

Description

Heading: FLADIS9

Description: Model of the FLADIS trial 9 ammonia release.

Source Condition

Source Type: Continuous
Source Location: (0,0,1.5)m
Release Type: Momentum Jet
Discharge Coefficient: 1
Orifice Radius: 0.00315m
Angle From Horizontal: 0deg
Angle Form North: 90deg
Release Rate: 0.4kg/s
Duration: 900s
Using Finite Duration Model: Yes

Source Composition

Phase: Two-Phase
Substance: Ammonia (SRD Databank)
Liquid Fraction: 1
Temperature: 286.85K
Contaminant Mass Fraction: 1
Pressure: 693000Pa
Rainout Fraction: 0

Weather Conditions

Weather Scheme: Monin-Obukhov
Roughness Length: 0.04m
Wind Reference Height: 10m
Wind Angle From North: 270deg
Relative Humidity: 0.86
Temperature: 288.65K
Pressure: 102000Pa
Using User Input Mixing Height: Yes
User Input Mixing Height: 1000m
Inverse Obukhov Length: 0.00287356/m
Friction Velocity: 0.44m/s

Flammable Targets

Flammable Limits Input By User: No
Lower Flammable Limit: 0%
Upper Flammable Limit: 0%
Target LFL Fractions: 1

Toxic Targets

Indoors Ventilation Rate: 0 air changes per hour
Indoors Lag Time: 0s
Maximum Exposure Duration: 80s
Use Time Averaging: Yes
Averaging Time: 80s
Toxic Dose Fraction Method: Method 1
Toxic Dose Exponents: Ammonia: 1
Outdoor Conc Criteria #1: 60ppm Ammonia

Expanded Source Conditions

Diameter: 0.0413433m
Velocity: 64.8524m/s
Density: 4.59445kg/m³
Vapour Fraction: 0.188561
Richardson Number: 0.041936

Messages:

Running Model

At 66.4986m downstream from the source there is no liquid remaining in the cloud in phase 0

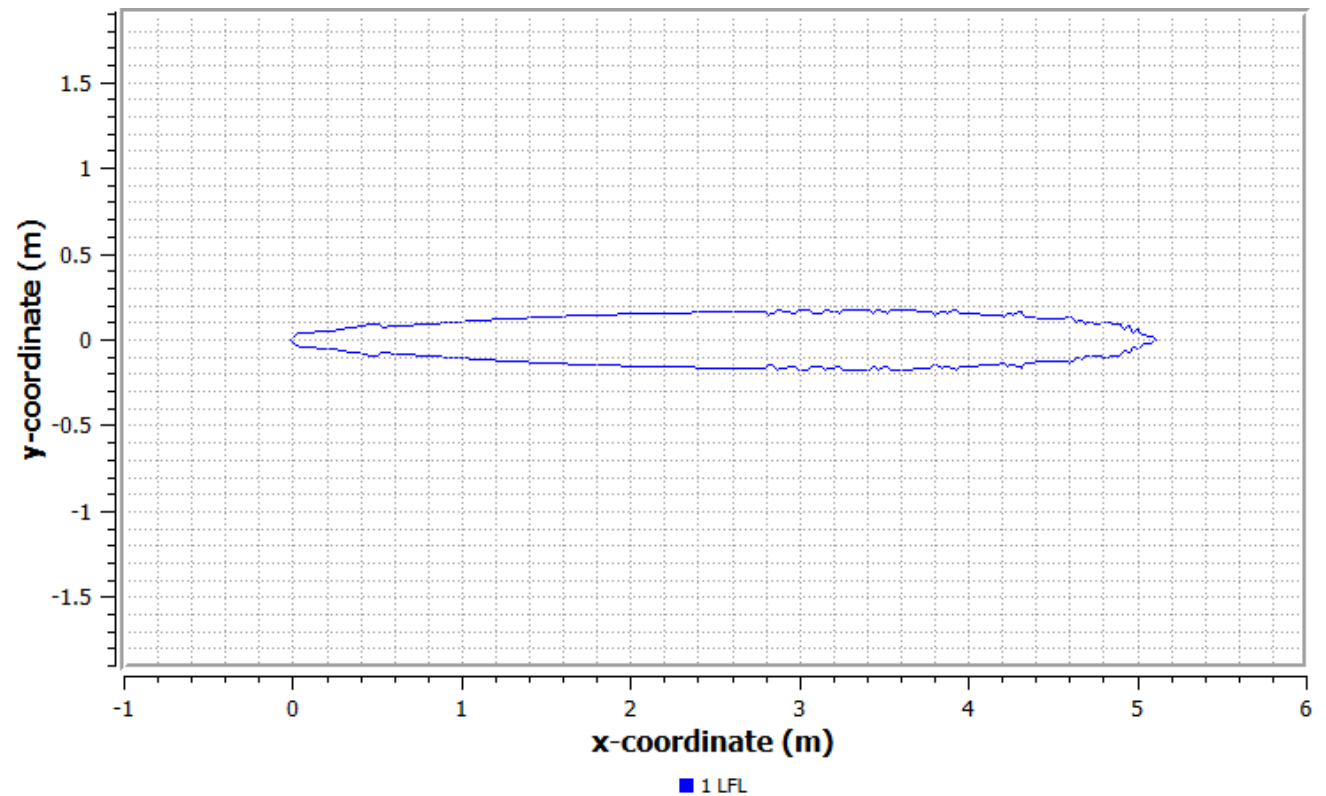
At 1197.28m downstream from the source the cloud centreline has reached ground-level

