

**HAMS-GPS : Dispersion Module**

[Licensed to : HAMSAGARS]

Date : Thursday, January 19, 2017

**Data Entered**

Reference No. : LNG

Name of Chemical : LNG

Scenario : 1. Flash Vaporization of Compressed Liquefied Gas Tank (CLG) forming Gas Puff A

Height of release (m) : 1

Height of simulation (m): 1

Atmospheric stability class : A

Wind velocity : 1.75 m/s

Terrain : Rural

Quantity of Released (g) : 12035620

Percent Humidity (%) : 10.00

**Results**

Max Isopleth conc (ppm) : 950000.00

Max. Isopleth Conc. Distance from source/release (m) : 2.00







MGC (ppm) : 1000000.00

MGC Distance (m) : 16.00

Explosion mass (lbm) : 4.28

Time for stabilization concentration zones of dispersion (Mins) 5.72

\*MGC : Maximum Ground Concentration in ppm

	Concentration (ppm):	Begin point	End point	Time (Sec)	Isopleth length	Isopleth (Y- Axis) [m]	Distance of Max. ISOP from source [m]	Isopleth angle (deg.)	Isopleth Area (Ha)
UEL:	 150000	2.00	94.89	54.25	92.89	45.58	51.00	24.08	0.333
LEL:	 50000	2.00	142.72	81.60	140.72	59.30	69.00	23.25	0.655
TEEL3/IDLH:	 15000	2.00	223.04	127.53	221.04	83.03	120.00	19.08	1.441
TEEL2:	 3000	2.00	377.51	215.85	375.51	133.86	218.00	17.07	3.948
TEEL1:	 2000	2.00	424.69	242.82	422.69	150.96	253.00	16.61	5.012
TEEL0:	 600	2.00	600.22	343.18	598.22	207.62	325.00	17.71	9.755

NOTE: According to latest Emergency Planning, one has to use TEEL (Temporary Emergency Exposure Limits-15 min exposures) and ERPG (Emergency Response Planning Guidelines-1-hr. exposure) Limits are to be used

# Elucidation

HAMS-GPS : Dispersion Model (Isopleth) [Licensed to : HAMSAGARS]

