Appendix A

Estimated Obstruction Capacities

TABLE A-1

ESTIMATED OBSTRUCTION CAPACITIES

ID NUMBER	MODEL REACH NUMBER	LOCATION	STREAM	ADEQUACY NOTATION
1	1	East Buffalo Township	Intermittent Tributary #1	Q < 2-YR
2	1	East Buffalo Township	Intermittent Tributary #1	5-YR < Q < 10-YR
3	1	East Buffalo Township	Intermittent Tributary #1	Q < 2-YR
4	3	East Buffalo Township	Intermittent Tributary #2	Q < 2-YR
7	11	East Buffalo Township	Intermittent Tributary #4	Q < 2-YR
8	12	East Buffalo Township	Intermittent Tributary #4	Q < 2-YR
9	12	East Buffalo Township	Intermittent Tributary #4	Q < 2-YR
10	12	East Buffalo Township	Intermittent Tributary #4	25-YR < Q < 50-YR
11	12	East Buffalo Township	Intermittent Tributary #4	Q < 2-YR
12	14	East Buffalo Township	Bull Run	Q < 2-YR
13	14	East Buffalo Township	Bull Run	Q > 100-YR
14	14	East Buffalo Township	Bull Run	10-YR < Q < 25-YR
15	14	East Buffalo Township	Bull Run	10-YR < Q < 25-YR
16	16	East Buffalo Township	Intermittent Tributary #5	Q < 2-YR
17	18	East Buffalo Township	Bull Run	2-YR < Q < 5-YR
18	20	East Buffalo Township	Intermittent Tributary #6	2-YR < Q < 5-YR
21	22	East Buffalo Township	Intermittent Tributary #6	Q < 2-YR
22	24	East Buffalo Township	Bull Run	10-YR < Q < 25-YR
23	24	East Buffalo Township	Bull Run	Q > 100-YR
24	26	East Buffalo Township	Intermittent Tributary #7	Q < 2-YR
27	30	Buffalo Township	Intermittent Tributary #8	Q < 2-YR
28	31	Buffalo Township	Intermittent Tributary #8	Q < 2-YR
29	31	Buffalo Township	Intermittent Tributary #8	Q < 2-YR
29A	24	East Buffalo Township	Bull Run	Q < 2-YR
30	33	Lewisburg Borough	Bull Run	2-YR < Q < 5-YR
31	33	Lewisburg Borough	Bull Run	Q < 2-YR
32	33	Lewisburg Borough	Bull Run	Q < 2-YR
33	34	Lewisburg Borough	Bull Run	2 - YR < Q < 5 -YR
35	34	East Buffalo Township	Bull Run	2-YR < Q < 5-YR
36	34	East Buffalo Township	Bull Run	Q > 100-YR
37	34	Lewisburg Borough	Bull Run	10-YR < Q < 25-YR
38	35	Lewisburg Borough	Bull Run	Q < 2-YR
39	35	Lewisburg Borough	Bull Run	5-YR < Q < 10-YR
40	35	Lewisburg Borough	Bull Run	5-YR < Q < 10-YR
41	35	Lewisburg Borough	Bull Run	5-YR < Q < 10-YR
44	35	Lewisburg Borough	Bull Run	Q < 2-YR
45	35	Lewisburg Borough	Bull Run	50-YR < Q < 100-YR
47	35	Lewisburg Borough	Bull Run	5-YR < Q < 10-YR
48	37	East Buffalo Township	Intermittent Tributary #9	2-YR < Q < 5-YR
49	37	East Buffalo Township	Intermittent Tributary #9	2-YR < Q < 5-YR
50	39	East Buffalo Township	Intermittent Tributary #10	Q < 2-YR
51	39	East Buffalo Township	Intermittent Tributary #10	Q < 2-YR
51A	41	East Buffalo Township	Intermittent Tributary #11	Q < 2-YR
52	41	East Buffalo Township	Intermittent Tributary #11	Q < 2-YR

