



**SUBDIRECCIÓN GENERAL TÉCNICA
GERENCIA AGUAS SUPERFICIALES E INGENIERÍA DE RÍOS**

***ESTUDIO HIDROLÓGICO COMPLEMENTARIO SOBRE EL APROVECHAMIENTO Y
CRECIENTES PARA EL DISEÑO DE LA PRESA DE ALMACENAMIENTO EL ZAPOTILLO,
RÍO VERDE, JALISCO***

Anexo B

Determinación de la avenida de diseño

Año	Duración, en días														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1947	378.32	349.36	301.34	254.59	226.23	230.02	220.86	202.12	191.39	183.99	174.64	165.64	156.44	148.37	142.08
1948	416.74	284.54	242.85	243.41	229.73	212.91	201.95	192.81	185.33	179.49	174.58	174.55	169.62	164.99	161.18
1949	268.06	217.87	169.26	174.76	182.18	163.82	149.10	149.14	137.90	129.48	121.95	116.16	115.48	113.41	113.14
1950	372.53	251.31	222.34	197.71	177.59	160.14	147.18	133.05	121.96	113.65	106.42	99.58	93.09	89.38	86.91
1951	243.69	198.29	176.29	156.04	152.74	152.05	158.97	148.60	140.11	129.10	119.96	111.47	103.90	97.63	95.98
1952	230.54	216.03	194.74	168.98	148.28	131.96	117.27	108.58	103.79	97.51	102.07	102.12	99.30	94.29	89.45
1953	285.44	275.35	249.94	248.38	233.77	224.35	211.00	199.81	189.76	182.68	175.86	167.97	159.96	156.40	155.78
1954	99.91	83.80	84.29	81.89	73.63	65.55	60.09	57.36	53.21	49.21	48.89	49.12	48.05	46.96	45.53
1955	432.76	430.56	426.01	394.61	366.77	339.30	327.32	311.76	301.40	287.55	273.95	260.59	247.78	236.40	228.04
1956	189.68	175.32	175.09	163.53	163.16	162.30	151.57	140.97	131.44	123.33	115.90	109.26	105.70	104.09	103.13
1957	93.37	81.12	61.48	59.80	60.80	55.54	52.13	53.52	54.03	52.29	49.81	46.88	44.37	41.92	39.65
1958	536.15	521.49	490.57	437.91	403.26	364.06	328.94	299.08	273.58	251.96	234.24	218.76	205.25	194.69	184.94
1959	235.78	172.22	159.78	149.88	147.25	142.08	135.01	132.67	129.77	123.92	119.35	118.09	117.21	114.81	111.91
1960	151.49	148.34	135.03	127.98	115.76	119.33	119.80	118.18	114.33	109.58	103.20	96.85	91.10	86.57	87.09
1961	231.73	227.45	224.63	222.72	209.45	197.10	184.89	172.03	160.54	150.94	140.39	133.19	127.14	120.80	116.16
1962	192.61	172.85	164.55	165.55	147.64	132.40	120.43	115.15	110.80	105.34	99.99	94.21	90.00	86.16	83.97
1963	461.37	362.93	300.04	283.28	280.09	266.11	268.15	275.96	271.08	262.38	254.90	240.89	231.68	227.99	218.58
1964	151.42	151.26	144.11	129.62	129.99	127.17	117.76	110.07	102.16	97.05	95.76	94.22	91.69	88.67	84.90
1965	603.15	561.15	513.68	467.29	430.93	422.93	414.89	404.05	390.87	388.48	397.37	391.60	383.44	372.05	359.17
1966	376.18	340.90	319.73	304.51	291.24	280.78	271.56	260.37	248.68	234.21	219.96	207.95	196.47	185.76	177.76
1967	1173.94	1084.51	1053.57	1039.45	1021.27	936.54	863.75	798.84	743.38	689.77	644.88	607.60	639.90	661.94	669.38
1968	254.54	224.31	193.55	171.42	170.86	166.46	163.27	153.03	143.03	137.55	133.82	128.32	124.42	121.32	119.14
1969	119.35	110.28	86.69	73.01	64.01	61.88	60.33	59.31	57.72	55.90	53.73	50.67	48.05	45.37	42.98
1970	648.76	526.24	465.93	399.00	345.34	308.74	280.68	256.17	238.72	223.31	208.53	195.63	184.11	173.64	164.13
1971	553.07	545.40	534.14	514.73	508.52	476.62	448.68	418.84	391.61	379.28	367.85	357.09	345.77	333.30	320.31
1972	131.01	92.89	72.40	59.50	56.57	53.96	52.32	51.33	49.12	46.29	44.35	42.39	40.31	38.42	36.58
1973	1929.50	1808.68	1784.96	1760.68	1587.47	1407.42	1277.02	1184.56	1141.07	1076.42	1003.48	938.74	880.82	830.33	784.64
1974	152.47	150.58	143.14	134.75	127.84	119.69	113.76	105.69	98.39	92.03	86.56	81.49	76.61	72.15	69.18
1975	529.88	459.88	438.72	424.65	415.98	401.75	389.03	372.04	365.45	348.32	332.51	314.80	297.27	282.61	268.92
1976	943.19	895.30	900.45	879.31	843.62	795.95	763.41	733.90	715.44	696.91	662.47	644.36	620.96	596.37	571.41
1977	361.12	316.16	305.92	289.65	274.66	257.19	245.19	232.25	228.63	227.24	224.02	219.51	215.94	209.73	203.04
1978	157.79	148.88	147.02	135.43	136.40	138.53	135.17	132.91	133.18	133.63	132.13	127.70	122.88	118.35	114.54
1979	191.37	157.40	138.75	122.82	118.53	108.38	97.82	89.88	83.26	77.30	71.73	66.77	62.55	58.74	56.54
1980	215.80	176.55	175.47	159.13	147.23	133.96	121.89	119.22	117.04	112.78	107.03	101.65	96.10	91.60	88.32
1981	153.00	132.10	105.22	91.18	80.84	72.50	66.20	61.38	56.76	52.83	49.69	46.84	44.88	44.30	42.97
1982	88.59	87.89	78.80	69.72	63.19	56.78	52.17	48.71	45.13	41.81	39.18	36.84	34.75	33.29	31.73
1983	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos
1984	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos
1985	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos	no datos

