**Solutions proposals**

**Training exercise 6**

**Task 2: Water flow through choke**

1. **Choke velocity**

Choke equation: 



1. **Outlet temperature**

With negligible friction: 

1. **Downstream temperature**

After the outlet velocity energy t is dissipated by turbulence. Energy balance

. Leads to





**Task 3: Gas flow through choke**

1. **Flow velocity**

The pressure reduction considered will cause critical flow at choke outlet





Corresponding pressure at choke outlet: 

1. **Temperature at choke outlet**

Isentropic process relation: 

1. **Downstream temperature**

After the outlet velocity energy t is dissipated by turbulence. Energy balance, q=0, w=0,dh=0 . . For ideal gas . Difference between upstream and downstream:

 . Velocity energy negligible: 

Dissipation of velocity energy after choke outlet ideally recovers temperature drop between upstream and outlet. (Isenthalpic expansion maintains temperature).