

# Thermal Radiation Threat Zone

**Time:** April 3, 2012 1058 hours ST (user specified)

**Chemical Name:** METHANE

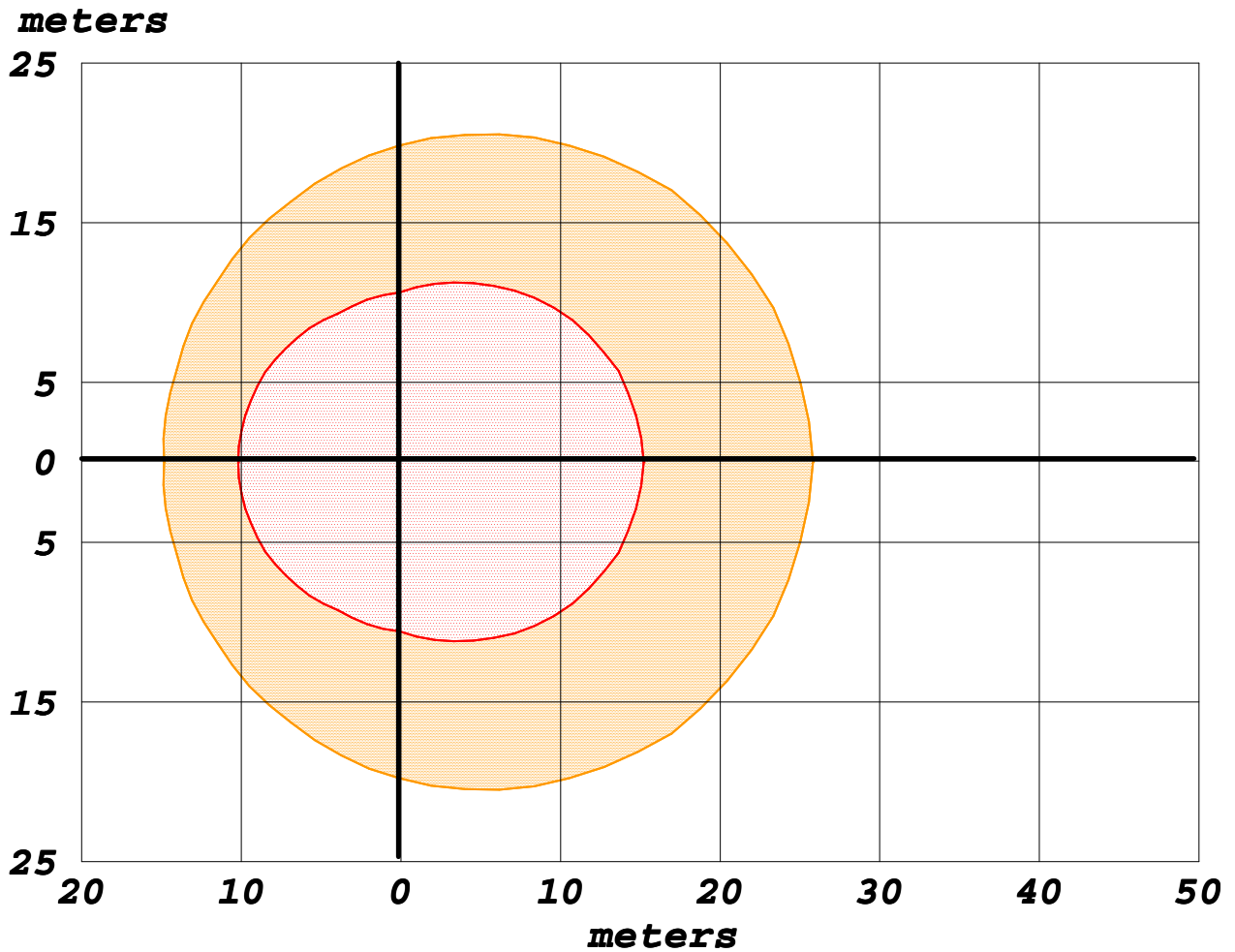
**Wind:** 2.8 meters/second from 315° true at 10 meters

**THREAT ZONE:**

**Threat Modeled:** Thermal radiation from jet fire

**Red :** 15 meters --- (7 kW/(sq m))

**Orange:** 26 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)



**greater than 7 kW/(sq m)**

**greater than 5.0 kW/(sq m) (2nd degree burns within 60 sec)**

**SITE DATA:**

**Location:** MORA, PORTUGAL  
**Building Air Exchanges Per Hour:** 0.30 (unsheltered double storied)  
**Time:** April 3, 2012 1058 hours ST (user specified)

**CHEMICAL DATA:**

**Chemical Name:** METHANE **Molecular Weight:** 16.04 g/mol  
**PAC-1:** 2900 ppm **PAC-2:** 2900 ppm **PAC-3:** 17000 ppm  
**LEL:** 50000 ppm **UEL:** 150000 ppm  
**Ambient Boiling Point:** -161.6° C  
**Vapor Pressure at Ambient Temperature:** greater than 1 atm  
**Ambient Saturation Concentration:** 1,000,000 ppm or 100.0%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind:** 2.8 meters/second from 315° true at 10 meters  
**Ground Roughness:** open country **Cloud Cover:** 5 tenths  
**Air Temperature:** 22° C **Stability Class:** B  
**No Inversion Height** **Relative Humidity:** 25%

**SOURCE STRENGTH:**

**Leak from short pipe or valve in horizontal cylindrical tank**  
**Flammable chemical is burning as it escapes from tank**  
**Tank Diameter:** 2 meters **Tank Length:** 9.55 meters  
**Tank Volume:** 30 cubic meters  
**Tank contains liquid** **Internal Temperature:** -160° C  
**Chemical Mass in Tank:** 12,609 kilograms  
**Tank is 100% full**  
**Circular Opening Diameter:** 10 centimeters  
**Opening is 0 meters from tank bottom**  
**Max Flame Length:** 53 meters **Burn Duration:** 25 minutes  
**Max Burn Rate:** 652 kilograms/min  
**Total Amount Burned:** 12,609 kilograms  
**Note:** The chemical escaped from the tank and burned as a jet fire.

**THREAT ZONE:**

**Threat Modeled:** Thermal radiation from jet fire  
**Red** : 15 meters --- (7 kW/(sq m))  
**Orange:** 26 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)