RDS San Benedetto

Study

6" 290 bar Horizontal

Base Case

Data

Weather: **Study\Category 2/F**

Speed: 2,00 **m/s** **Stability: F**

\RDS San Benedetto\Study\6" 290 bar Horizontal

Flame Data

User-Defined Quantities

Model Correlation Type	**SHELL - Johnson**	
Material	METHANE	
Ambient Temperature	25,00	degC
Ambient Relative Humidity	0,75	fraction
Ambient Pressure	1,01	bar
Ambient Wind Speed	2,00	m/s
Maximum Exposure Duration	20,00	s
Elevation	1,00	m
Expanded Temperature	-132,54	degC
Release Rate	9,10	kg/s
Liquid Fraction		fraction
Jet Angle from Horizontal	0,00	deg
Crosswind Angle	0,00	deg

	Input	**Output**	
Flame Emissive Power		232,37	kW/m2
Expanded Radius		0,06	m
Jet Velocity	500,00		m/s
Flame Length		32,32	m
Frustrum Lift Off Distance		10,30	m
Frustrum Length		22,40	m
Frustrum Base Width		2,36	m
Frustrum Tip Width		5,87	m
Flame Length in Still Air		40,20	m
Hole to Flame Angle		18,98	deg
Plane Angular Rotation		0,00	deg

Flame on-ground impingement with partial truncation

Radiation Intensity Ellipse

User-Defined Quantities

Observer Inclination	Variable	deg
Observer Orientation	Variable	deg
Exposure Duration	20,00	s

Calculated Quantities

Incident Radiation Level:	**3,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,01	
Dose Level	865.118,83	(W/m2)^Probit N.s
Downwind semi-axis (A)	30,16	m
Crosswind semi-axis (B)	39,79	m
Offset Ratio (D)	0,91	
Effect Distance	57,59	m
Area	3.770,44	m2
Incident Radiation Level:	**5,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,02	
Dose Level	1.709.490,54	(W/m2)^Probit N.s
Downwind semi-axis (A)	24,46	m
Crosswind semi-axis (B)	30,83	m
Offset Ratio (D)	1,08	
Effect Distance	50,94	m
Area	2.368,92	m2
Incident Radiation Level:	**12,50**	kW/m2
Lethality Level	6,53	%
View Factor	0,05	
Dose Level	5.800.161,90	(W/m2)^Probit N.s
Downwind semi-axis (A)	18,00	m
Crosswind semi-axis (B)	18,99	m
Offset Ratio (D)	1,32	
Effect Distance	41,81	m
Area	1.074,02	m2

Weather: **Study\Category 5/D**

Speed: 5,00 **m/s** **Stability: D**

\RDS San Benedetto\Study\6" 290 bar Horizontal

Flame Data

User-Defined Quantities

Model Correlation Type	**SHELL - Johnson**	
Material	METHANE	
Ambient Temperature	25,00	degC
Ambient Relative Humidity	0,75	fraction
Ambient Pressure	1,01	bar
Ambient Wind Speed	5,00	m/s
Maximum Exposure Duration	20,00	s
Elevation	1,00	m
Expanded Temperature	-132,54	degC
Release Rate	9,10	kg/s
Liquid Fraction		fraction
Jet Angle from Horizontal	0,00	deg
Crosswind Angle	0,00	deg

	Input	**Output**	
Flame Emissive Power		222,94	kW/m2
Expanded Radius		0,06	m
Jet Velocity	500,00		m/s
Flame Length		34,44	m
Frustrum Lift Off Distance		10,30	m
Frustrum Length		24,35	m
Frustrum Base Width		2,36	m
Frustrum Tip Width		5,52	m
Flame Length in Still Air		40,20	m
Hole to Flame Angle		13,91	deg
Plane Angular Rotation		0,00	deg

Flame on-ground impingement with partial truncation

Radiation Intensity Ellipse

User-Defined Quantities

Observer Inclination	Variable	deg
Observer Orientation	Variable	deg
Exposure Duration	20,00	s

