

### Top Risk Contributors

This section presents the Potential Loss of Life Distribution for each dangerous site assessment for all studied cases.

**Table 8.12.1 PLL Distribution for Biogas Facilities**

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
Catastrophic rupture of New Biogas Holder	Fire Ball	-	-	-	-	3.62E-06	43.774
Catastrophic rupture of New Digester	Fire Ball	-	-	-	-	1.61E-06	19.449
Catastrophic rupture of Digester (E)	Fire Ball	5.23E-07	4.742	4.71E-07	9.897	4.69E-07	5.66
Catastrophic rupture of Gas Holder (E)	Fire Ball	4.57E-07	4.144	7.97E-07	16.73	4.10E-07	4.946
Fullbore Rupture of Booster	Jet Fire	-	-	-	-	4.06E-07	4.905
Fullbore Rupture of New Digester	Jet Fire	-	-	-	-	4.02E-07	4.855
Fullbore Rupture of New Biogas Holder	Jet Fire	-	-	-	-	3.57E-07	4.308
Catastrophic rupture of New Biogas Holder	Flash Fire	-	-	-	-	1.83E-07	2.212
Catastrophic rupture of Siloxane Removal	Fire Ball	-	-	-	-	1.76E-07	2.126
Catastrophic rupture of H2S Removal	Fire Ball	-	-	-	-	9.71E-08	1.173
Fullbore Rupture of Gas Holder (E)	Jet Fire	9.24E-08	0.838	3.14E-06	65.84	8.28E-08	1
Fullbore Rupture of Digester (E)	Jet Fire	8.18E-08	0.742	3.06E-07	6.418	7.34E-08	0.886
Fullbore Rupture of H2S Removal	Jet Fire	-	-	-	-	7.12E-08	0.859
25mm leak release of New Digester	Jet Fire	-	-	-	-	6.46E-08	0.78
Fullbore Rupture of Dehumidifier	Jet Fire	-	-	-	-	4.54E-08	0.548
Catastrophic rupture of Dehumidifier	Fire Ball	-	-	-	-	4.40E-08	0.531
25mm leak release of New Biogas Holder	Jet Fire	-	-	-	-	2.57E-08	0.31
25mm leak release of H2S Removal	Jet Fire	-	-	-	-	2.03E-08	0.246
Fullbore Rupture of Siloxane Removal	Jet Fire	-	-	-	-	1.97E-08	0.237
Catastrophic rupture of New Digester	Toxic and Flammable	-	-	-	-	1.87E-08	0.226
25mm leak release of Digester (E)	Jet Fire	1.69E-08	0.153	2.10E-08	0.44	1.52E-08	0.183
25mm leak release of Siloxane Removal	Jet Fire	-	-	-	-	1.48E-08	0.178
Fullbore Rupture of New Biogas Holder	Delayed Flash Fire	-	-	-	-	1.30E-08	0.157
25mm leak release of Gas Holder (E)	Jet Fire	1.43E-08	0.129	3.24E-08	0.68	1.28E-08	0.154
Catastrophic rupture of Siloxane Removal	Flash Fire	-	-	-	-	8.10E-09	0.098

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
25mm leak release of Booster	Jet Fire	-	-	-	-	7.88E-09	0.095
25mm leak release of Dehumidifier	Jet Fire	-	-	-	-	4.82E-09	0.058
Fullbore Rupture of H2S Removal	Delayed Flash Fire	-	-	-	-	1.33E-09	0.016
Fullbore Rupture of Dehumidifier	Delayed Flash Fire	-	-	-	-	1.31E-09	0.016
Catastrophic rupture of H2S Removal	Flash Fire	-	-	-	-	4.99E-10	0.006
Fullbore Rupture of Siloxane Removal	Delayed Flash Fire	-	-	-	-	4.67E-10	0.006
Catastrophic rupture of Dehumidifier	Flash Fire	-	-	-	-	1.72E-11	0
Fullbore Rupture of New Digester	Toxic and Flammable	-	-	-	-	8.12E-12	0
Catastrophic rupture of Digester (W)	Fire Ball	2.14E-06	19.371	0.00E+00	-	-	-
Catastrophic rupture of Digester (W)	Flash Fire	4.16E-14	0	-	-	-	-
25mm leak release of Digester (W)	Jet Fire	1.49E-08	0.135	-	-	-	-
Fullbore Rupture of Digester (W)	Jet Fire	7.56E-07	6.854	-	-	-	-
Catastrophic rupture of Gas Holder (W)	Fire Ball	5.72E-06	51.865	-	-	-	-
Catastrophic rupture of Gas Holder (W)	Flash Fire	8.94E-09	0.081	-	-	-	-
25mm leak release of Gas Holder (W)	Jet Fire	1.17E-08	0.106	-	-	-	-
Fullbore Rupture of Gas Holder (W)	Jet Fire	1.19E-06	10.823	-	-	-	-
Fullbore Rupture of Gas Holder (W)	Delayed Flash Fire	1.79E-09	0.016	-	-	-	-
Total		1.10E-05	100	4.76E-06	100	8.28E-06	100

Note:

W: West Biogas System

E: East Biogas System

\*The table is arranged in descending order based on PLL for 2036.