TABLE A-1

ESTIMATED OBSTRUCTION CAPACITIES

ID NUMBER	MODEL REACH NUMBER	LOCATION	STREAM	ADEQUACY NOTATION
52A	41	East Buffalo Township	Intermittent Tributary #11	2-YR < Q < 5-YR
53	41	East Buffalo Township	Intermittent Tributary #11	Q < 2-YR
53A	41	East Buffalo Township	Intermittent Tributary #11	50-YR < Q < 100-YR
54	43	East Buffalo Township	Intermittent Tributary #12	2-YR < Q < 5-YR
54A	41	East Buffalo Township	Intermittent Tributary #11	2-YR < Q < 5-YR
55	45	East Buffalo Township	Bull Run Tributary	50-YR < Q < 100-YR
56	45	East Buffalo Township	Bull Run Tributary	50-YR < Q < 100-YR
56A	45	East Buffalo Township	Bull Run Tributary	50-YR < Q < 100-YR
56B	45	East Buffalo Township	Bull Run Tributary	10-YR < Q < 25-YR
57	45	Lewisburg Borough	Bull Run Tributary	10-YR < Q < 25-YR
58	45	Lewisburg Borough	Bull Run Tributary	10-YR < Q < 25-YR
58A	45	Lewisburg Borough	Bull Run Tributary	10-YR < Q < 25-YR
59	45	Lewisburg Borough	Bull Run Tributary	Q < 2-YR
60	45	Lewisburg Borough	Bull Run Tributary	2-YR < Q < 5-YR
61	47	Lewisburg Borough	Bull Run	10-YR < Q < 25-YR
62	47	Lewisburg Borough	Bull Run	10-YR < Q < 25-YR

Appendix B

Model Output Summaries

Note: 1) "Peak Runoff" refers to the peak rate of runoff from the referenced subbasin; 2) "Peak Discharge" refers to the peak rate of discharge from the stream reach contained with the subbasin and represents the cumulative flow at the end of the subbasin.

TABLE B-1
MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR	
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE
2 YEAR RETURN PERIOD									
1	INTERMITTENT TRIBUTARY	8.6	8.6	14.1	14.1	19.6	19.6	24.8	24.8
2	INTERMITTENT TRIBUTARY	38.2	40.9	70.8	70.8	102.3	102.5	115.4	116.0
3	INTERMITTENT TRIBUTARY	10.9	10.9	17.8	17.8	26.2	26.2	31.9	31.9
4	INTERMITTENT TRIBUTARY	32.0	37.8	58.9	59.1	82.2	82.6	91.9	94.8
6	BULL RUN	19.5	86.7	33.6	148.9	42.7	205.1	43.6	229.8
7	INTERMITTENT TRIBUTARY	17.5	17.5	31.9	31.9	42.2	42.2	45.3	45.3
8	INTERMITTENT TRIBUTARY	21.5	36.0	39.5	59.4	53.4	68.7	56.9	74.4
