



Spatial Safety Reports

Flemish government
Environment, Nature and Energy Department
Safety Report Division

Marc Bogaert

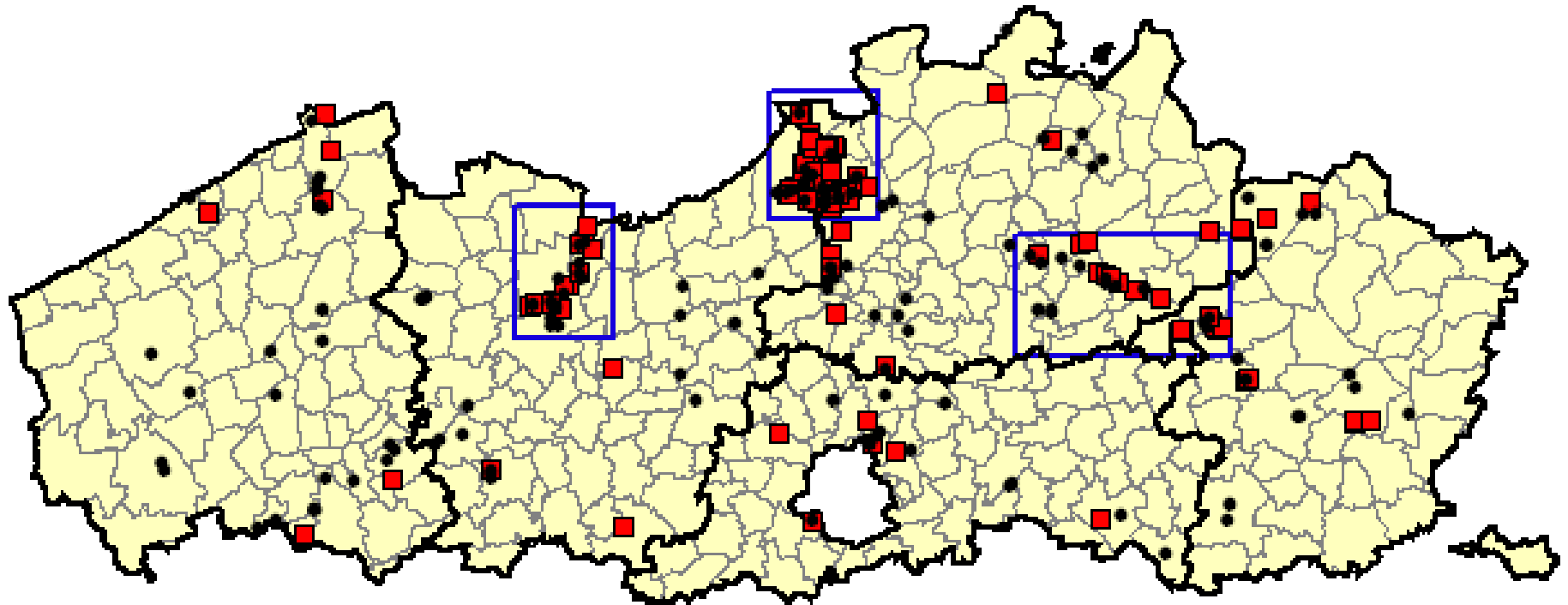


Belgium: situation in Flanders

- 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



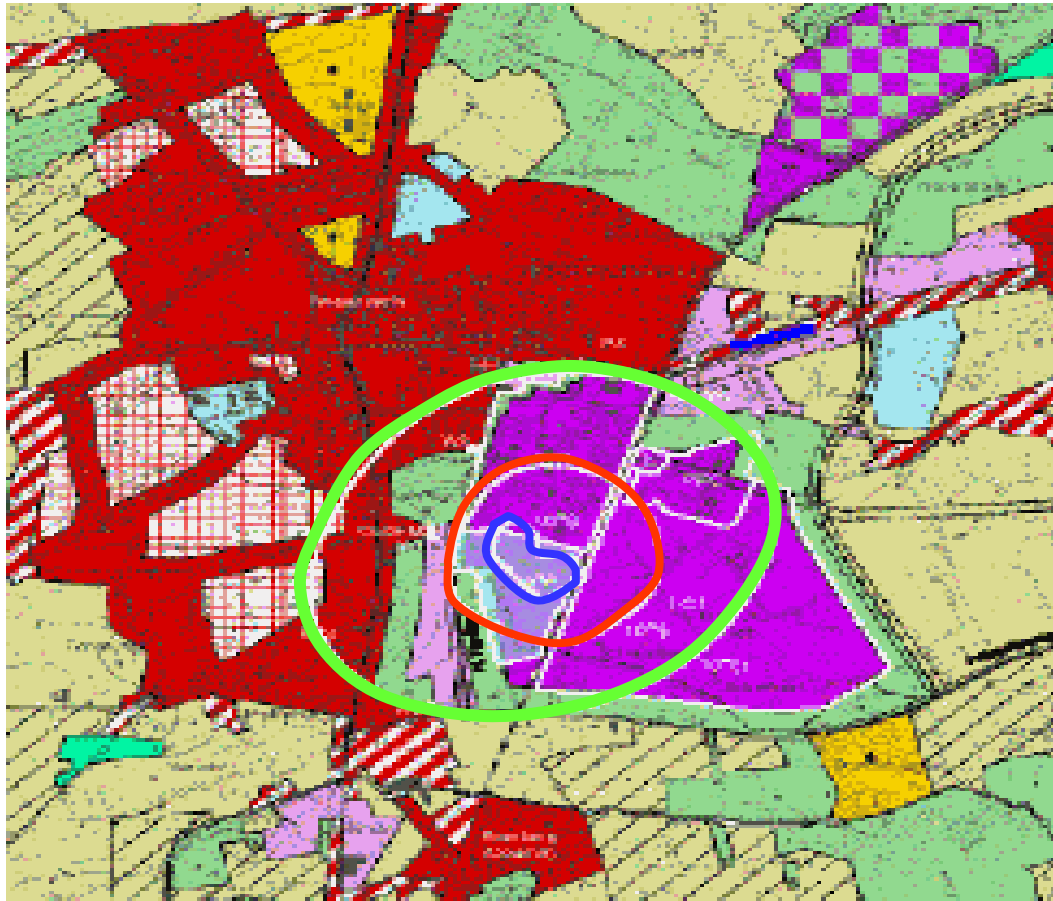
■ Upper tier

