

MODELO 1 – GLP (PROPANE)

SITE DATA:

Location: ECUADOR - AZOGUES, AZOGUES
Building Air Exchanges Per Hour: 0.25 (sheltered single storied)
Time: June 24, 2018 1629 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: PROPANE
CAS Number: 74-98-6 Molecular Weight: 44.10 g/mol
AEGL-1 (60 min): 5500 ppm AEGL-2 (60 min): 17000 ppm AEGL-3 (60 min): 33000 ppm
IDLH: 2100 ppm LEL: 21000 ppm UEL: 95000 ppm
Ambient Boiling Point: -44.1° 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: 2.25 meters/second from 45° true at 10 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 17.5° C Stability Class: C
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:

Leak from short pipe or valve in horizontal cylindrical tank
Flammable chemical escaping from tank (not burning)
Tank Diameter: 2.8 meters Tank Length: 8.6 meters
Tank Volume: 53.0 cubic meters
Tank contains liquid Internal Temperature: 17.5° C
Chemical Mass in Tank: 26.5 tons Tank is 90% full
Circular Opening Diameter: 1 inches
Opening is 2.80 meters from tank bottom
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 190 kilograms/min
(averaged over a minute or more)
Total Amount Released: 11,083 kilograms
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).

THREAT ZONE:

Model Run: Heavy Gas

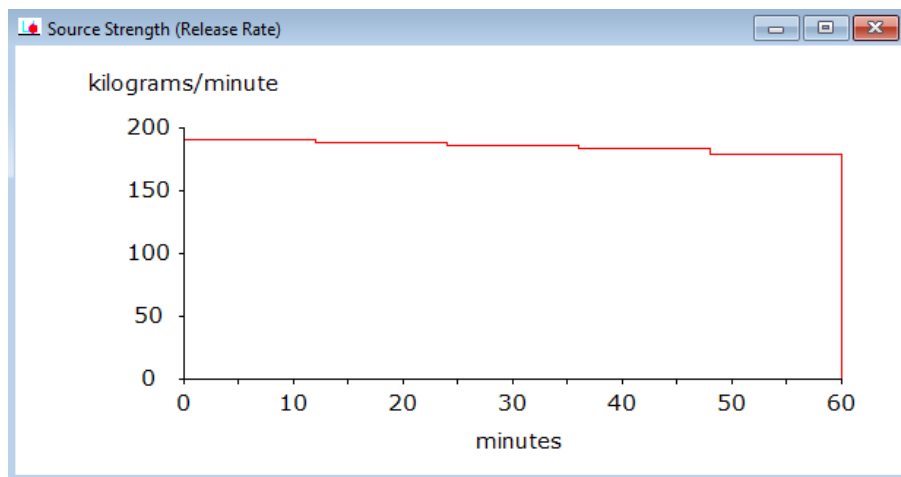
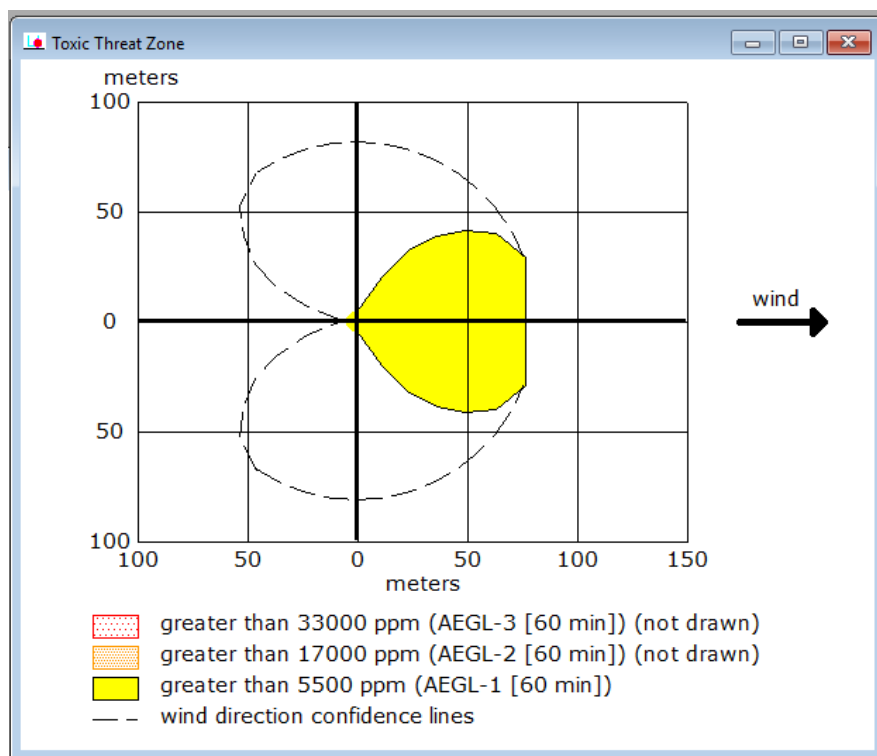
Red : 29 meters --- (33000 ppm = AEGL-3 [60 min])

Note: Threat zone was not drawn because effects of near-field patchiness make dispersion predictions less reliable for short distances.