Table 8.12.2 PLL Distribution for TPGPP

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
75mm leak release of Naphtha Pumping and Distribution Headers to PTs	Explosion	1.06E-03	26.06	1.02E-03	25.62	9.48E-04	24.33
Fullbore rupture of Naphtha Pumping and Distribution Headers to PTs	Explosion	4.96E-04	12.18	4.73E-04	11.90	4.36E-04	11.20
75mm leak release of Naphtha Pumping and Distribution Headers to PTs	Flash Fire	4.04E-04	9.91	3.93E-04	9.87	3.75E-04	9.63
Fullbore Rupture of Natural Gas Receiving Station and Distribution Headers to PTs	Explosion	2.98E-04	7.32	2.99E-04	7.53	3.00E-04	7.70
Catastrophic Rupture of Naphtha Pumping and Distribution Headers to PTs	Explosion	2.18E-04	5.36	2.19E-04	5.51	2.20E-04	5.65
300mm leak release of Naphtha Importing and Tank Farm	Flash Fire	2.73E-04	6.70	2.29E-04	5.75	2.04E-04	5.23
Fullbore rupture of Naphtha Pumping and Distribution Headers to PTs	Flash Fire	2.04E-04	5.02	1.96E-04	4.92	1.84E-04	4.73
300mm leak release of Naphtha Importing and Tank Farm	Explosion	1.84E-04	4.53	1.55E-04	3.89	1.38E-04	3.53
Fullbore Rupture of Phase I Production Units - PT5	Explosion	8.60E-05	2.11	9.86E-05	2.48	1.18E-04	3.03
Fullbore Rupture of Phase I Production Units - PT6	Explosion	6.92E-05	1.70	7.94E-05	2.00	9.52E-05	2.44
Fullbore Rupture of Phase I Production Units - PT7	Explosion	6.92E-05	1.70	7.94E-05	2.00	9.52E-05	2.44
Fullbore Rupture of Phase I Production Units - PT5	Flash Fire	4.07E-05	1.00	4.60E-05	1.16	5.42E-05	1.39
Fullbore Rupture of Phase I Production Units - PT6	Jet Fire	4.16E-05	1.02	4.51E-05	1.13	4.97E-05	1.28
Fullbore Rupture of Phase I Production Units - PT7	Jet Fire	4.16E-05	1.02	4.51E-05	1.13	4.97E-05	1.28
Fullbore Rupture of Phase I Production Units - PT7	Flash Fire	3.24E-05	0.80	3.68E-05	0.92	4.34E-05	1.11
Fullbore Rupture of Phase I Production Units - PT6	Flash Fire	3.24E-05	0.80	3.68E-05	0.92	4.34E-05	1.11
25mm leak release of Naphtha Pumping and Distribution Headers to PTs	Explosion	3.45E-05	0.85	3.53E-05	0.89	3.62E-05	0.93
Catastrophic Rupture of Phase I Production Units - PT3	Explosion	3.59E-05	0.88	3.59E-05	0.90	3.59E-05	0.92
Catastrophic Rupture of Phase I Production Units - PT4	Explosion	3.59E-05	0.88	3.59E-05	0.90	3.59E-05	0.92
Fullbore Rupture of Natural Gas Receiving Station and Distribution Headers to PTs	Flash Fire	2.76E-05	0.68	2.84E-05	0.71	2.95E-05	0.76
Catastrophic Rupture of Naphtha Pumping and Distribution Headers to PTs	Flash Fire	2.71E-05	0.66	2.71E-05	0.68	2.71E-05	0.70
75mm leak release of Naphtha Importing and Tank Farm	Explosion	2.42E-05	0.59	2.33E-05	0.59	2.21E-05	0.57
Fullbore rupture of Naphtha Importing and Tank Farm	Flash Fire	2.46E-05	0.60	2.45E-05	0.62	2.21E-05	0.57
75mm leak release of Naphtha Importing and Tank Farm	Flash Fire	2.14E-05	0.52	2.08E-05	0.52	2.01E-05	0.52
Fullbore Rupture of Phase I Production Units - PT8	Explosion	1.97E-05	0.48	1.97E-05	0.49	1.97E-05	0.50