● Lower tier

<http://veiligheidsrapportage.lne.be>



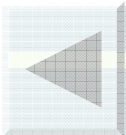
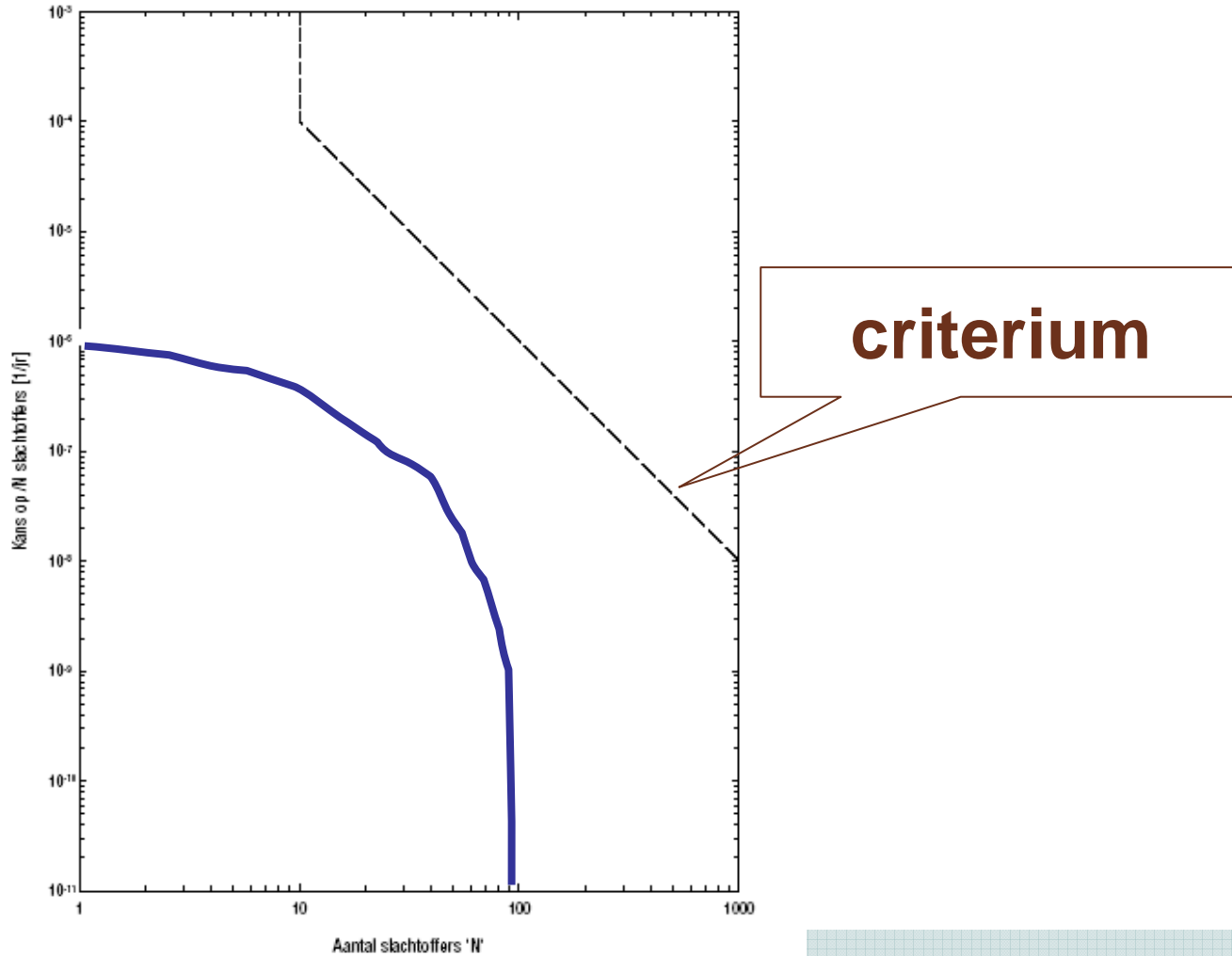
Flanders : Criteria - IRC



Risk Acceptability	IRC
Border of the establishment	$10^{-5}/y$
Border of residential area	$10^{-6}/y$
Border of area containing vulnerable location	$10^{-7}/y$



