TWG2 2019 Budapest

Inspections on pipelines 2005 – 2009

Peter Vansina

FEDERAL PUBLIC SERVICE EMPLOYMENT, LABOUR AND SOCIAL DIALOGUE

Ghislenghien - July 30th 2004

Natural gas pipeline ruptured followed by an explosion and fire

24 killed

132 injured

Accident summary

- Civil works had been carried out above a major natural gas pipeline using a ground stabilization machine.
- The pipeline was damaged, most likely by such a machine.
- The day of the accident, the pressure into the pipeline had been increased from 70 to 80 bar for process purposes. That caused the pipe to rupture.
- Most of the dead were police and fire-fighters responding to reports of a gas leak.

Inspection campaign on pipelines

- Scope:
  - External (transport) pipelines (near a Seveso site)
  - Internal (transport) pipelines and pressure reducing stations (inside a Seveso site)
- Inspection Topics
  - Identification of pipelines
  - Risk analyses
  - Technical and organizational measures

Campaign timeline

- 2005: first campaign (20 Seveso sites)
- 2008: information bulletin issued
  - ‘Recommendations for managing risks of pipelines’
- 2009: second campaign (17 Seveso sites)
- 2011: raising awareness via industry federations
  - Presentations
  - Checklist for self-evaluation by companies
- Some issues are covered during inspections on
  - Emergency planning
  - Inspection and maintenance

External pipelines

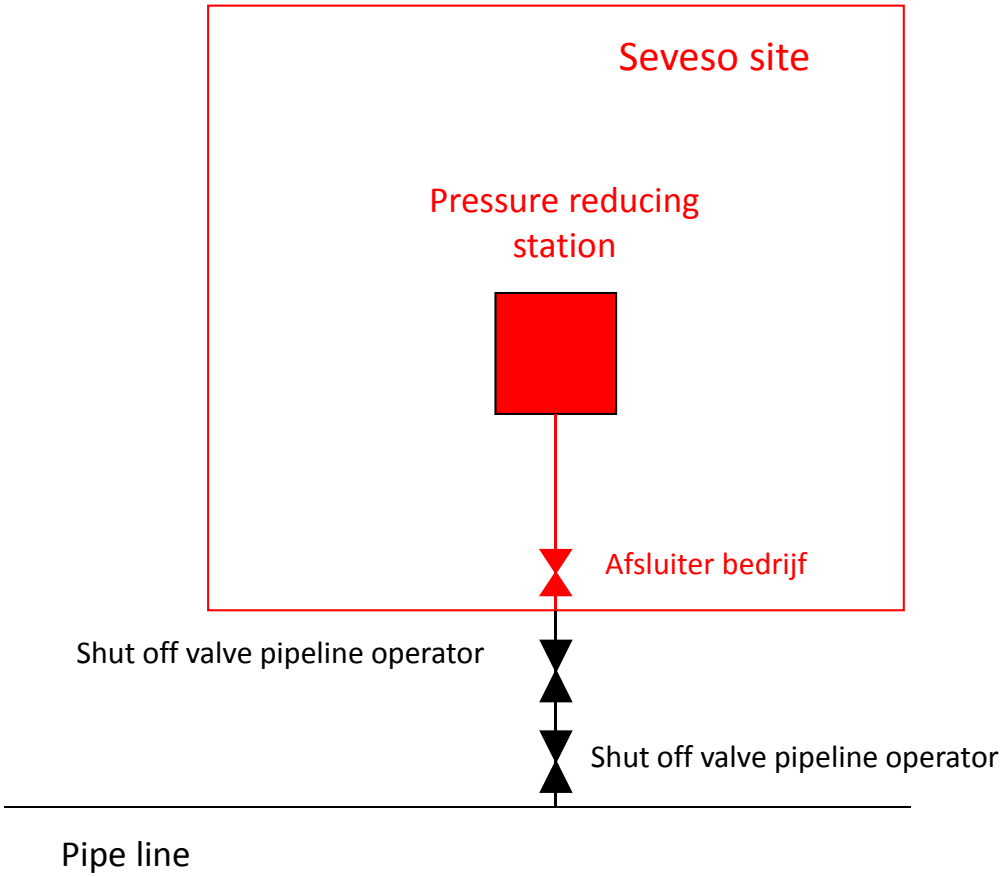
- Knowledge of pipelines near site (200 m)?
- Scenarios and possible impact
  - Overpressure, heat radiation?
  - Exchange info between pipeline operator and Seveso site?
- Contact points (emergency numbers, …)?
- Rupture external pipeline covered in the internal emergency plan?