10	BULL RUN	16.4	127.8	31.3	213.1	39.9	277.6	38.2	300.5
11	INTERMITTENT TRIBUTARY	6.8	6.8	12.4	12.4	17.4	17.4	19.9	19.9
12	INTERMITTENT TRIBUTARY	22.3	29.1	37.2	48.2	54.6	63.9	64.1	74.7
13	INTERMITTENT TRIBUTARY	47.6	55.2	72.3	81.2	90.9	104.6	94.6	114.1
15	BULL RUN	35.6	183.8	63.1	298.1	85.1	378.4	86.2	412.0
16	INTERMITTENT TRIBUTARY	9.4	9.4	14.2	14.2	16.7	16.7	16.8	16.8
17	INTERMITTENT TRIBUTARY	75.5	75.8	90.8	91.5	105.6	106.6	103.5	105.6
19	BULL RUN	36.3	188.5	43.3	316.6	48.4	401.2	47.2	434.4
20	INTERMITTENT TRIBUTARY	23.9	23.9	43.7	43.7	60.0	60.0	65.5	65.5
21	INTERMITTENT TRIBUTARY	30.8	53.5	60.6	92.7	87.1	115.2	99.3	120.0
22	INTERMITTENT TRIBUTARY	17.1	67.2	25.8	111.8	32.2	139.3	36.3	147.6
23	INTERMITTENT TRIBUTARY	46.0	77.5	62.8	123.1	72.6	158.5	73.0	168.8
25	BULL RUN	41.1	260.6	37.5	380.4	34.5	477.9	26.6	515.2
26	INTERMITTENT TRIBUTARY	26.6	26.6	49.1	49.1	66.2	66.2	70.2	70.2
27	INTERMITTENT TRIBUTARY	21.7	39.4	40.7	62.0	49.7	79.1	46.7	82.3
29	BULL RUN	25.0	272.7	23.2	388.4	22.7	490.2	18.8	530.6
30	INTERMITTENT TRIBUTARY	24.2	24.2	43.6	43.6	61.3	61.3	69.7	69.7
31	INTERMITTENT TRIBUTARY	24.6	47.7	38.6	80.9	54.9	109.9	64.7	118.8
32	INTERMITTENT TRIBUTARY	40.6	58.1	67.7	105.6	92.0	125.8	98.2	137.8
34	BULL RUN	154.4	333.9	209.6	487.7	195.8	581.4	168.3	629.8
35	BULL RUN	147.2	338.9	177.1	500.4	168.7	597.4	135.0	644.2
36	BULL RUN	147.7	339.2	132.3	502.0	115.3	602.8	83.6	649.5
37	INTERMITTENT TRIBUTARY	8.1	8.1	12.0	12.0	15.4	15.4	15.2	15.2
38	INTERMITTENT TRIBUTARY	10.8	15.8	15.1	23.8	17.4	29.3	17.5	29.8
39	INTERMITTENT TRIBUTARY	24.8	24.8	26.4	26.4	27.3	27.3	24.4	24.4
40	INTERMITTENT TRIBUTARY	9.0	33.8	14.0	40.1	22.4	45.6	26.0	42.8
42	TRIBUTARY	53.8	55.9	52.7	69.9	49.9	81.0	39.5	84.5
43	INTERMITTENT TRIBUTARY	18.5	18.5	23.7	23.7	25.7	25.7	23.0	23.0
44	INTERMITTENT TRIBUTARY	45.5	46.8	49.4	51.3	54.5	57.0	50.4	60.8
46	TRIBUTARY	29.1	85.4	34.9	114.1	31.3	131.1	24.2	129.3
48	BULL RUN	54.2	355.9	58.0	517.8	52.1	626.1	38.7	673.2

