TWG2 2019
Budapest

Inspections on pipelines 2005 – 2009
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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?