Tabla B.1 Gastos medios máximos anuales (m^3/s) para diferentes duraciones en la estación hidrométrica La Cuña

Año	Duración, en días														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1986	589.03	482.44	395.27	354.82	322.07	294.35	272.16	250.59	233.76	221.52	210.43	199.82	193.39	192.61	190.15
1987	100.38	94.88	84.87	75.49	69.47	68.30	70.31	69.66	68.56	66.51	63.51	62.36	61.50	59.37	56.95
1988	541.58	530.63	502.33	466.53	436.76	401.68	371.40	341.96	316.22	292.26	271.27	253.24	238.36	224.47	212.16
1989	99.52	92.84	82.51	79.14	74.78	71.62	65.16	59.72	54.88	50.82	47.29	44.97	44.35	44.68	43.48
1990	498.55	483.20	461.09	436.06	410.65	384.05	366.36	351.69	333.87	311.92	292.77	274.35	258.38	243.57	243.77
1991	1358.17	1268.94	1172.52	1089.50	1011.87	949.27	910.84	884.65	857.05	826.25	819.11	802.34	787.61	775.45	764.77
1992	775.64	635.82	486.06	439.97	393.52	355.51	325.93	297.96	274.27	254.03	253.36	260.95	256.85	250.33	243.54
1993	197.52	194.60	179.65	151.72	134.37	125.28	118.25	118.45	122.82	122.96	122.06	117.55	112.73	108.26	105.37
1994	178.41	140.14	122.61	107.32	95.88	85.68	77.09	69.67	64.06	62.48	61.15	58.43	55.33	53.76	52.05
1995	269.18	243.64	227.37	219.39	204.28	184.71	167.08	153.75	142.44	133.84	129.57	123.88	118.51	113.76	110.45
1996	1083.67	734.70	512.03	384.41	307.83	256.82	220.39	193.06	171.81	154.80	140.89	129.30	119.49	111.08	103.80
1997	66.24	47.74	41.00	34.33	30.20	26.75	24.28	22.76	21.36	20.31	19.60	19.01	20.66	21.15	21.40
1998	215.88	156.77	143.97	127.17	116.77	111.85	108.92	104.90	101.60	97.53	93.28	88.79	84.96	81.68	78.84
1999	159.39	140.53	114.62	101.44	89.37	81.30	75.48	71.78	68.37	64.99	66.91	66.83	66.45	64.63	63.03
2000	41.88	38.81	33.45	30.41	28.34	26.92	25.66	24.23	22.89	21.75	20.80	20.01	19.73	19.73	19.64
2001	240.23	227.46	185.56	155.83	134.82	119.90	109.92	101.15	94.32	88.86	84.07	80.15	77.04	74.37	72.06
2002	299.37	294.95	289.14	285.28	273.51	245.70	224.05	206.02	192.31	179.98	168.83	157.21	147.20	138.06	130.12
2003	558.38	509.40	493.49	499.69	487.94	480.30	451.38	429.54	412.50	385.68	360.17	339.00	320.97	305.50	292.12
2004	579.93	576.31	565.04	567.04	539.27	543.76	527.11	499.86	470.45	454.44	451.90	439.99	418.05	396.03	377.02

Media	389.22	346.05	317.69	297.50	278.08	259.27	243.66	230.09	218.97	208.26	199.42	190.87	183.90	177.48	171.82
Desv. Est.	353.89	323.65	311.81	303.73	282.02	257.71	239.85	225.83	216.77	206.35	196.84	188.29	182.85	177.85	172.72
Máximo	1929.50	1808.68	1784.96	1760.68	1587.47	1407.42	1277.02	1184.56	1141.07	1076.42	1003.48	938.74	880.82	830.33	784.64
Minino	41.88	38.81	33.45	30.41	28.34	26.75	24.28	22.76	21.36	20.31	19.60	19.01	19.73	19.73	19.64

Tabla B.1 Gastos medios máximos anuales (m^3/s) para diferentes duraciones en la estación hidrométrica La Cuña.
Continuación