

Table E34.1. Mean flow, in cubic feet per second, for station 06430500, Redwater Creek at Wyoming-South Dakota State line

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1929	(1)	(1)	(1)	(1)	(1)	(1)	(1)	178	136	82.4	58.7	64.1	(1)
1930	67.2	69.5	60.0	58.0	63.1	59.1	64.7	64.4	64.7	46.3	42.0	51.0	59.1
1931	54.6	58.0	58.0	53.8	55.0	57.0	60.1	61.0	41.3	30.6	34.2	50.7	51.2
1936	(1)	(1)	(1)	(1)	(1)	39.5	41.4	40.2	27.5	26.0	18.6	25.7	(1)
1937	31.0	35.7	36.7	37.9	37.5	38.2	40.6	23.6	40.0	78.2	(1)	(1)	(1)
1954	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	33.3	19.5	20.5	25.4	(1)
1955	30.2	29.6	30.7	29.0	30.1	29.3	29.3	37.0	49.7	25.2	29.9	29.2	31.6
1956	31.2	30.8	29.6	30.3	29.9	33.1	32.9	31.5	18.6	15.2	17.3	21.5	26.8
1957	25.5	33.3	30.9	28.9	29.7	26.8	28.6	30.4	37.6	26.8	18.3	31.8	29.0
1958	30.8	30.0	31.0	29.4	28.8	28.9	31.1	30.8	29.1	16.5	18.3	20.7	27.1
1959	22.1	28.0	28.8	30.5	28.6	29.3	29.2	22.9	15.4	10.8	7.78	14.4	22.3
1960	24.8	26.6	27.5	28.2	27.4	34.9	26.1	19.3	14.8	7.96	11.1	15.9	22.0
1961	18.9	20.8	25.1	25.2	25.5	25.5	24.0	10.9	6.29	8.60	8.82	16.0	17.9
1962	22.2	23.7	25.1	22.6	23.7	22.1	21.9	68.1	86.3	34.7	20.4	24.2	32.9
1963	25.8	27.9	29.5	29.1	30.3	29.9	52.3	68.6	60.0	21.5	18.1	20.0	34.4
1964	20.7	25.7	28.4	28.7	28.6	30.8	30.4	32.8	109	33.7	16.3	24.3	34.0
1965	22.7	27.7	31.4	29.7	30.5	29.4	42.3	132	55.1	30.1	29.3	28.2	40.8
1966	29.8	32.1	35.8	32.4	34.0	36.0	40.1	36.2	24.6	15.2	20.7	20.1	29.7
1967	28.1	31.1	33.1	31.7	30.9	31.1	33.9	52.2	52.0	24.3	20.8	26.8	33.0
1968	31.3	34.2	34.6	33.3	33.6	33.6	33.5	34.0	38.8	20.7	25.3	24.0	31.4
1969	24.4	30.6	31.1	33.4	32.7	35.7	44.8	74.9	41.1	20.1	14.0	14.8	33.1
1970	24.3	31.2	29.7	30.5	27.9	30.1	37.9	110	107	28.4	34.0	32.5	43.6
1971	33.7	36.5	34.4	32.4	57.8	46.2	60.9	97.9	66.5	33.5	20.2	35.4	46.1
1972	44.1	43.1	40.5	40.0	40.1	40.5	43.1	81.7	80.7	52.1	48.5	44.2	49.9
1973	45.0	44.6	42.7	43.0	44.7	43.0	56.0	113	92.5	37.6	58.9	50.4	56.0
1974	44.8	47.9	47.1	46.1	43.5	42.7	57.8	55.5	51.9	25.0	26.1	34.2	43.5
1975	34.6	40.1	40.1	41.1	41.4	40.9	45.6	60.0	53.1	21.4	22.5	26.3	38.9
1976	35.2	36.4	37.6	37.3	37.3	35.9	41.3	35.4	128	54.9	32.3	31.7	45.1
1977	38.8	41.3	39.6	38.6	38.6	39.5	51.5	56.9	35.4	22.5	23.0	31.7	38.1
1978	32.6	37.7	37.3	36.5	37.6	58.9	46.3	101	51.8	34.4	32.8	28.6	44.7
1979	30.0	39.8	38.5	38.0	40.1	41.0	41.1	39.6	23.1	22.3	28.2	30.1	34.3
1980	27.3	37.7	36.6	34.8	35.4	33.6	32.0	24.0	36.1	8.83	12.4	24.9	28.6
1981	18.7	27.3	29.2	29.8	27.5	29.1	18.8	17.6	23.5	12.0	12.9	16.5	21.9
1982	15.1	25.0	27.4	24.5	24.6	26.9	26.1	131	46.2	20.1	18.8	17.2	33.7
1983	31.9	35.6	34.3	34.7	32.7	35.1	47.8	72.5	44.6	18.9	18.3	25.0	35.9
1984	30.5	39.3	25.5	21.6	34.9	35.1	34.6	53.2	92.2	27.2	24.7	15.9	36.1
1985	30.7	34.3	34.2	31.5	29.1	32.0	34.0	7.44	13.1	12.3	6.78	11.8	23.1
1986	22.4	24.1	26.3	26.7	27.7	27.6	32.8	37.9	42.6	26.2	18.9	31.0	28.7
1987	33.8	32.0	32.3	31.8	32.5	43.0	40.7	41.5	31.5	19.7	26.0	34.7	33.3
1988	33.5	32.9	34.4	31.2	31.7	33.4	32.7	36.1	15.0	15.0	9.68	16.2	26.8
1989	20.6	27.9	28.7	29.1	27.0	30.1	28.3	32.8	23.3	8.30	17.3	13.5	23.9
1990	24.4	27.1	25.4	27.5	26.4	26.7	27.9	29.5	17.9	7.62	18.3	16.4	22.9
1991	14.2	30.5	22.8	21.9	25.3	26.9	27.8	28.9	31.5	8.16	9.72	26.4	22.8
1992	15.6	25.4	25.7	26.1	25.2	24.3	23.5	11.8	12.2	14.0	13.9	14.9	19.3
1993	21.7	22.3	21.5	20.7	21.2	23.6	24.3	22.9	32.1	27.0	22.8	23.9	23.7