TABLE B–1
MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR	
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE
5 YEAR RETURN PERIOD									
1	INTERMITTENT TRIBUTARY	14.5	14.5	22.2	22.2	32.7	32.7	40.6	40.6
2	INTERMITTENT TRIBUTARY	67.0	67.0	118.7	118.7	171.0	171.4	185.9	188.4
3	INTERMITTENT TRIBUTARY	19.4	19.4	30.9	30.9	46.0	46.0	55.4	55.4
4	INTERMITTENT TRIBUTARY	56.5	61.9	97.0	97.2	132.1	133.1	140.5	148.9
6	BULL RUN	30.0	142.8	53.3	241.7	66.0	331.5	63.0	361.4
7	INTERMITTENT TRIBUTARY	30.1	30.1	50.1	50.1	66.8	66.8	67.7	67.7
8	INTERMITTENT TRIBUTARY	37.6	58.3	63.3	79.2	84.9	97.6	84.0	116.2
10	BULL RUN	28.5	206.5	50.8	324.5		416.3	54.8	461.6
11	INTERMITTENT TRIBUTARY	11.9	11.9	20.5	20.5	28.5	28.5	31.2	31.2
12	INTERMITTENT TRIBUTARY	38.0	49.3	63.8	78.4	91.4	102.1	107.6	126.5
13	INTERMITTENT TRIBUTARY	66.6	85.0	112.2	124.7	142.7	146.4	145.8	172.2
15	BULL RUN	60.0	285.0	103.5	444.0	134.6	569.3	128.3	632.7
16	INTERMITTENT TRIBUTARY	16.6	16.6	21.4	21.4	28.3	28.3	27.0	27.0
17	INTERMITTENT TRIBUTARY	95.8	96.3	135.1	135.9	160.3	161.8	155.9	158.7
19	BULL RUN	50.4	289.5	62.8	470.1	73.1	600.0	71.9	662.9
20	INTERMITTENT TRIBUTARY	41.8	41.8	70.3	70.3	96.3	96.3	98.0	98.0
21	INTERMITTENT TRIBUTARY	54.4	90.8	100.9	130.6	147.1	161.3	165.4	185.5
22	INTERMITTENT TRIBUTARY	26.4	112.1	39.0	161.8	51.9	196.6	60.9	237.8
23	INTERMITTENT TRIBUTARY	64.9	119.0	92.1	187.8	111.1	237.0	116.3	277.1
25	BULL RUN	41.2	335.3	49.1	564.9	46.0	718.6	36.2	781.8
26	INTERMITTENT TRIBUTARY	46.5	46.5	78.7	78.7	105.1	105.1	103.0	103.0
27	INTERMITTENT TRIBUTARY	36.5	60.1	64.6	95.3	71.9	121.7	66.2	118.4
29	BULL RUN	24.9	358.4	31.8	575.7	32.4	735.2	27.9	798.9
30	INTERMITTENT TRIBUTARY	42.1	42.1	72.6	72.6	100.0	100.0	106.8	106.8
31	INTERMITTENT TRIBUTARY	40.9	83.0	62.3	125.2	91.2	172.4	111.8	186.2
32	INTERMITTENT TRIBUTARY	66.8	98.9	114.2	148.5	151.2	193.5	157.0	207.4
34	BULL RUN	204.1	477.9	255.7	675.1	252.1	833.1	216.0	940.9
35	BULL RUN	191.1	485.1	227.3	688.9	220.3	845.9	173.2	958.4
36	BULL RUN	147.5	485.5	169.4	690.5	148.7	848.7	107.8	964.3
37	INTERMITTENT TRIBUTARY	10.9	10.9	20.1	20.1	25.6	25.6	24.9	24.9
38	INTERMITTENT TRIBUTARY	15.3	22.2	21.9	37.3	26.4	44.1	28.0	47.5
39	INTERMITTENT TRIBUTARY	33.1	33.1	36.1	36.1	38.9	38.9	35.8	35.8
40	INTERMITTENT TRIBUTARY	14.0	46.4	26.6	56.1	40.2	63.8	44.4	66.7
42	TRIBUTARY	69.1	70.7	69.0	103.1	68.1	125.9	56.0	135.8
43	INTERMITTENT TRIBUTARY	25.6	25.6	34.0	34.0	37.5	37.5	33.9	33.9
44	INTERMITTENT TRIBUTARY	52.5	54.4	70.0	72.4	80.9	84.3	77.2	94.8
46	TRIBUTARY	38.8	129.0	47.5	157.1	43.8	173.8	34.2	197.0
48	BULL RUN	65.5	498.7	76.7	709.7	70.0	869.4	53.3	993.7

