

Jet Fire

Workspace: 72341-1RiempimFSRU

Study: Riempimento FSRU-ME4

Equipment Item: 2R Compressore BOG HD

72341-1RiempimFSRU\Riempimento FSRU-ME4\2R Compressore BOG HD

Material	GAS NATURALE	
East	0	m
North	0	m

Scenario (Leak) : 25mm

72341-1RiempimFSRU\Riempimento FSRU-ME4\2R Compressore BOG HD\25mm

Weather: Category 2/F

Wind speed [m/s]	2
Pasquill stability	F stable - night with moderate clouds and light/moderate wind
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5

Jet fire model results

INPUT DATA

Scenario

Elevation	12,5	m
Release angle from horizontal	0	deg

Jet Fire Parameters

Jet fire method	Cone model	
Crosswind angle	0	deg
Rate modification factor	3	

Calculated inputs

Mass flow rate	0,147362	kg/s
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Temperature after atmospheric expansion	-133,705	degC
Liquid fraction	0	fraction
Velocity after atmospheric expansion (input)	300	m/s
Rainout fraction time averaged	0	fraction

OUTPUT DATA

Flame emissive power	54,2388	kW/m2
Fraction of emissivity	0,0631201	fraction
Jet velocity	300	m/s
Flame length	5,97574	m
Frustum length	4,97487	m
Frustum base width	0,166104	m
Frustum tip width	0,8468	m
Frustum lift-off distance	1,01557	m
Flame length in still air	7,19974	m
Hole to flame angle	10,7081	deg
Expanded diameter	0,0203251	m
Plane angular rotation	0	deg

Radiation Intensity Ellipse Results

INPUT DATA

For ellipses 'observer direction' refers to whether inclination is 'fixed' or 'variable'. Orientation is always variable.

Observer direction	Variable	
Exposure duration	20	s
Height of interest	1,7	m

OUTPUT DATA

Radiation intensity

Incident radiation	Lethality [%]	View factor	Probit	Dose [(W/m2)^Probit N.s]	Ellipse half-	Ellipse half-	Effect downwind	Ellipse area
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on [kW/m ²]					length [m]	width [m]	distance [m]	[m ²]
3	0	0,0553 11	- 1,3832 1	865.119	Not reach ed	Not reach ed	n/a	n/a
5	0,000174 704	0,0921 85	0,3603 67	1.709.491	Not reach ed	Not reach ed	n/a	n/a
7	0,02405	0,1290 59	1,5088 3	2.677.313	Not reach ed	Not reach ed	n/a	n/a
12,5	6,52536	0,2304 62	3,4878 9	5.800.162	Not reach ed	Not reach ed	n/a	n/a
37,5	98,7381	0,6913 87	7,2377 3	25.094.924	Not reach ed	Not reach ed	n/a	n/a

Radiation v Distance Results

INPUT DATA

Maximum distance	11,8076	m
Observer type radiation modelling flag	Planar	
Observer direction	Variable	
Height of interest	1,7	m

OUTPUT DATA

Downwind distance [m]	Maximum incident radiation [kW/m ²]	Lethality level [fraction]
0	0,220921	0
0,240972	0,22536	0
0,481944	0,22966	0
0,722916	0,233801	0
0,963888	0,237767	0
1,20486	0,241539	0
1,44583	0,2451	0

1,6868	0,248434	0
1,92778	0,251523	0
2,16875	0,254354	0
2,40972	0,257541	0
2,65069	0,261243	0
2,89166	0,264552	0
3,13264	0,267466	0
3,37361	0,269986	0
3,61458	0,272059	0
3,85555	0,273672	0
4,09653	0,274816	0
4,3375	0,275486	0
4,57847	0,275679	0
4,81944	0,275397	0
5,06041	0,274645	0
5,30139	0,27343	0
5,54236	0,271764	0
5,78333	0,269662	0
6,0243	0,26714	0
6,26527	0,264219	0
6,50625	0,260919	0
6,74722	0,257265	0
6,98819	0,253282	0
7,22916	0,248997	0
7,47013	0,244932	0
7,71111	0,241018	0
7,95208	0,23693	0
8,19305	0,23302	0
8,43402	0,229733	0
8,67499	0,226299	0
8,91597	0,222733	0
9,15694	0,219051	0
9,39791	0,215266	0
9,63888	0,211395	0
9,87985	0,207451	0