¹Indicates a no-value month.

²Incomplete water year.

Table E34.2. Statistics on mean flow, in cubic feet per second, for station 06430500, Redwater Creek at Wyoming-South Dakota State line (October 1954 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	39	39	39	39	39	39	39	39	39	39	39	39	39
Maximum	45.0	47.9	47.1	46.1	57.8	58.9	60.9	132	128	54.9	58.9	50.4	56.0
Percentile													
75th	32.6	36.5	35.8	34.7	35.4	36.0	43.1	68.6	55.1	27.2	26.0	31.0	38.1
50th	28.1	31.1	31.0	30.5	30.3	32.0	33.5	37.0	38.8	21.4	18.9	24.3	32.9
25th	22.2	27.3	27.5	28.2	27.5	28.9	28.3	29.5	23.3	14.0	14.0	16.4	23.9
Minimum	14.2	20.8	21.5	20.7	21.2	22.1	18.8	7.44	6.29	7.62	6.78	11.8	17.9
Mean	28.00	32.11	31.91	31.23	32.17	33.40	36.24	50.76	45.90	22.28	21.37	24.75	32.48
Standard deviation	7.69	6.44	5.76	5.82	7.03	7.30	10.49	33.07	29.86	11.18	10.43	8.64	8.97
Skewness	0.39	0.49	0.50	0.47	1.47	1.23	0.63	1.06	1.07	1.00	1.59	0.78	0.58
Coefficient of variation	0.27	0.20	0.18	0.19	0.22	0.22	0.29	0.65	0.65	0.50	0.49	0.35	0.28
Percent of annual flow	7.18	8.23	8.18	8.00	8.25	8.56	9.29	13.01	11.77	5.71	5.48	6.34	¹ 0.736

¹Serial correlation for annual mean flows.