Calculated Quantities

Incident Radiation Level:	**3,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,01	
Dose Level	865.118,83	(W/m2)^Probit N.s
Downwind semi-axis (A)	28,60	m
Crosswind semi-axis (B)	39,58	m
Offset Ratio (D)	1,01	
Effect Distance	57,38	m
Area	3.556,25	m2
Incident Radiation Level:	**5,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,02	
Dose Level	1.709.490,54	(W/m2)^Probit N.s
Downwind semi-axis (A)	24,14	m
Crosswind semi-axis (B)	30,73	m
Offset Ratio (D)	1,13	
Effect Distance	51,50	m
Area	2.330,04	m2
Incident Radiation Level:	**12,50**	kW/m2
Lethality Level	6,53	%
View Factor	0,06	
Dose Level	5.800.161,90	(W/m2)^Probit N.s
Downwind semi-axis (A)	18,79	m
Crosswind semi-axis (B)	18,80	m
Offset Ratio (D)	1,31	
Effect Distance	43,48	m
Area	1.110,01	m2

RDS San Benedetto

Study

6" 290 bar Horizontal

Base Case

CASE Name: **Data**

User-Defined Data

Material

Material Identifier	METHANE	
Type of Vessel	Pressurized Gas	
Pressure Specification	Pressure specified	
Discharge Pressure (gauge)	290	bar
Discharge Temperature	25	degC
Mass Inventory of material to discharge	2000	kg

Scenario

Type of Event	Leak	
Phase	Vapor	
HoleDiameter	15	mm
Building Wake Option	None	

Location

[Elevation	1	m]
Dispersion Concentration of Interest	1E4	ppm
Averaging time associated with Concentration	Flammable	
Distances of Interest(1)	1	m
Distances of Interest(2)	5	m
Distances of Interest(3)	10	m
ERPG selection	ERPG is not set	
IDLH selection	IDLH is not set	
STEL selection	STEL is not set	
User Defined Averaging	No user defined averaging time supplied	

Bund

Status of Bund	No bund present	
[Type of Bund Surface	Concrete]	
[Bund Height	0	m]
[Bund Failure Modeling	Bund cannot fail]	

Indoor/Outdoor

Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Shell	

Dispersion

Ignition Location	No ignition location	
Mass Inventory of material to Disperse	2000	kg

Fireball Parameters

[Mass Modification Factor	3]	
[Calculation method for fireball	DNV Recommended]	
[Temperature of fireball	1727	degC]

Jet Fire Parameters

Jet fire radiation intensity level 1	3	kW/m2

Jet fire radiation intensity level 2	5 kW/m2
Jet fire radiation intensity level 3	12,5 kW/m2

Discharge Data

User-Defined Quantities

Material	METHANE	
Temperature	25,00	degC
Pressure	291,01	bar
Inventory	2.000,00	kg
Scenario	Leak	
Fixed Duration	n/a	s

Calculated Quantities

Weather: Study\Category 2/F

Mass Flow of Air (Vent from Vapor Space Only)	n/a	
Average Values for Segment Number	**1**	
Liquid Fraction	0,00	fraction
FinalTemperature	-132,54	degC
Final Velocity	500,00	m/s
Droplet Diameter	0,00	um
Continuous Release Data:		
Mass Flowrate	9.10248E+000	kg/s
Release Duration	219,72	s
Orifice Velocity	441,88	m/s
Exit Pressure	122,42	bar
Exit Temperature	-25,23	degC
Discharge Coefficient	0,82	
Expanded Radius	0,06	m

Weather: Study\Category 5/D

Mass Flow of Air (Vent from Vapor Space Only)	n/a	
Average Values for Segment Number	**1**	
Liquid Fraction	0,00	fraction
FinalTemperature	-132,54	degC
Final Velocity	500,00	m/s
Droplet Diameter	0,00	um
Continuous Release Data:		
Mass Flowrate	9.10248E+000	kg/s
Release Duration	219,72	s
Orifice Velocity	441,88	m/s
Exit Pressure	122,42	bar
Exit Temperature	-25,23	degC
Discharge Coefficient	0,82	
Expanded Radius	0,06	m