10,1208	0,203447	0
10,3618	0,199396	0
10,6028	0,195312	0
10,8437	0,191205	0
11,0847	0,187087	0
11,3257	0,182967	0
11,5667	0,178856	0
11,8076	0,174763	0

Weather: Category 5/D

Wind speed [m/s]	5
Pasquill stability	D neutral - little sun and high wind or overcast/windy night
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5

Jet fire model results

INPUT DATA

Scenario

Elevation	12,5	m
Release angle from horizontal	0	deg

Jet Fire Parameters

Jet fire method	Cone model	
Crosswind angle	0	deg
Rate modification factor	3	

Calculated inputs

Mass flow rate	0,147362	kg/s
Temperature after atmospheric expansion	-133,705	degC
Liquid fraction	0	fraction
Velocity after atmospheric expansion (input)	300	m/s
Rainout fraction time averaged	0	fraction

OUTPUT DATA

Flame emissive power	50,0949	kW/m2
Fraction of emissivity	0,053687	fraction
Jet velocity	300	m/s
Flame length	6,46707	m
Frustum length	5,45718	m

Frustum base width	0,166104	m
Frustum tip width	0,70054	m
Frustum lift-off distance	1,01557	m
Flame length in still air	7,19974	m
Hole to flame angle	6,60234	deg
Expanded diameter	0,0203251	m
Plane angular rotation	0	deg

Radiation Intensity Ellipse Results

INPUT DATA

For ellipses 'observer direction' refers to whether inclination is 'fixed' or 'variable'. Orientation is always variable.

Observer direction	Variable	
Exposure duration	20	s
Height of interest	1,7	m

OUTPUT DATA

Radiation intensity

Incident radiation [kW/m ²]	Lethality [%]	View factor	Probit	Dose [(W/m ²) ^{Probit} N.s]	Ellipse half-length [m]	Ellipse half-width [m]	Effect downwind distance [m]	Ellipse area [m ²]
3	0	0,0598863	-1,38321	865.119	Not reached	Not reached	n/a	n/a
5	0,000174704	0,0998105	0,360367	1.709.491	Not reached	Not reached	n/a	n/a
7	0,02405	0,139735	1,50883	2.677.313	Not reached	Not reached	n/a	n/a
12,5	6,52536	0,249526	3,48789	5.800.162	Not reached	Not reached	n/a	n/a

37,5	98,7381	0,748579	7,23773	25.094.924	Not reached	Not reached	n/a	n/a
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Radiation v Distance Results

INPUT DATA

Maximum distance	12,8731	m
Observer type radiation modelling flag	Planar	
Observer direction	Variable	
Height of interest	1,7	m

OUTPUT DATA

Downwind distance [m]	Maximum incident radiation [kW/m ²]	Lethality level [fraction]
0	0,192809	0
0,262717	0,19706	0
0,525433	0,201176	0
0,78815	0,205137	0
1,05087	0,208921	0
1,31358	0,212511	0
1,5763	0,215885	0
1,83902	0,219612	0
2,10173	0,223962	0
2,36445	0,227988	0
2,62717	0,231675	0
2,88988	0,234958	0
3,1526	0,237813	0
3,41532	0,240216	0
3,67803	0,242151	0
3,94075	0,243601	0
4,20347	0,244555	0
4,46618	0,245008	0
4,7289	0,244956	0
4,99162	0,244402	0

5,25433	0,24335	0
5,51705	0,241813	0
5,77977	0,239803	0
6,04249	0,237338	0
6,3052	0,234441	0
6,56792	0,231135	0
6,83064	0,227448	0
7,09335	0,223409	0
7,35607	0,219577	0
7,61879	0,215939	0
7,8815	0,212496	0
8,14422	0,209317	0
8,40694	0,205953	0
8,66965	0,202425	0
8,93237	0,198749	0
9,19509	0,194946	0
9,4578	0,191033	0
9,72052	0,187028	0
9,98324	0,182948	0
10,246	0,178811	0
10,5087	0,174631	0
10,7714	0,170424	0
11,0341	0,166204	0
11,2968	0,161983	0
11,5595	0,157775	0
11,8223	0,153591	0
12,085	0,149439	0
12,3477	0,145331	0
12,6104	0,141273	0
12,8731	0,137273	0