UEL: 150000 ppm

Distance of Max. Isopleth  
from source [m]: 51.00

Concentration  
Contour for UEL:  
150000 ppm

Isopleth (Y- Axis) [m]: 45.58

Begin Point [m]: 2.00

End Point [m]: 94.89

Source point

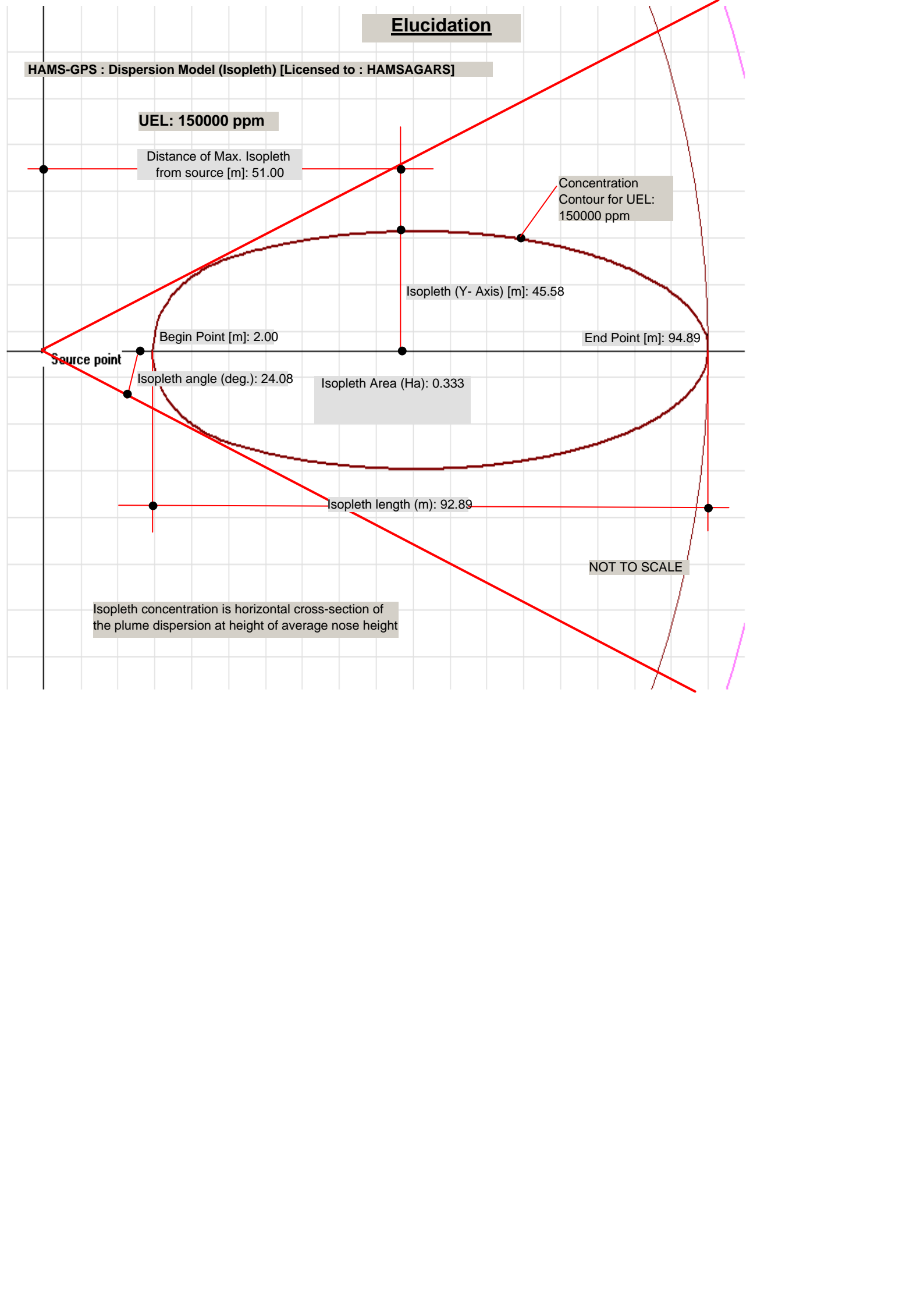
Isopleth angle (deg.): 24.08

Isopleth Area (Ha): 0.333

Isopleth length (m): 92.89

NOT TO SCALE

Isopleth concentration is horizontal cross-section of  
the plume dispersion at height of average nose height



**HAMS-GPS : Dispersion Module**

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Date : Monday, September 09, 2013

**Probit Equations :**

Scenario : 2. CLG Bullet Rupture maximum Pool one min. rapid evaporation A

Fatality Probit (y) = -10 + 1(Ln(Conc))^2 x Time

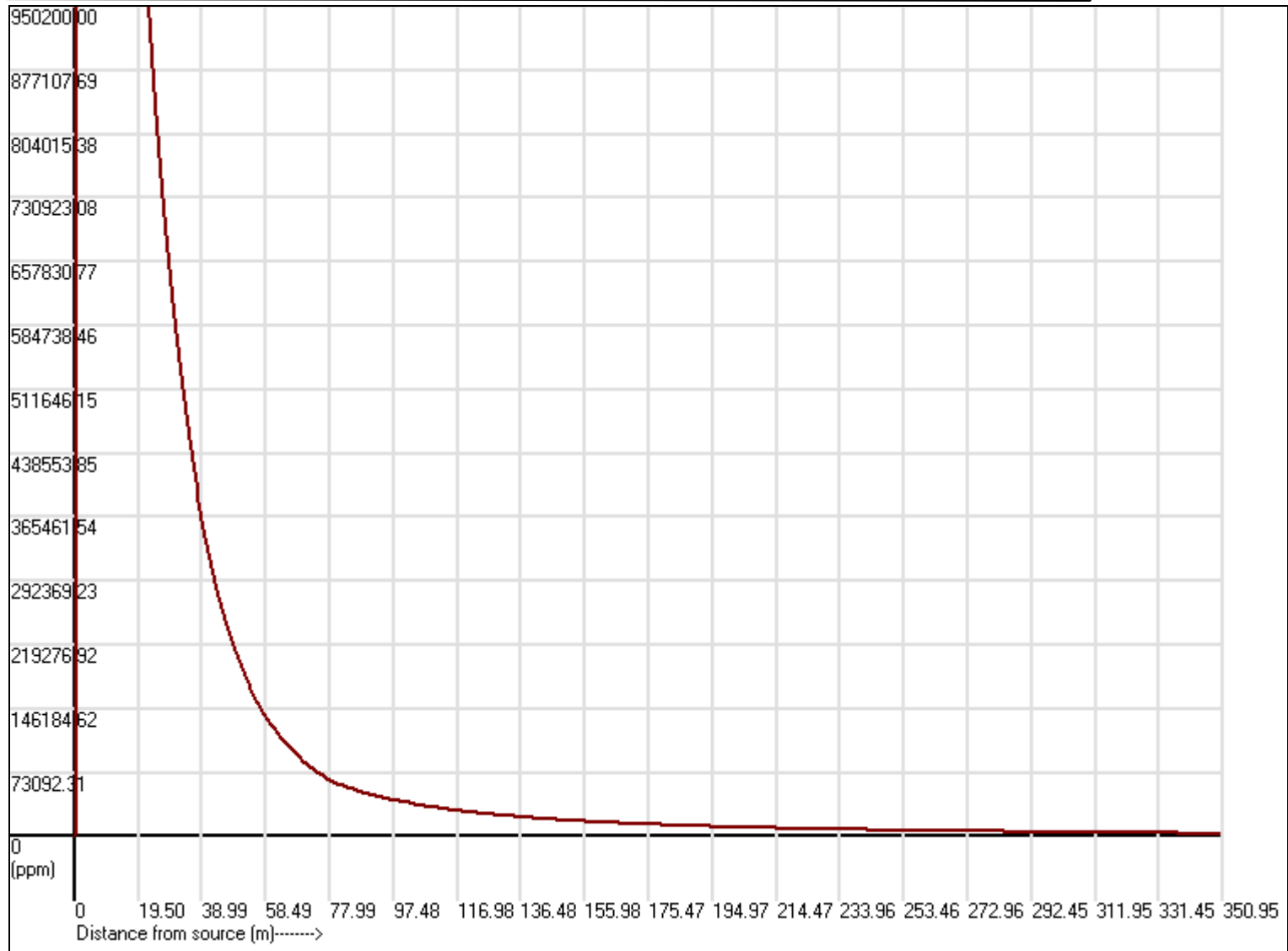
Injury Probit (y) = -5 + 1(Ln(Conc))^2 x Time

