



## Break-Out Session 3

# Risk Assessment for Emergency and Land-Use Planning on LPG/LNG Sites Group 4

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# 1. Hazard identification and risk assessment process



Typical scenarios:

- LNG – scenarios – pool fire, vapor cloud, flash fire – maybe roll over. (bleve we don't think is possible.)
- LPG scenarios – pool fire, vapor cloud, flash fire, (bleve).
- Different scenarios for tank, loading/unloading and bottling.
- LPG – the scenarios are standards – for the tanks, the pipes, the parameters can vary. The CA have to evaluate if the parameters are valid or not in the risk assessment.
- In case of cylinders of 10 kg – Cyprus have had some discussion about the possible explosion of all together or single (domino effects)

# 1. Hazard identification and risk assessment process



**Methods** – hazop, probabilistic and consequence analyses.

Weakness –

When use of consultant is a problem of little involvement of the company (site operator)

But most companies would need consultant.

**Management of change** – change gives an increasing risk. The risks of decreasing of number of workers at site have not always been covered (organisational change).

# 1. Hazard identification and risk assessment process



**Communication of risk to workers** – the workers understand their individual risk, but not the overall risk. The people of the site should be involved in the hazop – then they would understand the hazard.

Specific periodic in training activity of workers in Seveso establishments in Italy, both for workers and for contractors.

Questions for inspection:

Questions for the workers: are you aware of the overall risk? What did you learn in the training? What happens if you do not follow the procedure?

What is the worst thing that can happen here?

## 2. Zoning and land-use planning around LPG/LNG sites



### Challenges of LUP:

New coming of housing areas

The old industry places area already built – earlier days the factories built the houses to the workers.

Houses are coming closer to the existing sites.

All the countries have difficult to relocate existing Seveso sites. The countries also have to give the companies possibility to continue to grow to assure workplaces. In addition you should not give them opportunity to have more dangerous substances – that would increase risk.

## 2. Zoning and land-use planning around LPG/LNG sites



### LUP distances:

Most countries rely on the risk assessments from the companies and then evaluate them.

The community (local authority) are able to be in the discussion in the distances – and are the ones to take the planning decisions. They have to or are supposed to follow the zoning in decision making. The Seveso authority are advisory – they often follow the advice.

## 2. Zoning and land-use planning around LPG/LNG sites



### Information to the public

Information to the public is send out to people through notification (web site, public meeting ect.). (In some countries the authorities have to do this)

Inspector can check if the information have been out to the public and to the local authorities involved in the LUP and emergency planning issues.