Appendix B: Traditional Synthetic Unit Hydrographs

Snyder Synthetic Unit Hydrograph

Table B.1: Parameters Used to Develop a Snyder synthetic unit hydrograph

Length of main stream from outlet to watershed divide (L)	4.36 miles
Distance from the outlet to a point on the main stream nearest to the centroid of the watershed (L_c)	1.78 miles
Watershed Area (A)	4.4 mi^2
C_t (average)	2.0
C_p (average)	0.6
C_t (calibrated)	2.7
C_p (calibrated)	1.02

Table B.3: Storms Used for Calibration

	Storm #2	**Storm #10**
	April 2, 1990	Oct. 22-23, 1990
Rainfall volume (mm)	13.3	49.9
Rainfall duration (hours)	7	26
Runoff volume (mm)	4.1	4.4
Avg. Rainfall Excess (mm/hr)	4.1	1.1
Peak flow rate (m3/s)	3.13	1.47

Table B.2: Snyder synthetic unit hydrograph ordinates

Time	**Snyder unit hydrograph ordinates (ft^2/s)**	
(hours)	***(average)***	***(calibrated)***
0	0	0
1	52.5	10
2	162.5	45
3	277.5	130
4	442.5	230
5	387.5	440
6	332.5	590
7	287.5	440
8	222.5	280
9	192.5	190
10	152.5	130
11	117.5	80
12	92.5	50
13	57.5	40
14	27.5	38
15	22.5	35
16	17.5	30
17	12.5	25
18	0	22
19		20
20		12
21		10
22		8
23		5
24		0

SCS synthetic unit hydrograph

Table B.3: Parameters used to develop SCS unit hydrograph

Time of concentration	2.4 hours
Area	4.4 mi^2
Rainfall excess duration	1 hour

Table B.4: SCS synthetic unit hydrograph ordinates

Time (hours)	**SCS ordinates (ft2/s)**
0	0
1	130
2	394
3	725
4	613
5	462
6	331
7	180
8	50
9	0

Clark Instantaneous Unit Hydrograph

Table B.5: Parameters used to create Clark instantaneous unit hydrograph

K	2.4 hours
x	0

Table B.6: Clark instantaneous unit hydrograph ordinates

Time (hours)	**Clark ordinates (ft2/s)**
0	0.0
1	183.2
2	605.4
3	715.0
4	483.1
5	314.0
6	204.1
7	132.7
8	86.2
9	56.1
10	36.4
11	23.7
12	15.4
13	0.0