Orange: 42 meters --- (17000 ppm = AEGL-2 [60 min])

Note: Threat zone was not drawn because effects of near-field patchiness make dispersion predictions less reliable for short distances.

Yellow: 76 meters --- (5500 ppm = AEGL-1 [60 min])



MODELO 2 – GLP (PROPANE)

SITE DATA:

Location: ECUADOR - AZOGUES, AZOGUES
Building Air Exchanges Per Hour: 0.25 (sheltered single storied)
Time: June 24, 2018 1629 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: PROPANE
CAS Number: 74-98-6 Molecular Weight: 44.10 g/mol
AEGL-1 (60 min): 5500 ppm AEGL-2 (60 min): 17000 ppm AEGL-3 (60 min): 33000 ppm
IDLH: 2100 ppm LEL: 21000 ppm UEL: 95000 ppm
Ambient Boiling Point: -44.1° 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: 2.25 meters/second from 45° true at 10 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 17.5° C Stability Class: C
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:

Leak from short pipe or valve in horizontal cylindrical tank
Flammable chemical escaping from tank (not burning)
Tank Diameter: 2.8 meters Tank Length: 8.6 meters
Tank Volume: 53.0 cubic meters
Tank contains liquid Internal Temperature: 17.5° C
Chemical Mass in Tank: 26.5 tons Tank is 90% full
Circular Opening Diameter: 1 inches
Opening is 2.80 meters from tank bottom
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 190 kilograms/min
(averaged over a minute or more)
Total Amount Released: 11,083 kilograms
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).

THREAT ZONE:

Threat Modeled: Overpressure (blast force) from vapor cloud explosion

Type of Ignition: ignited by spark or flame

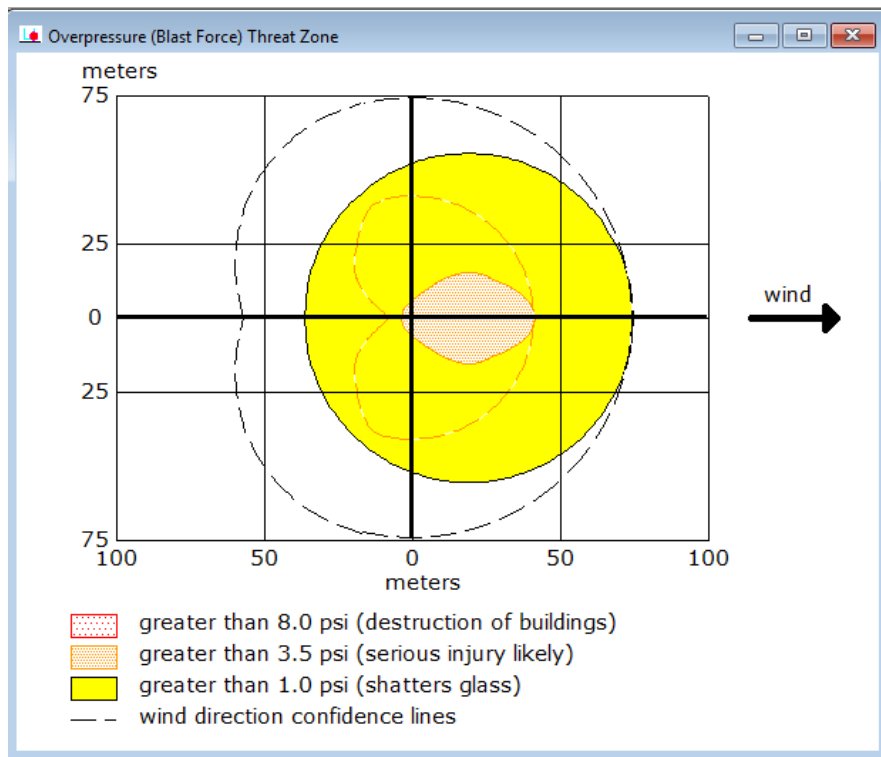
Level of Congestion: congested

Model Run: Heavy Gas

Red : LOC was never exceeded --- (8.0 psi = destruction of buildings)

Orange: 41 meters --- (3.5 psi = serious injury likely)

Yellow: 74 meters --- (1.0 psi = shatters glass)



MODELO 3 – GLP (PROPANE)

SITE DATA:

Location: ECUADOR - AZOGUES, AZOGUES
Building Air Exchanges Per Hour: 0.25 (sheltered single storied)
Time: June 24, 2018 1629 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: PROPANE
CAS Number: 74-98-6 Molecular Weight: 44.10 g/mol
AEGL-1 (60 min): 5500 ppm AEGL-2 (60 min): 17000 ppm AEGL-3 (60 min): 33000 ppm
IDLH: 2100 ppm LEL: 21000 ppm UEL: 95000 ppm
Ambient Boiling Point: -44.1° 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)

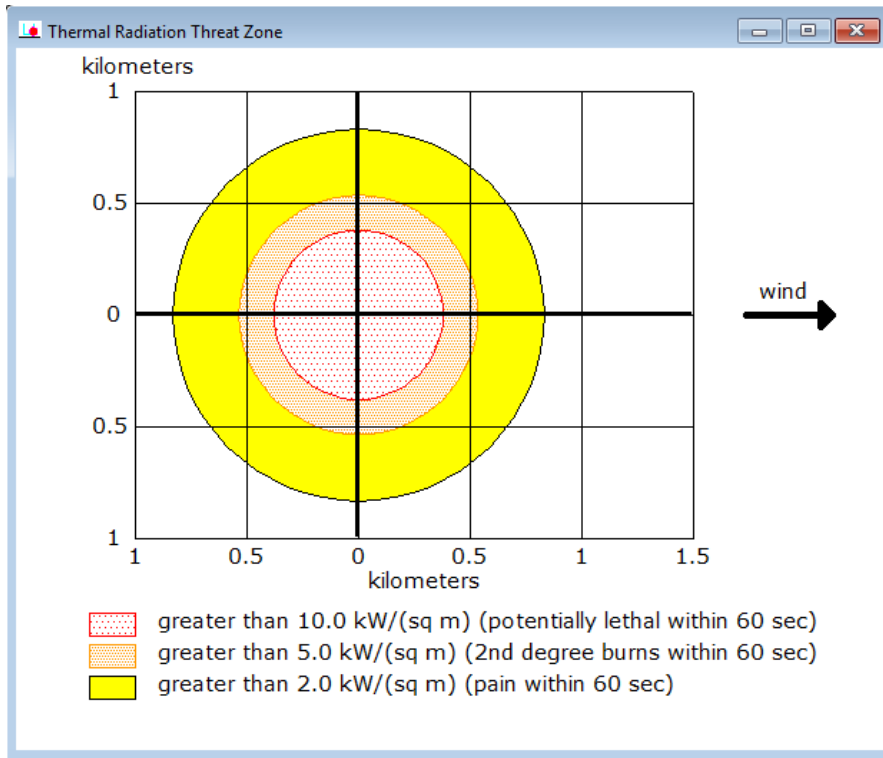
Wind: 2.25 meters/second from 45° true at 10 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 17.5° C Stability Class: C
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:

BLEVE of flammable liquid in horizontal cylindrical tank
Tank Diameter: 2.8 meters Tank Length: 8.6 meters
Tank Volume: 53.0 cubic meters
Tank contains liquid
Internal Storage Temperature: 17.5° C
Chemical Mass in Tank: 26.5 tons Tank is 90% full
Percentage of Tank Mass in Fireball: 100%
Fireball Diameter: 167 meters Burn Duration: 11 seconds

THREAT ZONE:

Threat Modeled: Thermal radiation from fireball
Red : 378 meters --- (10.0 kW/(sq m) = potentially lethal within 60 sec)
Orange: 534 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)
Yellow: 832 meters --- (2.0 kW/(sq m) = pain within 60 sec)



MODELO 4 – DIESEL (DODECANE)

SITE DATA:

Location: ECUADOR - AZOGUES, AZOGUES
Building Air Exchanges Per Hour: 0.25 (sheltered single storied)
Time: June 24, 2018 1629 hours ST (user specified)

CHEMICAL DATA:

Chemical Name: N-DODECANE
CAS Number: 112-40-3 Molecular Weight: 170.33 g/mol
PAC-1: 1.7 ppm PAC-2: 18 ppm PAC-3: 110 ppm
LEL: 6000 ppm UEL: 49000 ppm
Ambient Boiling Point: 212.6° C
Vapor Pressure at Ambient Temperature: 9.24e-005 atm
Ambient Saturation Concentration: 101 ppm or 0.010%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2.25 meters/second from 45° true at 10 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 17.5° C Stability Class: C
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:

Leak from short pipe or valve in vertical cylindrical tank
Flammable chemical is burning as it escapes from tank
Tank Diameter: 2.4 meters Tank Length: 3 meters
Tank Volume: 13.6 cubic meters
Tank contains liquid Internal Temperature: 17.5° C
Chemical Mass in Tank: 6.75 tons Tank is 60% full
Circular Opening Diameter: 2 inches
Opening is 0.30 meters from tank bottom
Max Flame Length: 12 meters
Burn Duration: ALOHA limited the duration to 1 hour
Max Burn Rate: 91.5 kilograms/min
Total Amount Burned: 5,104 kilograms
Note: The chemical escaped as a liquid and formed a burning puddle.
The puddle spread to a diameter of 5.5 meters.