TABLE B-1
MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR	
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE
10 YEAR RETURN PERIOD									
1	INTERMITTENT TRIBUTARY	22.3	22.3	38.1	38.1	54.5	54.5	59.7	59.7
2	INTERMITTENT TRIBUTARY	116.4	116.4	213.4	213.5	278.7	279.9	267.7	272.8
3	INTERMITTENT TRIBUTARY	29.5	29.5	54.5	54.5	79.8	79.8	86.2	86.2
4	INTERMITTENT TRIBUTARY	88.8	88.9	166	166.3	209	211.6	195.1	207
6	BULL RUN	48.8	231.4	87.1	414.8	95.5	526.3	85.4	508.2
7	INTERMITTENT TRIBUTARY	46.9	46.9	84.4	84.4	103.5	103.5	93.1	93.1
8	INTERMITTENT TRIBUTARY	59.5	80	107.9	123.2	124.3	142.8	114.8	151.2
10	BULL RUN	46.6	313.4	84.2	513.6	85.7	648.4	73.4	642.5
11	INTERMITTENT TRIBUTARY	19.8	19.8	35.1	35.1	45.5	45.5	44.3	44.3
12	INTERMITTENT TRIBUTARY	59.8	76.9	109.6	128.8	150.9	161.1	159.5	188.6
13	INTERMITTENT TRIBUTARY	106.1	121.6	185.1	186.5	221.7	228.8	203.7	245.1
15	BULL RUN	94.5	422.6	177.2	697.2	197.2	877.6	177	887.1
16	INTERMITTENT TRIBUTARY	22.8	22.8	37.3	37.3	46.1	46.1	41	41
17	INTERMITTENT TRIBUTARY	136.7	137.5	214.2	215.2	242.2	244.2	215.7	219.7
19	BULL RUN	66.4	430.3	98.3	734.4	111	918.7	101.2	926.8
20	INTERMITTENT TRIBUTARY	66.5	66.5	120.6	120.6	142.9	142.9	134.5	134.5
21	INTERMITTENT TRIBUTARY	95.6	135	177.3	203.8	242.8	248.7	244.7	279.2
22	INTERMITTENT TRIBUTARY	38	167.6	62.6	249.3	85.8	324.3	95	359.2
23	INTERMITTENT TRIBUTARY	94.5	182.2	144.2	288	174.2	380.3	167.1	410.1
25	BULL RUN	53.8	485.4	67.1	903.8	63.1	1109.3	47.5	1109.5
26	INTERMITTENT TRIBUTARY	73.7	73.7	134.1	134.1	153.3	153.3	140.8	140.8
27	INTERMITTENT TRIBUTARY	56	91.5	105	155	104.8	174	87.9	159.7
29	BULL RUN	34	508.5	44.7	919.2	48.1	1131.5	39.9	1131
30	INTERMITTENT TRIBUTARY	67.3	67.3	122.6	122.6	158.4	158.4	147.8	147.8
31	INTERMITTENT TRIBUTARY	61.8	124.9	110.3	215	156	270	175.1	264.6
32	INTERMITTENT TRIBUTARY	100.4	134	193.2	244.2	245.2	298.4	226.3	292.3
34	BULL RUN	266	633.9	343.9	1032.1	338.9	1286.9	281	1284.7
35	BULL RUN	246.8	642.2	303.5	1037.2	290.8	1303	220.7	1300.1
36	BULL RUN	187	642.7	223.2	1037.3	195	1306.5	135.8	1305.6
37	INTERMITTENT TRIBUTARY	18.2	18.2	33.6	33.6	42	42	37.4	37.4
38	INTERMITTENT TRIBUTARY	22.1	36.1	34.1	57.3	41.4	69.9	40.7	65.9
39	INTERMITTENT TRIBUTARY	45	45	52.1	52.1	56.9	56.9	50	50
40	INTERMITTENT TRIBUTARY	25.4	62.4	48.6	83.6	69.8	93.3	68.7	101.2
42	TRIBUTARY	91	105.4	95.6	151.7	96	177.2	77.6	194.6
43	INTERMITTENT TRIBUTARY	36.4	36.4	50.7	50.7	56.4	56.4	47.1	47.1
44	INTERMITTENT TRIBUTARY	75.2	77.5	109.6	112.7	123.9	129.3	111	135.3
46	TRIBUTARY	48.7	177	66	224.5	62.7	275.5	46.9	278.7
48	BULL RUN	82	660.9	103.5	1039.8	97.6	1330.1	73.6	1330.8