Flanders: Criterium – Societal Risk

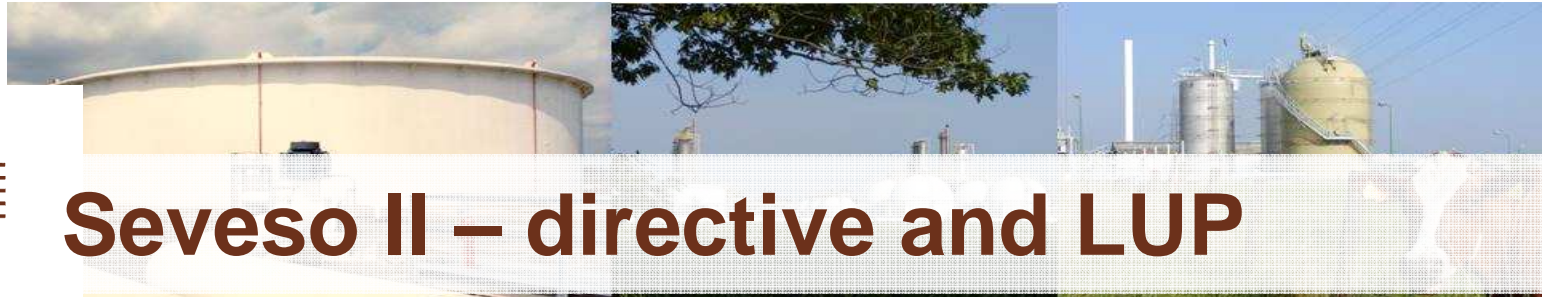




Seveso II – directive and LUP

- **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

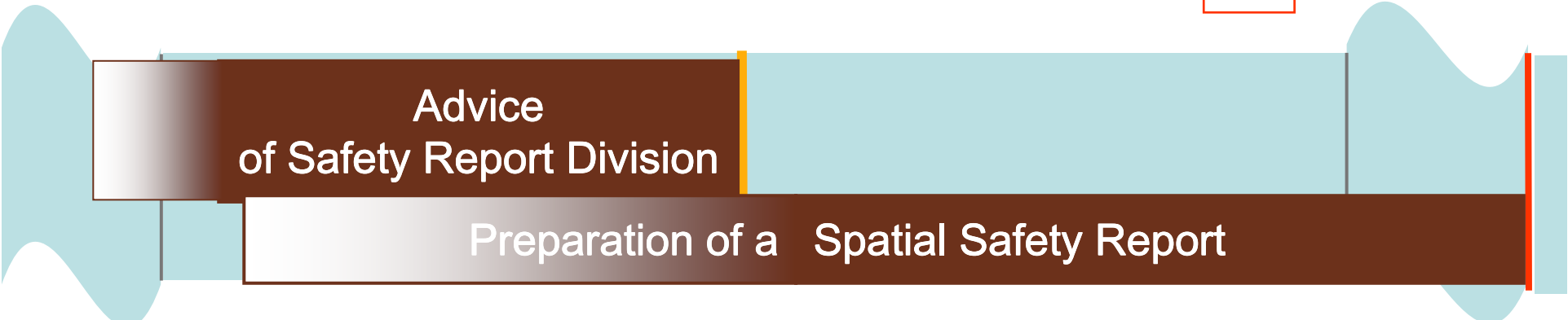
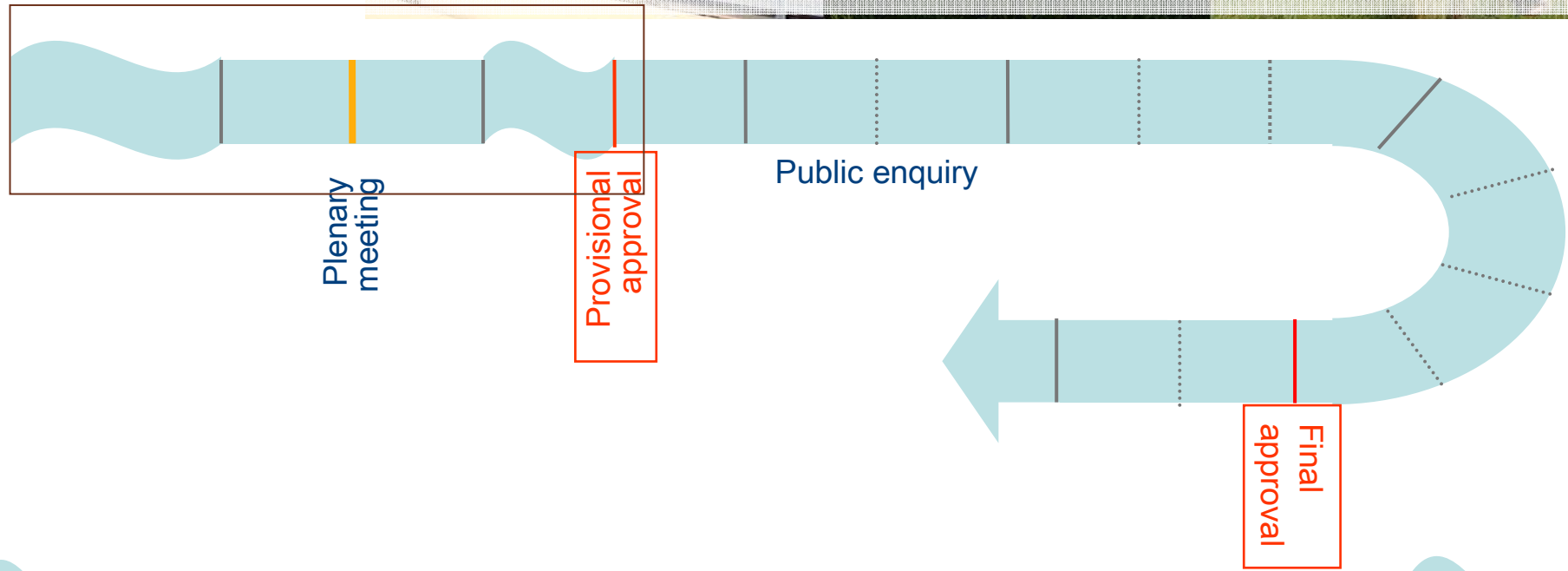
⇒ DRO (Decree on Policy LUP)

⇒ Flanders: decision Flemish Government

⇒ **Advice** by Safety Report Division on every LUP



SSR in procedure land-use plan





Areas of special attention:

a) Residential areas

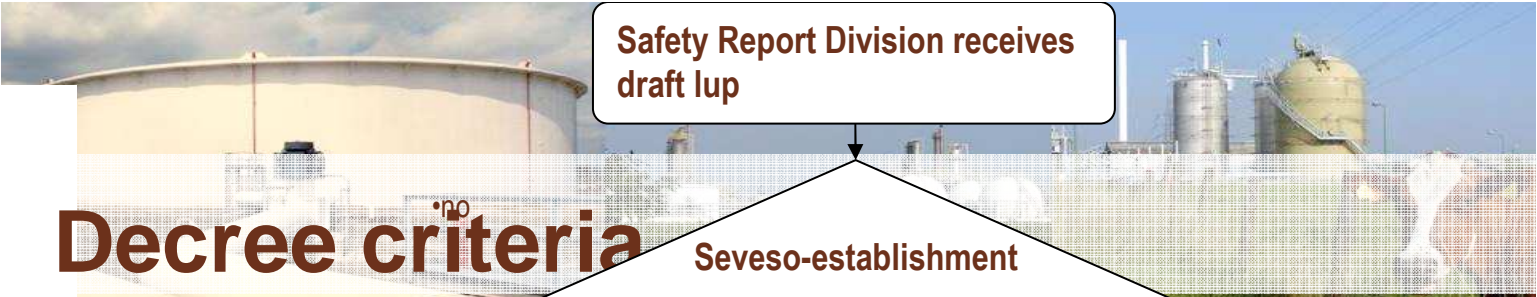
- Residential zoning
- Group of at least 5 dwellings in non-residential zoning'

