Appendix A

In the experiments, the receiving surface of heat flux meters is parallel to the flame surface. The flame can be divided into two parts (V1 and V2) and the view factor can be expressed as:

$$F_{V-A2} = F_{V1-A2} + F_{V2-A2} \tag{A1}$$

View factor for horizontal targets of a vertical cylinder (V1) for no-wind conditions are as follows:

$$F_{V1-A2} = \frac{1}{\pi S} tan^{-1}\left(\frac{h_1}{\sqrt{S^2-1}}\right) - \frac{h_1}{\pi S} tan^{-1}\sqrt{\frac{S-1}{S+1}} + \frac{A_1 h_1}{\pi S\sqrt{A_2{}^2-1}} tan^{-1}\sqrt{\frac{(S-1)(A_1+1)}{(S+1)(A_1-1)}} \tag{A2}$$

And

$$S = \frac{2L}{D} \tag{A3}$$

$$h_1 = \frac{2H1}{D} \tag{A4}$$

$$A_1 = \frac{h_1{}^2 + S^2 + 1}{2S} \tag{A5}$$

where L is the distance between the center of the pool fire and the target. H_1 is the distance between target and the flame upper boundary in vertical direction, shown in Figure14(b). The F_{V2-A2} can be expressed as:

$$F_{V1-A2} = \frac{1}{\pi S} tan^{-1}\left(\frac{h_2}{\sqrt{S^2-1}}\right) - \frac{h_2}{\pi S} tan^{-1}\sqrt{\frac{S-1}{S+1}} + \frac{A_2 h_2}{\pi S\sqrt{A_2{}^2-1}} tan^{-1}\sqrt{\frac{(S-1)(A_2+1)}{(S+1)(A_2-1)}} \tag{A6}$$

$$h_2 = \frac{2H_2}{D} \tag{A7}$$

$$A_2 = \frac{h_2{}^2 + S^2 + 1}{2S} \tag{A8}$$

where H_2 is the distance between target and the flame bottom in vertical direction, shown in Figure14(b).