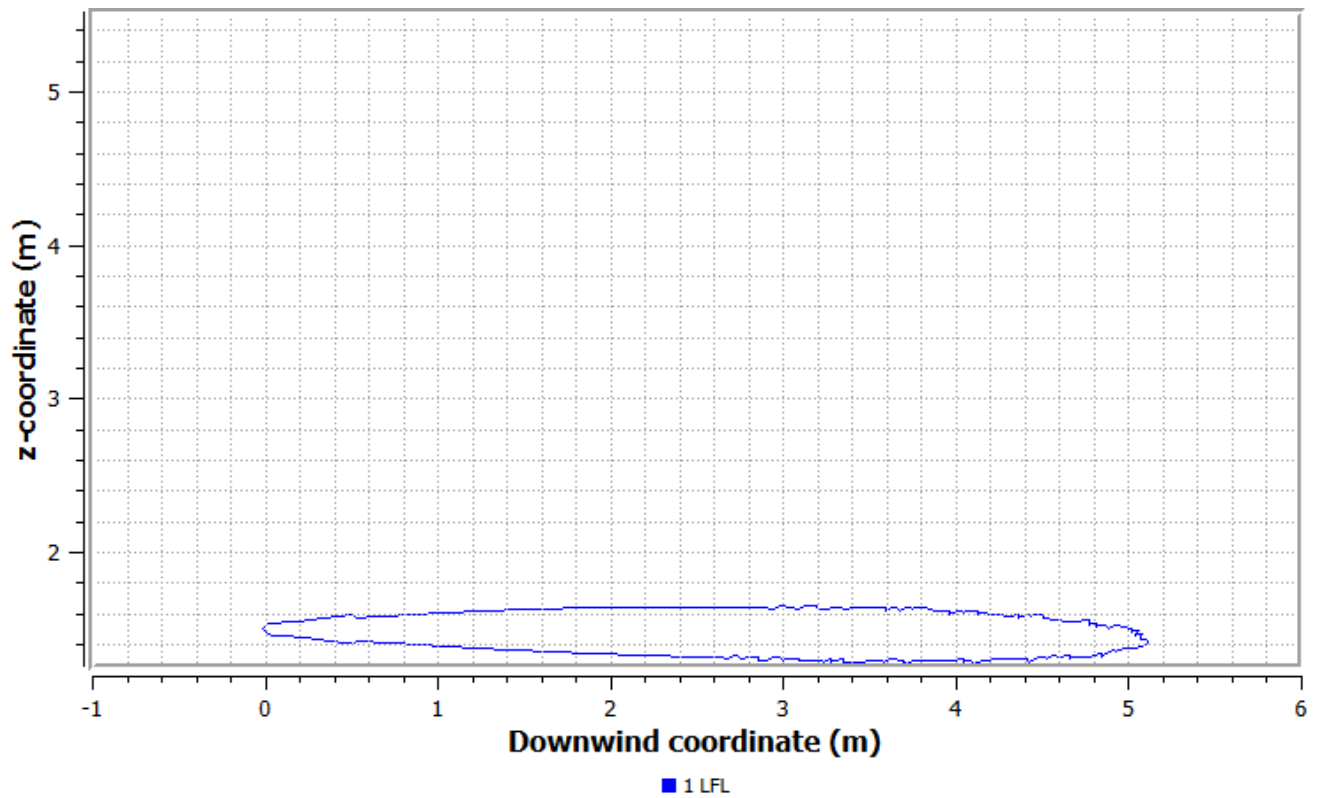
Run terminated 1325.59m downstream from the source. Cloud centreline concentration has fallen below the lowest level of interest.