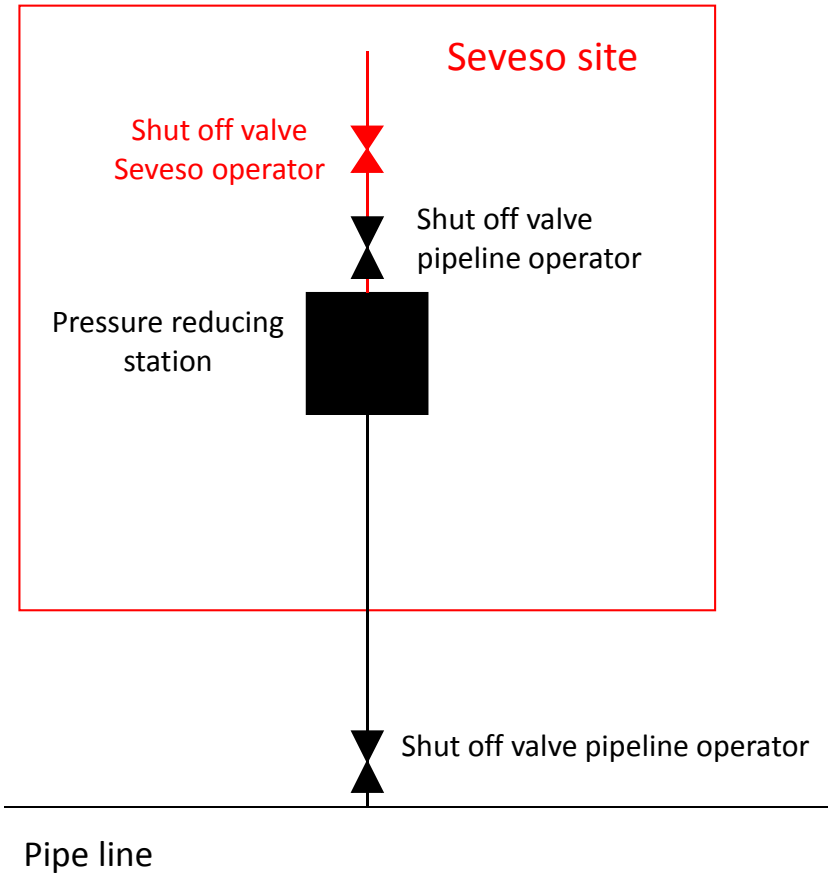
Internal pipelines & pressure reducing stations

- Exact location of underground pipelines ?
- Above ground marking of internal underground pipelines?

Internal pipelines & pressure reducing stations

- Transition point internal (Seveso site) – external (pipeline operator)?





Internal pipelines & pressure reducing stations

- Shut off valves / isolation valves
  - Location (especially when underground)?
  - Operation of the valve?
    - By whom? (Seveso site? pipeline operator? both?)
    - Regularly tested? (sometimes stuck after long period of inactivity)
    - Special tools to operator valve available?
  - Accessible in case of emergency in the PRS?
  - Remotely operated shut off valve needed?

Internal pipelines & pressure reducing stations

- Risk analysis
  - Available?
  - Regularly updated?
  - Collaboration between Seveso site and pipeline distributor?
- Explosion risks
  - Classification of explosive atmospheres into zones?
  - Explosion protection document?

Internal pipelines & pressure reducing stations

- Technical issues
  - Gas detection in PRS Houses?
  - Pressure indicator between rupture disk and safety valve?
  - Safe location of pressure relief outlet to atmosphere?
- Technical documentation
  - Actual P&ID's?

Internal pipelines & pressure reducing stations

- Inspection and maintenance
  - Pipeline and PRS covered by inspection program?
    - Piping
    - Pressure relief
    - Instrumental safety systems
    - Gas detection
    - Electrical installation …
  - What is Seveso site supposed to inspect?
  - What is the pipeline operator supposed to inspect?
  - Exchange of info inspections between Seveso site and pipeline operator?

Internal pipelines & pressure reducing stations

- Work on or near pipelines
  - Subjected to permit to work system (e.g. digging)?
  - Notification of works near pipelines to pipeline operator (obligatory)?
  - Risks of heavy transport above underground pipelines?
- Work on pressure reducing station
  - Should pipeline operator personnel follow the permit to work system?

Internal pipelines & pressure reducing stations

- Emergency planning
  - Emergency numbers
    - Known?
    - Tested?
  - Simulation of incident during emergency exercises?
  - Response from pipeline distributor
    - Type of intervention that can be expected?
    - Intervention time?