Table E34.3. Serial correlation for 1-year lag for monthly mean flow for station 06430500, Redwater Creek at Wyoming-South Dakota State line (October 1954 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.639	0.723	0.719	0.681	0.550	0.509	0.476	0.280	0.248	0.361	0.383	0.511

Table E34.4. Correlation matrix for monthly mean flow for station 06430500, Redwater Creek at Wyoming-South Dakota State line (October 1954 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.855	0.853	0.808	0.755	0.709	0.733	0.228	0.291	0.476	0.619	0.625
Nov.	*	1.000	0.875	0.824	0.807	0.744	0.727	0.268	0.292	0.372	0.541	0.578
Dec.	*	*	1.000	0.966	0.779	0.735	0.740	0.286	0.215	0.375	0.516	0.567
Jan.	*	*	*	1.000	0.742	0.724	0.732	0.255	0.191	0.335	0.509	0.555
Feb.	*	*	*	*	1.000	0.796	0.835	0.373	0.318	0.435	0.472	0.593
Mar.	*	*	*	*	*	1.000	0.741	0.365	0.194	0.347	0.467	0.477
Apr.	*	*	*	*	*	*	1.000	0.547	0.354	0.427	0.500	0.582
May	*	*	*	*	*	*	*	1.000	0.515	0.503	0.584	0.469
June	*	*	*	*	*	*	*	*	1.000	0.827	0.609	0.537
July	*	*	*	*	*	*	*	*	*	1.000	0.740	0.695
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.816
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E34.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06430500, Redwater Creek at Wyoming-South Dakota State line

