

Early Pool Fire Report

Workspace: 72341-1RiempimFSRU

Study: Riempimento FSRU-ME4-Water

Equipment Item: 1R Manichette GNL riempimento FSRU

72341-1RiempimFSRU\Riempimento FSRU-ME4-Water\1R Manichette GNL riempimento FSRU

Material	GAS NATURALE	
East	0	m
North	0	m

Scenario (User defined source) : 300mm-Q286,3

72341-1RiempimFSRU\Riempimento FSRU-ME4-Water\1R Manichette GNL riempimento FSRU\300mm-Q286,3

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	Water
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	38,8225	m
Downwind distance of pool fire centre	0	m
Pool fire flame length	101,317	m
Angle between pool fire axis and vertical	25,7197	deg
Flame emissive power	213,873	kW/m2
Total burn rate	285,051	kg/s
Radiative fraction	0,204525	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/m2]	Lethality [%]	View factor	Probability	Dose [(W/m2)^Pr obitN.s]	Hazard information	Ellipse half-length [m]	Ellipse half-width [m]	Ellipse centre downwind distance [m]	Effect downwind distance [m]	Ellipse area [m2]
3	0	0,014027	-1,38321	865.119	-	219,712	223,299	30,3468	250,059	154131
5	0,00017	0,023	0,360	1.709.491	-	171,	172,	30,496	201,56	9263

	4704	3784	367			069	376	7	5	9,5
7	0,02405	0,032	1,508	2.677.313	-	144,089	144,006	30,0769	174,166	65187,4
12,5	6,52536	0,058446	3,48789	5.800.162	-	105,07	102,714	27,8816	132,952	33904,5
37,5	98,7381	0,175338	7,23773	25.094.924	-	50,7136	47,3124	15,99	66,7036	7537,87

Radiation v Distance Results

INPUT DATA

Maximum distance	250,059	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	213,873	1
5,10325	213,873	1
10,2065	213,873	1
15,3097	213,873	1
20,413	213,873	1
25,5162	120,285	1
30,6195	92,7903	1
35,7227	76,7072	0,999999
40,826	65,6278	0,999983
45,9292	57,3614	0,999887
51,0325	50,9037	0,999482
56,1357	45,7062	0,998211
61,2389	41,4294	0,995029
66,3422	37,748	0,988096
71,4454	34,4035	0,974027
76,5487	31,4104	0,948755
81,6519	28,7274	0,907934

86,7552	26,3131	0,848143
91,8584	24,1326	0,768298
96,9617	22,1579	0,670705
102,065	20,3659	0,561201
107,168	18,7376	0,448118
112,271	17,2567	0,340383
117,375	15,9094	0,245448
122,478	14,6832	0,167863
127,581	13,567	0,108878
132,684	12,5506	0,0670267
137,788	11,6249	0,0392177
142,891	10,7814	0,0218502
147,994	10,0124	0,0116181
153,097	9,31086	0,0059101
158,201	8,67041	0,00288381
163,304	8,0852	0,00135337
168,407	7,54996	0,000612513
173,51	7,0599	0,00026805
178,614	6,6107	0,000113721
183,717	6,19847	4,68891E-05
188,82	5,8197	1,88339E-05
193,923	5,47123	7,38628E-06
199,027	5,15023	2,83433E-06
204,13	4,85415	1,06631E-06
209,233	4,58069	3,94029E-07
214,336	4,3278	1,43267E-07
219,44	4,09362	5,13374E-08
224,543	3,87648	1,81571E-08
229,646	3,6749	0
234,749	3,4875	0
239,853	3,31309	0
244,956	3,15056	0
250,059	2,99995	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

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.

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Correlation Type: Thomas / Johnson

Surface type	Water	
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	38,8225	m
Downwind distance of pool fire centre	0	m
Pool fire flame length	101,317	m
Angle between pool fire axis and vertical	43,2943	deg
Flame emissive power	213,873	kW/m2
Total burn rate	285,051	kg/s
Radiative fraction	0,204525	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	0,014027	-1,38321	865.119	-	211,725	220,963	47,848	259,573	146975
5	0,000174704	0,0233784	0,360367	1.709.491	-	166,262	172,276	46,5622	212,824	89984,8
7	0,024057298	0,0327298	1,50883	2.677.313	-	141,258	145,268	45,1467	186,405	64466,6
12,5	6,52536	0,058446	3,48789	5.800.162	-	106,686	106,096	42,3741	149,06	35559,5
37,5	98,7381	0,175338	7,23773	25.094.924	-	58,6594	51,6062	28,4646	87,124	9510,19

Radiation v Distance Results

INPUT DATA

Maximum distance	259,573	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	213,873	1
5,29741	213,873	1
10,5948	213,873	1
15,8922	213,873	1
21,1896	213,873	1
26,4871	125,913	1
31,7845	103,498	1
37,0819	88,4985	1
42,3793	78,0435	0,999999
47,6767	68,8544	0,999992
52,9741	62,1413	0,999963
58,2715	56,3902	0,999858
63,5689	51,8201	0,999584
68,8664	47,8322	0,998924
74,1638	44,122	0,997387
79,4612	41,192	0,99474
84,7586	38,436	0,98988
90,056	36,085	0,982417
95,3534	33,3052	0,966586
100,651	30,4947	0,937228
105,948	27,7965	0,887951
111,246	25,2603	0,813036
116,543	22,9081	0,710729
121,84	20,7483	0,586092
127,138	18,7807	0,451223
132,435	16,9996	0,321804
137,733	15,3954	0,211568
143,03	13,9559	0,127965
148,328	12,6676	0,0712353
153,625	11,5166	0,0365833
158,922	10,4892	0,0173975
164,22	9,57227	0,00769737
169,517	8,84513	0,00354475

174,815	8,20712	0,00159849
180,112	7,62518	0,000689153
185,409	7,0944	0,000285107
190,707	6,61015	0,000113593
196,004	6,16805	4,37377E-05
201,302	5,76409	1,63284E-05
206,599	5,39459	5,92863E-06
211,896	5,05619	2,0996E-06
217,194	4,74588	7,27182E-07
222,491	4,46094	2,46911E-07
227,789	4,19892	8,23766E-08
233,086	3,95762	2,70601E-08
238,384	3,73509	8,76865E-09
243,681	3,52955	0
248,978	3,33945	0
254,276	3,16335	0
259,573	3,00001	0

