HAMS-GPS : Explosion Module

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Date : Wednesday, September 04, 2013

Data Entered

Reference No. : Test 1a

Name of Chemical : Acetone

Scenario : Tank-Fixed roof/No roof over heating by external source-BLEVE

Cloud height at Pool/Dyke Depth from ground (m): : 1.56

TNT Equivalent of the chemical : 2.7

Explosion Mass (lbm) : 3.83

Results

Explosion Summary at Height of simulation (m) 1.00

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1. Cloud Radius (m): 0.56
2. Explosion Yield Factor: 0.08

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1. Storage tank/frameless structure damage limit (m): 4.88
2. 50% BrickWall damage distance limit (m): 5.79
3. Sheet/Panel damage limit (m): 14.33
4. Safe distance/Missile limit (m): 60.05

5. 100% Fatal distance (m): 0.91
6. 50% Fatal distance (m): 1.52
7. Fatal distance limit (m): 2.13
8. 100% Structural damage limit (m): 2.44
9. 50% Structural damage limit (m): 7.92
10. Structural damage limit (m): 20.12
11. Ear drum damage limit (m): 20.73
12. 100% Glass break limit (m): 10.36
13. 50% Glass break limit (m): 34.44
14. Glass break limit (m): 162.76
15. Loud noise (m): 165.81

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Probit Table and Absolute Fatality/Injury (At height of simulation)

Distance (m)	Over Pressure (psi) Invert	%Fatality Lung Rupture	% Ear Drum Rupture	% Structural Damage	% Glass Break	Area (Ha)	Absolute	
							Fatality No.	Injury No.
1.524	18.59	14.28	96.70	100.00	100.00	0.001	0.007	0.048
2.484	7.41	0.00	68.30	98.75	100.00	0.001	0.000	0.034
3.444	4.66	0.00	23.18	92.96	100.00	0.002	0.000	0.023
4.404	2.98	0.00	7.71	62.80	100.00	0.002	0.000	0.008
5.364	2.74	0.00	6.25	44.97	100.00	0.003	0.000	0.009
6.325	2.32	0.00	4.17	24.34	100.00	0.004	0.000	0.008
7.285	2.01	0.00	2.93	14.31	100.00	0.004	0.000	0.006
8.245	1.78	0.00	2.15	8.97	100.00	0.005	0.000	0.005
9.205	1.59	0.00	1.63	5.91	98.73	0.005	0.000	0.004
10.165	1.43	0.00	1.27	4.05	98.18	0.006	0.000	0.004
11.125	1.31	0.00	1.02	2.88	97.48	0.006	0.000	0.003
12.085	1.20	0.00	0.82	2.10	96.59	0.007	0.000	0.003
13.045	1.11	0.00	0.68	1.57	95.50	0.008	0.000	0.003
14.006	1.03	0.00	0.57	1.20	94.16	0.008	0.000	0.002
14.966	0.97	0.00	0.48	0.93	92.57	0.009	0.000	0.002
15.926	0.98	0.00	0.50	0.98	92.98	0.009	0.000	0.002
16.886	0.94	0.00	0.45	0.84	91.78	0.010	0.000	0.002
17.846	0.90	0.00	0.40	0.71	90.46	0.010	0.000	0.002
18.806	0.87	0.00	0.37	0.62	89.01	0.011	0.000	0.002
19.766	0.83	0.00	0.33	0.54	87.43	0.012	0.000	0.002

NOTE: Shock wave pressure is proportional to heat of combustion per Mole mass.

