Economic Commission for Europe
Inland Transport Committee
Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods
Bern, 18-22 March 2019
Item 6 of the provisional agenda
Reports of informal working groups

Report of the Informal Working Group on the reduction of the risk of a BLEVE

Transmitted by the Government of Spain on behalf of the Informal Working Group

Annex 6

Future developments on preventive measures in parking areas (INERIS, France)
Automatic Detection and Extinction systems on outdoor parks of dangerous goods transportation (DGT) vehicles

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BLEREX II – Madrid – May 21, 2019
• Several accidents (fire + explosion) in outdoor DGT parks occurred in France, tending to prove that fire is of criminal origin
• DGT regulation in France thus requires that such parks are equipped with automatic fire detection systems within the next years, supplemented by automatic extinction/mitigation systems
• INERIS was thus mandated to benchmark existing technologies and consider on-board technologies in order to detect the fire on time (extinction expected before occurrence of BLEVE)
Scenarios of interest

Typical parking configuration

Parking 135 places transporteur:
135 places de parking → 14 places red 10% de places
- interdiction de stationner des citernes GPL en bordure de parking
- plan de stationnement à modifier.
- Grillage côté rue : 1,8 m
- Grillages miloues : 1,8 m
- Vidéosurveillance OK
- 2 Poteaux incendie < 100 m station GO

- Limites de propriété
  - 5 m
  - 10 m
- 10 m autour Stockage GPL, racc. aérien < 6T
- 10 m autour stockage GO aérien 4734
Scenarios of interest

Fire locations of interest

Tyre fire

Pool fire

Cabin fire
Benchmark of on-land technologies

Detection

- Effective technologies: IR/UV sensors, thermographic cameras, thermoveloocimetric cables
- Identified drawbacks: high cost due to high sampling of space, detection time ...

Extinction

- Effective technology: foam cannon
- Identified drawbacks: high cost due to high sampling of space, foam/water quantity ...

Motivation for considering on-board technology detection and extinction/mitigation technologies
Benefits of numerical simulations

INERIS will calculate the BLEVE time

Scenario 1
Scenario 2
Scenario 3

Detection
Extinction

HRR (MW)

Heat flux (kW/m²)

Wall temperature (°C)
• INERIS is considering on-board technologies with maximum cost-benefit ratio
• BLEVE time calculations are readily used for guidance