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
1000mm leak release of Naphtha Importing and Tank Farm	Flash Fire	2.48E-05	0.61	2.03E-05	0.51	1.76E-05	0.45
Fullbore Rupture of Natural Gas Receiving Station and Distribution Headers to PTs	Jet Fire	1.59E-05	0.39	1.64E-05	0.41	1.72E-05	0.44
Fullbore rupture of Naphtha Importing and Tank Farm	Explosion	1.86E-05	0.46	1.84E-05	0.46	1.67E-05	0.43
Fullbore Rupture of Phase I Production Units - PT5	Jet Fire	1.33E-05	0.33	1.44E-05	0.36	1.60E-05	0.41
75mm leak release of Naphtha Pumping and Distribution Headers to PTs	Jet Fire	1.25E-05	0.31	1.30E-05	0.33	1.39E-05	0.36
25mm leak release of Naphtha Pumping and Distribution Headers to PTs	Flash Fire	1.17E-05	0.29	1.21E-05	0.31	1.28E-05	0.33
1000mm leak release of Naphtha Importing and Tank Farm	Explosion	1.66E-05	0.41	1.37E-05	0.34	1.19E-05	0.31
75mm leak release of Phase I Production Units - PT6	Explosion	8.98E-06	0.22	1.01E-05	0.26	1.19E-05	0.31
75mm leak release of Phase I Production Units - PT7	Explosion	8.98E-06	0.22	1.01E-05	0.26	1.19E-05	0.31
75mm leak release of Phase I Production Units - PT5	Explosion	8.96E-06	0.22	1.01E-05	0.25	1.19E-05	0.30
Catastrophic Rupture of Phase I Production Units - PT3	Fireball	9.42E-06	0.23	1.02E-05	0.26	1.14E-05	0.29
Catastrophic Rupture of Phase I Production Units - PT4	Fireball	9.42E-06	0.23	1.02E-05	0.26	1.14E-05	0.29
Fullbore Rupture of Phase I Production Units - PT3	Jet Fire	6.39E-06	0.16	6.86E-06	0.17	7.64E-06	0.20
Fullbore Rupture of Phase I Production Units - PT4	Jet Fire	6.39E-06	0.16	6.86E-06	0.17	7.64E-06	0.20
25mm leak release of Naphtha Importing and Tank Farm	Flash Fire	5.16E-06	0.13	5.67E-06	0.14	6.40E-06	0.16
Fullbore Rupture of Phase I Production Units - PT2	Jet Fire	5.02E-06	0.12	5.51E-06	0.14	6.32E-06	0.16
Fullbore Rupture of Phase I Production Units - PT1	Jet Fire	5.02E-06	0.12	5.51E-06	0.14	6.32E-06	0.16
Fullbore Rupture of Towngas Export and Others	Explosion	5.80E-06	0.14	5.93E-06	0.15	6.11E-06	0.16
Fullbore rupture of Naphtha Pumping and Distribution Headers to PTs	Jet Fire	5.34E-06	0.13	5.59E-06	0.14	5.95E-06	0.15
25mm leak release of Naphtha Importing and Tank Farm	Explosion	4.82E-06	0.12	5.24E-06	0.13	5.73E-06	0.15
75mm leak release of Phase I Production Units - PT6	Flash Fire	4.48E-06	0.11	4.97E-06	0.12	5.70E-06	0.15
75mm leak release of Phase I Production Units - PT7	Flash Fire	4.48E-06	0.11	4.97E-06	0.12	5.70E-06	0.15
75mm leak release of Phase I Production Units - PT5	Flash Fire	4.47E-06	0.11	4.96E-06	0.12	5.69E-06	0.15
Catastrophic Rupture of Phase I Production Units - PT1	Fireball	3.63E-06	0.09	3.98E-06	0.10	4.56E-06	0.12
Catastrophic Rupture of Phase I Production Units - PT2	Fireball	3.63E-06	0.09	3.98E-06	0.10	4.56E-06	0.12
Catastrophic Rupture of Phase I Production Units - PT7	Fireball	2.87E-06	0.07	3.19E-06	0.08	3.61E-06	0.09
Catastrophic Rupture of Phase I Production Units - PT5	Fireball	2.87E-06	0.07	3.19E-06	0.08	3.61E-06	0.09