Wind orientation selected : 1

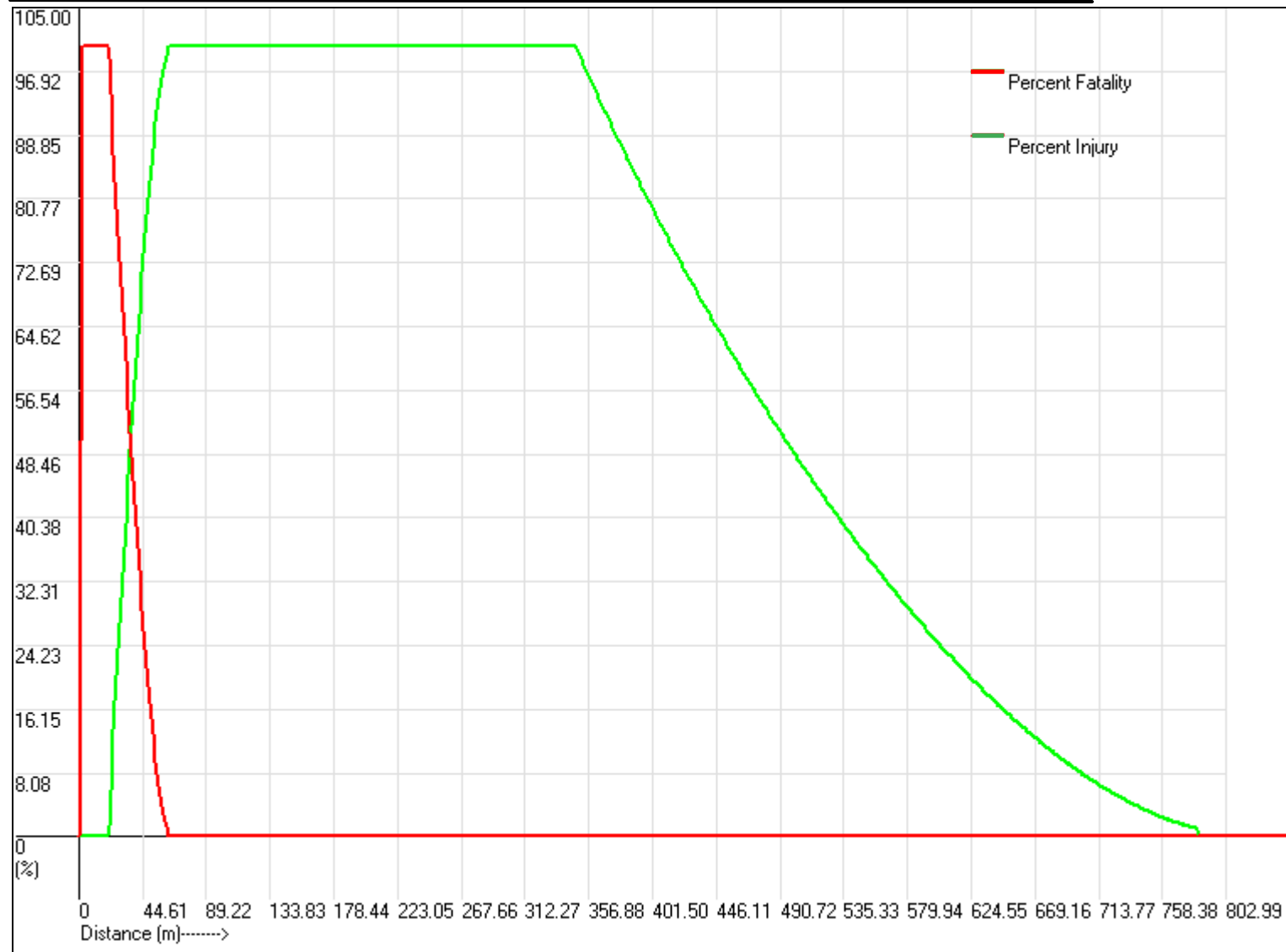
**Probit Table and Absolute Fatality/Injury**

