

Assume: Contributing area varies linearly with time.

Since: $V_1 = V_2$
 $CiDA = Q_p t_c$

But: $t_c = D$

Therefore: $Q_p = CiA$

where

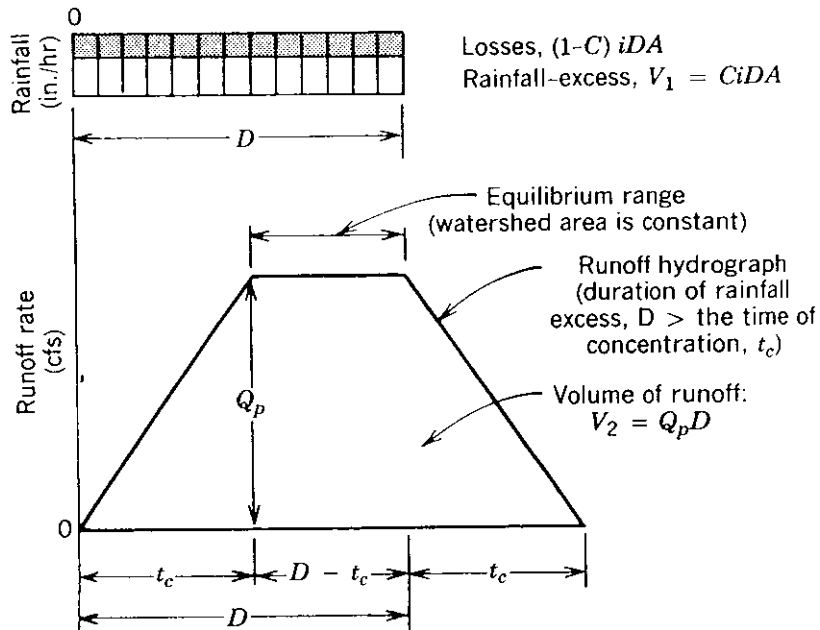
$Q_p = \text{ft}^3 / \text{sec}$

$i = \text{in.} / \text{hr}$

$A = \text{ac}$

Figure 6.15 A rational method hydrograph with derivation.

Source: Wanielista, M., & Klemesch
 Hydrology
 John Wiley & Sons, 1987



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Figure 6.16 A rainfall hyetograph $D > t_c$ with resulting hydrograph and derivation.

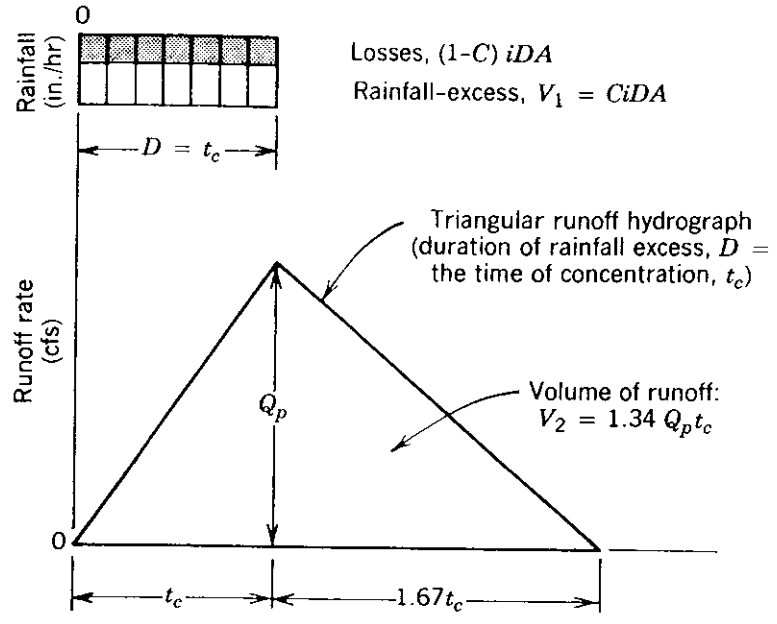


FIGURE 6.18 A SCS (NRCS) typical hydrograph.