

Early Pool Fire Report

Workspace: 72438-2FSRURegas-9H

Study: FSRU in rigassificazione

Equipment Item: 9H Sovrapressione VX0050

72438-2FSRURegas-9H\FSRU in rigassificazione\9H Sovrapressione VX0050

Material	GAS NATURALE	
East	0	m
North	0	m

Scenario (Leak) : 28,28mm

72438-2FSRURegas-9H\FSRU in rigassificazione\9H Sovrapressione VX0050\28,28mm

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

Pool fire model results

Early pool fires are assumed to occur at a time when the initial PVAP rainout rate equals the pool fire burn rate, unless the thus calculated pool fire radius exceeds the maximum PVAP pool radius. For the latter case the early pool fire radius is assumed to be the maximum PVAP pool radius. The pool fire centre is located at the rainout point.

INPUT DATA

Correlation Type: Thomas / Johnson

Surface type	Land
Pool fire elevation	0 m
Maximum exposure duration	20 s
Downwind distance of liquid rainout	0 m
Use two zone pool fire model	No

OUTPUT DATA

Pool fire diameter	12,7578	m
Downwind distance of pool fire centre	0	m
Pool fire flame length	24,0005	m
Angle between pool fire axis and vertical	32,69	deg
Flame emissive power	184,431	kW/m ²
Total burn rate	10,3185	kg/s
Radiative fraction	0,395011	fraction

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	Probability	Dose [(W/m ²) ^{Pr} obitN.s]	Hazard information	Ellipse half length [m]	Ellipse half width [m]	Ellipse centre downwind distance [m]	Effect downwind distance [m]	Ellipse area [m ²]
3	0	0,016 2663	- 1,383 21	865.119	-	62,4 662	64,2 434	8,8275 2	71,293 7	1260 7,3
5	0,00017 4704	0,027 1105	0,360 367	1.709.491	-	48,8 956	50,2 068	8,6418 6	57,537 5	7712 ,28
7	0,02405	0,037	1,508	2.677.313	-	41,4	42,5	8,4266	49,888	5536



		9547	83				619	013	9	5	,05
12,5	6,52536	0,067	3,487	5.800.162	-		31,3	31,4	8,2294	39,54	3096
		7762	89				105	786	8		,39
37,5	98,7381	0,203	7,237	25.094.924	-		17,4	16,3	6,0962	23,567	896,
		329	73				713	346	1	5	572

Radiation v Distance Results

INPUT DATA

Maximum distance	71,2937	m
Angle from wind direction	0	deg
Observer direction	Variable	
Height of interest	1,7	m

OUTPUT DATA

Downwind distance [m]	Maximum incident radiation [kW/m2]	Lethality level [fraction]
0	184,431	1
1,45497	184,431	1
2,90995	184,431	1
4,36492	184,431	1
5,81989	184,431	1
7,27487	184,431	1
8,72984	134,979	1
10,1848	108,36	1
11,6398	91,5173	1
13,0948	78,8538	0,999999
14,5497	69,5514	0,999993
16,0047	62,1506	0,999963
17,4597	56,2373	0,999853
18,9146	51,3068	0,99953
20,3696	46,7519	0,998607
21,8246	42,3476	0,996007
23,2796	38,2661	0,989466
24,7345	34,5298	0,974772



26,1895	31,1329	0,945489
27,6445	28,0611	0,893991
29,0995	25,2966	0,814347
30,5544	22,8187	0,706145
32,0094	20,6051	0,576862
33,4644	18,6327	0,440551
34,9194	16,8782	0,313082
36,3743	15,3189	0,206679
37,8293	13,9334	0,126818
39,2843	12,7019	0,0725008
40,7392	11,6063	0,0387559
42,1942	10,6303	0,0194557
43,6492	9,75949	0,00921543
45,1042	8,98108	0,00413858
46,5591	8,28387	0,00177067
48,0141	7,65804	0,000725075
49,4691	7,13925	0,000308655
50,9241	6,67148	0,000128503
52,379	6,24432	5,2014E-05
53,834	5,85367	2,05263E-05
55,289	5,49586	7,91806E-06
56,7439	5,1676	2,99287E-06
58,1989	4,86598	1,1109E-06
59,6539	4,58838	4,05756E-07
61,1089	4,33248	1,46102E-07
62,5638	4,09621	5,19502E-08
64,0188	3,87772	1,82694E-08
65,4738	3,67536	0
66,9288	3,48766	0
68,3837	3,3133	0
69,8387	3,15109	0
71,2937	2,99999	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