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
Catastrophic Rupture of Phase I Production Units - PT6	Fireball	2.87E-06	0.07	3.19E-06	0.08	3.61E-06	0.09
Fullbore Rupture of Phase I Production Units - PT8	Jet Fire	3.60E-06	0.09	3.60E-06	0.09	3.60E-06	0.09
10mm leak release of Naphtha Importing and Tank Farm	Flash Fire	3.11E-06	0.08	3.11E-06	0.08	3.11E-06	0.08
75mm leak release of Phase I Production Units - PT8	Explosion	2.61E-06	0.06	2.61E-06	0.07	2.61E-06	0.07
Fullbore Rupture of Phase I Production Units - PT3	Flash Fire	2.08E-06	0.05	2.08E-06	0.05	2.08E-06	0.05
10mm leak release of Naphtha Importing and Tank Farm	Explosion	2.07E-06	0.05	2.07E-06	0.05	2.07E-06	0.05
Fullbore Rupture of Phase I Production Units - PT8	Flash Fire	1.97E-06	0.05	1.97E-06	0.05	1.97E-06	0.05
Fullbore Rupture of Phase I Production Units - PT2	Flash Fire	1.91E-06	0.05	1.91E-06	0.05	1.91E-06	0.05
Fullbore Rupture of Phase I Production Units - PT1	Flash Fire	1.91E-06	0.05	1.91E-06	0.05	1.91E-06	0.05
75mm leak release of Natural Gas Receiving Station and Distribution Headers to PTs	Jet Fire	1.69E-06	0.04	1.70E-06	0.04	1.71E-06	0.04
Fullbore Rupture of Phase I Production Units - PT1	Explosion	1.28E-06	0.03	1.28E-06	0.03	1.28E-06	0.03
Fullbore Rupture of Phase I Production Units - PT2	Explosion	1.28E-06	0.03	1.28E-06	0.03	1.28E-06	0.03
Fullbore Rupture of Phase I Production Units - PT4	Flash Fire	1.04E-06	0.03	1.04E-06	0.03	1.04E-06	0.03
75mm leak release of Phase I Production Units - PT5	Jet Fire	6.11E-07	0.01	6.67E-07	0.02	7.42E-07	0.02
75mm leak release of Natural Gas Receiving Station and Distribution Headers to PTs	Flash Fire	5.31E-07	0.01	5.95E-07	0.01	6.98E-07	0.02
Fullbore Rupture of Phase I Production Units - PT3	Explosion	6.94E-07	0.02	6.94E-07	0.02	6.94E-07	0.02
Fullbore Rupture of Phase I Production Units - PT4	Explosion	6.94E-07	0.02	6.94E-07	0.02	6.94E-07	0.02
Fullbore Rupture of Towngas Export and Others	Flash Fire	5.70E-07	0.01	6.08E-07	0.02	6.62E-07	0.02
75mm leak release of Phase I Production Units - PT7	Jet Fire	5.11E-07	0.01	5.57E-07	0.01	6.18E-07	0.02
75mm leak release of Phase I Production Units - PT6	Jet Fire	5.11E-07	0.01	5.57E-07	0.01	6.18E-07	0.02
Fullbore rupture of Naphtha Importing and Tank Farm	Pool Fire	6.30E-07	0.02	6.12E-07	0.02	5.95E-07	0.02
75mm leak release of Phase I Production Units - PT3	Jet Fire	4.58E-07	0.01	4.92E-07	0.01	5.49E-07	0.01
75mm leak release of Phase I Production Units - PT4	Jet Fire	4.58E-07	0.01	4.92E-07	0.01	5.49E-07	0.01
25mm leak release of Phase I Production Units - PT4	Jet Fire	4.35E-07	0.01	4.77E-07	0.01	5.38E-07	0.01
Catastrophic Rupture of Phase I Production Units - PT2	Explosion	5.35E-07	0.01	5.35E-07	0.01	5.37E-07	0.01
Catastrophic Rupture of Phase I Production Units - PT1	Explosion	5.35E-07	0.01	5.35E-07	0.01	5.37E-07	0.01
75mm leak release of Natural Gas Receiving Station and Distribution Headers to PTs	Explosion	3.54E-07	0.01	3.97E-07	0.01	4.65E-07	0.01

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
75mm leak release of Phase I Production Units - PT1	Jet Fire	3.29E-07	0.01	3.63E-07	0.01	4.19E-07	0.01
75mm leak release of Phase I Production Units - PT2	Jet Fire	3.29E-07	0.01	3.63E-07	0.01	4.19E-07	0.01
75mm leak release of Naphtha Importing and Tank Farm	Pool Fire	3.70E-07	0.01	3.66E-07	0.01	3.63E-07	0.01
75mm leak release of Phase I Production Units - PT4	Flash Fire	3.50E-07	0.01	3.50E-07	0.01	3.50E-07	0.01
75mm leak release of Phase I Production Units - PT3	Flash Fire	3.50E-07	0.01	3.50E-07	0.01	3.50E-07	0.01
25mm leak release of Phase I Production Units - PT3	Flash Fire	2.79E-07	0.01	2.79E-07	0.01	2.79E-07	0.01
25mm leak release of Phase I Production Units - PT4	Flash Fire	2.79E-07	0.01	2.79E-07	0.01	2.79E-07	0.01
75mm leak release of Naphtha Importing and Tank Farm	Jet Fire	2.71E-07	0.01	2.71E-07	0.01	2.72E-07	0.01
Fullbore Rupture of Towngas Export and Others	Jet Fire	2.39E-07	0.01	2.45E-07	0.01	2.52E-07	0.01
75mm leak release of Phase I Production Units - PT8	Flash Fire	2.52E-07	0.01	2.52E-07	0.01	2.52E-07	0.01
75mm leak release of Phase I Production Units - PT3	Explosion	2.34E-07	0.01	2.34E-07	0.01	2.34E-07	0.01
75mm leak release of Phase I Production Units - PT4	Explosion	2.34E-07	0.01	2.34E-07	0.01	2.34E-07	0.01
75mm leak release of Phase I Production Units - PT2	Flash Fire	2.31E-07	0.01	2.31E-07	0.01	2.31E-07	0.01
75mm leak release of Phase I Production Units - PT1	Flash Fire	2.31E-07	0.01	2.31E-07	0.01	2.31E-07	0.01
25mm leak release of Phase I Production Units - PT3	Jet Fire	1.85E-07	0.00	1.99E-07	0.01	2.22E-07	0.01
Catastrophic Rupture of Phase I Production Units - PT8	Fireball	2.05E-07	0.01	2.05E-07	0.01	2.05E-07	0.01
75mm leak release of Towngas Export and Others	Jet Fire	1.60E-07	0.00	1.71E-07	0.00	1.86E-07	0.00
25mm leak release of Phase I Production Units - PT4	Explosion	1.86E-07	0.00	1.86E-07	0.00	1.86E-07	0.00
25mm leak release of Phase I Production Units - PT3	Explosion	1.86E-07	0.00	1.86E-07	0.00	1.86E-07	0.00
25mm leak release of Phase I Production Units - PT1	Jet Fire	1.33E-07	0.00	1.47E-07	0.00	1.70E-07	0.00
25mm leak release of Phase I Production Units - PT2	Jet Fire	1.33E-07	0.00	1.47E-07	0.00	1.70E-07	0.00
75mm leak release of Phase I Production Units - PT1	Explosion	1.54E-07	0.00	1.54E-07	0.00	1.54E-07	0.00
75mm leak release of Phase I Production Units - PT2	Explosion	1.54E-07	0.00	1.54E-07	0.00	1.54E-07	0.00
25mm leak release of Naphtha Pumping and Distribution Headers to PTs	Jet Fire	1.05E-07	0.00	1.11E-07	0.00	1.20E-07	0.00
10mm leak release of Naphtha Pumping and Distribution Headers to PTs	Flash Fire	1.10E-07	0.00	1.10E-07	0.00	1.10E-07	0.00
25mm leak release of Phase I Production Units - PT2	Flash Fire	9.66E-08	0.00	9.66E-08	0.00	9.66E-08	0.00
25mm leak release of Phase I Production Units - PT1	Flash Fire	9.66E-08	0.00	9.66E-08	0.00	9.66E-08	0.00

