

Den Haag 11-12 november 2010
UNECE Joint seminar on land use planning around
hazardous industrial sites



Regulation of land-use planning practices around
hazard storage tank facilities, the example of Geneva.

Alberto Susini
Geneva, CH
alberto.susini@etat.ge.ch

Objectives of the presentation

- Incorporation of safety distances linked to fuel depots into the land-use planning practices
- Dealing with the building of a new Scandinavian warehouse for home equipment products, near a fuel depot existing since 40 years

Historical context of the safety measures in fuel depots

- 2003 Evaluation of the safety report (OMA) of all the fuel depots of the Geneva region
A risk analysis was asked for a fuel depot

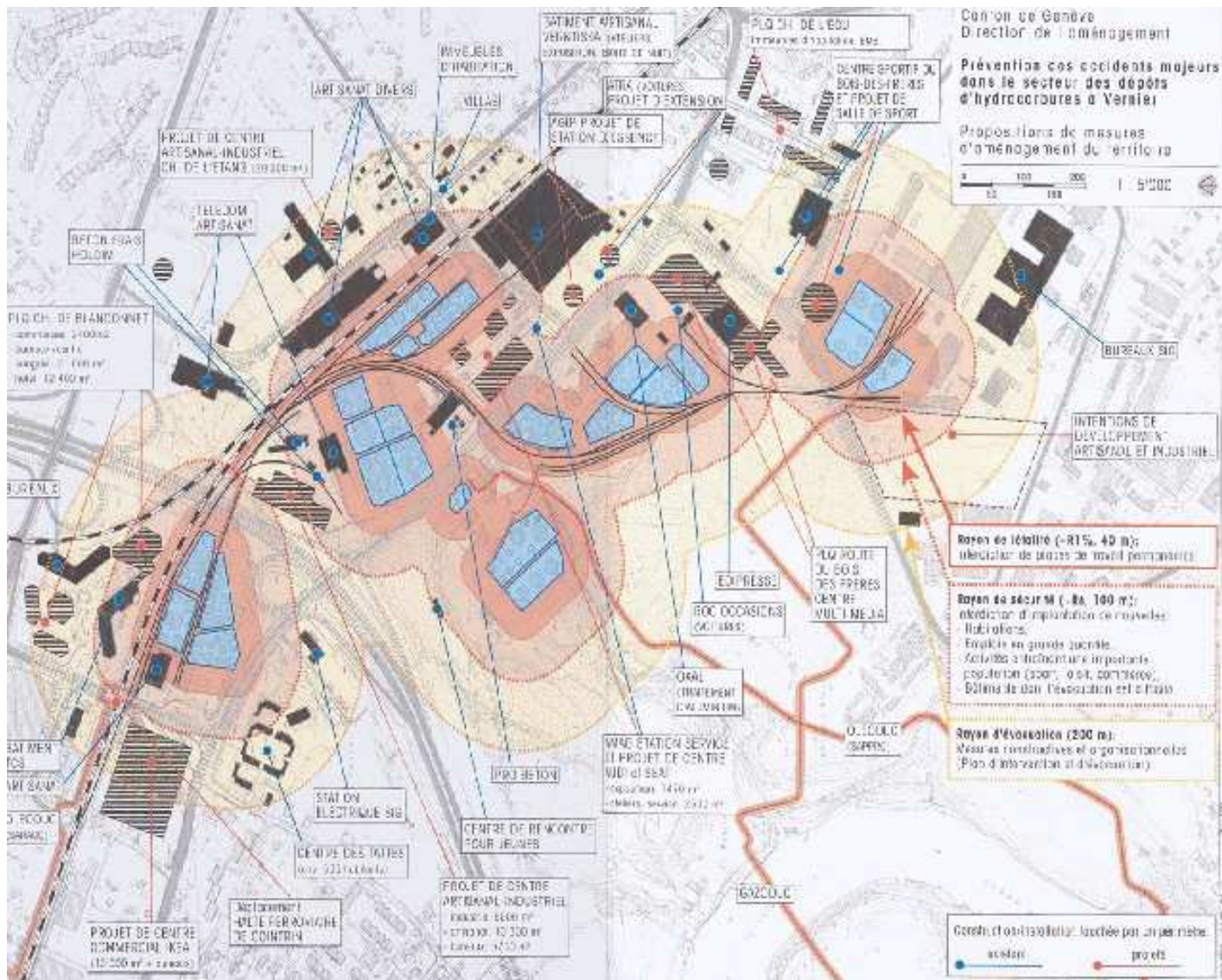
- 2003 Safety distances around storage tanks based on scenario linked to the thermal radiation from fires
 - R_1 : 40m, 57 kW/m², 50% lethality, ban of housing and permanent workplaces
 - R_s : 100m, 15 kW/m², 1% lethality, ban of housing, warehouses and supermarkets
 - R_e : 200m, 5 kW/m², pain threshold, evacuation radius, emergency planning measures