TABLE B-1
MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR	
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE
25 YEAR RETURN PERIOD									
1	INTERMITTENT TRIBUTARY	32.2	32.2	57.8	57.8	80	80	86.6	86.6
2	INTERMITTENT TRIBUTARY	165.9	165.9	315.5	315.7	378.2	380.4	378.6	386.2
3	INTERMITTENT TRIBUTARY	45.3	45.3	83.5	83.5	120.8	120.8	134.6	134.6
4	INTERMITTENT TRIBUTARY	129.7	129.9	240.4	240.8	278.1	283.1	272.6	298.2
6	BULL RUN	68.3	328.8	123.2	599.8	129.3	706.4	114.9	724.6
7	INTERMITTENT TRIBUTARY	67.1	67.1	122.6	122.6	134.3	134.3	127.9	127.9
8	INTERMITTENT TRIBUTARY	85.8	104.2	157.2	170.3	169	185.7	156.8	193.2
10	BULL RUN	63	423.9	106.4	714.1	118.9	871.1	98	905.2
11	INTERMITTENT TRIBUTARY	27.4	27.4	51.8	51.8	65.1	65.1	62.1	62.1
12	INTERMITTENT TRIBUTARY	88.4	110.3	165.4	181.3	222.2	238.4	235.1	275.7
13	INTERMITTENT TRIBUTARY	150.1	155	262.6	265.1	293.3	315.2	283.9	350.2
15	BULL RUN	137.1	577.9	255.7	967.1	270.8	1184.2	241.6	1251.9
16	INTERMITTENT TRIBUTARY	32.6	32.6	54.7	54.7	65.8	65.8	62.4	62.4
17	INTERMITTENT TRIBUTARY	186.1	187.1	300.3	301.5	325.4	328	296	304.5
19	BULL RUN	86.3	587.2	135.5	1013	152.8	1234.4	141.5	1303.9
20	INTERMITTENT TRIBUTARY	96.5	96.5	176.8	176.8	195	195	184.9	184.9
21	INTERMITTENT TRIBUTARY	146	175.7	271.4	283.6	357.6	367.9	360.1	406.2
22	INTERMITTENT TRIBUTARY	53.6	216.3	90.5	356.9	127.8	479	153.3	531.1
23	INTERMITTENT TRIBUTARY	129.6	241.6	206.5	423.3	248	547.9	246.7	598.4
25	BULL RUN	65.4	669.5	84.8	1245.3	80.7	1488	62.7	1562.6
26	INTERMITTENT TRIBUTARY	106.3	106.3	196.3	196.3	208.9	208.9	191.9	191.9
27	INTERMITTENT TRIBUTARY	78.1	126.9	129.9	221.4	144.4	235.3	116.6	215.2
29	BULL RUN	43.5	673.5	60.1	1264.2	65.9	1516.5	58.5	1592.1
30	INTERMITTENT TRIBUTARY	98.7	98.7	181.7	181.7	210.1	210.1	206	206
31	INTERMITTENT TRIBUTARY	93.3	183	162.5	311.1	236.1	364.8	279.3	374.4
32	INTERMITTENT TRIBUTARY	151	190.3	283.7	347.8	329.9	401.2	323.5	411
34	BULL RUN	325.6	810.7	431.4	1420	433.8	1722.9	378.8	1805.8
35	BULL RUN	302.4	819.5	370.7	1425.9	366.3	1742.2	289	1825.7
36	BULL RUN	225.6	820.1	276	1426.2	241.9	1747	173.9	1833.3
37	INTERMITTENT TRIBUTARY	26.7	26.7	49.9	49.9	59.4	59.4	56.2	56.2
38	INTERMITTENT TRIBUTARY	30.2	49	48.6	83.1	59.1	100.5	60.6	100
39	INTERMITTENT TRIBUTARY	51.6	51.6	70.1	70.1	77.3	77.3	71.2	71.2
40	INTERMITTENT TRIBUTARY	39.8	80.2	76.3	112.5	106.2	125.6	105.5	138.1
42	TRIBUTARY	114.4	141	122.3	201.2	128.6	245.3	112.3	275.8
43	INTERMITTENT TRIBUTARY	48.3	48.3	69.7	69.7	75.8	75.8	64.7	64.7
44	INTERMITTENT TRIBUTARY	101	104	152.8	156.4	174	181.3	161.6	198.4
46	TRIBUTARY	61.5	229.7	85.4	314	84.3	378	65.5	400
48	BULL RUN	104.2	837.3	131.2	1429.4	130.3	1780.9	105.9	1874.2