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1955	14.0	33	15.3	33	17.6	33	18.6	33	24.5	34	27.2	34	27.9	32	28.8	31	29.3	27
1956	8.00	25	8.00	22	8.71	21	9.79	17	13.9	14	15.4	14	16.8	13	17.9	13	21.5	12
1957	6.00	18	7.00	19	9.14	22	10.3	21	15.1	20	21.2	24	24.9	29	26.0	26	27.6	23
1958	6.00	19	6.00	18	6.43	15	11.2	24	15.7	21	17.0	15	18.2	15	19.0	14	22.2	14
1959	2.50	5	2.60	3	3.61	4	5.16	5	6.45	5	7.92	2	9.96	3	11.6	3	15.9	6
1960	3.40	11	3.90	8	4.30	6	5.86	8	6.48	6	9.31	5	10.9	4	11.7	4	14.3	3
1961	3.30	10	3.30	5	4.63	8	5.91	9	6.13	3	7.45	1	7.41	1	7.91	1	12.1	1
1962	6.00	20	8.00	23	9.57	25	10.5	22	14.9	18	22.1	28	23.2	24	24.4	22	26.1	20
1963	7.20	23	8.13	25	11.1	27	13.0	27	15.0	19	18.1	18	18.2	16	19.6	15	22.3	15
1964	11.0	29	11.7	29	11.7	29	12.4	25	15.9	22	20.1	22	21.0	20	22.0	18	25.1	17
1965	17.0	34	17.3	34	18.1	34	19.6	34	23.5	33	25.7	32	27.5	31	28.1	30	30.4	30
1966	6.60	22	7.40	21	7.99	20	8.82	15	14.2	15	17.7	17	18.5	17	20.1	16	23.1	16
1967	5.00	15	5.20	14	6.59	16	9.06	16	16.6	23	18.3	19	22.7	22	24.9	23	28.2	25
1968	4.70	13	5.40	15	6.01	14	7.32	12	19.3	27	21.5	26	22.6	21	23.0	21	25.8	19
1969	6.20	21	7.13	20	7.77	19	10.2	20	11.2	12	14.0	12	14.3	11	17.8	12	22.1	13
1970	10.0	28	10.3	28	11.4	28	14.8	28	23.0	32	28.3	35	30.1	34	31.2	33	32.3	32
1971	11.0	30	12.0	30	13.7	30	16.6	32	19.4	28	21.6	27	27.9	33	31.8	35	35.1	35
1972	32.0	38	32.7	38	36.6	38	39.3	38	41.8	38	42.3	38	43.2	37	43.2	37	43.7	37
1973	18.0	35	19.3	35	23.1	36	26.6	37	30.2	37	40.6	37	44.1	38	44.8	38	45.4	38
1974	13.0	31	13.3	31	14.3	31	16.1	30	20.5	31	23.3	31	27.0	30	29.4	32	33.1	33
1975	7.60	24	8.07	24	9.37	23	10.7	23	17.2	24	19.6	21	22.7	23	25.9	25	29.8	29
1976	22.0	37	22.0	37	23.4	37	25.9	36	27.2	36	31.7	36	33.7	36	35.8	36	37.0	36
1977	9.60	27	9.77	27	11.0	26	15.4	29	19.4	29	22.3	29	24.6	27	26.9	27	30.4	31
1978	20.0	36	21.3	36	22.4	35	23.4	35	26.4	35	27.1	33	30.2	35	31.2	34	33.9	34
1979	5.40	17	5.67	17	6.70	17	8.04	14	19.7	30	22.4	30	24.2	25	25.8	24	28.1	24
1980	2.00	4	2.13	2	2.29	2	2.83	2	7.99	10	10.4	6	15.0	12	16.0	11	20.1	11
1981	3.10	7	3.20	4	3.26	3	5.61	6	11.0	11	12.3	10	13.8	9	14.0	8	15.6	5
1982	2.90	6	4.27	11	5.74	11	7.46	13	12.4	13	15.0	13	17.4	14	21.6	17	26.1	21
1983	1.40	2	3.53	7	6.70	18	9.90	19	14.7	16	17.0	16	19.8	18	22.3	19	25.5	18
1984	5.10	16	5.47	16	5.77	12	9.79	18	14.8	17	18.5	20	20.3	19	22.9	20	26.8	22
1985	1.30	1	1.40	1	1.89	1	2.19	1	3.08	1	8.00	3	9.55	2	9.08	2	12.1	2
1986	13.0	32	13.7	32	15.1	32	16.1	31	17.7	25	20.2	23	24.6	28	26.9	28	28.7	26
1987	8.30	26	9.00	26	9.44	24	12.9	26	18.2	26	21.4	25	24.4	26	27.2	29	29.3	28
1988	4.00	12	4.53	12	5.83	13	6.39	11	6.97	7	11.0	8	12.1	5	13.5	7	16.9	7
1989	1.90	3	4.13	10	5.04	10	5.81	7	7.25	8	12.7	11	12.7	7	15.2	10	18.9	10
1990	3.20	9	4.07	9	4.34	7	4.64	4	6.30	4	10.7	7	13.6	8	13.0	6	17.2	8
1991	3.10	8	3.33	6	3.99	5	4.38	3	5.32	2	8.59	4	13.9	10	14.6	9	18.4	9
1992	4.70	14	4.77	13	4.87	9	6.13	10	7.97	9	11.0	9	12.4	6	12.6	5	14.7	4

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E34.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06430500, Redwater Creek at Wyoming-South Dakota State line

