Brandweer Nederland	Incident management **LNG TANKER TRUCK**	Guideline

LNG RISKS

- **Extremely flammable** gas (methane/natural gas).
- **Extremely low temperatures** (risk of burn injuries and freezing the surroundings).
- LNG is heavier than air when released (be aware of underground pools/sewers where LNG can accumulate).
- Risk of **explosion in closed spaces**.
- **Suffocating** in high concentrations (take victim to fresh air and resuscitate).
- Heated gas is no longer visible (cloud is no longer visible as white vapour).
- If the **insulation is damaged** there is a risk that the incident may escalate (such as leakage/BLEVE tanker truck).
- Cold has an effect on the tanker truck (the tank heats up very quickly if the insulation is damaged), leak = visible due to vapour!
- LNG tanker truck is a **pressure vessel** (transport LNG max. 5 bar, stationary this rises to 8 bar).

MANAGING LNG SCENARIOS

Possible aids:

- Infra-red imaging camera (IRC)
- Explosion danger meter (or sniffer)
- Infra-red temperature meter (AGS)

Always warn the experts in the case of LNG accidents (LIOGS, 010- 2468642 or the transporter)

Scenario: Blowing off the tanker truck

If the pressure becomes excessive in the tank the system will blow off with a blow-off safety feature (sometimes a flare). The blow-off safety feature is fitted in order to maintain the low temperature in the tank and is also an overpressure safety feature, (releasing Boil Off Gas; BOG).

- Determine the (un)safe area with an explosion danger meter.
- Do not extinguish any fire. Allow the flare to blow off gently.

Scenario: heat radiated onto the tanker truck (different type of fire than LNG)

- Extinguish fires in the vicinity.
- Cool the tanks as you would with an LPG tanker truck.
- Prevent the blow-off safety feature from freezing (due to contact with water).
- Take account of the risk of pressure build-up due to lengthy exposure to radiated heat. The blow–off safety features are then activated.
- An intact tank construction offers a high level of passive safety against heating due to radiated heat.

Scenario: tanker truck leakage

- Determine the (un)safe area with an explosion danger meter.
- Leaks can occur in both the gas and the liquid phase.
- Prevent fire and dilute the gas cloud with water (do not allow liquid LNG to come into contact with water, unless on the recommendation of an expert).
- Take account of the spreading of LNG to low-lying spaces/sewers.

Scenario: LNG fire (Flare fire or Pool fire)

- Press the emergency stop button if possible.
- Preferably do not extinguish an LNG fire. Cool the surroundings. Only extinguish if necessary (prevent escalation).

Scenario: tilted tanker truck

- Determine consequences of the incident: leaks, (un)safe area, risks relating to leakage and blowing off).

LNG TANKER TRUCK

- Take action when insulation is damaged (tank heats up quickly – noticeable due to white vapour – use IRC).
- Check the blow-off safety feature and pay attention to the possibility to move the emission point (for safe working technical emergency service).

SITUATION SKETCH

Tanker truck blow-off valve

LNG unloading hose

LNG tanker truck, with control box on the rear

LNG tanker truck, with control box on the side

BACKGROUND INFORMATION

- Always consult the driver or transporter of the LNG tanker truck when incidents occur.
- There are **various versions** of tanker trucks and tank containers that transport LNG.
  The most important differences are:
  - Location of the control box. This may be on the side or the rear of the tank.
  - Capacity of the tanker truck (varying from 10 - 30 m^3).
  - Hoyer has 40ft tank containers (48m^3) at its disposal.
- There are various versions of blow-off safety features – these are usually fitted directly onto the tank.
- In the case of an incident, always ask the driver or transporter for the degree of filling. This is in connection with the risk estimation of escalation.
- LNG tanker trucks are very similar to LPG trucks in terms of appearance.
- GEVI coding LNG: 223, UN: 1972