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# Procedures for

# CTIF HAZARDOUS MATERIALS COMMISSION

**during the traA proposalnsportation of liquid methane (L and tank containers**

Procedures for emergencies arising during the Guidelines of Brandweer Nederland for Liquid methane:

**LNG (-162) Characteristics and risks,** **LNG Fuel Tanks, LNG Bunkering, LNG tanker truck and LNG Loading and Unloading, LNG filling stations** **LNG Fuel Tanks**

A best practice procedure

CTIF Hazardous Materials Commission recommend (23.5.2017) to use these instructions. Commission have made some additions to these instructions, which are written in this paper.

**LNG (-162) Characteristics and risks**

* LNG visible white cloud is commonly flammable when air humidity is bigger than
55 %.
* When air humidity is lower than 55 % the flammable area/cloud can be partly inside the visible white cloud or the flammable area can totally be outside the visible white cloud.
* LNG will gasify even 5 times more quickly in water than on land.
* If Drones (UAVs) are used for reconnaissance, make sure to stay away from the cloud to avoid ignition.

**LNG Fuel Tanks**

**- Possible aids:**

 \* Air humidity meter

- **Scenario: leakage from fuel tank**

\* Determine (un)safe area with explosion danger meter and use also an infra-red imaging camera (IRC) to find the invisible cloud

**LNG Bunkering**

 **- Possible aids:**

 \* Air humidity meter

**- Scenario: LNG leakage**

 \* Determine the size of the leak and the (un)safe area with an explosion danger meter and use also an infra-red imaging camera (IRC) to find the invisible cloud

 \* Dilute the gas cloud with water, but do not bring water in contact with liquid LNG as water will freeze and LNG will evaporate fast.

**LNG Loading and Unloading**

**- Possible aids:**

 \* Air humidity meter

**- Scenario: blowing off LNG storage tank/tanker truck**

 \* Determine the (un)safe area with an explosion danger meter and use also an infra-red imaging camera (IRC) to find the invisible cloud.

**- Scenario: LNG leak (unloading hose/storage tank/tanker truck)**

 \* Determine the size of the leak and the (un)safe area with an explosion danger

 meter and use also an infra-red imaging camera (IRC) to find the invisible cloud.

**LNG filling stations** **LNG Fuel Tanks**

**- Possible aids:**

 \* Air humidity meter

**- Scenario: blowing off LNG storage tank/tanker truck**

 \* Determine the (un)safe area with an explosion danger

 meter and use also an infra-red imaging camera (IRC) to find the invisible cloud

**- Scenario: LNG leak**

 \* Determine the size of the leak and the (un)safe area with an explosion danger

 meter and use also an infra-red imaging camera (IRC) to find the invisible cloud

**LNG Tanker Truck**

CTIF Hazardous Materials Commission has given recommendation (4.10.2014) to use Swedish Procedures for emergencies arising during the transportation of liquid methane (LNG and LBG Tankers and tank containers). Hazardous Materials Commission has made some additions to these instructions.