Consequence Results

Distance to Concentration Results

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 0 m
All flammable results are reported at the cloud centreline height

Concentration(ppm)	Averaging Time		Distance (m)	
			Category 2/F	Category 5/D
User Conc (10000)	18,75	s	235,359	176,541
UFL (165000)	18,75	s	6,36144	6,02148
LFL (44000)	18,75	s	41,5207	32,3883
LFL Frac (22000)	18,75	s	130,196	97,6085

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Category 2/F	Category 5/D
User Conc (10000)	18,75	s	0	0
UFL (165000)	18,75	s	1,00019	1,00017
LFL (44000)	18,75	s	1,03972	1,01653
LFL Frac (22000)	18,75	s	0	0,676243

Concentration At Distance Results

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 0 m
All flammable results are reported at the cloud centreline height

Distance		Conc.(ppm) at Flammable Avg.Time of 18,75 s	
		Category 2/F	Category 5/D
1	m	587845	584111
5	m	211587	200971
10	m	109654	98468,1

Distance		Heights (m) for above concentrations	
		Category 2/F	Category 5/D
1	m	0,999996	0,999996
5	m	1,00009	1,00009
10	m	1,00114	1,00112

Distance		Conc.(ppm) at Core Avg.Time of 18,75 s	
		Category 2/F	Category 5/D
1	m	3,80733e-036	1,11381e-011
5	m	4091,33	12847,3
10	m	56154,1	54397,1

Distance		Heights (m) for above concentrations	
		Category 2/F	Category 5/D
1	m	0	0
5	m	0	0
10	m	0	0

Jet Fire Hazard

Jet fire method used: SHELL - Johnson

		Category 2/F	Category 5/D
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Category 2/F	Category 5/D
Radiation Level	3	kW/m2	57,5894	57,3845
Radiation Level	5	kW/m2	50,9432	51,4953
Radiation Level	12,5	kW/m2	41,8124	43,4752

Radiation Effects: Jet Fire Distance

			Radiation Level (kW/m2)	
			Category 2/F	Category 5/D
Distance Of Interest	1	m	4,37925	3,33252
Distance Of Interest	5	m	9,07217	8,83283
Distance Of Interest	10	m	134,437	133,39

Flash Fire Envelope

All flammable results are reported at the cloud centreline height

			Distance (m)	
			Category 2/F	Category 5/D
Furthest Extent	22000	ppm	130,196	97,6085
Furthest Extent	44000	ppm	41,5207	32,3883

			Heights (m) for above distances	
			Category 2/F	Category 5/D
Furthest Extent	22000	ppm	0	0,676243
Furthest Extent	44000	ppm	1,03972	1,01653

Explosion Effects: Late Ignition

Explosion Model Used : TNT
Explosion Location Criterion: Cloud Front (LFL Fraction)
All distances are measured from the Source
All flammable results are reported at the cloud centreline height

			Maximum Distance (m) at Overpressure Level	
			Category 2/F	Category 5/D
Overpressure	0,02068	bar	203,424	146,547
Overpressure	0,1379	bar	149,011	104,642
Overpressure	0,2068	bar	144,71	101,329

		Supplementary Data at 0,02068 bar	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	10,1573	4,63985
Used Flammable Mass	kg	10,1573	4,63985
Overpressure Radius	m	73,4239	56,5473
Distance to:			
- Ignition Source	m	130	90
- Cloud Front/Centre	m	130	90
- Explosion Centre	m	130	90

		Supplementary Data at 0,1379 bar	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	10,1573	4,63985
Used Flammable Mass	kg	10,1573	4,63985
Overpressure Radius	m	19,0113	14,6415
Distance to:			
- Ignition Source	m	130	90
- Cloud Front/Centre	m	130	90
- Explosion Centre	m	130	90

		Supplementary Data at 0,2068 bar	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	10,1573	4,63985
Used Flammable Mass	kg	10,1573	4,63985
Overpressure Radius	m	14,7105	11,3293
Distance to:			
- Ignition Source	m	130	90
- Cloud Front/Centre	m	130	90
- Explosion Centre	m	130	90