Distance(m)	% Fatality	% Injury	Time (Sec)	Area (Ha)	Conc.(ppm) along X-axis	Dose (mg)	Absolute	
							Fatality No.	Injury No.
2.1	100	0	1.20	0.375	950000	149286.0899	11.250	0.000
64.86	0	100	37.08	0.815	105411.22	112.7339	0.000	24.450
127.62	0	100	72.97	1.130	25113.73	26.8583	0.000	33.900
190.38	0	100	108.85	1.387	11766.74	12.5842	0.000	41.610
253.14	0	100	144.74	1.603	6851.87	7.3279	0.000	48.090
315.9	0	100	180.62	1.763	4234.21	4.5284	0.000	52.890
378.66	0	80.28	216.50	1.886	2633.73	2.8167	0.000	45.422
441.42	0	58.59	252.39	1.980	1755.03	1.877	0.000	34.802
504.18	0	40.33	288.27	2.048	1230.73	1.3162	0.000	24.779
566.94	0	25.2	324.15	2.092	897.71	0.9601	0.000	15.816
629.7	0	13.24	360.04	2.112	675.63	0.7226	0.000	8.389
692.46	0	4.77	395.92	2.108	521.64	0.5579	0.000	3.017
755.22	0	0	431.80	2.079	411.38	0.44	0.000	0.000
817.98	0	0	467.69	2.025	330.29	0.3532	0.000	0.000
880.74	0	0	503.57	1.941	269.29	0.288	0.000	0.000
943.5	0	0	539.46	1.825	222.49	0.2379	0.000	0.000
1006.26	0	0	575.34	1.668	185.97	0.1989	0.000	0.000
1069.02	0	0	611.22	1.458	157.05	0.168	0.000	0.000
1131.78	0	0	647.11	1.164	133.84	0.1431	0.000	0.000
1194.54	0	0	682.99	0.664	115	0.123	0.000	0.000

Concentration profile (ISOELEVET)



