Thermal Radiation Threat Zone

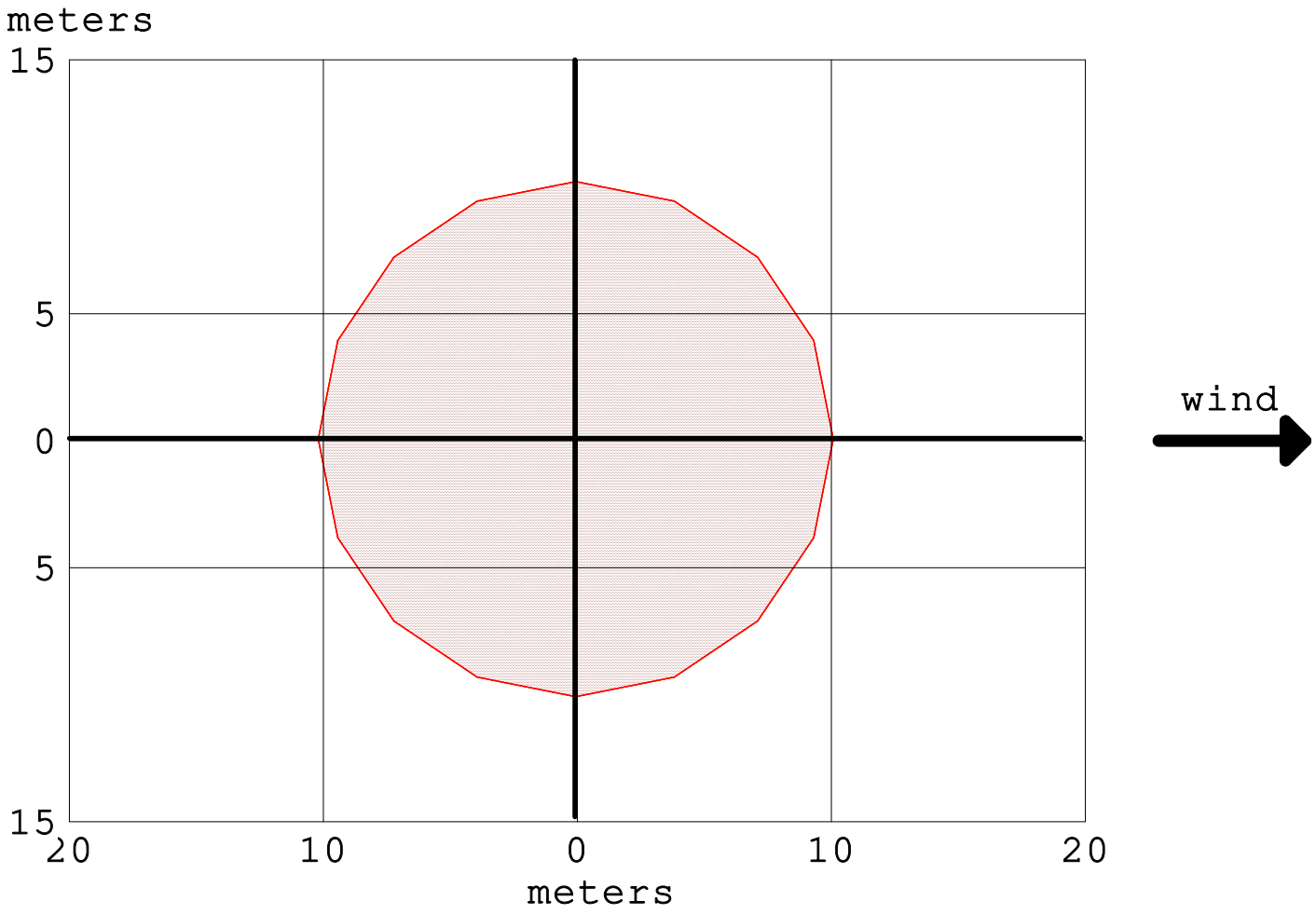
ALOHA® 5.4.7

Time: April 11, 2025 1546 hours ST (user specified)

Chemical Name: ETHYLENE OXIDE
  Carcinogenic risk - see CAMEO Chemicals

Wind: 3.3 meters/second from W at 3 meters

THREAT ZONE:
  Threat Modeled: Thermal radiation from jet fire
  Red   : 10 meters --- (7 kW/(sq m))
  Orange: 10 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

```
SITE DATA:
  Location: AVENIDA DA FABRICA 298, PENA, PORTUGAL
  Building Air Exchanges Per Hour: 0.38 (sheltered double storied)
  Time: April 11, 2025  1546 hours ST (user specified)

CHEMICAL DATA:
  Chemical Name: ETHYLENE OXIDE
  CAS Number: 75-21-8                    Molecular Weight: 44.05 g/mol
  AEGL-1 (60 min): N/A   AEGL-2 (60 min): 45 ppm   AEGL-3 (60 min): 200 ppm
  IDLH: 800 ppm      LEL: 30000 ppm      UEL: 1000000 ppm
  Carcinogenic risk - see CAMEO Chemicals
  Ambient Boiling Point: 9.8° 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: 3.3 meters/second from W at 3 meters
  Ground Roughness: urban or forest      Cloud Cover: 5 tenths
  Air Temperature: 15° C                 Stability Class: D
  No Inversion Height                    Relative Humidity: 78%

SOURCE STRENGTH:
  Leak from short pipe or valve in horizontal cylindrical tank
  Flammable chemical is burning as it escapes from tank
  Tank Diameter: 0.77 meters             Tank Length: 2 meters
  Tank Volume: 930 liters
  Tank contains liquid                   Internal Temperature: 15° C
  Chemical Mass in Tank: 700 kilograms
  Tank is 85% full
  Circular Opening Diameter: 0.5 inches
  Opening is 40 centimeters from tank bottom
  Max Flame Length: 5 meters             Burn Duration: 56 minutes
  Max Burn Rate: 12.2 kilograms/min
  Total Amount Burned: 583 kilograms
  Note: The chemical escaped from the tank and burned as a jet fire.

THREAT ZONE:
  Threat Modeled: Thermal radiation from jet fire
  Red    : 10 meters --- (7 kW/(sq m))
  Orange: 10 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)
```