			Overpressures (bar gauge) at Distances	
			Category 2/F	Category 5/D
Distance	1	m	0,126654	0,126749
Distance	5	m	0,325182	0,325445
Distance	10	m	1	1

		Supplementary Data at 1 m	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	0,913628	0,914958
Used Flammable Mass	kg	0,913628	0,914958

		Supplementary Data at 5 m	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	0,913628	0,914958
Used Flammable Mass	kg	0,913628	0,914958

		Supplementary Data at 10 m	
		Category 2/F	Category 5/D
Supplied Flammable Mass	kg	0,913628	0,914958
Used Flammable Mass	kg	0,913628	0,914958

Weather Conditions

		Category 2/F	Category 5/D
Wind Speed	m/s	2	5
Pasquill Stability		F	D
Surface Roughness Length		183,156	183,156
Surface Roughness Parameter		0,0999999	0,0999999
Atmospheric Temperature	degC	25	25
Surface Temperature	degC	25	25
Relative Humidity	fraction	0,75	0,75

RDS San Benedetto

Study

6" 290 bar Vertical

Base Case

Data

Weather: **Study\Category 2/F**

Speed: 2,00 **m/s** **Stability: F**

\RDS San Benedetto\Study\6" 290 bar Vertical

Flame Data

User-Defined Quantities

Model Correlation Type	**SHELL - DNV recommended**	
Material	METHANE	
Ambient Temperature	25,00	degC
Ambient Relative Humidity	0,75	fraction
Ambient Pressure	1,01	bar
Ambient Wind Speed	2,00	m/s
Maximum Exposure Duration	20,00	s
Elevation	1,00	m
Expanded Temperature	-132,54	degC
Release Rate	9,10	kg/s
Liquid Fraction		fraction
Jet Angle from Horizontal	90,00	deg
Crosswind Angle	0,00	deg

	Input	**Output**	
Flame Emissive Power		159,80	kW/m2
Expanded Radius		0,06	m
Jet Velocity	500,00		m/s
Flame Length		28,91	m
Frustrum Lift Off Distance		5,38	m
Frustrum Length		23,56	m
Frustrum Base Width		1,99	m
Frustrum Tip Width		8,12	m
Flame Length in Still Air		40,20	m
Hole to Flame Angle		6,33	deg
Plane Angular Rotation		0,00	deg

Flame Co-ordinates

X	**Z**	**R**	**Phi**
m	m	m	deg
0,00	6,38	0,00	6,33
0,00	6,38	1,00	6,33
2,60	29,80	4,06	6,33
2,60	29,80	0,00	6,33

Radiation Intensity Ellipse

User-Defined Quantities

Observer Inclination	Variable	deg
Observer Orientation	Variable	deg
Exposure Duration	20,00	s

Calculated Quantities

Incident Radiation Level:	**3,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,02	
Dose Level	865.118,83	(W/m2)^Probit N.s
Downwind semi-axis (A)	30,56	m
Crosswind semi-axis (B)	30,51	m
Offset Ratio (D)	0,08	
Effect Distance	32,98	m
Area	2.929,58	m2
Incident Radiation Level:	**5,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,03	
Dose Level	1.709.490,54	(W/m2)^Probit N.s
Downwind semi-axis (A)	17,79	m
Crosswind semi-axis (B)	18,03	m
Offset Ratio (D)	0,13	
Effect Distance	20,09	m
Area	1.007,69	m2
Incident Radiation Level:	**12,50**	kW/m2
Lethality Level	6,53	%
View Factor	0,08	
Dose Level	5.800.161,90	(W/m2)^Probit N.s
Downwind semi-axis (A)	Not Reached	m
Crosswind semi-axis (B)	Not Reached	m
Offset Ratio (D)	Not Reached	
Effect Distance	n/a	m
Area	n/a	m2

Radiation Distance

User-Defined Quantities

Maximum Distance	32,98	m
Angle from Wind Direction	0,00	deg
Height above Origin	0,00	m
Observer Inclination	Variable	deg
Observer Orientation	Variable	deg