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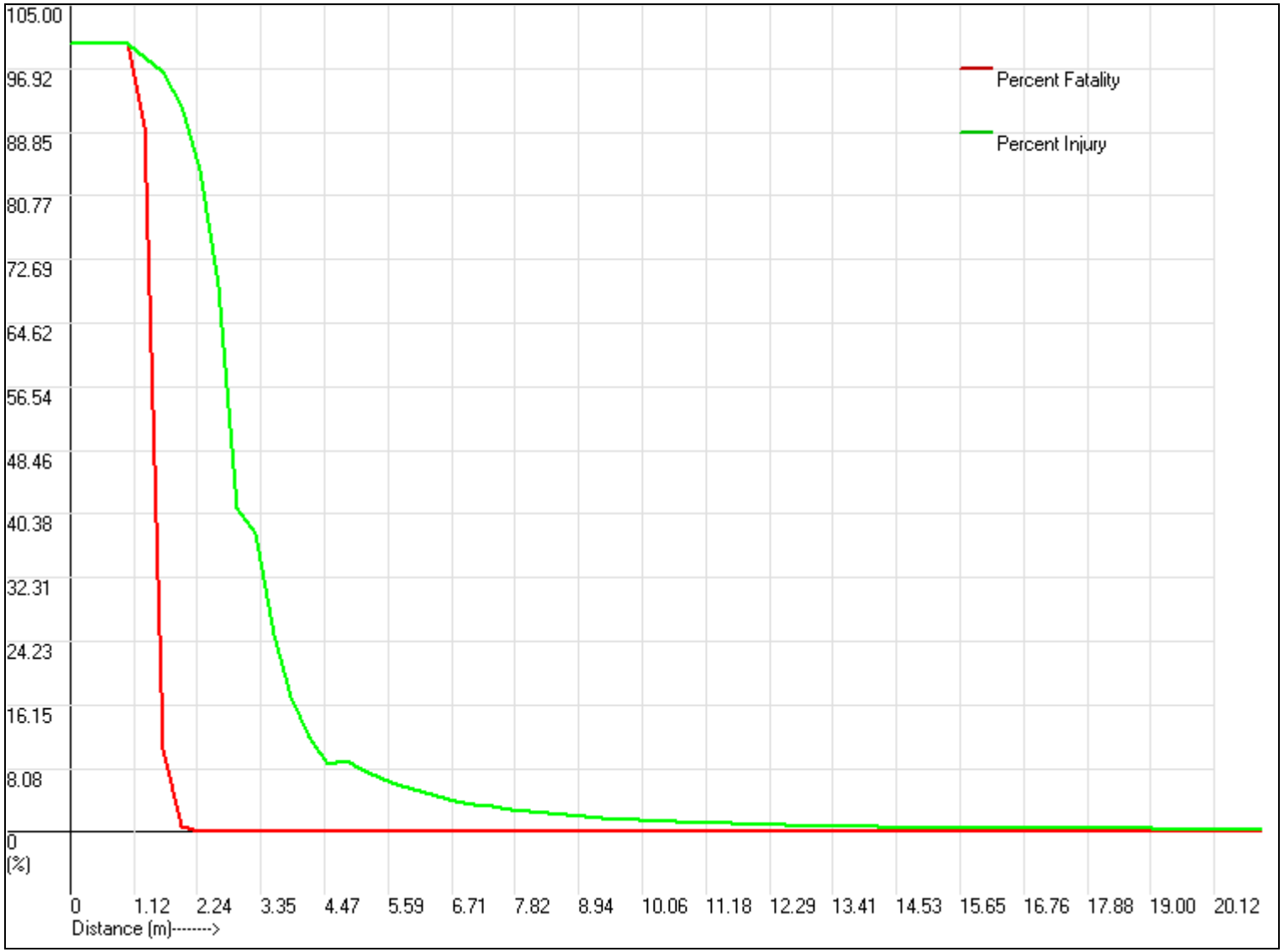
Scenario: Tank-Fixed roof/No roof over heating by external source-BLEVE