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
Catastrophic Rupture of Phase I Production Units - PT7	Explosion	9.30E-08	0.00	9.31E-08	0.00	9.34E-08	0.00
Catastrophic Rupture of Phase I Production Units - PT6	Explosion	9.30E-08	0.00	9.31E-08	0.00	9.34E-08	0.00
Catastrophic Rupture of Phase I Production Units - PT5	Explosion	9.30E-08	0.00	9.31E-08	0.00	9.34E-08	0.00
10mm leak release of Naphtha Pumping and Distribution Headers to PTs	Explosion	7.31E-08	0.00	7.31E-08	0.00	7.31E-08	0.00
25mm leak release of Phase I Production Units - PT2	Explosion	6.44E-08	0.00	6.44E-08	0.00	6.44E-08	0.00
25mm leak release of Phase I Production Units - PT1	Explosion	6.44E-08	0.00	6.44E-08	0.00	6.44E-08	0.00
Fullbore rupture of Naphtha Pumping and Distribution Headers to PTs	Pool Fire	5.22E-08	0.00	5.09E-08	0.00	4.87E-08	0.00
75mm leak release of Phase I Production Units - PT8	Jet Fire	4.13E-08	0.00	4.13E-08	0.00	4.13E-08	0.00
Fullbore rupture of Naphtha Importing and Tank Farm	Jet Fire	3.37E-08	0.00	3.37E-08	0.00	3.37E-08	0.00
25mm leak release of Naphtha Importing and Tank Farm	Jet Fire	2.40E-08	0.00	2.40E-08	0.00	2.40E-08	0.00
10mm leak release of Naphtha Pumping and Distribution Headers to PTs	Jet Fire	2.32E-08	0.00	2.32E-08	0.00	2.33E-08	0.00
25mm leak release of Natural Gas Receiving Station and Distribution Headers to PTs	Jet Fire	2.11E-08	0.00	2.11E-08	0.00	2.11E-08	0.00
Bund Overflow	Pool Fire	1.04E-08	0.00	1.04E-08	0.00	1.04E-08	0.00
75mm leak release of Towngas Export and Others	Flash Fire	4.32E-09	0.00	6.33E-09	0.00	1.04E-08	0.00
75mm leak of release of Towngas Export and Others	Jet Fire	6.14E-09	0.00	7.01E-09	0.00	8.18E-09	0.00
75mm leak release of Towngas Export and Others	Explosion	2.88E-09	0.00	4.22E-09	0.00	6.95E-09	0.00
10mm leak release of Naphtha Importing and Tank Farm	Jet Fire	5.17E-09	0.00	5.17E-09	0.00	5.17E-09	0.00
75mm leak release of Naphtha Pumping and Distribution Headers to PTs	Pool Fire	4.96E-09	0.00	4.94E-09	0.00	4.91E-09	0.00
Catastrophic Rupture of Phase I Production Units - PT8	Explosion	4.13E-09	0.00	4.13E-09	0.00	4.13E-09	0.00
75mm leak of release of Towngas Export and Others	Flash Fire	1.30E-09	0.00	1.90E-09	0.00	3.14E-09	0.00
25mm leak release of Naphtha Importing and Tank Farm	Pool Fire	2.88E-09	0.00	2.75E-09	0.00	2.59E-09	0.00
75mm leak of release of Towngas Export and Others	Explosion	8.65E-10	0.00	1.27E-09	0.00	2.09E-09	0.00
10mm leak release of Naphtha Pumping and Distribution Headers to PTs	Pool Fire	3.16E-10	0.00	3.16E-10	0.00	3.16E-10	0.00
25mm leak release of Naphtha Pumping and Distribution Headers to PTs	Pool Fire	2.18E-10	0.00	2.18E-10	0.00	2.18E-10	0.00
25mm leak release of Towngas Export and Others	Jet Fire	6.62E-11	0.00	6.63E-11	0.00	6.65E-11	0.00
10mm leak release of Phase I Production Units - PT3	Jet Fire	2.49E-11	0.00	2.49E-11	0.00	2.49E-11	0.00
10mm leak release of Phase I Production Units - PT4	Jet Fire	2.49E-11	0.00	2.49E-11	0.00	2.49E-11	0.00

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
Fullbore rupture of Towngas Export and Others	Flash Fire	7.68E-18	0.00	1.14E-17	0.00	1.90E-17	0.00
Fullbore rupture of Towngas Export and Others	Explosion	5.12E-18	0.00	7.57E-18	0.00	1.27E-17	0.00
Total		4.07E-03	100	3.98E-03	100	3.90E-03	100

\*Note that approximated PLL values are presented here, and values will be slightly revised when finalized during the formal submission.

