Overpressure (Blast Force) Threat Zone

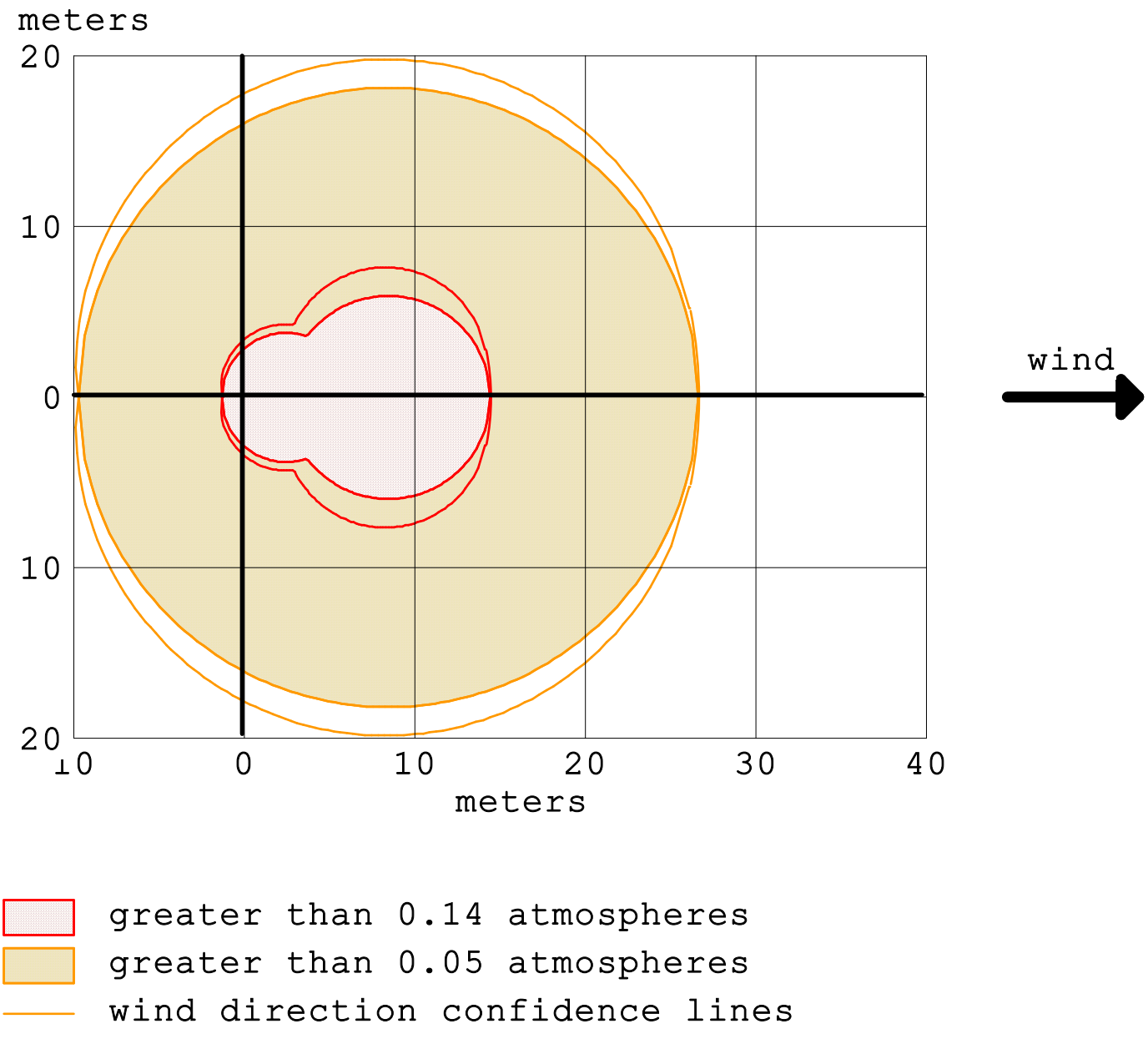
ALOHA® 5.4.7

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: (HEAVY GAS SELECTED)
  Threat Modeled: Overpressure (blast force) from vapor cloud explosion
  Type of Ignition: ignited by spark or flame
  Level of Congestion: uncongested
  Model Run: Heavy Gas
  Red   : 14 meters --- (0.14 atmospheres)
  Orange: 27 meters --- (0.05 atmospheres)



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 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 escaping from tank (not burning)
   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: 0.05 inches
   Opening is 40 centimeters from tank bottom
   Release Duration: ALOHA limited the duration to 1 hour
   Max Average Sustained Release Rate: 122 grams/min
      (averaged over a minute or more)
   Total Amount Released: 7.29 kilograms
   Note: The chemical escaped as a mixture of gas and aerosol (two phase
flow).

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