Modélisation de la dispersion atmosphérique des toxiques en cas d'incendie d'une cellule de stockage de produits combustibles

Incendie d'une cellule de stockage **Dispersion des suies**Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 11, 2018 1032 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 11.11 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes Release Rate: 645 kilograms/min

Total Amount Released: 38,664 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (79 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion des suies**Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 11, 2018 1106 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 5 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C
No Inversion Height

Stability Class: D
Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 11.11 kilograms/sec Source Height: 72 meters

Release Duration: 60 minutes Release Rate: 645 kilograms/min

Total Amount Released: 38,664 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (79 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion des suies**Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 11, 2018 1108 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 3 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 11.11 kilograms/sec Source Height: 119 meters

Release Duration: 60 minutes Release Rate: 645 kilograms/min

Total Amount Released: 38,664 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (79 mg/(cu m))

Incendie d'une cellule de stockage Dispersion du Monoxyde de carbone

Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 11, 2018 1110 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON MONOXIDE Molecular Weight: 28.01 g/mol AEGL-1 (60 min): N/A AEGL-2 (60 min): 83 ppm AEGL-3 (60 min): 330 ppm

IDLH: 1200 ppm LEL: 125000 ppm UEL: 742000 ppm

Ambient Boiling Point: -312.6° F

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 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 34.9 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes Release Rate: 2022.6 kilograms/min Total Amount Released: 121,356 kilograms

Note: This chemical may flash boil and/or result in two phase flow. Use both dispersion modules to investigate its potential behavior.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (3520 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (880 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du Monoxyde de carbone**

Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 11, 2018 1114 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON MONOXIDE Molecular Weight: 28.01 g/mol AEGL-1 (60 min): N/A AEGL-2 (60 min): 83 ppm AEGL-3 (60 min): 330 ppm

IDLH: 1200 ppm LEL: 125000 ppm UEL: 742000 ppm

Ambient Boiling Point: -312.6° F

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: 5 meters/second from W at 3 meters

Ground Roughness: open country

Air Temperature: 20° C

No Inversion Height

Cloud Cover: 5 tenths

Stability Class: D

Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 34.9 kilograms/sec Source Height: 79 meters

Release Duration: 60 minutes Release Rate: 2022.6 kilograms/min Total Amount Released: 121,356 kilograms

Note: This chemical may flash boil and/or result in two phase flow.
Use both dispersion modules to investigate its potential behavior.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (3520 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (880 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du Monoxyde de carbone**

Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 11, 2018 1115 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON MONOXIDE Molecular Weight: 28.01 g/mol AEGL-1 (60 min): N/A AEGL-2 (60 min): 83 ppm AEGL-3 (60 min): 330 ppm

IDLH: 1200 ppm LEL: 125000 ppm UEL: 742000 ppm

Ambient Boiling Point: -312.6° F

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 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 34.9 kilograms/sec Source Height: 112 meters

Release Duration: 60 minutes Release Rate: 2022.6 kilograms/min Total Amount Released: 121,356 kilograms

Note: This chemical may flash boil and/or result in two phase flow.

Use both dispersion modules to investigate its potential behavior.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (3520 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (880 mg/(cu m))

Incendie d'une cellule de stockage Dispersion du Dioxyde de carbone

Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 16, 2018 1424 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON DIOXIDE

CAS Number: 124-38-9 Molecular Weight: 44.01 g/mol

IDLH: 40000 ppm

Normal Boiling Point: -unavail-

Vapor Pressure at Ambient Temperature: greater than 1 atm Ambient Saturation Concentration: 1,000,000 ppm or 100.0% Note: Not enough chemical data to use Heavy Gas option

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 348.7 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes

Release Rate: 1,255,320 kilograms/min Total Amount Released: 3,937,320 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (89980 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du Dioxyde de carbone**

Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 16, 2018 1427 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON DIOXIDE

CAS Number: 124-38-9 Molecular Weight: 44.01 g/mol

IDLH: 40000 ppm

Normal Boiling Point: -unavail-

Vapor Pressure at Ambient Temperature: greater than 1 atm Ambient Saturation Concentration: 1,000,000 ppm or 100.0% Note: Not enough chemical data to use Heavy Gas option

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 5 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C
No Inversion Height

Stability Class: D
Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 348.7 kilograms/sec Source Height: 79 meters

Release Duration: 60 minutes

Release Rate: 1,255,320 kilograms/min Total Amount Released: 3,937,320 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (89980 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du Dioxyde de carbone**

Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 16, 2018 1428 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON DIOXIDE

CAS Number: 124-38-9 Molecular Weight: 44.01 g/mol

IDLH: 40000 ppm

Normal Boiling Point: -unavail-

Vapor Pressure at Ambient Temperature: greater than 1 atm Ambient Saturation Concentration: 1,000,000 ppm or 100.0% Note: Not enough chemical data to use Heavy Gas option

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 3 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 348.7 kilograms/sec Source Height: 112 meters

Release Duration: 60 minutes

Release Rate: 1,255,320 kilograms/min Total Amount Released: 3,937,320 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (89980 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du HCI**

Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 11, 2018 1118 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CHLORIDE Molecular Weight: 36.46 g/mol AEGL-1 (60 min): 1.8 ppm AEGL-2 (60 min): 22 ppm AEGL-3 (60 min): 100 ppm

IDLH: 50 ppm

Ambient Boiling Point: -121.0° F

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 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 13.14 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes Release Rate: 762 kilograms/min

Total Amount Released: 45,720 kilograms

Note: This chemical may flash boil and/or result in two phase flow.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red : LOC is not exceeded --- (358 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (60 mg/(cu m))