\*The table is arranged in descending order based on PLL for 2036.



Table 8.12.3 PLL Distribution for LPG Storage Facility at Apex Print Limited

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
50mm leak release of standby LPG road tanker	Explosion	2.18E-06	19.18	2.71E-06	19.61	3.65E-06	19.15
50mm leak release of standby LPG road tanker	Flash Fire	1.81E-06	15.96	2.24E-06	16.17	3.03E-06	15.97
50mm leak release of standby LPG road tanker	Jet Fire	1.37E-06	12.07	1.65E-06	11.96	2.20E-06	12
Catastrophic rupture of standby LPG road tanker	Explosion	1.29E-06	11.33	1.50E-06	10.85	1.93E-06	11.45
Catastrophic rupture of standby LPG road tanker	Flash Fire	1.24E-06	10.9	1.40E-06	10.11	1.71E-06	10.97
Catastrophic rupture of LPG storage vessel	Flash Fire	5.65E-07	4.98	7.08E-07	5.12	9.74E-07	4.96
Catastrophic rupture of LPG storage vessel	Explosion	5.13E-07	4.52	6.48E-07	4.69	9.04E-07	4.53
Fullbore rupture of flexible hose	Explosion	3.01E-07	2.65	3.76E-07	2.72	5.10E-07	2.65
25mm leak release of LPG storage vessel	Jet Fire	2.09E-07	1.84	2.95E-07	2.14	4.47E-07	1.83
Catastrophic rupture of standby LPG road tanker	Fire Ball	2.69E-07	2.37	3.23E-07	2.34	4.29E-07	2.35
Fullbore rupture of flexible hose	Flash Fire	2.45E-07	2.16	3.06E-07	2.21	4.23E-07	2.16
Fullbore rupture of flexible hose	Jet Fire	2.02E-07	1.78	2.40E-07	1.74	3.13E-07	1.77
25mm leak release of flexible hose	Jet fire	1.33E-07	1.17	1.87E-07	1.35	2.82E-07	1.16
50mm liquid leak release of LPG road tanker during transit	Flash fire	1.80E-07	1.59	2.14E-07	1.55	2.68E-07	1.58
50mm liquid leak release of LPG road tanker during transit	Explosion	1.68E-07	1.48	2.00E-07	1.44	2.52E-07	1.48
Catastrophic rupture of LPG storage vessel	Fire Ball	9.00E-08	0.79	1.17E-07	0.84	1.63E-07	0.79
Catastrophic rupture of LPG road tanker during transit	Explosion	1.06E-07	0.93	1.22E-07	0.88	1.58E-07	0.94
Catastrophic rupture of LPG road tanker during transit	Flash fire	8.92E-08	0.79	9.95E-08	0.72	1.21E-07	0.79
25mm leak release of standby LPG	Jet Fire	4.88E-08	0.43	6.89E-08	0.5	1.04E-07	0.43

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
road tanker							
25mm leak release of line from LPG storage tanker to vaporiser	Jet fire	4.05E-08	0.36	5.48E-08	0.4	7.99E-08	0.36
Catastrophic rupture of LPG road tanker during transit	Fire Ball	4.70E-08	0.41	5.38E-08	0.39	7.02E-08	0.4
Catastrophic rupture of vaporiser	Explosion	4.06E-08	0.36	4.34E-08	0.31	5.19E-08	0.36
50mm liquid leak release of LPG road tanker during transit	Jet fire	2.89E-08	0.26	3.29E-08	0.24	4.31E-08	0.24
Catastrophic rupture of vaporiser	Flash Fire	3.68E-08	0.32	3.75E-08	0.27	4.10E-08	0.33
25mm leak release of LPG road tanker during transit	Jet Fire	2.30E-08	0.2	2.92E-08	0.21	4.09E-08	0.2
Fullbore rupture of line from LPG storage tanker to vaporiser	Explosion	1.88E-08	0.17	2.46E-08	0.18	3.59E-08	0.17
Fullbore rupture of line from LPG storage tanker to vaporiser	Flash fire	1.87E-08	0.17	2.40E-08	0.17	3.48E-08	0.17
Fullbore rupture of line from LPG storage tanker to vaporiser	Jet fire	2.10E-08	0.19	2.44E-08	0.18	3.05E-08	0.18
25mm leak release of LPG storage vessel	Flash Fire	1.13E-08	0.1	1.64E-08	0.12	2.80E-08	0.1
25mm leak release of flexible hose	Flash Fire	9.93E-09	0.09	1.41E-08	0.1	2.34E-08	0.09
25mm leak release of LPG road tanker during transit	Flash Fire	9.31E-09	0.08	1.32E-08	0.1	2.15E-08	0.08
25mm leak release of LPG storage vessel	Explosion	7.53E-09	0.07	1.09E-08	0.08	1.87E-08	0.07
25mm leak release of flexible hose	Explosion	6.62E-09	0.06	9.40E-09	0.07	1.56E-08	0.06
25mm leak release of LPG road tanker during transit	Explosion	6.21E-09	0.05	8.78E-09	0.06	1.43E-08	0.05
Catastrophic rupture of vaporiser	Fire Ball	1.21E-08	0.11	1.06E-08	0.08	1.28E-08	0.09
25mm leak release of standby LPG road tanker	Flash Fire	4.43E-09	0.04	6.44E-09	0.05	1.10E-08	0.04
25mm leak release of standby LPG road tanker	Explosion	2.96E-09	0.03	4.29E-09	0.03	7.36E-09	0.03
25mm leak release of line from LPG storage tanker to vaporiser	Flash fire	1.84E-09	0.02	2.62E-09	0.02	4.38E-09	0.02
25mm leak release of line from LPG	Explosion	1.23E-09	0.01	1.75E-09	0.01	2.92E-09	0.01

