

Nitrogen transients in the CMS inertion system

SPES on 23 Jan 2002

- The system configuration for temporary inertion (Stefano) – 6 min.
- Typical results and verification – 6 min.
- Phases of program development (Reiner) -15 min.

Fortran program Verification

The main goal of the program is to give a complete view of the most important thermo-hydraulic phenomena in discharging fluid from tanks into long pipelines. The first check of the program has been done on the pressure drops, keeping as a reference the GWG standard program.

The GWG program is intended for calculation of pressure drops in a straight pipe only!

Therefore in our verification we took two straight pipes of different diameters and compared the results with the GWG program.

We expected a differences not bigger than the 15-20%

Results Comparison



- The gas expansion could make the difference not linear
- In our program we consider the tank depressurization transient.
- K factors at tank exit are bigger for smaller pipes
- Friction heat up is also considered.