b) Areas with a vulnerable location

- Schools (< 18 years)
- Hospitals
- Retirement homes

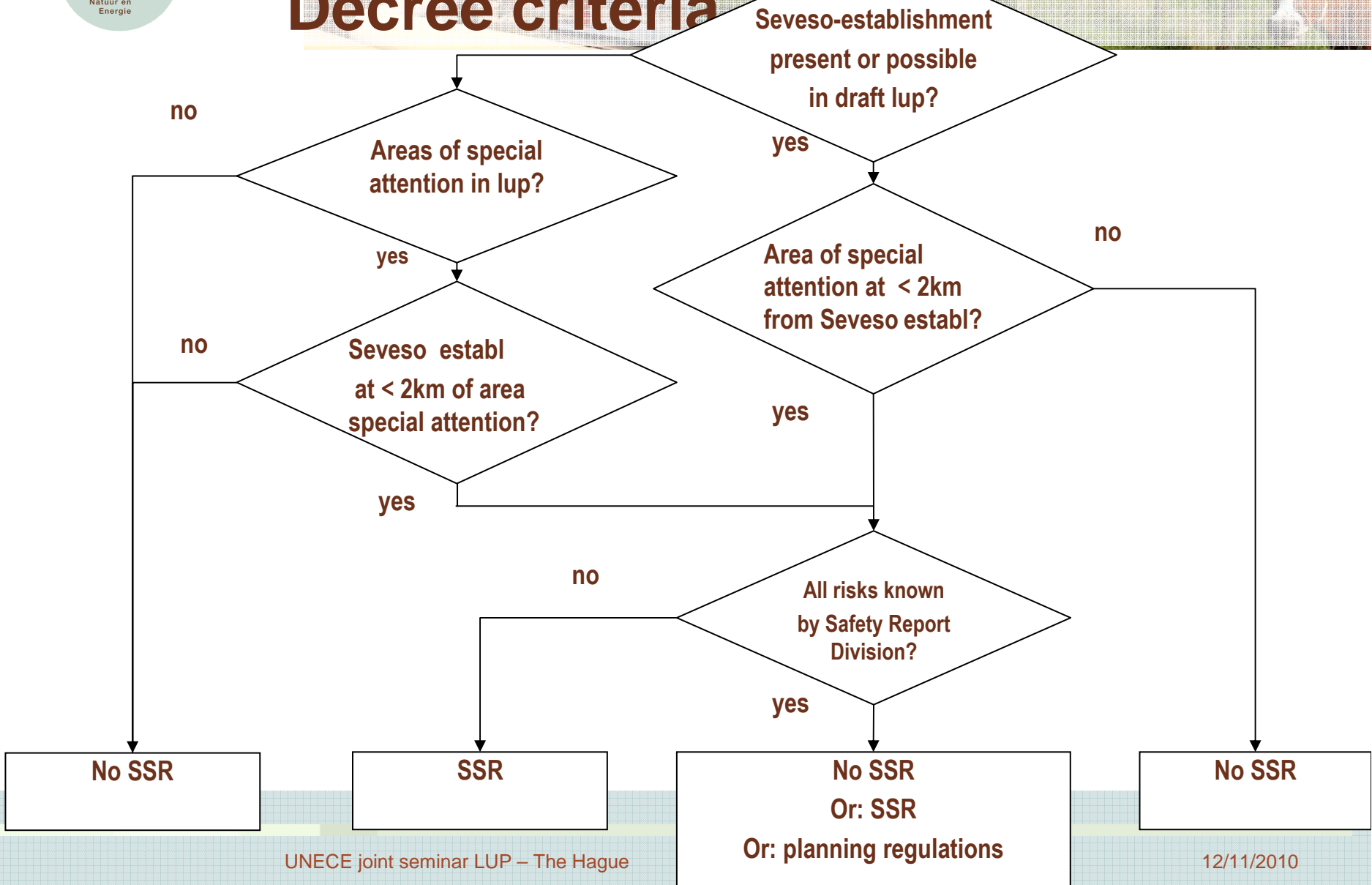


- c) Areas of particular natural sensitivity or interest
- d) Buildings and areas of public use, including recreational areas
- e) Major transport routes
- f) External sources of danger (wind turbines, ...)



Safety Report Division receives draft lup

Decree criteria





Advice Safety Report Division

- 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



SSR : methodology

(1/6)

- 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)