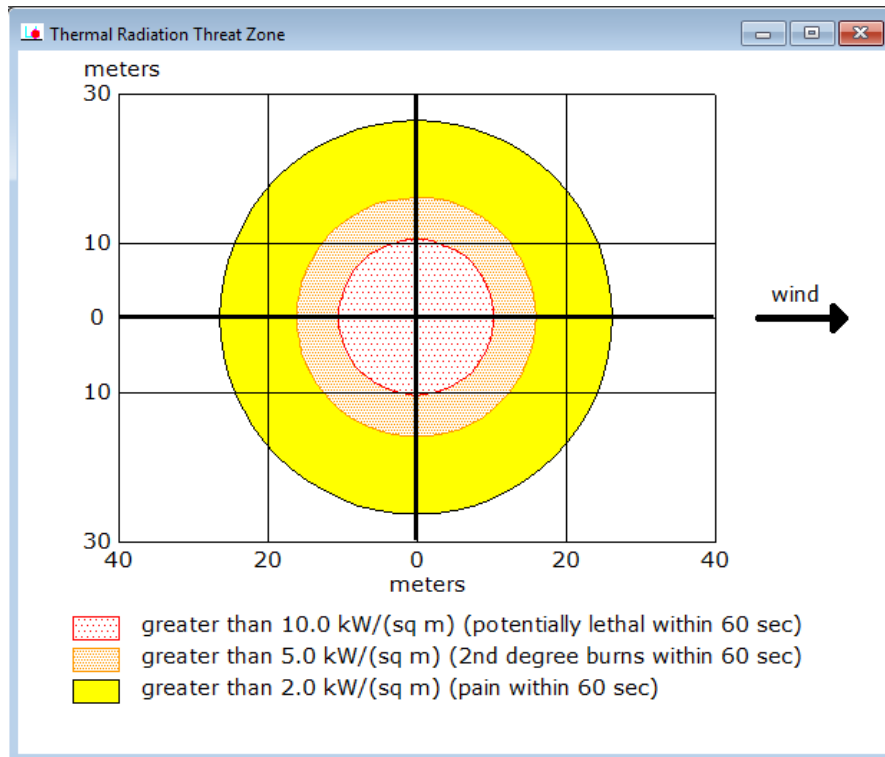
THREAT ZONE:

Threat Modeled: Thermal radiation from pool fire

Red : 10 meters --- (10.0 kW/(sq m) = potentially lethal within 60 sec)

Orange: 16 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)

Yellow: 26 meters --- (2.0 kW/(sq m) = pain within 60 sec)



MODELO 5 – DIESEL (DODECANE)

SITE DATA:

Location: ECUADOR - AZOGUES, AZOGUES
Building Air Exchanges Per Hour: 0.25 (sheltered single storied)
Time: June 24, 2018 1629 hours ST (user specified)

CHEMICAL DATA:

Chemical Name: N-DODECANE
CAS Number: 112-40-3 Molecular Weight: 170.33 g/mol
PAC-1: 1.7 ppm PAC-2: 18 ppm PAC-3: 110 ppm
LEL: 6000 ppm UEL: 49000 ppm
Ambient Boiling Point: 212.6° C
Vapor Pressure at Ambient Temperature: 9.24e-005 atm
Ambient Saturation Concentration: 101 ppm or 0.010%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2.25 meters/second from 45° true at 10 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 17.5° C Stability Class: C
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:

BLEVE of flammable liquid in vertical cylindrical tank
Tank Diameter: 2.4 meters Tank Length: 3 meters
Tank Volume: 13.6 cubic meters
Tank contains liquid
Internal Storage Temperature: 17.5° C
Chemical Mass in Tank: 6.75 tons Tank is 60% full
Percentage of Tank Mass in Fireball: 15%
Fireball Diameter: 56 meters Burn Duration: 5 seconds
Pool Fire Diameter: 47 meters Burn Duration: 18 seconds
Flame Length: 94 meters

THREAT ZONE:

Threat Modeled: Thermal radiation from fireball
Red : 147 meters --- (10.0 kW/(sq m) = potentially lethal within 60 sec)

Orange: 212 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)

Yellow: 333 meters --- (2.0 kW/(sq m) = pain within 60 sec)

