Natural Basin Delineation:

	CELL #	Area		Stream length		Min Elev	Max Elev	Slope
		ft^2	mi^2	ft	mi	ft	ft	ft/ft, %
NB1	4,007	40,070,000	1.437	19,715	3.734	3,720	4,850	5.73%
NB2	1,870	18,700,000	0.671	15,190	2.877	3,500	4,000	3.29%
NB3	4,294	42,940,000	1.540	20,870	3.953	3,750	5,600	8.86%
NB4	2,673	26,730,000	0.959	13,610	2.578	3,500	3,950	3.31%
NB5	3,230	32,300,000	1.159	17,967	3.403	3,750	5,250	8.35%
NB6	5,457	54,570,000	1.957	19,884	3.766	4,000	5,800	9.05%
NB7	6,097	60,970,000	2.187	16,332	3.093	3,650	4,900	7.65%
NB8	4,919	49,190,000	1.764	13,706	2.596	3,700	4,900	8.76%
NB9	3,166	31,660,000	1.136	8,824	1.671	3,500	3,800	3.40%
NB10	2,622	26,220,000	0.941	8,320	1.576	3,500	3,900	4.81%
Total	38,335	383,350,000	13.751	154,418	29.245	3,657	4,000	6.32%

Basin Delineation with Facilities:

	CELL #	Area		Stream length		Min Elev	Max Elev	Slope	Slope
		ft^2	mi^2	ft	mi	ft	ft	ft/ft, %	ft/mi
NB1	3,724	37,240,000	1.336	17,796	3.370	3,780	4,850	6.01%	317.47
NB2	1,870	18,700,000	0.671	15,190	2.877	3,500	4,000	3.29%	173.80
NB3	4,294	42,940,000	1.540	20,870	3.953	3,750	5,600	8.86%	468.05
NB4	1,881	18,805,000	0.675	13,767	2.607	3,500	3,950	3.27%	172.59
NB5	3,230	32,300,000	1.159	17,967	3.403	3,750	5,250	8.35%	440.82
NB6	5,457	54,570,000	1.957	19,884	3.766	4,000	5,800	9.05%	477.98
NB7	6,097	60,970,000	2.187	16,332	3.093	3,650	4,900	7.65%	404.12
NB8	4,919	49,190,000	1.764	13,706	2.596	3,700	4,900	8.76%	462.29
NB9	2,938	29,375,000	1.054	8,824	1.671	3,500	3,800	3.40%	179.51
FAC1	761	7,610,000	0.273	3,774	0.715	3,700	3,850	3.97%	209.86
FAC2	3,165	31,650,000	1.135	7,018	1.329	3,550	3,820	3.85%	203.14
Total	38,335	383,350,000	13.751	155,128	29.380	3,671	4,611	6.04%	319.06
	-		12.343	(channel length exclude FAC1 and FAC2)					

Table 4-2 Comparison between difference lag time formulae

Name	**Area (mi^2)**	**L= Total Channel Length (mi)**	**Lca (mi) - Note 1**	**S= Slope (ft/mi)**	**Basin Factor, LLca/S0.5**	**USBR Lag (C=1.1) (hrs) Note 2**	**USBR Lag (C=0.887) (hrs) Note 2**
NB1	1.336	3.370	1.685	317.47	0.319	0.754	0.608
NB2	0.671	2.877	1.438	173.80	0.314	0.750	0.605
NB3	1.540	3.953	1.976	468.05	0.361	0.786	0.634
NB4	0.675	2.607	1.304	172.59	0.259	0.704	0.568
NB5	1.159	3.403	1.701	440.82	0.276	0.719	0.580
NB6	1.957	3.766	1.883	477.98	0.324	0.759	0.612
NB7	2.187	3.093	1.547	404.12	0.238	0.685	0.552
NB8	1.764	2.596	1.298	462.29	0.157	0.597	0.481
NB9	1.054	1.671	0.836	179.51	0.104	0.522	0.421
FAC1	0.273	0.715	0.357	209.86			
FAC2	1.135	1.329	0.665	203.14			
Sum	**13.751**	**29.380**	**14.690**	**3,509.64**	**0.261**	**0.697**	**0.562**

Notes

1 L_{ca} = length along the flow from the basin outlet to the point opposite the centroid of the basin area
2 Lag=C*(LL_{ca}/sqrt(S))^0.33, where C is a coefficient, L and L_{ca} are in miles and S is in ft/mi (BSC, 200
3 Same as in 2, but C is set to 0.887, scaling the peak flow coefficient from 485 to 600 (based on Sam

Table 4.3 Characteristics of Routing Channels Used in the HEC-1 Software

Channels	Length (ft)	Max Elev (ft)	Min Elev (ft)	Slope (ft/ft, %)	Manning's n	Shape	Bottom Width (ft)	Side Bank Slope (h:1)	Channel Lining
NB1CP1	1,534	3,780	3,750	1.96%	0.09	TRAP	68	3	Concrete
CP1CP2	2,576	3,750	3,700	1.94%	0.09	TRAP	88	3	Concrete
FAC2CP3	1,630	3,550	3,500	3.07%	0.09	TRAP	30	4	Concrete
CP2CP3	7,013	3,700	3,500	2.85%	0.09	TRAP	30	4	Natural
NB6NB7	9,934	4,000	3,650	3.52%	0.09	TRAP	30	10	Natural
NB7CP3	5,304	3,650	3,500	2.83%	0.09	TRAP	30	10	Natural
NB8CP3	8,824	3,700	3,500	2.27%	0.09	TRAP	30	10	Natural

Overland flow elements

	Overland flow length (ft)	*Max elev (ft)*	*Min elev (ft)*	*Slope (ft/ft)*	*Resistance Factor*	*% area*	*% impervious*
FA1							
Impervious	3960	3,850.00	3,700	3.79%	0.100	25.00%	100.00%
Pervious	4462	3,850.00	3,700	3.36%	0.100	75.00%	0.00%
FA2							
Impervious	3200	3,820.00	3,550	8.44%	0.100	50.00%	100.00%
Pervious	7290	3,820.00	3,550	3.70%	0.100	50.00%	0.00%

Channel Name	*Length (feet)*	*Max elev*	*Min Elev*	*Slope (ft/ft)*	*Manning's n*	*Shape*	*Bottom Width (feet) Note 1*	*Side Bank Slope (h:1) Note 1*
FA1								
Main	3,774	3,850	3,700	3.97%	0.09	TRAP	30	3
FA2								
Main	7,018	3,820	3,550	3.85%	0.09	TRAP	30	3

Note 1 Approximate based on 100-C00-MGR0-00501-000 Rev 00E and 000-C00-MGR0-00201-000 Rev 0(

Area Weight, %	Weighted Slope, %	Note
10.82%	0.65%	NB1 minus a fraction in FAC1
5.43%	0.18%	
12.48%	1.11%	
5.47%	0.18%	NB4 minus fractions in FAC1 and FAC2 plus fraction from NB10 close to FAC2
9.39%	0.78%	
15.86%	1.44%	
17.72%	1.36%	
14.30%	1.25%	
8.54%	0.29%	
		Fractions from NB1 and NB4
		Fractions from NB4 and Almost All of B10 minus a fraction outside FAC2 (106 cells
100.00%	7.23%	

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