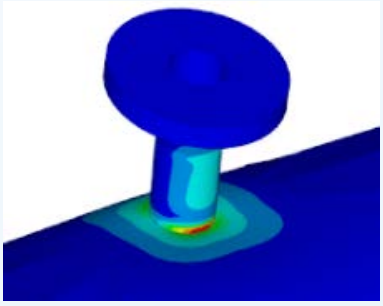
Fatigue Crack

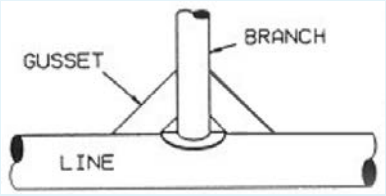
EPSC Learning Sheet Sept 2022

What Happened:
A pressure indicator mounted on a pipeline after the compressor started to leak at the weld point of the branched pipe. Due to trembling a fatigue crack was formed.



Aspects:

- Compressors (& mechanical equipment) introduce energy that can result in trembling of pipelines that eventually cause fatigue cracks.
- Small bore piping (<1 inch) is sensitive for fatigue as the connecting surface is small.
- Gussets can be used to strengthen the connection of branched pipes to minimize movement.



- Also a larger tie-in can be taken that is further reduced to the smaller required tubing size.

- Dampers can absorb energy and mitigate vibrations.
- Assure good fixation of piping to avoid movements that result in fatigue and repair fixation when applicable.
- Stress calculations (picture above) can indicate weak spots.

Avoid Fatigue Cracks at small bore tubing