

**Appendix**

Sprinkler no	Field Number(TM3-22''R1)		
	Hydrant pressure in bar	Sprinkler discharge in m3/hr	Wetted radius in m
1	3	1.02	14.5
2	3	0.83	13.5
3	3	0.8	13
4	3	0.92	14

No	Field Number(TM3-N11R)		
	Hydrant pressure in bar	Sprinkler discharge in m3/hr	Wetted radius in m
1	2.5	0.89	12.5
2	2.5	0.8	11.8
3	2.5	0.93	11
4	2.5	0.68	10.8

**Appendix 1A:** Sprinklers measured data.

Lateral hydrant pressure			
Field Number(TM3-22''R1)			
N/O	Lateral 4 in bar	Lateral 3 in bar	Sprinkler discharge across lateral in m3/hr
1	3	3	1.02
2	3	3	0.92
3	2.85	2.9	0.83
4	2.5	2.95	0.8
5	2.8	3	0.85
6	2.5	3	0.79
7	2.8	2.85	0.98
8	2.5	2.5	0.82
9	3	2.95	0.95
10	2.95	3	0.99

Lateral hydrant pressure			
Field Number(TM3-N11R)			
N/O	Lateral 2 in bar	Lateral 3 in bar	Sprinkler discharge across lateral in m3/hr
1	2.5	2.5	0.89
2	2.5	2.5	0.8
3	2.4	2.25	0.74
4	2.25	2.25	0.72
5	2.25	2.1	0.84
6	2.1	2.1	0.67
7	2	2.25	0.76
8	2.1	2.25	0.68
9	2.25	2.25	0.8
10	2	2.25	0.76

**Appendix 1B:** Measured hydrant pressure and sprinkler discharge along laterals.

Catch Can N/O	Catch Can Depth (ml)			
	Field Number			
	TM3-22"R1		TM3-N11R	
	Morning	Afternoon	Morning	Afternoon
1	11.0	24.0	11.0	24
2	19.0	30.0	13.0	14.0
3	15.5	60.0	29.0	10.0
4	18.5	24.0	22.5	12.0
5	19.5	26.0	13.0	23.0
6	15.0	11.5	10.0	14.0
7	23.5	25.0	39.0	19.0
8	13.0	25.5	28.0	27.0
9	35.5	39.0	30.0	29.0
10	16.5	43.0	18.0	9.0
11	43.0	39.0	7.0	14.0
12	17.0	32.5	29.0	11.0
13	18.0	21.0	16.0	23.0
14	21.5	22.0	23.0	23.0
15	55.0	32.0	32.0	3.0
16	35.0	56.0	29.0	27.0
17	24.0	26.0	22.0	32.0
18	18.0	16.5	14.0	29.0
19	16.0	20.0	25.0	21.0
20	16.0	34.0	7.0	9.0
21	43.5	29.0	20.0	21.0
22	52.0	32.0	46.0	47.0
23	27.0	21.5	12.0	31.0
24	19.0	23.0	18.5	42.0
25	25.5	20.5	11.0	15.0
26	11.0	17.0	10.0	12.0
27	23.0	24.0	22.0	4.0
28	30.0	21.0	25.0	23.0
29	19.5	27.0	9.5	8.0
30	18.0	17.0	12.0	16.0
31	13.0	11.0	10.0	11.5
32	14.0	24.0	12.0	14.0
33	23.0	20.0	26.0	21.0

34	12.5	23.0	23.0	14.0
35	39.0	22.0	12.0	13.0
36	10.0	11.0	9.0	15.0

**Appendix 1C:** Catch cans depth for overlapping sprinklers

Catch Can N/O	Catch can depth (ml)		
	Field Number		
	TM3-N11R	TM3-22"R1	
	Morning	Morning	Afternoon
1	0.0	7.0	0
2	1.5	8.5	0.0
3	14.0	6.0	4.0
4	10.0	3.0	5.0
5	7.0	4.0	4.5
6	8.0	4.0	6.0
7	7.0	10.0	5.0
8	0.0	8.0	3.0
9	13.0	11.0	7.0
10	7.0	3.0	7.0
11	5.0	8.0	8.0
12	3.0	10.0	7.0
13	3.0	9.0	5.0
14	4.0	4.0	5.5
15	14.0	4.0	4.0
16	3.0	6.0	0.0
17	12.0	6.0	0.0
18	9.0	4.5	7.0
19	7.0	8.0	6.0
20	9.5	14.0	11.0
21	9.5	14.0	12.0
22	8.0	14.5	13.0
23	4.0	8.0	9.0
24	12.0	10.0	5.0
25	6.0	6.0	6.0
26	4.5	12.0	13.0
27	10.5	15.0	14.0
28	9.5	13.0	11.0
29	9.0	11.0	10.5

30	12.0	10.0	8.0
31	7.0	4.5	5.0
32	17.0	5.0	3.0
33	15.0	6.0	5.0
34	8.0	6.0	7.0
35	13.0	11.0	12.0
36	11.0	12.0	12.0
37	12.5	13.0	11.0
38	12.0	14.0	12.5
39	4.0	10.0	3.0
40	4.0	7.0	4.0
41	9.0	13.0	3.0
42	4.0	8.0	10.0
43	11.0	13.0	14.0
44	13.0	14.0	13.5
45	14.0	13.0	14.0
46	13.0	9.0	10.0
47	6.0	6.0	8.5
48	19.0	10.0	3.0
49	11.5	6.0	0.0
50	6.0	11.0	7.0
51	11.0	7.0	10.0
52	9.0	9.0	10.5
53	10.0	10.0	12.0
54	6.0	7.0	8.0
55	5.0	11.0	4.0
56	10.0	14.0	9.0
57	0.0	1.0	7.0
58	6.0	10.0	13.0
59	5.5	15.0	8.0
60	8.5	16.0	9.0
61	10.5	14.0	11.5
62	12.3	14.0	9.0
63	4.2	4.0	0.0
64	0.0	0.0	0.0

**Appendix 1D:** Catch cans depth for single sprinkler.

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No	Overlapping depth of catch can in ml for a single sprinkler							
	At 2.5 bar hydrant pressure				At 3.0 bar hydrant pressure			
	Spacing (m)				Spacing (m)			
	12*18	12*12	18*12	9*12	12*18	12*12	18*12	9*12
1	11	25	13.5	27.5	16	24	13	33
2	14.5	25.5	14	28	17	30	15	34
3	15	27	16	29	17	31	15	34
4	15	27.2	16	29.2	18	32	15.5	34.5
5	16.5	28	16	30	19	33	17	35
6	17	29	17	32	19	34	20	36.5
7	17	29.5	17	32	19	34	21.5	37.5
8	17	34.5	17.2	33	19	36	22	39
9	17	34.8	18	34.5	19.5	36.5	22	39.5
10	17.5	35	18	36	20	37	23	42
11	20	36	18.5	40.3	20	37	24	47
12	21.5	38	19.5	47	21	38.5	24	54
13	21.5	38	19.5		22	40	24	
14	21.5	39	19.5		24	46	25	
15	23	40.5	20		24	46	27	
16	26.5	43	21		26	47	27	
17	26.5		24.3		30		29	
18	27.5		26		31		29.5	
19	28.5		27		31		30	
20	28.7		27.5		32		31	
21	29		32.5		34		32	
22	29.3		33		34		33	
23	32		37		34.5		34	
24	37		42		35		39.5	

**Appendix 2:** Overlapped catch cans depth data for 12\*18m, 12\*12, 18\*12 and 9\*12m spacing's.