

Belgian inspection campaign on measures to limit amount of liberated dangerous substances

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Belgian risk analysis model

Safety functions:

- Controlling process upsets
- Controlling degradation of primary containment
- **Limiting quantities released**
- Control spreading of substances released
- Avoiding ignition sources
- Mitigation of damage due to fire
- Mitigation of damage due to explosions
- Mitigation of damage due to a toxic release



Limiting quantities released

- Starting from leak in the installation
- Limiting amount of dangerous product released

2 steps

- Detecting leak
 - Gas detection
- Blocking large volumes to feed the leak
 - Remote operated shut off valves (ROSOV)



Inspection campaign



- Team of 3 inspectors
- 20 companies inspected
- Inspections with existing SIT limiting accidental leaks
 - SIT available in Dutch and French on our website:
<https://werk.belgie.be/nl/themas/welzijn-op-het-werk/seveso-preventie-van-zware-ongevallen>
- Focus on large vessels in process installations
 - Tanks mostly covered by other inspections
 - Mostly info found in safety report (HT)
 - Sometimes info in notification (LT)



Why campaign inspections

Pro

- Knowledge is gathered in limited team
- Less difference in inspection approach

Contra

- Less knowledge of the company
- More difficult planning and follow up of shortcomings



Campaign findings



- Most companies have gas detection systems
 - But mostly no documented performance evaluation
 - Mostly plan available of locations
 - Evaluation asked if inspector identifies blind spots on plan
- Most companies have ROSOV
 - Only few companies have guidelines on where to place ROSOV
 - If available, then in big companies
 - If no guideline, companies can also make case by case evaluation



Campaign findings



- Evaluation of need to place ROSOV generally not documented
 - Also if company has standard
 - If company refers to HAZOP for this, evaluation not found there
- Storage tanks generally better conformity
- Process tanks less conform
- If no ROSOV on larger volumes, formal evaluation asked
 - We didn't use fixed treshold
 - Most used treshold is around 10 t



Campaign findings



- inspections on good functioning of ROSOV
 - OK if part of SIF
 - If not, often not in inspection programme
- Uncontrolled bypass lines over ROSOV found in some companies
 - During plant tour
 - By inspecting P&ID



Campaign findings



- Mostly ROSOV have to be activated manually (from control room)
 - But no instructions and training
 - Process operators often have reflex to go check outside
 - Even if multiple gas detectors give alarm
- Some companies count on manual isolation valves
 - But forget to evaluate accessibility and safety for operator