- 2010 Evaluation of the risk analysis and the lessons learned from the Buncefield accident (cloud explosion)
Planning of further controls on site by a petroleum private branch inspectorate under state supervision

- 2010 Information given to the local parliament regarding the risks of the fuel depots for the population

Historical process of the building of the Warehouse

- 2002 to 2002 : first feasibility studies and determination of the safety measures for the warehouse
- 2004 : incorporation of the safety measures for the warehouse inside the zoning change process and the environmental impact assessment
- 2005 - 2006 : oppositions toward the change of land use zoning which went to cantonal court and federal supreme court which finally rejected all the oppositions and confirmed the land use planning zoning toward the commercial use of a warehouse
- 2008 : approval of the building permit, oppositions with rejection by the court
- 2009 to 2010 : building and opening of the warehouse



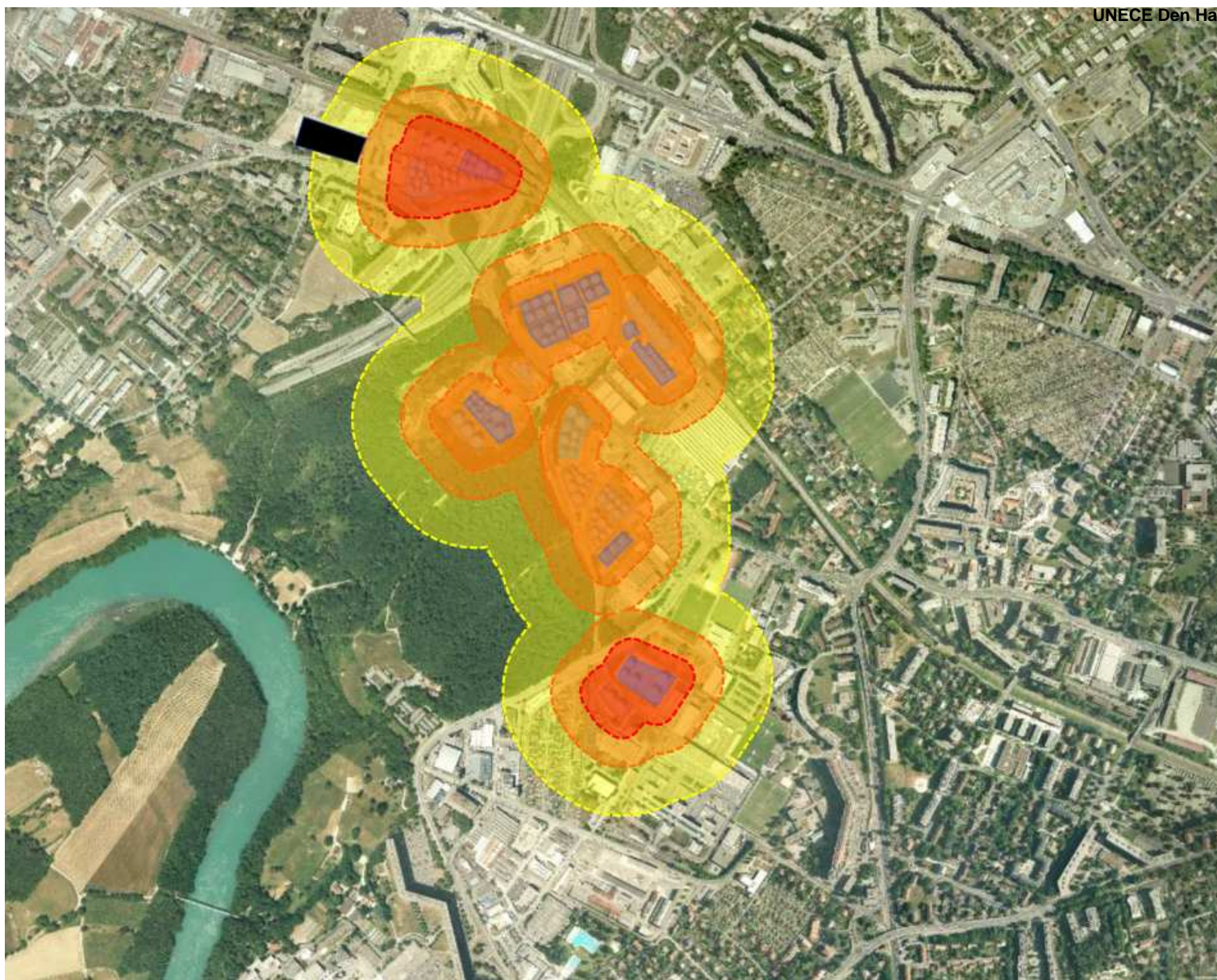
Urbanization projects near the fuel depots before the official incorporation of safety zones inside the land use planning practices



