

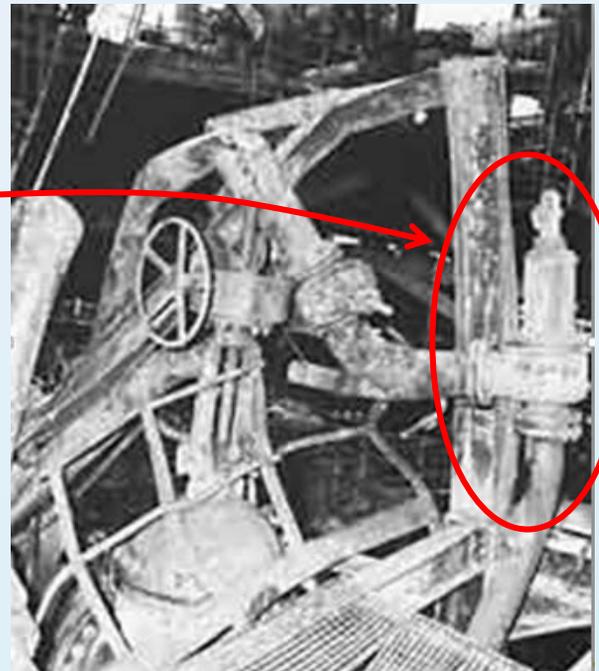
# Chattering PSV

EPSC Learning Sheet May 2020



## What Happened:

In 1985 in Priolo (Italy) an explosion occurred on a refinery, after a pressure safety valve opened. The vigorous opening and closing of the safety valve caused trembling that damaged the piping and caused an LPG release; the vapour cloud ignited.



## Aspects:

- Chattering is the rapid opening and closing of a pressure relief valve. The resulting vibration can cause misalignment, valve seat damage and sometimes even mechanical failure of valve internals and associated piping
- Chattering is influenced by: high inlet pressure drop, high backpressure, oversized relief valve e.g. above 140% (See API 521 Part II, section 7) and is difficult to fully avoid
- Avoid multiple PSV's with the same pressure setting
- The PSV surrounding piping needs to be strong & well fixed
- Inspect also for potential damage of the PSV fixture and surrounding piping, after a release

**PSV can violently chatter  
This requires design consideration**