dalam sebuah das, A=467 km2 terjadi hujan merata selama 4 jam berturut-turut
4mm, 3mm, 2mm dan 2mm. Hujan tsb. menimbulkan banjir sbb. ;

A = 4,7E+08 m^2

t	Q	Baseflow	HLL	$U_{1.192}$	$U_{0.192}$	U_1	P_{eff}	hidrograf banjir		baseflow	Q_{total}
(jam)	(m^3/det)	(m^3/det)	(m^3/det)					P=20 mm	P=10 mm	(m^3/det)	(m^3/det)
0	17,9	17,90	0,00	0,00	-	0,00	20,00	0,00	-	17,90	17,90
1	29,9	17,83	12,07	10,13	0,00	10,13	10,00	202,57	0,00	17,83	220,40
2	42,2	17,75	24,45	20,51	62,88	83,39		1667,78	101,28	17,75	1786,82
3	39,6	17,68	21,92	18,39	127,32	145,71		2914,25	833,89	17,68	3765,82
4	35,6	17,61	17,99	15,09	114,16	129,26		2585,14	1457,12	17,61	4059,87
5	31,8	17,53	14,27	11,97	93,71	105,68		2113,55	1292,57	17,53	3423,65
6	29,0	17,46	11,54	9,68	74,30	83,98		1679,58	1056,78	17,46	2753,81
7	26,3	17,39	8,91	7,48	60,10	67,57		1351,45	839,79	17,39	2208,62
8	25,5	17,32	8,18	6,87	46,41	53,28		1065,61	675,72	17,32	1758,65
9	24,4	17,24	7,16	6,00	42,63	48,63		972,66	532,81	17,24	1522,71
10	23,8	17,17	6,63	5,56	37,28	42,84		856,85	486,33	17,17	1360,35
11	23,1	17,10	6,00	5,04	34,54	39,57		791,44	428,42	17,10	1236,96
12	22,5	17,02	5,48	4,59	31,27	35,86		717,30	395,72	17,02	1130,04
13	22,1	16,95	5,15	4,32	28,53	32,85		656,92	358,65	16,95	1032,52
14	21,7	16,88	4,82	4,05	26,82	30,87		617,38	328,46	16,88	962,72
15	20,9	16,80	4,10	3,44	25,12	28,56		571,13	308,69	16,80	896,63
16	20,3	16,73	3,57	2,99	21,33	24,33		486,57	285,57	16,73	788,87
17	19,9	16,66	3,24	2,72	18,59	21,31		426,20	243,28	16,66	686,14
18	19,4	16,58	2,82	2,36	16,89	19,25		384,98	213,10	16,58	614,66
19	18,8	16,51	2,29	1,92	14,66	16,58		331,67	192,49	16,51	540,67
20	18,4	16,44	1,96	1,65	11,92	13,56		271,29	165,83	16,44	453,56
21	18,2	16,37	1,83	1,54	10,22	11,76		235,11	135,65	16,37	387,12
22	17,9	16,29	1,61	1,35	9,56	10,90		218,08	117,55	16,29	351,93
23	17,7	16,22	1,48	1,24	8,37	9,62		192,31	109,04	16,22	317,57
24	17,3	16,15	1,15	0,97	7,71	8,68		173,61	96,16	16,15	285,91
25	17,0	16,07	0,93	0,78	6,01	6,79		135,74	86,80	16,07	238,62
26	16,0	16,00	0,00	0,00	4,83	4,83		96,55	67,87	16,00	180,43
					0,00	0,00		0,00	48,28	0,00	48,28

VLL = 6,46E+05

P_{netto} = 1,384 mm

tentukan besar dan bentuk hidrograf banjir, untuk hujan efektif sebesar 20 mm
dan 10mm yg terjadi berturut-turut selama 2 jam