TABLE B–1
MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR	
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE
50 YEAR RETURN PERIOD									
1	INTERMITTENT TRIBUTARY	48	48	83.5	83.5	395	111.1	112.4	112.4
2	INTERMITTENT TRIBUTARY	250.8	250.8	455.4	455.7	395	517	490.6	502.4
3	INTERMITTENT TRIBUTARY	69	69	124.4	124.4	395	171.8	175.9	175.9
4	INTERMITTENT TRIBUTARY	191.6	191.8	340.9	341.7	395	379.5	347.6	390.4
6	BULL RUN	96.8	483.1	154.7	849.3	390	947	143	939.2
7	INTERMITTENT TRIBUTARY	97.4	97.4	171.8	171.8	390	180.9	161.3	161.3
8	INTERMITTENT TRIBUTARY	124.6	143.4	200.5	228.3	390	241.9	196.5	232.9
10	BULL RUN	90.8	602.1	143.9	986.9	390	1157.1	121	1159.9
11	INTERMITTENT TRIBUTARY	40.8	40.8	73.5	73.5	395	83.1	80	80
12	INTERMITTENT TRIBUTARY	131.8	159.6	238.9	244.3	395	333.9	306.8	350.6
13	INTERMITTENT TRIBUTARY	214.9	215.9	367.3	370.8	390	424.8	361.3	437.9
15	BULL RUN	198.1	815.6	323.6	1324.5	390	1561.9	302.6	1574.9
16	INTERMITTENT TRIBUTARY	43.9	43.9	79.6	79.6	390	89.2	81.2	81.2
17	INTERMITTENT TRIBUTARY	258	259.1	412.1	413.5	390	436.8	373.5	389.6
19	BULL RUN	118.9	827.5	185.5	1380.8	390	1625	180.6	1635.5
20	INTERMITTENT TRIBUTARY	141.2	141.2	249.3	249.3	390	261.4	233.3	233.3
21	INTERMITTENT TRIBUTARY	220.6	240.6	394.8	396.6	395	481.9	465.2	522
22	INTERMITTENT TRIBUTARY	77.6	296	129.3	516.7	395	635	215.8	699.6
23	INTERMITTENT TRIBUTARY	179.9	351	285.4	597.9	395	718	317.6	779.8
25	BULL RUN	83.4	974.6	107.2	1674.1	390	1960.3	77	1945.3
26	INTERMITTENT TRIBUTARY	154.3	154.3	248.2	248.2	390	280.2	240.2	240.2
27	INTERMITTENT TRIBUTARY	111.3	179.2	174.6	277.3	390	310.6	143.6	267
29	BULL RUN	57.7	979.1	80.2	1697.3	390	1995.3	75.2	1980.2
30	INTERMITTENT TRIBUTARY	146.1	146.1	258.2	258.2	395	281.1	262.4	262.4
31	INTERMITTENT TRIBUTARY	139.4	265.3	237.3	431.4	395	488.2	385.5	476.6
32	INTERMITTENT TRIBUTARY	223.9	274.8	406.7	476.6	390	532.5	419.9	519.1
34	BULL RUN	400.3	1057.7	537.1	1893.3	390	2254.6	473.9	2236
35	BULL RUN	444.4	1068.1	461.3	1900.2	390	2277.9	349.3	2258.7
36	BULL RUN	280.9	1068.8	340.4	1900.5	390	2283.9	208.7	2267.4
37	INTERMITTENT TRIBUTARY	40.1	40.1	72.5	72.5	390	80.7	72.5	72.5
38	INTERMITTENT TRIBUTARY	42	71.1	67.1	117	395	134.4	79	132.1
39	INTERMITTENT TRIBUTARY	68.6	68.6	93	93	390	100.7	89.9	89.9
40	INTERMITTENT TRIBUTARY	58.9	108.3	115.2	146.5	395	163.2	140.2	176.2
42	TRIBUTARY	125.4	185.7	156.3	263.3	390	322.1	146.3	357.7
43	INTERMITTENT TRIBUTARY	65.5	65.5	95.2	95.2	390	100	81.8	81.8
44	INTERMITTENT TRIBUTARY	139.1	142.7	210.4	214.8	390	239.9	206	242.9
46	TRIBUTARY	80.1	291	110.4	413.6	390	497	81.2	508.3
48	BULL RUN	132.7	1101.6	169	1905	390	2330.3	135.2	2336.6