Fatality and Injury profile



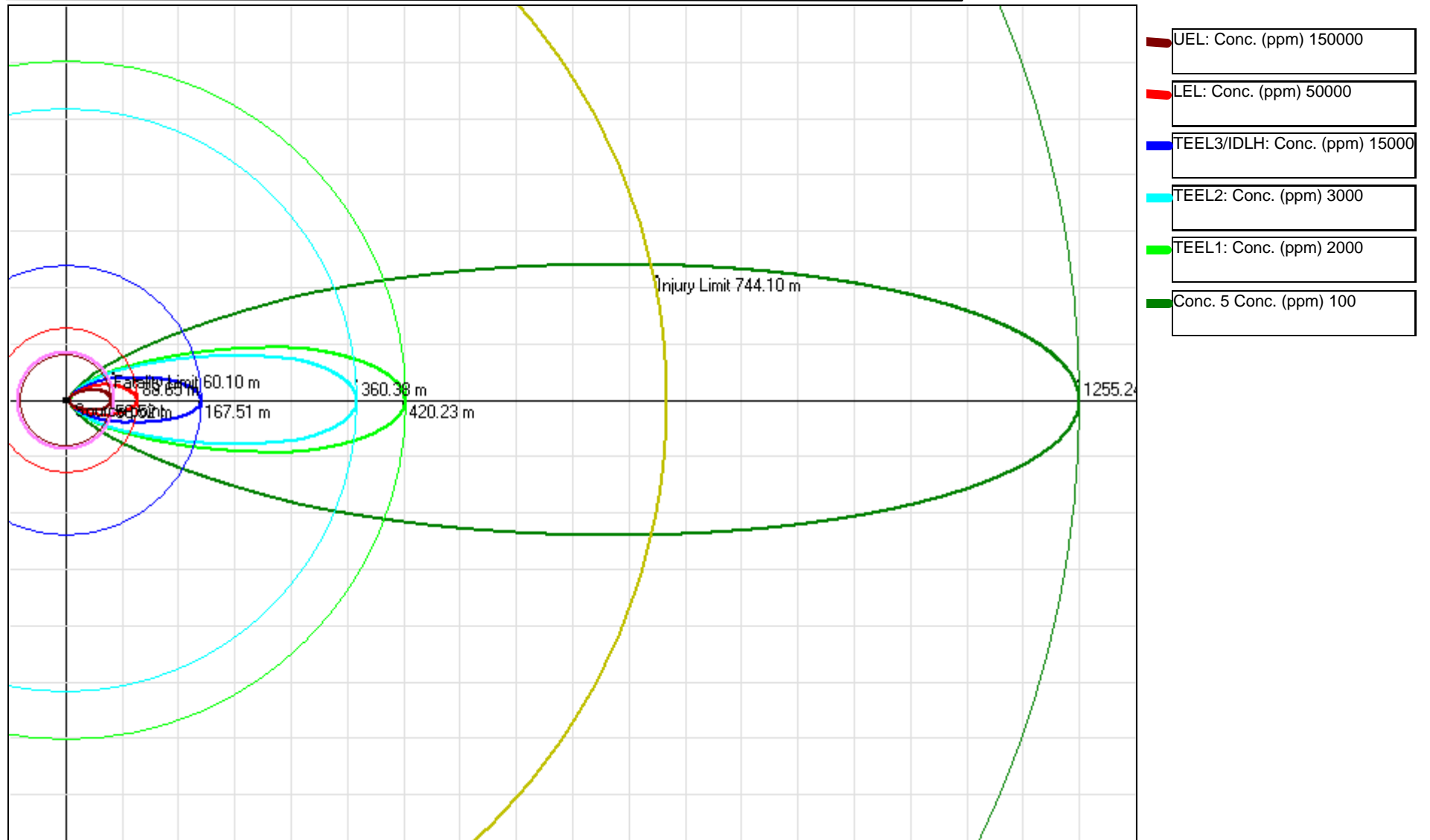
**HAMS -GPS: Dispersion Model (Isopleth)**

Date : Monday, September 09, 2013

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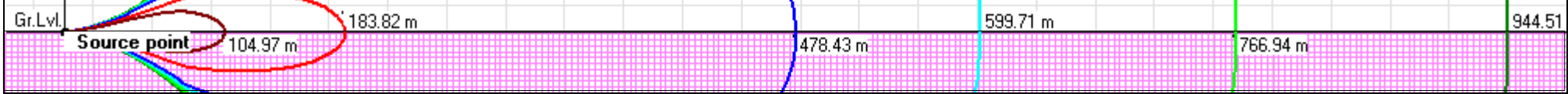
Scenario: 2. CLG Bullet Rupture maximum Pool one min.  
rapid evaporation A

Scale:- 1 : 69.74 m



HAMS -GPS: Dispersion Model (Isoelevate)  
Scenario: 1. Bullet catastrophic failure Puf A  
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Scale: 1 : 38.58 m

- UEL: Conc. (ppm) 95000
- LEL: Conc. (ppm) 21000
- TEEL3/IDLH: Conc. (ppm) 1100
- TEEL2: Conc. (ppm) 500
- TEEL1: Conc. (ppm) 210
- TEEL0: Conc. (ppm) 100

