

Appendix 12.4 Plume Dimensions at Different Release Scenarios of SHW WTW

Table a Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 0.03 kg/s 1 te release (Dilution factor 10)

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
	0.5B	80	15	54	33	12	33	17	8
0.5D	100	25	100	36	13	36	18	8	18
1F	130	12	130	44	7	44	21	5	21
3B	20	3	11.5	8	1	6	6	1	5
3E	65	3	40	28	1.5	17	16	1	10
4D	37	2.5	23	18	2.5	15.5	10	1.5	8.5
7D	26	2	15	12	2	10	7	1.25	5.5
15D	17	1.2	10	7.7	1	6.5	4	1	3.5

Table b Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 0.2 kg/s 1 te release (Dilution factor 10)

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
	0.5B	215	75	215	85	40	85	45	26
0.5D	230	75	230	85	40	85	50	30	50
1F	260	45	260	95	25	95	45	13	45
3B	55	9	33	23	3.5	14	13	2.2	8
3E	185	10	110	76	6	60	38	4	38
4D	100	7	60	44	2.5	27	27	2	14
7D	73	5	43	30	2.5	17.5	16	1	9.5
15D	42	3	27	17	1	9	9.5	1	8.5

Table c Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 0.24 kg/s 1 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
	0.5B	240	80	240	90	35	90	52	30
0.5D	240	170	240	93	35	93	52	30	52
1F	300	50	300	102	25	102	46	20	46
3B	59	10	33	25	4	14	13	2	7.5
3E	205	12	125	83	8	73	36	5	36
4D	110	8	67	47	3	30	30	2	17
7D	78	6	48	35	2.5	18	17	1	9
15D	52	4	31	21	3	12	11	1	5.5

Table d Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 1.7 kg/s 1 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
	0.5B	600	300	600	275	225	275	150	150
0.5D	625	300	625	280	200	280	160	125	160
1F	670	150	670	240	100	240	128	60	128
3B	180	30	105	80	12	50	48	7	27
3E	560	45	560	185	20	185	85	15	85
4D	365	25	220	148	15	112	73	11	73
7D	280	30	150	92	6	60	53	3	32
15D	145	10	80	55	4	32	28	3.5	15

Table e Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, Instantaneous 1 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	410	190	220	325	170	155	240	140	100
0.5D	460	210	250	325	170	155	240	140	100
1F	520	175	345	330	135	195	240	110	130
3B	350	90	260	210	70	140	145	26	89
3E	460	105	355	250	80	170	170	60	110
4D	410	90	320	220	65	155	130	47.5	82.5
7D	420	70	350	230	50	180	130	39	91
15D	425	45	380	230	38	192	120	27	93

Table f Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, Instantaneous 2 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	610	280	330	435	230	205	320	190	130
0.5D	620	285	335	450	230	220	330	190	140
1F	700	240	460	450	180	265	325	170	155
3B	460	125	335	270	92	178	180	72	8
3E	610	140	470	320	100	220	210	80	130
4D	530	120	410	300	90	210	200	70	130
7D	570	100	470	300	70	230	180	50	130
15D	600	70	530	310	50	260	180	40	140

Table g Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, Instantaneous 73 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	2700	1340	1260	2100	1125	875	1700	1010	690
0.5D	2800	1400	1400	2100	1125	875	1700	1010	690
1F	2750	1090	1660	2200	950	1250	1750	830	920
3B	1750	560	1190	1100	460	740	800	360	440
3E	2300	640	1660	1300	470	830	900	380	520
4D	2100	550	1550	1200	410	790	800	325	475
7D	2100	440	1660	1150	320	830	700	240	460
15D	2300	330	1970	1200	240	960	700	180	520

Table h Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 7.65 kg/s 4.5 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	1230	600	700	660	600	660	350	400	350
0.5D	1250	600	750	670	600	670	370	420	370
1F	1300	450	1300	540	250	540	300	150	300
3B	480	65	270	190	30	95	120	30	95
3E	1020	120	1020	335	65	335	150	35	150
4D	880	75	650	300	40	300	130	30	130
7D	600	30	360	255	15	130	128	15	108
15D	350	25	200	124	10	70	65	5	35

Table i Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 0.4 kg/s 1 te release

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	270	120	270	120	70	120	69	50	69
0.5D	310	125	310	123	75	123	69	50	69
1F	375	70	375	126	35	126	60	25	60
3B	78	12	45	36	5	20	18	3	11
3E	280	15	175	105	10	105	47	7	47
4D	150	10	80	65	4	40	37	3.5	27
7D	105	7	60	42	3	25	23	1.5	12.5
15D	68	5	40	27	2.5	15	13.5	1	7

Table j Plume Dimensions for 3%, 50% and 90% Fatalities for Range of Wind Conditions, 0.24 kg/s 1 te release (Dilution Factor 60)

Wind Speed & Stability	3% Fatalities			50% Fatalities			90% Fatalities		
	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)	Down-wind Travel (m)	Maximum Cross-wind Travel (m)	Distance to maximum Width (m)
0.5B	215	70	215	82	40	82	47	28	47
0.5D	225	75	225	85	41	85	48	29	48
1F	275	40	275	90	20	90	45	15	45
3B	53	10	31	22	3.5	12.5	12	2	6.5
3E	183	10	110	75	3	62	35	5	35
4D	100	7	60	43	2.5	27	25	2.5	14
7D	70	5	43	29	2.5	17	15	1.2	8
15D	47	4	28	19	1.5	11	10	1	5