TABLE B-1

MODELED SUBBASIN RUNOFF AND STREAM DISCHARGE RATES (CFS)

SUBBASIN ID	SUBBASIN NAME	3 HOUR		6 HOUR		12 HOUR		24 HOUR		
		PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	PEAK RUNOFF	PEAK DISCHARGE	FUTURE PEAK DISCHARGE
100 YEAR RETURN PERIOD										
1	INTERMITTENT TRIBUTARY	64.1	64.1	110.9	110.9	139.4	139.4	143.6	143.6	147.5
2	INTERMITTENT TRIBUTARY	337	337.1	603.7	604.3	664.6	669.2	615.6	631.8	641.9
3	INTERMITTENT TRIBUTARY	90.7	90.7	169.3	169.3	218.2	218.2	229.3	229.3	243.8
4	INTERMITTENT TRIBUTARY	253	253.3	409.6	411.2	478.4	488.5	431.3	483.9	485.6
6	BULL RUN	122.3	637	193.8	1075.8	215.9	1222.8	174.3	1169.3	1180.4
7	INTERMITTENT TRIBUTARY	127.2	127.2	202.4	202.4	231.1	231.1	198.6	198.6	198.6
8	INTERMITTENT TRIBUTARY	163.3	179.1	255.7	266.6	288.8	310.1	241.1	277.4	277.4
10	BULL RUN	115.4	784.5	178.4	1244.2	194.7	1467.4	146.7	1438.6	1449.6
11	INTERMITTENT TRIBUTARY	54.3	54.3	95.3	95.3	106.4	106.4	100	100	100.2
12	INTERMITTENT TRIBUTARY	170.3	201.9	314.1	321.4	387.7	420.6	392.5	436.4	434.3
13	INTERMITTENT TRIBUTARY	272.9	274.1	440.6	445	509.3	534.5	447.8	536.8	532.5
15	BULL RUN	253.3	1048.3	409.4	1661.5	460.9	1974.6	370.9	1950.7	1953.6
16	INTERMITTENT TRIBUTARY	60.5	60.5	105.2	105.2	117.8	117.8	103.6	103.6	110.2
17	INTERMITTENT TRIBUTARY	321.4	322.7	482	483.6	549.3	554.5	459.9	484.5	490
19	BULL RUN	151.6	1064.3	238	1724.5	256.8	2050.5	224.3	2020.9	2024.4
20	INTERMITTENT TRIBUTARY	185.3	185.3	292.8	292.8	334.5	334.5	287.2	287.2	286.1
21	INTERMITTENT TRIBUTARY	287.8	302.7	521	524.4	608.3	630.6	591.2	649.7	649.2
22	INTERMITTENT TRIBUTARY	100	383.9	172.4	681.4	243.8	831.5	288.6	881.4	880.9
23	INTERMITTENT TRIBUTARY	226.3	448.6	366	775.5	417.6	928.3	401.3	974.3	972.6
25	BULL RUN	100	1263	129.2	2064.9	124.1	2446.2	93.1	2398.3	2407.5
26	INTERMITTENT TRIBUTARY	202	202	316.1	316.1	355.9	355.9	294.4	294.4	293.2
27	INTERMITTENT TRIBUTARY	140	229.7	217.7	348.7	233.8	390.1	173.6	325.1	323.9
29	BULL RUN	70.2	1268	100.2	2090.7	111	2489.4	95	2439	2448
30	INTERMITTENT TRIBUTARY	193.1	193.1	309.6	309.6	361.3	361.3	325.5	325.5	325.5
31	INTERMITTENT TRIBUTARY	180.5	339.4	320.2	525.1	455.5	620.8	491.6	589.5	588.9
32	INTERMITTENT TRIBUTARY	288.3	350.9	495.1	575.9	587	674.5	526.6	645.1	643.8
34	BULL RUN	469.9	1360.7	638.7	2325.5	661.1	2802.7	584.4	2762.2	2770.3
35	BULL RUN	526.8	1364.7	550.8	2333	539.1	2829.4	420	2801.4	2809.5
36	BULL RUN	329.2	1364.7	401	2333.4	353.9	2836.4	248.1	2815.6	2823.7
37	INTERMITTENT TRIBUTARY	52.3	52.3	88.4	88.4	105.8	105.8	91.7	91.7	91.7
38	INTERMITTENT TRIBUTARY	53.6	90.3	85.9	143.3	100.9	173.5	100.9	168.8	168.8
39	INTERMITTENT TRIBUTARY	83.1	83.1	115.9	115.9	126.8	126.8	111.9	111.9	111.9
40	INTERMITTENT TRIBUTARY	84.4	132.5	158.5	179.4	185.6	211.1	181.1	225.5	225.5
42	TRIBUTARY	149.7	228.3	193	337.4	209.8	409.8	183.4	455.3	455.3
43	INTERMITTENT TRIBUTARY	80.1	80.1	115.4	115.4	126.3	126.3	100.6	100.6	100.6
44	INTERMITTENT TRIBUTARY	172.2	176.3	268.2	273.9	296.3	308.9	257.9	294.8	294.8
46	TRIBUTARY	96.9	353.1	138.5	514	134.5	615.7	100.5	640.1	640.1
48	BULL RUN	156.8	1366.2	208.8	2339	211.4	2893.8	171.6	2925.8	2934