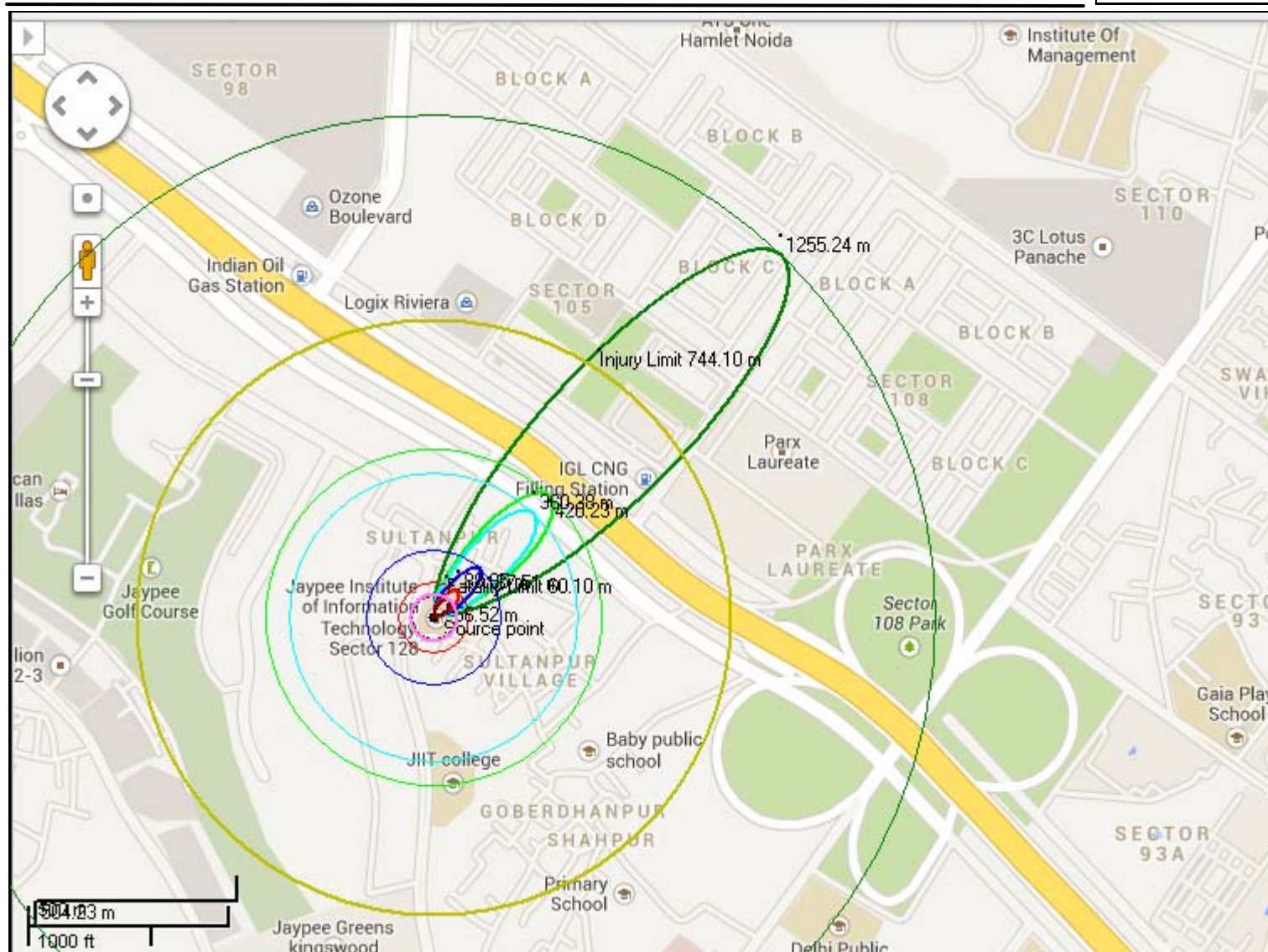
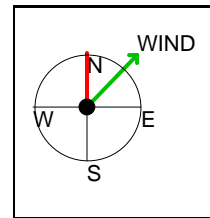


# HAMS -GPS: Dispersion Model (Isopleth)

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Scenario: 2. CLG Bullet Rupture maximum Pool one min. rapid evaporation A



- UEL: Conc. (ppm) 150000
- LEL: Conc. (ppm) 50000
- TEEL3/IDLH: Conc. (ppm) 15000
- TEEL2: Conc. (ppm) 3000
- TEEL1: Conc. (ppm) 2000
- Conc. 5 Conc. (ppm) 100