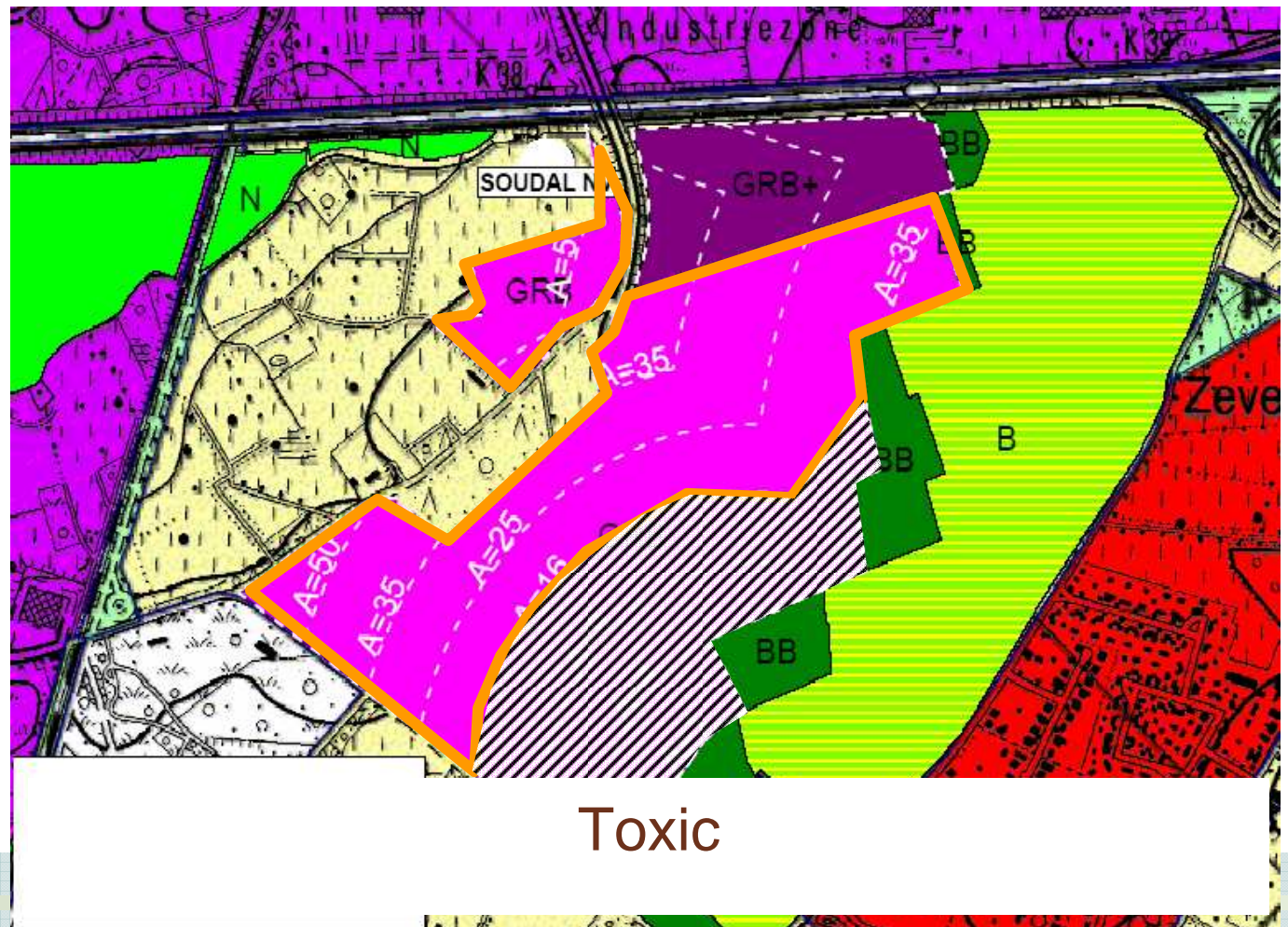
Indicate sitings → Possible alternatives



5 ton chlorine
 allowed



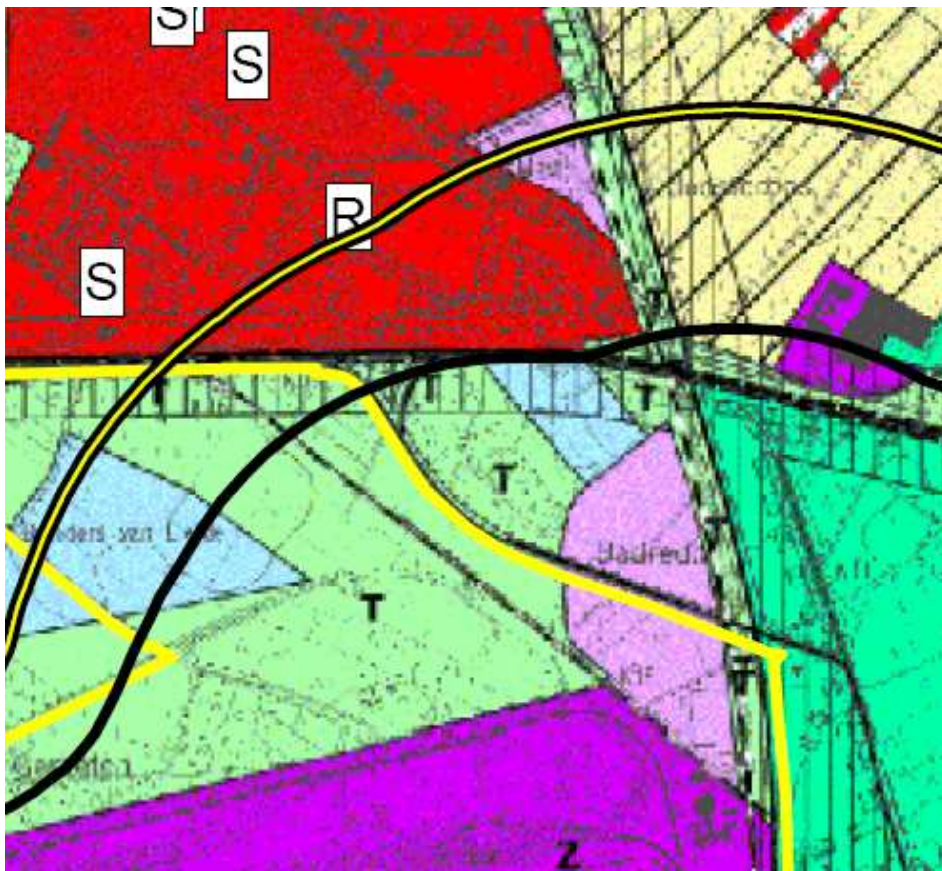
Siting of 5 ton
 chlorine
 possibly
 allowed; further
 investigation
 required