General Results

Worst Case Time: Yes

Flammable Results





Worst Case Time: Yes

Worst Case Height: Yes

Flammable Volume: 0.278481m³

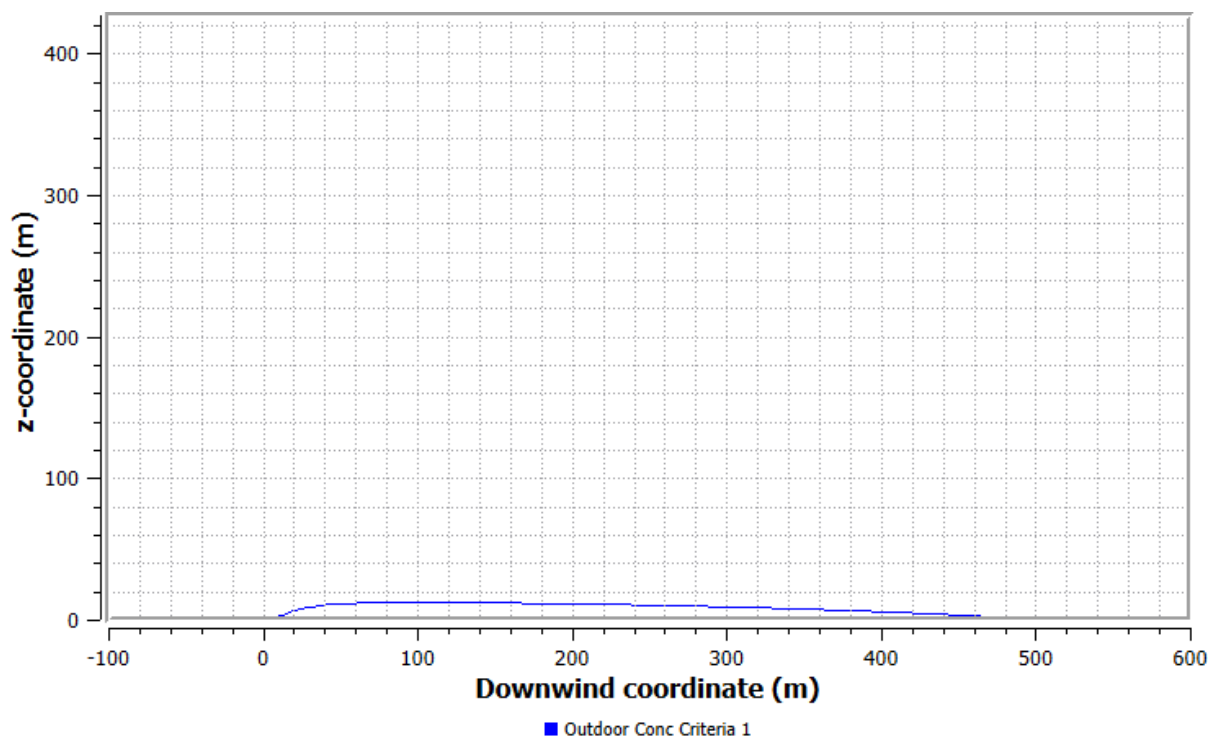
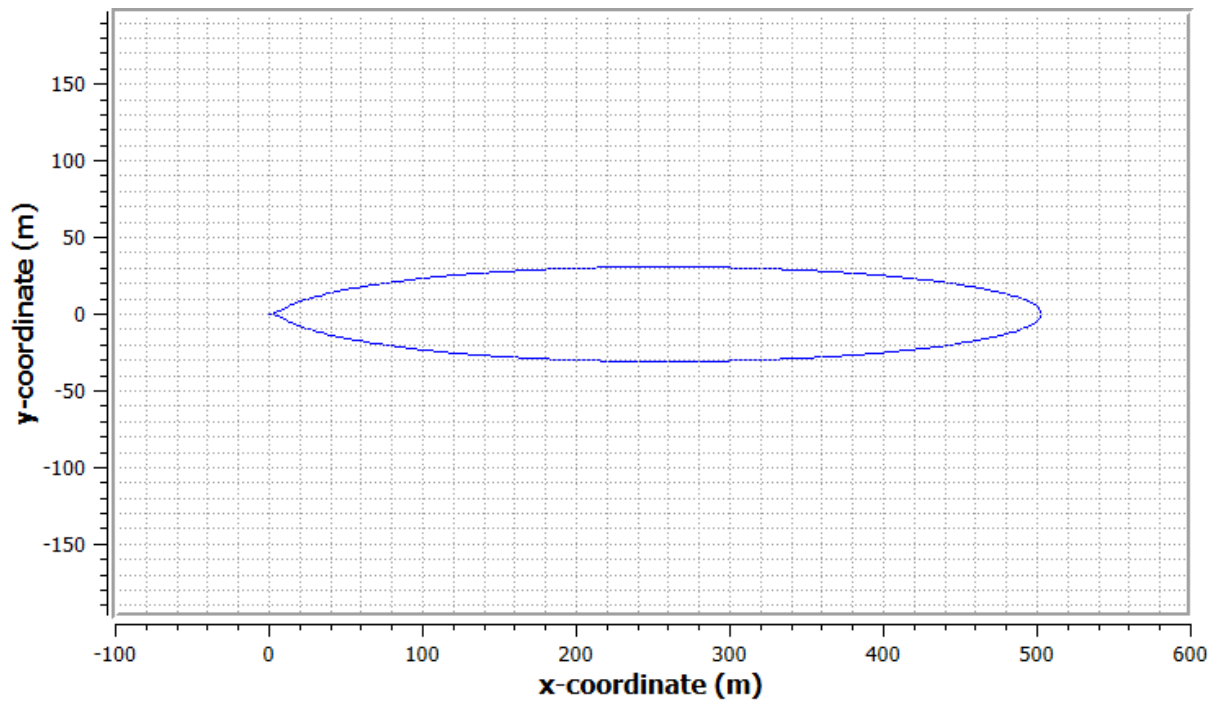
Excluding UFL Region: No

Flammable Mass: 0.0446202kg

Excluding UFL Region: No

| Fraction Of LFL Distance Upstream (m) | Distance Downstream (m) | Max. Half Width (m) | Distance to Max. Half Width (m) |
|--|----------------------------|---------------------|------------------------------------|
| 1 0.0329455 | 5.10128 | 0.176678 | 3.39963 |

Toxic Results



Worst Case Time: Yes

Worst Case Height: Yes

| Criteria Description: | Distance Upstream (m) | Distance Downstream (m) | Max. Half Width (m) | Distance to Max. Half Width (m) |
|-------------------------------|-----------------------|-------------------------|---------------------|---------------------------------|
| Outdoor Concentration Level 1 | 0.0356344 | 503.328 | 30.8191 | 260.491 |