Calculated Quantities

X Coordinates m	Y Coordinates m	Z Coordinates m	Incident Radiation kW/m2	Lethality Level %	View Factor
0,00			3,91		
0,67			4,81		
1,35			5,64		
2,02			6,35		
2,69			6,92		
3,37			7,35		
4,04			7,65		
4,71			7,83		
5,38			7,93		
6,06			7,95		
6,73			7,85		
7,40			7,85		
8,08			7,74		
8,75			7,61		
9,42			7,47		
10,10			7,31		
10,77			7,15		
11,44			6,99		
12,12			6,83		
12,79			6,66		
13,46			6,50		
14,14			6,33		
14,81			6,17		
15,48			6,01		
16,15			5,85		
16,83			5,70		
17,50			5,55		
18,17			5,40		
18,85			5,26		
19,52			5,12		
20,19			4,98		
20,87			4,85		
21,54			4,72		
22,21			4,59		
22,89			4,46		
23,56			4,34		
24,23			4,22		

X Coordinates m	Y Coordinates m	Z Coordinates m	Incident Radiation kW/m2	Lethality Level %	View Factor
24,90			4,11		
25,58			3,99		
26,25			3,89		
26,92			3,78		
27,60			3,69		
28,27			3,60		
28,94			3,50		
29,62			3,42		
30,29			3,33		
30,96			3,24		
31,64			3,16		
32,31			3,08		
32,98			3,00		

Weather: **Study\Category 5/D**

Speed: 5,00 **m/s** **Stability: D**

\RDS San Benedetto\Study\6" 290 bar Vertical

Flame Data

User-Defined Quantities

Model Correlation Type	**SHELL - DNV recommended**	
Material	METHANE	
Ambient Temperature	25,00	degC
Ambient Relative Humidity	0,75	fraction
Ambient Pressure	1,01	bar
Ambient Wind Speed	5,00	m/s
Maximum Exposure Duration	20,00	s
Elevation	1,00	m
Expanded Temperature	-132,54	degC
Release Rate	9,10	kg/s
Liquid Fraction		fraction
Jet Angle from Horizontal	90,00	deg
Crosswind Angle	0,00	deg

	Input	**Output**	
Flame Emissive Power		225,30	kW/m2
Expanded Radius		0,06	m
Jet Velocity	500,00		m/s
Flame Length		22,47	m
Frustrum Lift Off Distance		3,79	m
Frustrum Length		18,81	m
Frustrum Base Width		1,98	m
Frustrum Tip Width		6,94	m
Flame Length in Still Air		40,20	m
Hole to Flame Angle		15,83	deg
Plane Angular Rotation		0,00	deg

Flame Co-ordinates

X	Z	R	Phi
m	m	m	deg
0,00	4,79	0,00	15,83
0,00	4,79	0,99	15,83
5,13	22,88	3,47	15,83
5,13	22,88	0,00	15,83

Radiation Intensity Ellipse

User-Defined Quantities

Observer Inclination	Variable	deg
Observer Orientation	Variable	deg
Exposure Duration	20,00	s

Calculated Quantities

Incident Radiation Level:	**3,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,01	
Dose Level	865.118,83	(W/m2)^Probit N.s
Downwind semi-axis (A)	34,46	m
Crosswind semi-axis (B)	34,91	m
Offset Ratio (D)	0,13	
Effect Distance	38,96	m
Area	3.779,71	m2
Incident Radiation Level:	**5,00**	kW/m2
Lethality Level	0,00	%
View Factor	0,02	
Dose Level	1.709.490,54	(W/m2)^Probit N.s
Downwind semi-axis (A)	24,35	m
Crosswind semi-axis (B)	24,37	m
Offset Ratio (D)	0,20	
Effect Distance	29,18	m
Area	1.864,26	m2
Incident Radiation Level:	**12,50**	kW/m2
Lethality Level	6,53	%
View Factor	0,06	
Dose Level	5.800.161,90	(W/m2)^Probit N.s
Downwind semi-axis (A)	4,95	m
Crosswind semi-axis (B)	7,31	m
Offset Ratio (D)	1,13	
Effect Distance	10,56	m
Area	113,57	m2