2. Siting new residential area or area with vulnerable location

2. Siting new area of special attention



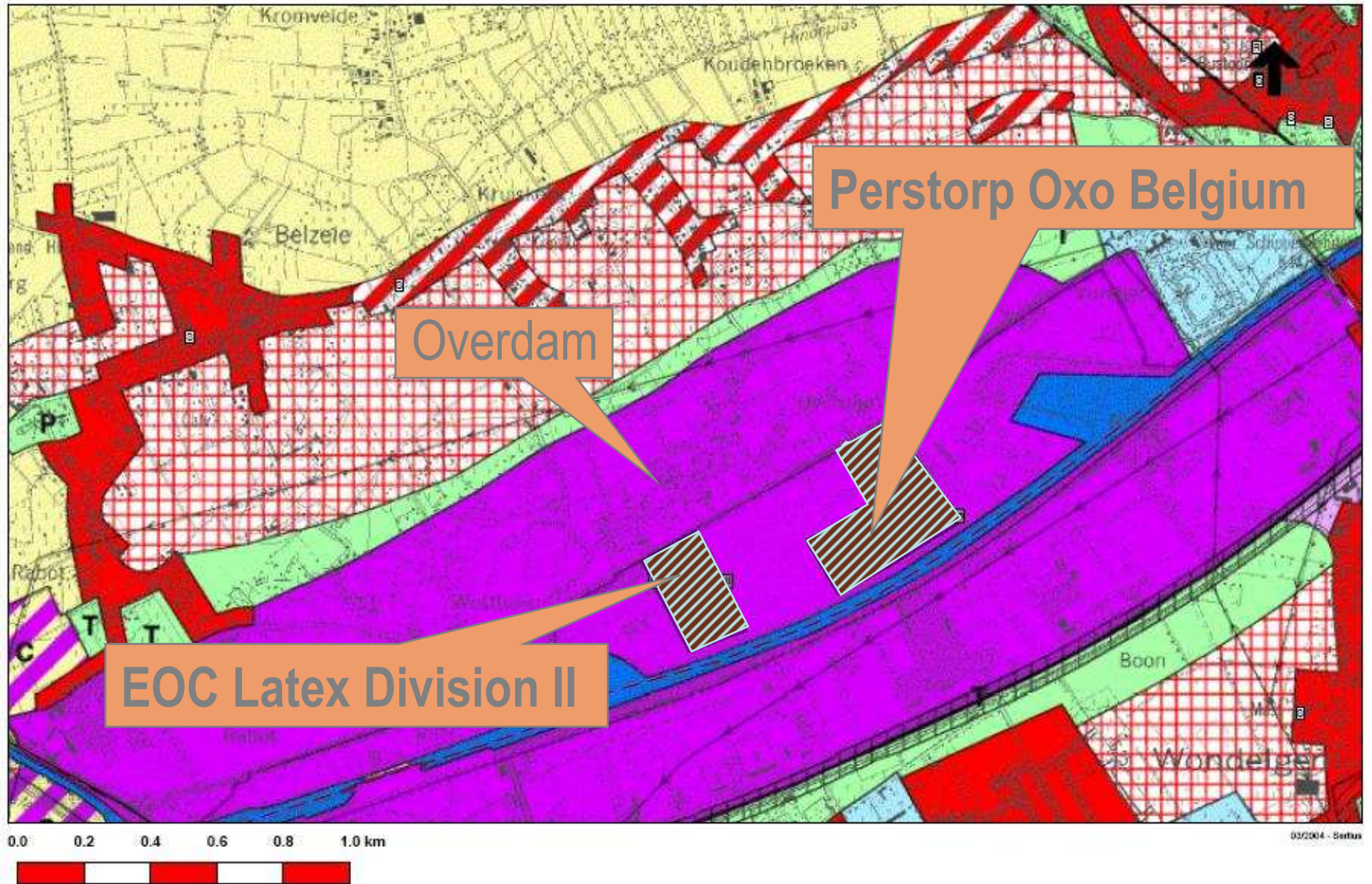
IRC 10⁻⁷/y:
No siting of new area of
special attention:
S: school
R: retirement home
H: hospital

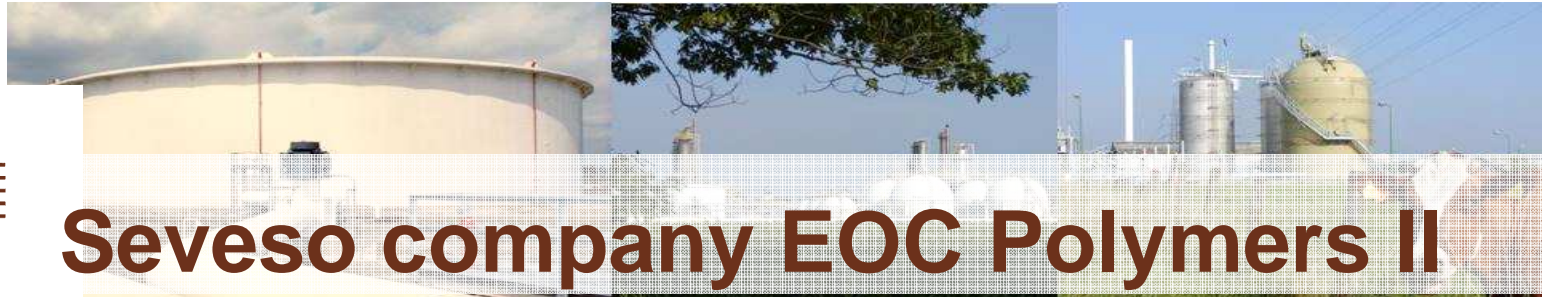
IRC 10⁻⁶/y:
No siting of residential area



Case:
residential area nearby Seveso company ?