Pool fire model results

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Correlation Type: Thomas / Johnson

Surface type	Land	
Pool fire elevation	0	m
Maximum exposure duration	20	s
Downwind distance of liquid rainout	0	m
Use two zone pool fire model	No	

OUTPUT DATA

Pool fire diameter	12,7578	m
Downwind distance of pool fire centre	0	m
Pool fire flame length	24,0005	m
Angle between pool fire axis and vertical	49,9241	deg
Flame emissive power	184,431	kW/m2
Total burn rate	10,3185	kg/s
Radiative fraction	0,395011	fraction

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	Probability	Dose [(W/m ²) ^{Pr} obitN.s]	Hazard information	Ellipse half-length [m]	Ellipse half-width [m]	Ellipse centre downwind distance [m]	Effect downwind distance [m]	Ellipse area [m ²]
3	0	0,016 2663	- 1,383 21	865.119	-	58,9 457	62,8 789	12,201 2	71,146 9	1164 4,1
5	0,00017 4704	0,027 1105	0,360 367	1.709.491	-	46,7 563	49,4 711	12,034 9	58,791 3	7266 ,78
7	0,02405	0,037 9547	1,508 83	2.677.313	-	40,1 827	42,1 428	11,835 8	52,018 5	5320 ,01
12,5	6,52536	0,067 7762	3,487 89	5.800.162	-	30,9 93	31,7 123	11,209 9	42,202 9	3087 ,75
37,5	98,7381	0,203 329	7,237 73	25.094.924	-	19,4 268	17,3 511	9,0901 7	28,516 9	1058 ,96

Radiation v Distance Results

INPUT DATA

Maximum distance	71,1469	m
Angle from wind direction	0	deg
Observer direction	Variable	
Height of interest	1,7	m

OUTPUT DATA

Downwind distance [m]	Maximum incident radiation [kW/m ²]	Lethality level [fraction]
0	184,431	1
1,45198	184,431	1
2,90396	184,431	1
4,35593	184,431	1
5,80791	184,431	1
7,25989	184,431	1
8,71187	145,73	1
10,1638	120,924	1
11,6158	105,663	1
13,0678	93,8611	1
14,5198	84,1736	1
15,9718	76,3533	0,999998
17,4237	70,1095	0,999994
18,8757	64,626	0,999979
20,3277	60,2265	0,999942
21,7797	55,784	0,999837
23,2317	52,5527	0,99965
24,6836	49,2682	0,999236
26,1356	45,2051	0,997983
27,5876	40,4891	0,993782
29,0396	35,8591	0,981466
30,4915	31,5439	0,95026
31,9435	27,6461	0,884382
33,3955	24,1986	0,771129
34,8475	21,1928	0,614037
36,2995	18,5962	0,437915
37,7514	16,8325	0,309814
39,2034	15,2506	0,202351
40,6554	13,8366	0,121939
42,1074	12,5778	0,0679889
43,5593	11,459	0,0352337
45,0113	10,4652	0,0170643
46,4633	9,58182	0,00776978

47,9153	8,79555	0,00334599
49,3673	8,09443	0,00137077
50,8192	7,46788	0,000537176
52,2712	6,90664	0,000202393
53,7232	6,40264	7,36596E-05
55,1752	5,94889	2,6005E-05
56,6272	5,53932	8,93997E-06
58,0791	5,16869	3,00301E-06
59,5311	4,83245	9,88676E-07
60,9831	4,52665	3,19902E-07
62,4351	4,24789	1,01979E-07
63,887	3,99317	3,20982E-08
65,339	3,75991	9,99479E-09
66,791	3,54583	0
68,243	3,34895	0
69,695	3,16752	0
71,1469	3	0

