

Appendix R – Hazardous Materials Handling

Worst-case Scenario #1: Passive Mitigation Used Consists of a Concrete Berm



Text Summary

ALOHA® 5.4.1.2

SITE DATA:

Location: UNINCORPORATED OTAY MESA, CALIFORNIA
Building Air Exchanges Per Hour: 0.51 (unsheltered single storied)
Time: December 22, 2010 0644 hours PST (using computer's clock)

CHEMICAL DATA:

Chemical Name: AQUEOUS AMMONIA
Solution Strength: 19.1% (by weight)
Ambient Boiling Point: 48.8° C
Partial Pressure at Ambient Temperature: 0.69 atm
Ambient Saturation Concentration: 710,633 ppm or 71.1%
Hazardous Component: AMMONIA Molecular Weight: 17.03 g/mol
AEGL-1(60 min): 30 ppm AEGL-2(60 min): 160 ppm AEGL-3(60 min): 1100 ppm
IDLH: 300 ppm LEL: 160000 ppm UEL: 250000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 1.5 meters/second from S at 10 meters
Ground Roughness: open country Cloud Cover: 0 tenths
Air Temperature: 108° F Stability Class: F
No Inversion Height Relative Humidity: 12%

SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)
Puddle Area: 1200 square feet Puddle Volume: 20000 gallons
Ground Type: Concrete Ground Temperature: 108° F
Initial Puddle Temperature: Ground temperature
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 22 kilograms/min
(averaged over a minute or more)
Total Amount Hazardous Component Released: 995 kilograms

THREAT ZONE:

Model Run: Gaussian
Red : 407 meters --- (2000 ppm)
Orange: 1.2 kilometers --- (300 ppm - IDLH)
Yellow: 1.5 kilometers --- (200 ppm)

Worst-case Scenario #2: Passive Mitigation Used Consist of a Concrete Berm and Floating HDPE Ball Cover

Text Summary

ALOHA® 5.4.1.2



SITE DATA:

Location: UNINCORPORATED OTAY MESA, CALIFORNIA
Building Air Exchanges Per Hour: 0.51 (unsheltered single storied)
Time: December 22, 2010 0644 hours PST (using computer's clock)

CHEMICAL DATA:

Chemical Name: AQUEOUS AMMONIA
Solution Strength: 19.1% (by weight)
Ambient Boiling Point: 48.8° C
Partial Pressure at Ambient Temperature: 0.69 atm
Ambient Saturation Concentration: 710,633 ppm or 71.1%
Hazardous Component: AMMONIA Molecular Weight: 17.03 g/mol
AEGL-1(60 min): 30 ppm AEGL-2(60 min): 160 ppm AEGL-3(60 min): 1100 ppm
IDLH: 300 ppm LEL: 160000 ppm UEL: 250000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 1.5 meters/second from S at 10 meters
Ground Roughness: open country Cloud Cover: 0 tenths
Air Temperature: 108° F Stability Class: F
No Inversion Height Relative Humidity: 12%

SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)
Puddle Area: 180 square feet Puddle Volume: 20000 gallons
Ground Type: Concrete Ground Temperature: 108° F
Initial Puddle Temperature: Ground temperature
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 4.06 kilograms/min
(averaged over a minute or more)
Total Amount Hazardous Component Released: 227 kilograms

THREAT ZONE:

Model Run: Gaussian
Red : 169 meters --- (2000 ppm)
Orange: 463 meters --- (300 ppm - IDLH)
Yellow: 578 meters --- (200 ppm)

Worst-case Scenario #3: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 30-inch Drain Diameter



Text Summary

ALOHA® 5.4.1.2

SITE DATA:

Location: UNINCORPORATED OTAY MESA, CALIFORNIA
Building Air Exchanges Per Hour: 0.51 (unsheltered single storied)
Time: December 22, 2010 0644 hours PST (using computer's clock)

CHEMICAL DATA:

Chemical Name: AQUEOUS AMMONIA
Solution Strength: 19.1% (by weight)
Ambient Boiling Point: 48.8° C
Partial Pressure at Ambient Temperature: 0.69 atm
Ambient Saturation Concentration: 710,633 ppm or 71.1%
Hazardous Component: AMMONIA Molecular Weight: 17.03 g/mol
AEGL-1(60 min): 30 ppm AEGL-2(60 min): 160 ppm AEGL-3(60 min): 1100 ppm
IDLH: 300 ppm LEL: 160000 ppm UEL: 250000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 1.5 meters/second from S at 10 meters
Ground Roughness: open country Cloud Cover: 0 tenths
Air Temperature: 108° F Stability Class: F
No Inversion Height Relative Humidity: 12%

SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)
Puddle Area: 4.91 square feet Puddle Volume: 20000 gallons
Ground Type: Concrete Ground Temperature: 108° F
Initial Puddle Temperature: Ground temperature
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 158 grams/min
(averaged over a minute or more)
Total Amount Hazardous Component Released: 9.45 kilograms

THREAT ZONE:

Model Run: Gaussian
Red : 33 meters --- (2000 ppm)
Note: Threat zone was not drawn because effects of near-field patchiness
make dispersion predictions less reliable for short distances.
Orange: 86 meters --- (300 ppm - IDLH)
Yellow: 105 meters --- (200 ppm)

Worst-case Scenario #4: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 24-inch Drain Diameter



Text Summary

ALOHA® 5.4.1.2

SITE DATA:

Location: UNINCORPORATED OTAY MESA, CALIFORNIA
Building Air Exchanges Per Hour: 0.51 (unsheltered single storied)
Time: December 22, 2010 0644 hours PST (using computer's clock)

CHEMICAL DATA:

Chemical Name: AQUEOUS AMMONIA
Solution Strength: 19.1% (by weight)
Ambient Boiling Point: 48.8° C
Partial Pressure at Ambient Temperature: 0.69 atm
Ambient Saturation Concentration: 710,633 ppm or 71.1%
Hazardous Component: AMMONIA Molecular Weight: 17.03 g/mol
AEGL-1(60 min): 30 ppm AEGL-2(60 min): 160 ppm AEGL-3(60 min): 1100 ppm
IDLH: 300 ppm LEL: 160000 ppm UEL: 250000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 1.5 meters/second from S at 10 meters
Ground Roughness: open country Cloud Cover: 0 tenths
Air Temperature: 108° F Stability Class: F
No Inversion Height Relative Humidity: 12%

SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)
Puddle Area: 3.14 square feet Puddle Volume: 20000 gallons
Ground Type: Concrete Ground Temperature: 108° F
Initial Puddle Temperature: Ground temperature
Release Duration: ALOHA limited the duration to 1 hour
Max Average Sustained Release Rate: 106 grams/min
(averaged over a minute or more)
Total Amount Hazardous Component Released: 6.34 kilograms

THREAT ZONE:

Model Run: Gaussian
Red : 27 meters --- (2000 ppm)
Note: Threat zone was not drawn because effects of near-field patchiness
make dispersion predictions less reliable for short distances.
Orange: 70 meters --- (300 ppm - IDLH)
Yellow: 86 meters --- (200 ppm)