Historical situation

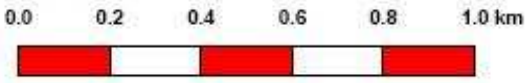
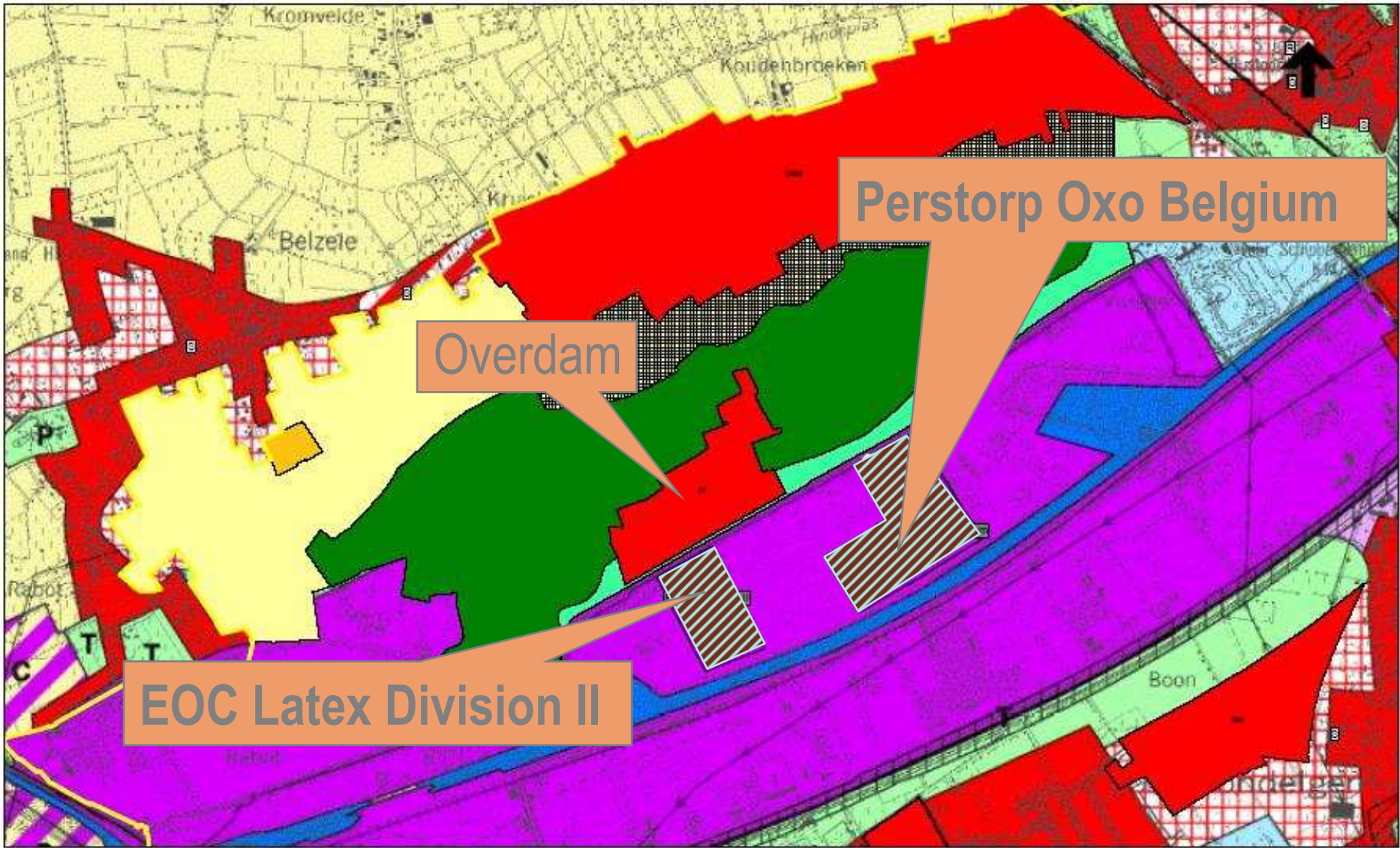




Seveso company EOC Polymers II

- Upper tier Seveso company
- 360 ton butadiene (mounted tanks) (2 x 300 m³)
and expansion with ca. 300 ton (500 m³)