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
storage tanker to vaporiser							
25mm leak release of filling line to LPG storage tanker	Jet Fire	1.21E-10	0	1.71E-10	0	2.59E-10	0
BLEVE of LPG road tanker	BLEVE	1.61E-10	0	1.72E-10	0	2.22E-10	0
50mm vapor leak release of LPG road tanker during transit	Jet Fire	7.43E-11	0	1.01E-10	0	1.49E-10	0
25mm leak release of filling line to LPG storage tanker	Flash Fire	5.99E-12	0	8.61E-12	0	1.45E-11	0
25mm leak release of filling line to LPG storage tanker	Explosion	3.99E-12	0	5.74E-12	0	9.67E-12	0
50mm vapor leak release of LPG road tanker during transit	Flash Fire	2.56E-12	0	4.36E-12	0	8.73E-12	0
Fullbore rupture of filling line to LPG storage tanker	Explosion	4.24E-12	0	5.36E-12	0	7.41E-12	0
Fullbore rupture of filling line to LPG storage tanker	Flash Fire	3.73E-12	0	4.69E-12	0	6.55E-12	0
50mm vapor leak release of LPG road tanker during transit	Explosion	1.71E-12	0	2.91E-12	0	5.82E-12	0
Fullbore rupture of filling line to LPG storage tanker	Jet Fire	3.12E-12	0	3.66E-12	0	4.69E-12	0
<b>Total</b>		<b>1.13E-05</b>	<b>100.00</b>	<b>1.38E-05</b>	<b>100.00</b>	<b>1.85E-05</b>	<b>100.00</b>

\* Note that approximated PLL values are presented here, and values will be slightly revised when finalized during the formal submission.

\*The table is arranged in descending order based on PLL for 2036.

Table 8.12.4 PLL Distribution for LPG Storage Facility at Zama Industries Limited

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
25mm leak release of LPG storage vessel	Jet Fire	1.39E-06	24.2	1.39E-06	22.38	1.39E-06	19.33
50mm leak release of standby LPG road tanker	Explosion	1.13E-06	19.62	1.18E-06	19.01	1.33E-06	18.5
Catastrophic rupture of standby LPG road tanker	Flash Fire	3.48E-07	6.05	4.20E-07	6.76	5.58E-07	7.76
Catastrophic rupture of standby LPG road tanker	Explosion	2.99E-07	5.2	3.63E-07	5.85	4.90E-07	6.82
50mm leak release of standby LPG road tanker	Flash Fire	2.67E-07	4.65	3.40E-07	5.48	4.75E-07	6.61
50mm leak release of standby LPG road tanker	Fire Ball	2.63E-07	4.58	3.33E-07	5.36	4.60E-07	6.4
Catastrophic rupture of LPG storage vessel	Flash Fire	3.64E-07	6.33	3.63E-07	5.84	3.64E-07	5.07
Catastrophic rupture of LPG storage vessel	Explosion	1.48E-07	2.58	1.86E-07	2.99	2.57E-07	3.58
Catastrophic rupture of standby LPG road tanker	Fire Ball	2.16E-07	3.76	2.26E-07	3.64	2.56E-07	3.56
Fullbore rupture of flexible hose	Jet Fire	2.25E-07	3.92	2.28E-07	3.66	2.44E-07	3.4
25mm leak release of flexible hose	Jet Fire	2.37E-07	4.12	2.37E-07	3.82	2.38E-07	3.31
Catastrophic rupture of LPG storage vessel	Jet Fire	1.19E-07	2.08	1.51E-07	2.42	2.09E-07	2.91
25mm leak release of line from LPG storage tanker to vaporiser	Jet Fire	2.02E-07	3.52	2.02E-07	3.25	2.02E-07	2.81
25mm leak release of standby LPG road tanker	Explosion	1.83E-07	3.19	1.85E-07	2.97	1.88E-07	2.62
Fullbore rupture of flexible hose	Flash Fire	3.97E-08	0.69	5.04E-08	0.81	6.99E-08	0.97
Fullbore rupture of flexible hose	Explosion	3.87E-08	0.67	4.92E-08	0.79	6.87E-08	0.96
50mm liquid leak release of LPG road tanker during transit	Flash Fire	3.05E-08	0.53	3.81E-08	0.61	5.14E-08	0.71
50mm liquid leak release of LPG road tanker during transit	Fire Ball	2.96E-08	0.52	3.71E-08	0.6	5.02E-08	0.7
Catastrophic rupture of LPG road tanker during transit	Explosion	2.84E-08	0.49	3.52E-08	0.57	4.77E-08	0.66