REPUBLIQUE
 ET CANTON
 DE GENEVE

POST TENEBRAS LUX

Département de la sécurité, de la police et de l'environnement
 Service de l'environnement des entreprises



REPUBLIQUE
ET CANTON
DE GENEVE

POST TENEBRAS LUX

Département de la sécurité, de la police et de l'environnement
Service de l'environnement des entreprises

Hazardous storage tank

Gasoline : 60'000 m³

Kerosene : 10'000 m³

Oil : 12'000 m³

Warehouse

31'000 m² of surface

300 Working places

Total cost of 100'000'000 CHF



REPUBLIQUE
ET CANTON
DE GENEVE

POST TENEBRAS LUX

Département de la sécurité, de la police et de l'environnement
Service de l'environnement des entreprises

Measures required for the warehouse due to the storage tank

- Determinant accident scenarios of the fuel depot and consequences :
 - Explosion of a fuel tank inside the facility
 - Shockwave of 0.02 bar at 200m
 - Explosion of a gasoline truck inside the facility
 - Shockwave of 0.06 bar at 100m
- Safety measures required to warehouse:
 - No windows on the side toward the fuel depot
 - Resistance to a shockwave of 0.06 bar of the wall of the building toward the fuel depot and resistance of the roof to a shockwave of 0.02 bar due to the suction
 - Safety concept of the warehouse which includes evacuation rules of the public in case of an emergency at the fuel depot

O Problems faced by the authorities, lessons learned

- Comparing and Prioritizing risks arising from different activities (storage, road or rail transport, pipelines etc.)
 - Know accurately the risks of the facilities, updated inspections and safety measures
 - Good knowledge of the land-use planning procedures and status of the investigated place

- Conflicts between risk-inducing activities, sitting and land-use planning
 - New risk exposure situation near existing factories must be checked early in the decision making process of the land use planning, before the construction permits will be delivered

 - Oppositions of neighbours with Court decisions implies to be technically and legally accurate

 - Necessity to develop a cooperative approach with the different stakeholders since the beginning of the project development and for all the duration of the process (mostly long)