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1955	170	15	137	14	94.7	15	65.7	18	50.9	19	43.5	19	38.8	21	36.4	22	34.0	24
1956	38.0	31	35.3	32	34.7	32	34.0	32	33.4	31	33.2	29	32.7	29	31.9	28	31.3	28
1957	48.0	29	47.0	29	43.9	28	40.9	28	39.3	26	35.3	27	33.3	28	31.8	29	30.8	29
1958	43.0	30	34.0	34	33.6	34	33.4	33	31.3	34	31.0	31	30.7	30	30.3	30	30.1	30
1959	33.0	36	32.3	36	31.9	36	31.4	35	30.7	35	29.7	35	29.8	33	29.5	33	29.3	32
1960	143	17	92.3	20	58.6	22	43.6	25	35.3	28	31.3	30	30.3	32	29.6	32	28.5	33
1961	28.0	38	27.7	38	27.3	38	26.8	38	26.1	38	25.9	38	25.6	39	25.5	39	24.4	39
1962	704	3	334	5	214	5	142	7	128	5	85.3	7	66.1	9	54.3	10	43.0	17
1963	220	12	183	11	144	11	112	11	81.1	13	70.8	12	60.8	11	53.1	11	45.0	12
1964	448	8	318	6	195	6	159	4	114	7	73.0	11	59.1	12	52.1	13	44.3	14
1965	706	2	459	2	289	3	211	3	145	1	95.4	3	77.7	3	66.9	4	54.1	7
1966	55.0	27	48.0	28	42.7	29	42.5	26	40.9	23	39.3	23	37.7	23	36.8	21	36.0	21
1967	112	20	98.7	18	82.0	17	67.3	17	53.5	18	52.9	18	47.3	18	43.3	18	39.1	19
1968	75.0	25	62.3	25	51.1	27	42.3	27	39.4	25	36.6	26	35.5	25	35.1	25	34.5	23
1969	268	9	212	10	160	10	113	10	81.4	12	60.5	14	54.1	15	49.6	16	44.0	16
1970	498	5	380	4	225	4	149	5	125	6	110	1	87.3	2	73.7	2	58.9	3
1971	224	11	180	12	134	12	107	12	99.2	9	86.0	6	76.9	4	69.9	3	61.7	2
1972	178	14	145	13	116	14	95.9	13	85.3	11	82.3	8	72.2	6	66.1	5	58.4	4
1973	490	7	239	8	189	7	144	6	130	4	105	2	89.1	1	77.7	1	68.0	1
1974	93.0	23	82.3	21	73.4	19	68.8	16	62.6	15	58.2	15	55.4	14	52.2	12	49.6	8
1975	105	22	95.0	19	82.4	16	69.1	15	62.1	16	56.8	16	53.3	16	50.1	15	47.1	10
1976	732	1	546	1	366	1	217	2	141	2	92.0	5	73.2	5	65.0	7	55.2	6
1977	79.0	24	73.0	23	68.7	20	63.5	19	60.5	17	54.6	17	49.5	17	47.0	17	44.2	15
1978	264	10	218	9	161	9	135	8	107	8	80.1	9	71.1	7	65.4	6	55.6	5
1979	54.0	28	53.0	27	51.3	26	44.5	24	41.3	22	41.1	21	40.8	20	40.5	19	39.8	18
1980	166	16	106	17	67.9	21	49.1	21	37.9	27	37.6	24	36.9	24	36.4	23	35.4	22
1981	34.0	35	33.7	35	32.3	35	31.0	36	30.0	36	29.4	36	29.3	35	29.1	34	27.4	34
1982	543	4	421	3	357	2	241	1	141	3	92.3	4	69.9	8	59.4	8	47.5	9
1983	143	18	132	16	116	13	90.3	14	77.0	14	63.6	13	55.9	13	50.6	14	44.9	13
1984	497	6	263	7	177	8	133	9	94.5	10	73.3	10	62.1	10	55.3	9	47.1	11
1985	38.0	32	37.0	30	35.9	30	35.6	30	35.0	29	34.4	28	33.6	27	32.9	27	32.6	27
1986	108	21	68.3	24	55.9	23	46.8	22	43.5	21	41.0	22	38.8	22	36.1	24	33.2	26
1987	205	13	136	15	80.0	18	54.5	20	43.7	20	43.1	20	42.2	19	40.3	20	37.5	20
1988	60.0	26	57.7	26	54.4	24	46.3	23	40.0	24	36.7	25	35.3	26	34.4	26	34.0	25
1989	37.0	33	36.3	31	35.0	31	34.4	31	33.4	32	30.7	32	30.6	31	29.7	31	29.4	31
1990	32.0	37	31.7	37	30.3	37	29.9	37	29.7	37	28.8	37	28.1	36	27.7	36	27.3	35
1991	35.0	34	34.7	33	34.3	33	33.3	34	32.3	33	30.2	33	29.4	34	28.8	35	27.0	36
1992	28.0	39	26.7	39	26.4	39	26.3	39	26.1	39	25.9	39	25.8	38	25.6	38	25.1	38
1993	138	19	80.7	22	52.7	25	39.3	29	35.0	30	30.1	34	27.7	37	26.7	37	25.5	37