Fatality and Injury profile



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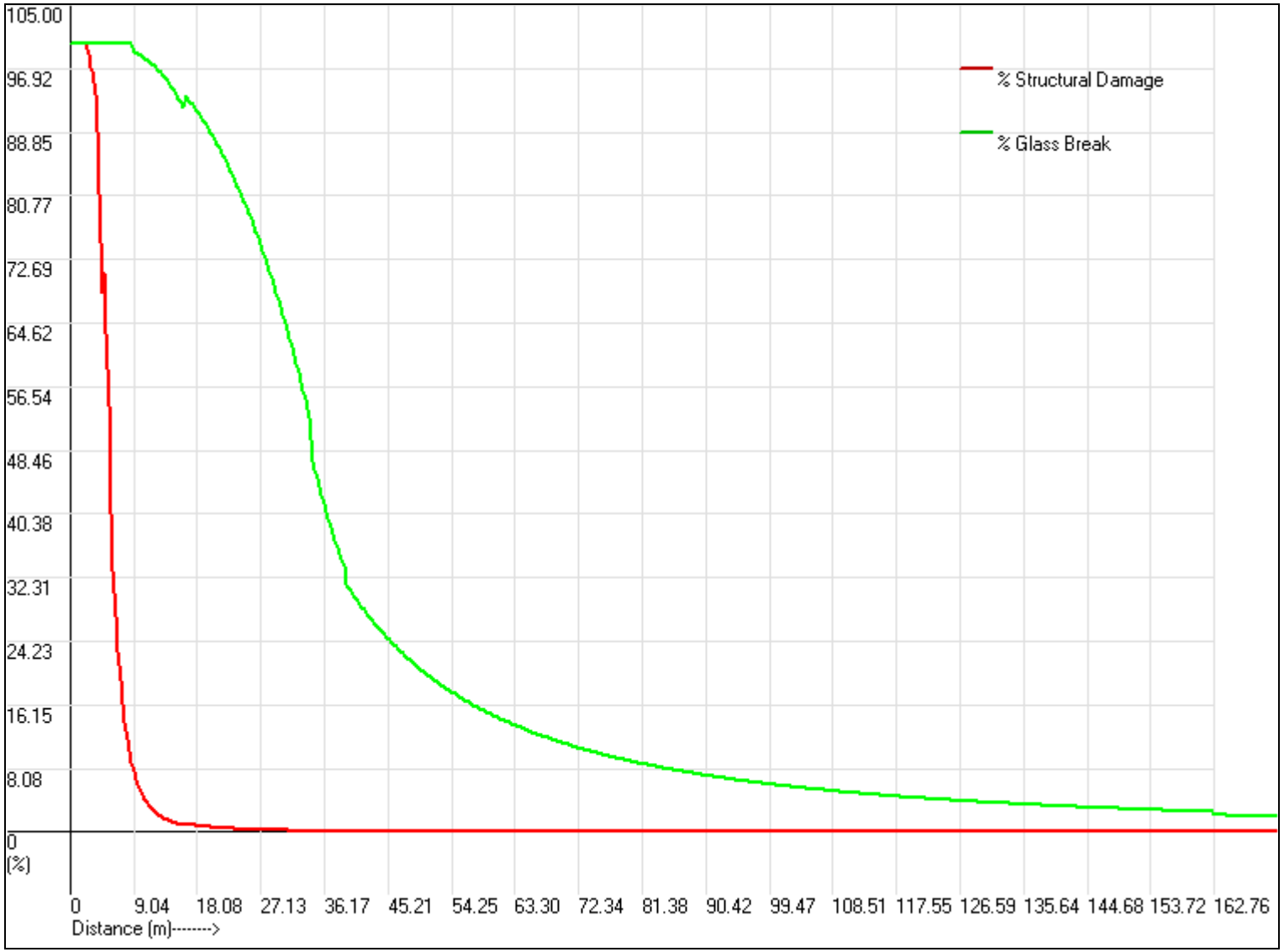
Structural Damage and Glass Break profile