LUP proposal





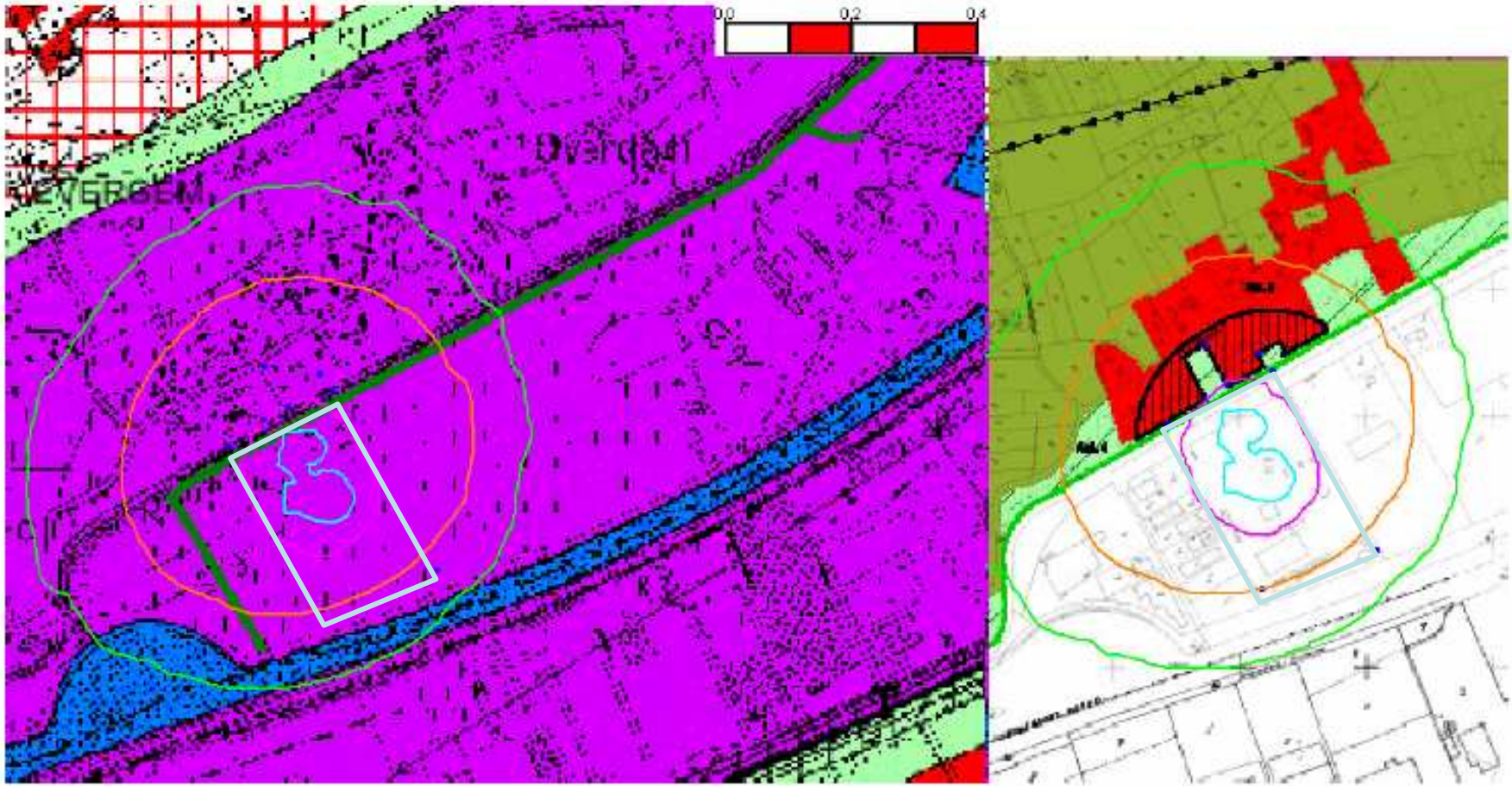
Residential area Overdam

- 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

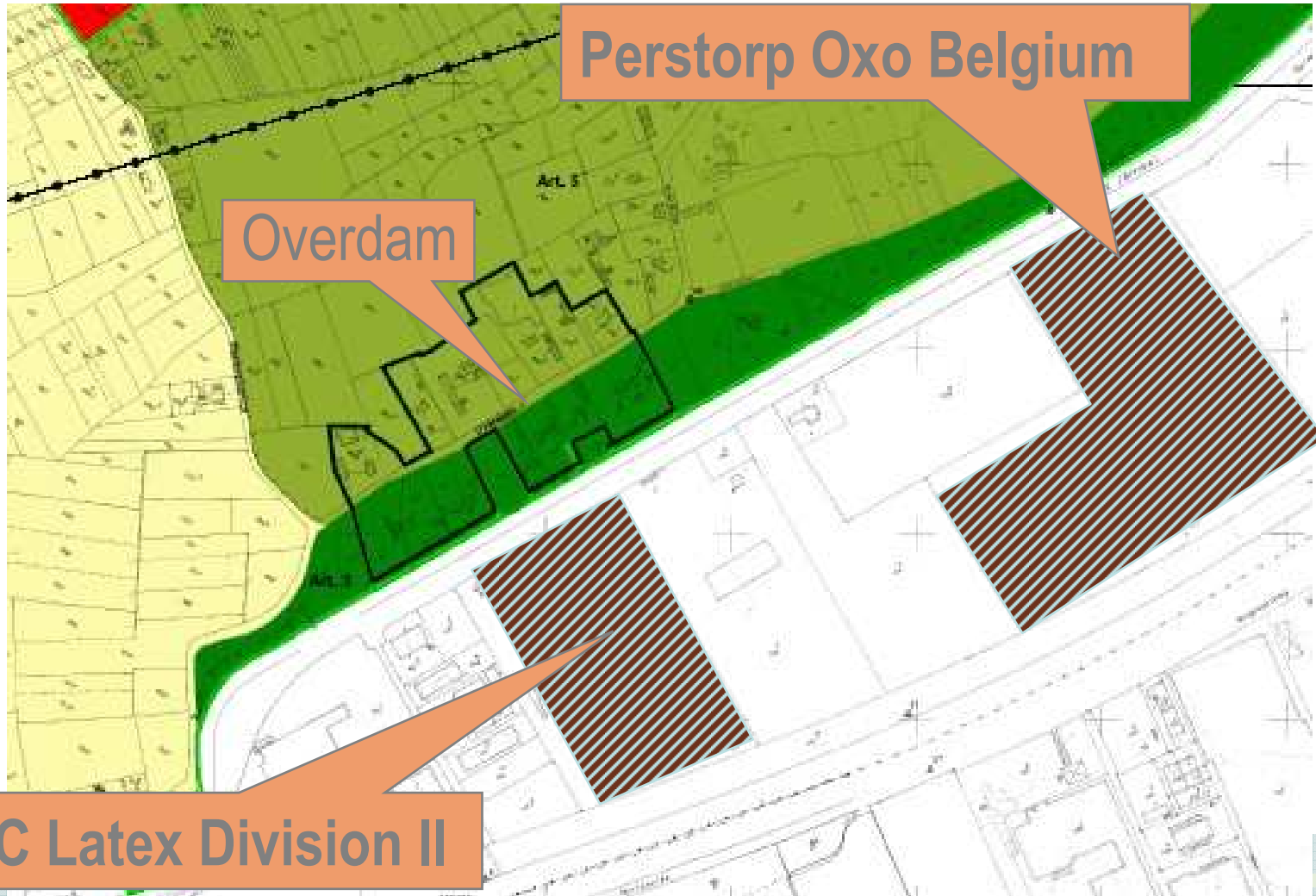
LUP proposal

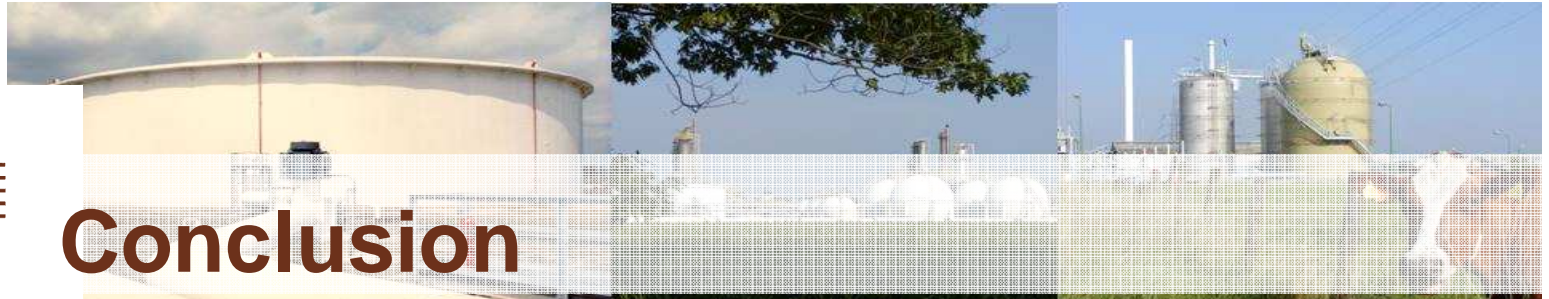


- 10-4/jaar
- 10-5/jaar
- 10-6/jaar
- 10-7/jaar



Decision for LUP





Conclusion

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