Table E35.1. Mean flow, in cubic feet per second, for station 06431500, Spearfish Creek at Spearfish

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1947	44.1	42.0	42.5	40.6	41.7	43.8	75.0	73.9	119	64.4	50.8	44.5	56.8
1948	50.4	50.6	48.8	48.6	44.3	44.8	61.7	62.5	60.4	48.2	43.7	41.6	50.5
1949	45.2	45.3	37.5	33.9	35.7	41.4	67.2	82.5	55.2	42.4	38.3	43.0	47.3
1950	40.5	39.4	36.9	34.5	34.5	35.5	59.7	68.9	47.8	41.7	37.1	37.3	42.9
1951	39.0	38.4	33.3	35.8	31.1	33.9	38.6	47.2	47.9	36.0	33.8	34.8	37.5
1952	40.0	36.6	33.4	32.0	34.3	36.1	76.9	112	58.1	41.8	41.2	35.0	48.1
1953	34.7	31.2	32.5	32.2	33.9	36.1	43.2	109	71.8	48.5	42.6	37.2	46.2
1954	37.6	38.0	36.5	37.3	35.8	35.4	50.9	48.5	54.4	37.6	32.8	30.7	39.6
1955	34.5	35.9	32.7	33.5	36.0	35.1	62.7	72.2	81.5	44.6	40.2	37.5	45.5
1956	36.7	34.3	35.1	33.5	33.9	38.0	43.3	51.2	44.9	36.0	35.4	35.9	38.2
1957	33.6	32.6	33.0	30.1	29.0	30.1	49.4	75.8	61.2	42.7	36.0	35.2	40.8
1958	36.7	36.4	34.8	33.7	34.7	33.1	48.2	59.5	44.7	45.1	32.1	31.6	39.3
1959	33.5	33.8	31.8	30.7	32.8	33.5	42.9	46.9	41.4	30.6	28.4	28.7	34.6
1960	31.8	30.6	28.5	28.5	27.7	30.4	44.9	40.0	34.0	26.5	27.9	24.5	31.3
1961	25.8	27.8	29.0	26.5	26.8	28.3	31.1	28.9	29.1	24.6	23.6	24.1	27.1
1962	25.1	24.4	24.6	22.7	26.5	25.2	36.3	107	81.1	40.8	30.1	26.2	39.2
1963	31.8	30.2	24.8	25.9	30.4	36.8	109	105	111	57.5	40.3	41.8	53.7
1964	38.2	35.4	36.7	39.5	38.4	37.6	60.7	88.6	172	69.9	59.1	50.4	60.5
1965	50.3	49.6	49.0	49.0	48.7	44.1	77.3	284	107	65.9	60.8	64.4	79.5
1966	62.7	65.0	61.1	54.9	54.9	58.3	71.5	72.1	55.5	49.7	45.7	48.2	58.3
1967	46.2	48.2	46.0	48.0	44.2	48.0	66.8	83.6	84.1	58.2	49.9	52.7	56.3
1968	50.0	44.4	43.8	40.1	47.6	51.7	49.0	67.8	67.1	56.8	49.9	38.6	50.6
1969	38.5	49.2	33.7	29.4	41.4	42.8	74.2	114	66.5	59.8	36.9	42.7	52.4
1970	42.7	43.1	40.5	43.5	51.1	39.5	62.1	189	156	69.5	57.7	46.0	70.1
1971	45.5	45.9	41.0	42.9	56.5	51.4	101	141	67.5	60.3	48.9	54.5	63.1
1972	61.5	61.3	58.3	60.1	56.9	68.8	75.4	114	99.1	70.2	71.2	63.6	71.8
1973	59.7	59.5	54.6	59.3	61.8	56.5	70.9	161	128	68.0	55.4	60.6	74.6
1974	58.5	60.1	60.9	57.4	49.7	56.2	71.9	72.3	61.9	56.9	55.9	48.0	59.2
