Spatial Safety Reports

Flemish government
Environment, Nature and Energy Department
Safety Report Division

Marc Bogaert
Belgium: situation in Flanders

- dense population, dense road and railway network
- 140 upper tier Seveso establishments
  - concentrated in 3 areas
    - port Antwerp
    - port Ghent
    - Albert canal
  - rest dispersed
- 140 lower tier Seveso establishments
Seveso establishments in Flanders

- Upper tier
- Lower tier

http://veiligheidsrapportage.lne.be
## Flanders: Criteria - IRC

<table>
<thead>
<tr>
<th>Risk Acceptability</th>
<th>IRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border of the establishment</td>
<td>$10^{-5}/y$</td>
</tr>
<tr>
<td>Border of residential area</td>
<td>$10^{-6}/y$</td>
</tr>
<tr>
<td>Border of area containing vulnerable location</td>
<td>$10^{-7}/y$</td>
</tr>
</tbody>
</table>
Flanders: Criterium – Societal Risk

criterium
• art. 12 (LUP)

- “Member States shall ensure that the objectives of preventing major accidents and limiting the consequences of such accidents are taken into account in their land-use policies and/or other relevant policies. (…)”

- “(…) Member States shall ensure that their land-use and/or other relevant policies and the procedures for implementing those policies take account of the need, in the long term, to maintain appropriate distances between establishments covered by this Directive and residential areas, buildings and areas of public use, … (…)”
Seveso II – directive and LUP

• Flanders
  ▪ Implementation of Seveso II, art. 12
  ▪ LUP is regional competence

⇒ Flanders: introduction of Spatial Safety Report (SSR) in decrees Environment and LUP
  ⇒ DABM (Environmental Policy Decree) and
  ⇒ DRO (Decree on Policy LUP)
⇒ Flanders: decision Flemish Government
  ⇒ Advice by Safety Report Division on every LUP
SSR in procedure land-use plan

Preparation of a Spatial Safety Report

Advice of Safety Report Division

Plenary meeting

Provisional approval

Public enquiry

Final approval
Definitions SSR (1/2)

Areas of special attention:

a) Residential areas
   - Residential zoning
   - Group of at least 5 dwellings in non-residential zoning

b) Areas with a vulnerable location
   - Schools (< 18 years)
   - Hospitals
   - Retirement homes
c) Areas of particular natural sensitivity or interest
d) Buildings and areas of public use, including recreational areas
e) Major transport routes
f) External sources of danger (wind turbines, …)
Decree criteria

Safety Report Division receives draft lup

Seveso-establishment present or possible in draft lup?

No

Areas of special attention in lup?

Yes

Seveso establish at < 2km of area special attention?

Yes

Area of special attention at < 2km from Seveso establish?

No

All risks known by Safety Report Division?

No

Yes

No SSR

SSR

No SSR

No SSR Or: SSR Or: planning regulations

No SSR
• Depending on the situation:
  ▪ No SSR necessary and no specific measures
  ▪ SSR necessary
  ▪ Recommendation of planning regulations
SSR : content

Part I: general about land use plan

Part II: influence of land-use plan on safety

Part III: difficulties encountered (technical, ...), lack of knowledge, ...

Part IV: non-technical summary
• Risk analysis by means of a methodology, based on the amount and type of the dangerous substances
  
  A. Method based on subselection (indication number A)
  
  B. Method using representative substances

• Both methodologies are conservative
Problem:

1. Siting new Seveso establishments: distance to existing area of special attention?

2. Siting new area of special attention: distance to existing Seveso establishments?
1. Siting new establishment with:
   - 5 ton chlorine (toxic)
Siting of 5 ton chlorine possibly allowed; further investigation required.

5 ton chlorine allowed.

SSR: methodology A

Indicate sitings ➔ Possible alternatives
2. Siting new residential area or area with vulnerable location
2. Siting new area of special attention

IRC $10^{-7}$/y:
No siting of new area of special attention:
- S: school
- R: retirement home
- H: hospital

IRC $10^{-6}$/y:
No siting of residential area
Proof that it works

Case:
residential area nearby Seveso company?
Historical situation

Perstorp Oxo Belgium
Overdam
EOC Latex Division II
Seveso company EOC Polymers II

- Upper tier Seveso company

- 360 ton butadiene (mounted tanks) (2 x 300 m$^3$) and expansion with ca. 300 ton (500 m$^3$)
Residential area Overdam

- Historically developed Overdam with:
  - ca. 20 houses
  - ca. 4 agricultural companies
  - a manège
- Overdam was situated in an industrial area (circa 1970)
- Overdam as residential area (red colour) in LUP proposal (urbanisation plan)
Historical situation  LUP proposal

10-4/jaar  10-5/jaar  10-6/jaar  10-7/jaar
Decision for LUP

Perstorp Oxo Belgium

Overdam

EOC Latex Division II
Conclusion

• Case: residential area nearby Seveso company?
• Decision
  ▪ No residential area in LUP
  ▪ In period of 10 years no houses in area within IRC= $10^{-6}$/year
• Result
  ▪ Safe situation because of Spatial Safety Report