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
Catastrophic rupture of LPG road tanker during transit	Flash Fire	2.68E-08	0.47	3.26E-08	0.52	4.28E-08	0.59
Catastrophic rupture of LPG road tanker during transit	Fire Ball	3.18E-08	0.55	3.42E-08	0.55	3.94E-08	0.55
Fullbore rupture of line from LPG storage tanker to vaporiser	Jet Fire	3.83E-08	0.67	3.48E-08	0.56	3.59E-08	0.5
50mm liquid leak release of LPG road tanker during transit	Explosion	1.93E-08	0.34	2.08E-08	0.33	2.40E-08	0.33
Catastrophic rupture of vaporiser	Explosion	1.38E-08	0.24	1.36E-08	0.22	1.70E-08	0.24
Catastrophic rupture of vaporiser	Jet Fire	1.19E-08	0.21	1.22E-08	0.2	1.58E-08	0.22
25mm leak release of LPG road tanker during transit	Jet Fire	1.08E-08	0.19	1.21E-08	0.19	1.54E-08	0.21
Catastrophic rupture of vaporiser	Flash Fire	1.67E-08	0.29	1.05E-08	0.17	1.11E-08	0.15
Fullbore rupture of line from LPG storage tanker to vaporiser	Flash Fire	3.84E-09	0.07	4.91E-09	0.08	6.91E-09	0.1
Fullbore rupture of line from LPG storage tanker to vaporiser	Explosion	3.25E-09	0.06	4.16E-09	0.07	5.88E-09	0.08
25mm leak release of LPG storage vessel	Flash Fire	2.52E-09	0.04	3.26E-09	0.05	4.67E-09	0.06
25mm leak release of LPG road tanker during transit	Flash Fire	1.98E-09	0.03	2.60E-09	0.04	3.86E-09	0.05
25mm leak release of standby LPG road tanker	Fire Ball	1.39E-09	0.02	1.94E-09	0.03	3.49E-09	0.05
25mm leak release of LPG storage vessel	Explosion	1.68E-09	0.03	2.17E-09	0.03	3.11E-09	0.04
25mm leak release of LPG road tanker during transit	Explosion	1.32E-09	0.02	1.73E-09	0.03	2.57E-09	0.04
25mm leak release of standby LPG road tanker	Flash Fire	9.24E-10	0.02	1.29E-09	0.02	2.33E-09	0.03
25mm leak release of flexible hose	Flash Fire	8.15E-10	0.01	1.08E-09	0.02	1.68E-09	0.02
25mm leak release of flexible hose	Explosion	5.43E-10	0.01	7.18E-10	0.01	1.12E-09	0.02
25mm leak release of filling line to LPG storage tanker	Jet Fire	5.97E-10	0.01	5.97E-10	0.01	5.97E-10	0.01
25mm leak release of line from LPG storage tanker to vaporiser	Flash Fire	3.08E-10	0.01	3.99E-10	0.01	5.71E-10	0.01
25mm leak release of line from LPG storage tanker to vaporiser	Explosion	2.06E-10	0	2.66E-10	0	3.81E-10	0.01

Scenarios	Outcome	2025		2030		2036	
		PLL (/year)	%	PLL (/year)	%	PLL (/year)	%
BLEVE of LPG road tanker	BLEVE	1.10E-10	0	1.17E-10	0	1.34E-10	0
50mm vapor leak release of LPG road tanker during transit	Flash Fire	2.77E-11	0	3.28E-11	0	4.64E-11	0
Fullbore rupture of filling line to LPG storage tanker	Jet Fire	5.21E-12	0	4.99E-12	0	5.16E-12	0
25mm leak release of filling line to LPG storage tanker	Flash Fire	2.02E-12	0	2.62E-12	0	3.82E-12	0
25mm leak release of filling line to LPG storage tanker	Explosion	1.35E-12	0	1.75E-12	0	2.55E-12	0
50mm vapor leak release of LPG road tanker during transit	Explosion	6.04E-13	0	8.94E-13	0	1.68E-12	0
Fullbore rupture of filling line to LPG storage tanker	Flash Fire	7.41E-13	0	9.42E-13	0	1.31E-12	0
50mm vapor leak release of LPG road tanker during transit	Jet Fire	4.03E-13	0	5.96E-13	0	1.12E-12	0
Fullbore rupture of filling line to LPG storage tanker	Explosion	6.19E-13	0	7.87E-13	0	1.10E-12	0
<b>Total</b>		<b>5.74E-06</b>	<b>100.00</b>	<b>6.21E-06</b>	<b>100.00</b>	<b>7.19E-06</b>	<b>100.00</b>

\*Note that approximated PLL values are presented here, and values will be slightly revised when finalized during the formal submission.

\*The table is arranged in descending order based on PLL for 2036.