Activity 1

At this time, complete Activity 1 in your Study Guide to review the material just covered. When you are finished, compare your answers with the solution provided near the back of this module. When you are sure you understand the material, continue with the Study Guide text.

Activity 1

1. When should the tabular peak discharge method be used?

2. What are the six input requirements for each subarea in the Tabular Peak Discharge Method?

a.

b.

c.

d.

e.

f.

Activity 2

At this time, complete Activity 2, in your Study Guide to review the material just covered. When you are finished, compare your answers with the solution provided. When you are sure you understand the material, continue with the Study Guide text.

Given

The subdivided watershed in Dyer County, Tennessee (see sketch).

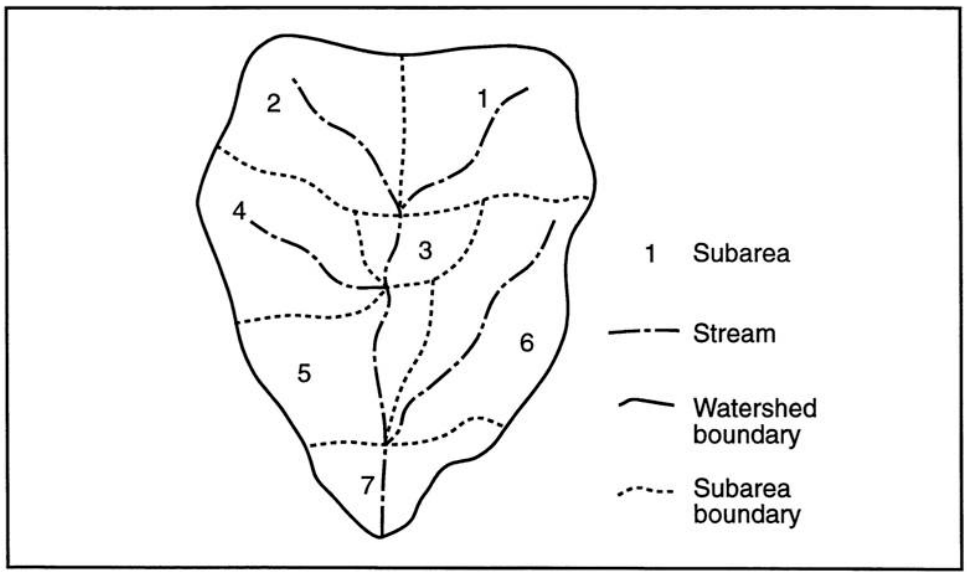

Figure 1. Fallswood Project

Subarea Name	Drainage Area (mi2)	Subarea Data Time of Concentration (hr)	Travel Time Through Subarea	Runoff curve number
1	0.30	1.4	-	65
2	0.27	1.2	-	70
3	0.10	0.6	0.45	75
4	0.18	0.9	-	70
5	0.20	1.3	1.10	75
6	0.34	1.6	-	70
7	0.12	1.0	0.80	75

Rainfall distribution = Type II; 5 = 6.0 in.

Find

The 25-year hydrograph at downstream end of subarea seven using worksheets 5a and 5b. Use

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the 3 rounding methods to select Tc and Tt for each subarea.

Basic watershed data used 1/					Select and enter hydrograph time. in hour. from exhibit. 5-2/											
Subarea name	Sub-area (Tc hr)	∑Tt To outlet (hrs	Ia/P	AmQ (mi²-in)												
					Discharges at selected hydrograph time 3/ cfs)											
Complete hydrograph at outlet																

5b

Subarea name	Drainage area Am (mi²)	Time of Concentration Tc (hr)	Travel time through subarea Tt (hr)	Downstream subarea names	Travel time summation to outlet ∑Tt (hr)	24-h r Rain-fall P (in)	Runoff curve number CN	Run-off Q (In)	AmQ (mi²-10)	Initial abstrac-tion Ia (in)	Ia./P

5a

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Worksheet Sb. Tabular hydrograph discharge summary.

Activity 3

At this time, complete Activity 3, in your Study Guide to review the material just covered. When you are finished, compare your answers with the solution provided. When you are sure you understand the material, continue with the Study Guide text.

Given

The watershed in activity two. A retarding structure has been constructed that controls subarea four with an average release of 5 cfs.

Find

The effect of the retarding structure on the 25-year peak discharge at the downstream end of subarea seven using Worksheet 5b. Use hydrograph data for subareas 1-3, and 5-7 from activity two.

Solution

Subarea name	Basic watershed data used 1/				Select and enter hydrograph time in hour from exhibit. 5- 2											
	Sub-area (Tc hr)	∑Tt To outlet (hrs	Ia/P	AmQ (mi²-in)	Discharges at selected hydrograph time 3/ - (cfs) -											
														-		
Complete hydrograph at outlet																

Worksheet 5b. Tabular hydrograph discharge summary.

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Activity 4

Given

The subdivided watershed in Dyer County described in activity two. A developer proposes to put a subdivision into subareas **1,** 2, and 4.
Estimated data for subarea 1, 2, and 4:

Subarea Data

Subarea Name	Drainage Area (mi	Time of Concentration (hr)	Travel Time Through Subarea	Runoff curve number
1	0.30	1.1	-	75
2	0.27	0.8	-	80
4	0.18	0.6	-	85

Rainfall distribution = Type II; Fh = 6.0 in.

Find

The effect of the subdivision on the 25-year peak discharge at the downstream end of subarea seven.

Solution

Worksheet Sa. Basic watershed data.

Subarea name	Drainage area Am (mi²)	Time of Concentration Tc (hr)	Travel time through subarea Tt (hr)	Downstream subarea names	Travel time summation to outlet ∑Tt (hr)	24-h r Rain-fall P (in)	Runoff curve number CN	Run-off Q (In)	AmQ (mi²-10)	Initial abstrac-tion Ia (in)	Ia./P

Worksheet 5b. Tabular hydrograph discharge summary.

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