Radiation Distance

User-Defined Quantities

Maximum Distance	38,96	m
Angle from Wind Direction	0,00	deg
Height above Origin	0,00	m
Observer Inclination	Variable	deg
Observer Orientation	Variable	deg

Calculated Quantities

X Coordinates m	Y Coordinates m	Z Coordinates m	Incident Radiation kW/m2	Lethality Level %	View Factor
0,00			10,53		
0,80			12,85		
1,59			14,65		
2,39			15,80		
3,18			16,33		
3,98			16,41		
4,77			16,22		
5,57			15,82		
6,36			15,33		
7,16			14,79		
7,95			14,24		
8,75			13,69		
9,54			13,16		
10,34			12,64		
11,13			12,14		
11,93			11,78		
12,72			11,46		
13,52			11,12		
14,31			10,78		
15,11			10,44		
15,90			10,07		
16,70			9,70		
17,49			9,33		
18,29			8,98		
19,08			8,63		
19,88			8,29		
20,67			7,95		
21,47			7,62		
22,26			7,30		
23,06			6,99		
23,85			6,70		
24,65			6,41		
25,44			6,14		
26,24			5,88		
27,03			5,62		
27,83			5,38		
28,62			5,15		

X Coordinates m	Y Coordinates m	Z Coordinates m	Incident Radiation kW/m2	Lethality Level %	View Factor
29,42			4,93		
30,21			4,73		
31,01			4,53		
31,80			4,34		
32,60			4,16		
33,39			3,99		
34,19			3,82		
34,98			3,67		
35,78			3,52		
36,57			3,38		
37,37			3,25		
38,16			3,12		
38,96			3,00		

RDS San Benedetto

Study

6" 290 bar Vertical

Base Case

CASE Name: Data

User-Defined Data

Material

Material Identifier	METHANE	
Type of Vessel	Pressurized Gas	
Pressure Specification	Pressure specified	
Discharge Pressure (gauge)	290	bar
Discharge Temperature	25	degC
Mass Inventory of material to discharge	2000	kg

Scenario

Type of Event	Leak	
Phase	Vapor	
HoleDiameter	15	mm
Building Wake Option	None	

Location

[Elevation	1	m]
Dispersion Concentration of Interest	1E4	ppm
Averaging time associated with Concentration	Flammable	
Distances of Interest(1)	1	m
Distances of Interest(2)	5	m
Distances of Interest(3)	10	m
ERPG selection	ERPG is not set	
IDLH selection	IDLH is not set	
STEL selection	STEL is not set	
User Defined Averaging	No user defined averaging time supplied	

Bund

Status of Bund	No bund present	
[Type of Bund Surface	Concrete]	
[Bund Height	0	m]
[Bund Failure Modeling	Bund cannot fail]	

Indoor/Outdoor

Outdoor Release Direction	Vertical	

Flammable

Jet Fire Method	Shell	

Dispersion

Ignition Location	No ignition location	
Mass Inventory of material to Disperse	2000	kg

Fireball Parameters

[Mass Modification Factor	3]	
[Calculation method for fireball	DNV Recommended]	
[Temperature of fireball	1727	degC]

Jet Fire Parameters

Jet fire radiation intensity level 1	3	kW/m2

Jet fire radiation intensity level 2	5 kW/m2
Jet fire radiation intensity level 3	12,5 kW/m2

Discharge Data

User-Defined Quantities

Material	METHANE	
Temperature	25,00	degC
Pressure	291,01	bar
Inventory	2.000,00	kg
Scenario	Leak	
Fixed Duration	n/a	s

Calculated Quantities

Weather: Study\Category 2/F

Mass Flow of Air (Vent from Vapor Space Only)	n/a	
Average Values for Segment Number	**1**	
Liquid Fraction	0,00	fraction
FinalTemperature	-132,54	degC
Final Velocity	500,00	m/s
Droplet Diameter	0,00	um
Continuous Release Data:		
Mass Flowrate	9.10248E+000	kg/s
Release Duration	219,72	s
Orifice Velocity	441,88	m/s
Exit Pressure	122,42	bar
Exit Temperature	-25,23	degC
Discharge Coefficient	0,82	
Expanded Radius	0,06	m