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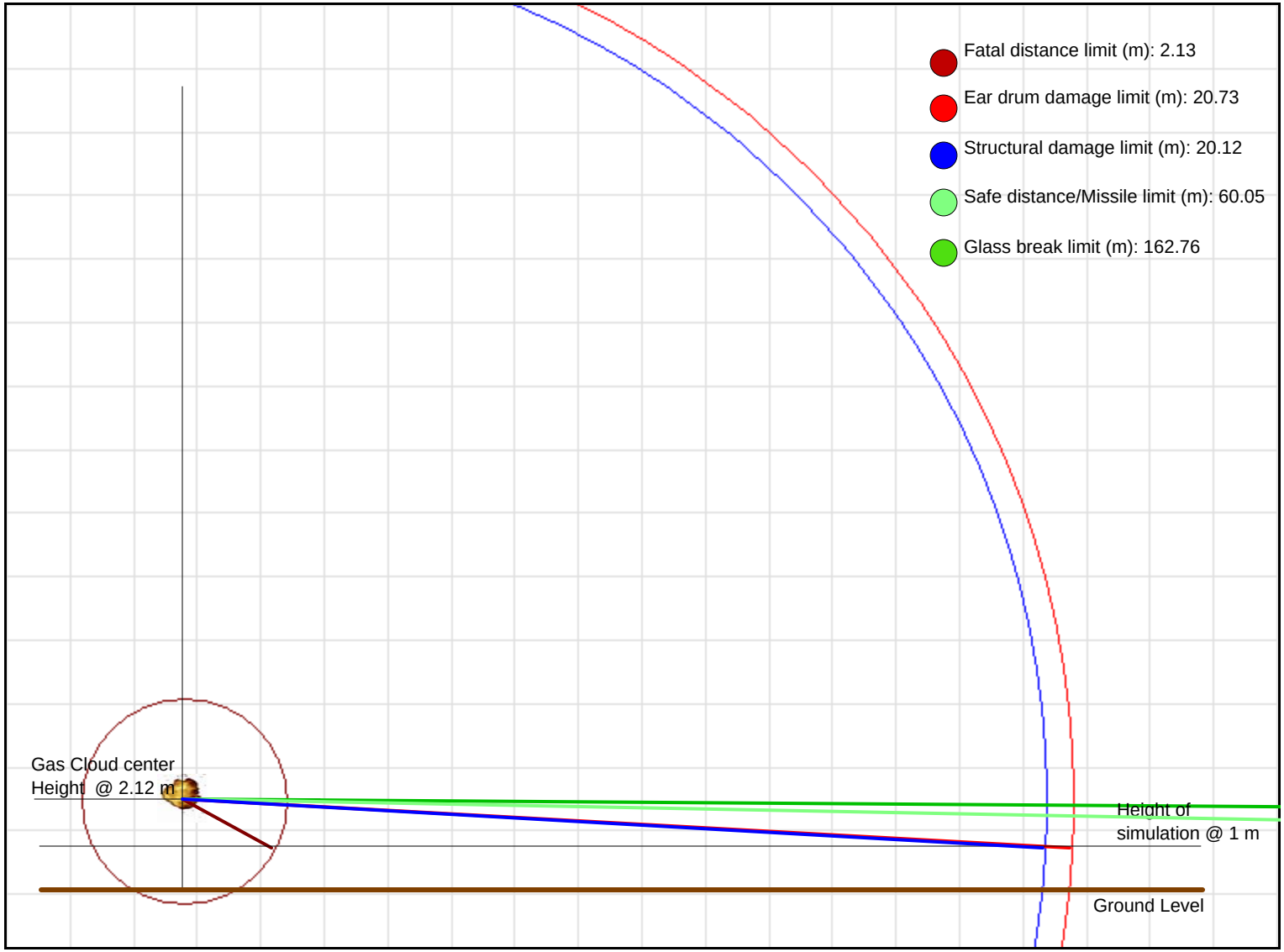
Scenario: Tank-Fixed roof/No roof over heating by external source-BLEVE

Scale:- 1 : 1.48 m



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Scenario: Tank-Fixed roof/No roof over heating by external source-BLEVE

Scale:- 1 : 23.25 m