Incendie d'une cellule de stockage Dispersion du HCI

Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 11, 2018 1122 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CHLORIDE Molecular Weight: 36.46 g/mol AEGL-1 (60 min): 1.8 ppm AEGL-2 (60 min): 22 ppm AEGL-3 (60 min): 100 ppm

IDLH: 50 ppm

Ambient Boiling Point: -121.0° F

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: 5 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C
No Inversion Height
Stability Class: D
Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 13.14 kilograms/sec Source Height: 79 meters

Release Duration: 60 minutes Release Rate: 762 kilograms/min

Total Amount Released: 45,720 kilograms

Note: This chemical may flash boil and/or result in two phase flow.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (358 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (60 mg/(cu m))

Incendie d'une cellule de stockage Dispersion du HCI

Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 11, 2018 1123 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CHLORIDE Molecular Weight: 36.46 g/mol AEGL-1 (60 min): 1.8 ppm AEGL-2 (60 min): 22 ppm AEGL-3 (60 min): 100 ppm

IDLH: 50 ppm

Ambient Boiling Point: -121.0° F

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 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 13.14 kilograms/sec Source Height: 112 meters

Release Duration: 60 minutes Release Rate: 762 kilograms/min

Total Amount Released: 45,720 kilograms

Note: This chemical may flash boil and/or result in two phase flow.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (358 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (60 mg/(cu m))

Incendie d'une cellule de stockage Dispersion du HCN Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 11, 2018 1125 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CYANIDE Molecular Weight: 27.03 g/mol AEGL-1 (60 min): 2 ppm AEGL-2 (60 min): 7.1 ppm AEGL-3 (60 min): 15 ppm

IDLH: 50 ppm LEL: 56000 ppm UEL: 400000 ppm

Ambient Boiling Point: 78.3° F

Vapor Pressure at Ambient Temperature: 0.81 atm Ambient Saturation Concentration: 805,867 ppm or 80.6%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1.02 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes Release Rate: 59.4 kilograms/min Total Amount Released: 3,564 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (45 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du HCN**

Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 11, 2018 1127 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CYANIDE Molecular Weight: 27.03 g/mol AEGL-1 (60 min): 2 ppm AEGL-2 (60 min): 7.1 ppm AEGL-3 (60 min): 15 ppm

IDLH: 50 ppm LEL: 56000 ppm UEL: 400000 ppm

Ambient Boiling Point: 78.3° F

Vapor Pressure at Ambient Temperature: 0.81 atm Ambient Saturation Concentration: 805,867 ppm or 80.6%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 5 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C
No Inversion Height
Stability Class: D
Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1.02 kilograms/sec Source Height: 79 meters

Release Duration: 60 minutes Release Rate: 59.4 kilograms/min Total Amount Released: 3,564 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (45 mg/(cu m))

Incendie d'une cellule de stockage **Dispersion du HCN**

Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 11, 2018 1128 hours ST (using computer's clock)

CHEMICAL DATA:

Chemical Name: HYDROGEN CYANIDE Molecular Weight: 27.03 g/mol AEGL-1 (60 min): 2 ppm AEGL-2 (60 min): 7.1 ppm AEGL-3 (60 min): 15 ppm

IDLH: 50 ppm LEL: 56000 ppm UEL: 400000 ppm

Ambient Boiling Point: 78.3° F

Vapor Pressure at Ambient Temperature: 0.66 atm Ambient Saturation Concentration: 660,892 ppm or 66.1%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 3 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1.02 kilograms/sec Source Height: 112 meters

Release Duration: 60 minutes Release Rate: 59.4 kilograms/min Total Amount Released: 3,564 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (45 mg/(cu m))

Incendie d'une cellule de stockage Dispersion des fumées de l'incendie (seuil équivalent) Condition A, vent 2 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.42 (unsheltered single storied) Time: March 11, 2018 1151 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 2 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 20° C Stability Class: A (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1 588 kilograms/sec Source Height: 179 meters

Release Duration: 60 minutes Release Rate: 95,280 kilograms/min

Total Amount Released: 5,800,716 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (21705 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (5568 mg/(cu m))

Incendie d'une cellule de stockage Dispersion des fumées de l'incendie (seuil équivalent)

Condition D, vent 5 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 1.04 (unsheltered single storied) Time: March 11, 2018 1153 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 5 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths Air Temperature: 20° C Stability Class: D No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1 588 kilograms/sec Source Height: 79 meters

Release Duration: 60 minutes Release Rate: 95,280 kilograms/min

Total Amount Released: 5,800,716 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (21705 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (5568 mg/(cu m))

Incendie d'une cellule de stockage Dispersion des fumées de l'incendie (seuil équivalent) Condition F, vent 3 m/s

SITE DATA:

Location: POUPRY, FRANCE

Building Air Exchanges Per Hour: 0.65 (unsheltered single storied) Time: March 11, 2018 1153 hours ST (using computer's clock)

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 3 meters/second from W at 3 meters

Ground Roughness: open country Cloud Cover: 5 tenths

Air Temperature: 15° C Stability Class: F (user override)

No Inversion Height Relative Humidity: 50%

SOURCE STRENGTH:

Direct Source: 1 588 kilograms/sec Source Height: 112 meters

Release Duration: 60 minutes Release Rate: 95,280 kilograms/min

Total Amount Released: 5,800,716 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian

Red: LOC is not exceeded --- (21705 mg/(cu m))

Note: Threat zone was not drawn because the ground level concentrations never exceed the LOC.

Orange: LOC is not exceeded --- (5568 mg/(cu m))