hitungan Φ - index

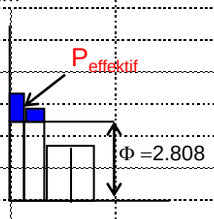
Φ = (Σ P - Pnetto)/T

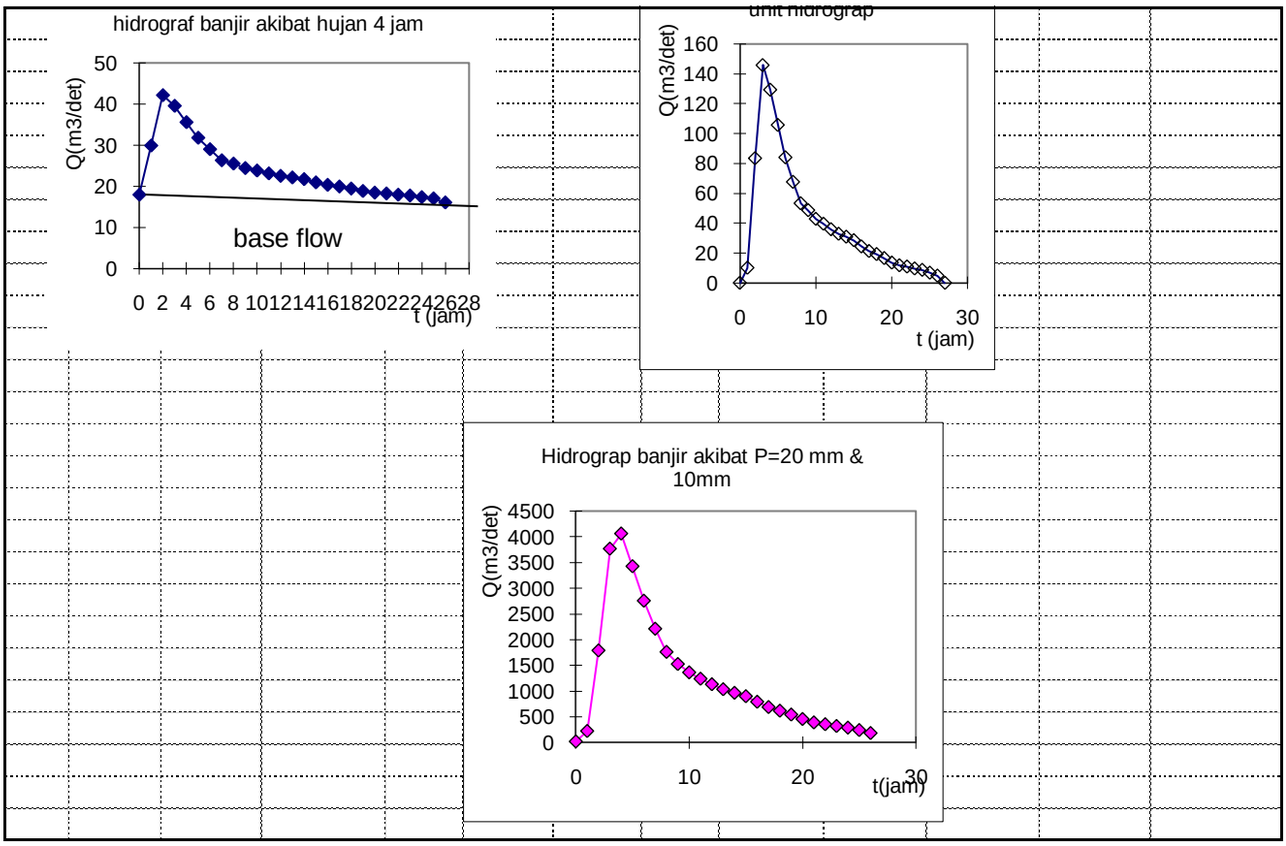
Φ < 2 : 2,404

2<Φ < 3 : 2,808

Peff = 1,192

0,192




hidrograf banjir akibat hujan 4 jam
Q(m3/det)
50
40
30
20
10
0
base flow
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28
t (jam)
unit hidrograp
Q(m3/det)
160
140
120
100
80
60
40
20
0
0 10 20 30
t (jam)
Hidrograp banjir akibat P=20 mm & 10mm
Q(m3/det)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0 10 20 30
t(jam)

t (jam)	U1	Q(m3/det)
0	0	17,9
1	10,1284202	220,395328
2	83,3891273	1786,82059
3	145,712334	3765,81873
4	129,256878	4059,8686
5	105,67754	3423,65421
6	83,9787956	2753,81285
7	67,5722767	2208,62195
8	53,2805509	1758,64917
9	48,6329806	1522,70743
10	42,8423733	1360,3465
11	39,5720401	1236,96069
12	35,8647662	1130,0388
13	32,8461108	1032,51988
14	30,8691221	962,720474
15	28,556563	896,626327
16	24,3284557	788,865514
17	21,3098004	686,138257
18	19,2489191	614,661001
19	16,5833118	540,666966
20	13,5646565	453,564709
21	11,755453	387,12101
22	10,9040236	351,92731
23	9,6156535	317,572537
24	8,68033148	285,909319
25	6,78723542	238,6211
26	4,82772436	180,426841
27	0	48,2772436