Weather: Study\Category 5/D

Mass Flow of Air (Vent from Vapor Space Only)	n/a	
Average Values for Segment Number	**1**	
Liquid Fraction	0,00	fraction
FinalTemperature	-132,54	degC
Final Velocity	500,00	m/s
Droplet Diameter	0,00	um
Continuous Release Data:		
Mass Flowrate	9.10248E+000	kg/s
Release Duration	219,72	s
Orifice Velocity	441,88	m/s
Exit Pressure	122,42	bar
Exit Temperature	-25,23	degC
Discharge Coefficient	0,82	
Expanded Radius	0,06	m

Consequence Results

Distance to Concentration Results

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 0 m
All flammable results are reported at the cloud centreline height

Concentration(ppm)	Averaging Time		Distance (m)	
			Category 2/F	Category 5/D
User Conc (10000)	18,75	s	No Hazard	No Hazard
UFL (165000)	18,75	s	0,0740024	0,159802
LFL (44000)	18,75	s	1,70729	2,02484
LFL Frac (22000)	18,75	s	4,39068	4,80705

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Category 2/F	Category 5/D
User Conc (10000)	18,75	s	0	0
UFL (165000)	18,75	s	7,10421	5,95654
LFL (44000)	18,75	s	19,6562	13,4966
LFL Frac (22000)	18,75	s	26,4505	17,5833

Concentration At Distance Results

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 0 m
All flammable results are reported at the cloud centreline height

Distance		Conc.(ppm) at Flammable Avg.Time of 18,75 s	
		Category 2/F	Category 5/D
1	m	58308,7	59747,5
5	m	20491,7	21339,5
10	m	11356,2	11759,6

Distance		Heights (m) for above concentrations	
		Category 2/F	Category 5/D
1	m	16,281	11,2288
5	m	27,344	17,7804
10	m	33,3134	21,4397

Distance		Conc.(ppm) at Core Avg.Time of 18,75 s	
		Category 2/F	Category 5/D
1	m	<Min. Conc.	<Min. Conc.
5	m	<Min. Conc.	<Min. Conc.
10	m	<Min. Conc.	<Min. Conc.

Distance		Heights (m) for above concentrations	
		Category 2/F	Category 5/D
1	m	0	0
5	m	0	0
10	m	0	0

Jet Fire Hazard

Jet fire method used: SHELL - DNV recommended

	Category 2/F	Category 5/D
Jet Fire Status	Hazard	Hazard
Flame Direction	Vertical	Vertical

Radiation Effects: Jet Fire Ellipse

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Category 2/F	Category 5/D
Radiation Level	3	kW/m2	32,982	38,9596
Radiation Level	5	kW/m2	20,0893	29,1783
Radiation Level	12,5	kW/m2	Not Reached	10,5583

Radiation Effects: Jet Fire Distance

			Radiation Level (kW/m2)	
			Category 2/F	Category 5/D
Distance Of Interest	1	m	5,22965	13,3756
Distance Of Interest	5	m	7,88265	15,8453
Distance Of Interest	10	m	7,336	12,8558

Flash Fire Envelope

All flammable results are reported at the cloud centreline height

			Distance (m)	
			Category 2/F	Category 5/D
Furthest Extent	22000	ppm	4,39068	4,80705
Furthest Extent	44000	ppm	1,70729	2,02484

			Heights (m) for above distances	
			Category 2/F	Category 5/D
Furthest Extent	22000	ppm	26,4505	17,5833
Furthest Extent	44000	ppm	19,6562	13,4966

Weather Conditions

		Category 2/F	Category 5/D
Wind Speed	m/s	2	5
Pasquill Stability		F	D
Surface Roughness Length		183,156	183,156
Surface Roughness Parameter		0,0999999	0,0999999
Atmospheric Temperature	degC	25	25
Surface Temperature	degC	25	25
Relative Humidity	fraction	0,75	0,75