failure of threaded tubing bonnets.
- The use of a plunger lift system, while not as likely a cause, does have the potential to exert enough axial force to cause the bonnet to yield as well.
- The scope of work performed on wellheads has changed in recent years. This has caused threaded tubing bonnets to be subjected to forces it was not designed to withstand (rig-less work where the bonnet remains in place during well servicing).
**SAFETY ALERT - #02-2007**  
**THREADED TUBING BONNET FAILURE**  
**RELEASE DATE: JANUARY 2, 2007**  

**Recommendations:**

- On new well completions where a flanged casing bowl exists, the use of threaded tubing bonnets be discontinued and flanged bonnets installed.

- A risk assessment should be considered on all existing wells with threaded tubing bonnets to determine whether there is sufficient risk to warrant change of any or all threaded bonnets to flanged bonnets.

- The use of shacks over the wellhead should be evaluated to determine whether the benefit of the shack outweighs the risk of access to the wellhead.

**DISCLAIMER:**

This Safety Alert is designed to prevent similar incidents by communicating the information at the earliest possible opportunity. Accordingly, the information may change over time. It may be necessary to obtain updates from the source before relying upon the accuracy of the information contained herein. This material is presented for information purposes only. Managers and supervisors should evaluate this information to determine if it can be applied to their own situations and practices.