1975	50.4	50.5	44.5	42.8	35.2	47.3	63.9	105	79.1	47.9	44.6	44.1	54.8
1976	41.3	43.2	45.2	40.6	41.2	43.9	73.5	68.0	185	66.3	52.1	48.5	62.2
1977	45.5	46.9	45.1	45.9	40.3	43.1	89.7	106	63.4	54.5	50.6	55.3	57.3
1978	53.2	53.2	51.9	46.6	57.6	53.1	72.8	145	71.0	62.6	54.7	52.6	64.6
1979	55.7	56.1	51.5	50.6	64.3	52.4	55.6	60.5	64.8	53.8	52.3	47.9	55.4
1980	54.5	50.0	48.5	46.3	44.8	44.3	54.4	55.5	47.4	42.3	44.5	41.1	47.8
1981	41.0	39.3	41.1	39.3	37.1	40.5	42.3	46.0	67.5	40.2	33.3	32.6	41.7
1982	35.6	35.2	24.1	28.8	29.1	36.0	47.6	505	124	54.4	46.8	39.7	84.5
1983	53.5	46.2	41.7	33.8	33.5	58.1	88.3	180	91.5	58.0	48.7	45.8	65.1
1984	63.3	53.6	41.2	56.4	49.6	57.8	69.9	106	142	67.8	60.3	46.5	67.8
1985	47.8	53.9	48.9	46.0	40.0	49.4	55.2	50.0	47.4	40.7	38.5	41.4	46.6
1986	42.2	43.5	45.3	44.0	44.0	46.6	72.6	75.0	56.0	39.8	34.6	38.1	48.5
1987	39.6	41.1	37.6	36.9	35.6	39.6	64.1	49.1	38.6	32.2	29.9	30.6	39.6
1988	34.1	39.0	37.3	33.9	34.1	35.5	51.0	74.4	39.5	38.0	33.6	36.2	40.6
1989	40.0	39.9	38.4	33.5	32.6	37.4	43.0	72.5	44.6	38.4	39.2	39.3	41.6
1990	37.2	37.7	35.8	35.9	36.5	39.1	56.8	69.3	45.9	35.2	35.2	36.5	41.8
1991	34.6	36.5	30.0	30.8	34.3	35.8	43.6	70.8	63.3	41.0	33.0	34.3	40.7
1992	39.1	40.8	39.6	38.5	39.2	39.0	45.5	48.7	37.8	35.2	32.9	31.2	39.0
1993	32.1	31.2	32.7	31.4	31.4	36.5	52.1	71.0	74.7	50.1	42.9	43.8	44.2

Table E35.2. Statistics on mean flow, in cubic feet per second, for station 06431500, Spearfish Creek at Spearfish (October 1946 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	47	47	47	47	47	47	47	47	47	47	47	47	47
Maximum	63.3	65.0	61.1	60.1	64.3	68.8	109	505	185	70.2	71.2	64.4	84.5
Percentile													
75th	50.3	49.6	45.3	46.0	44.8	48.0	72.6	107	84.1	58.2	50.6	47.9	59.2
50th	40.5	41.1	38.4	37.3	36.5	39.6	60.7	72.5	63.4	47.9	41.2	41.1	48.1
25th	35.6	35.9	33.3	32.2	33.9	35.8	47.6	59.5	47.4	39.8	33.8	35.0	40.7
Minimum	25.1	24.4	24.1	22.7	26.5	25.2	31.1	28.9	29.1	24.6	23.6	24.1	27.1
Mean	42.88	42.70	40.04	39.28	40.01	42.29	60.93	96.51	74.29	48.78	42.84	41.38	51.04
Standard deviation	9.56	9.41	9.07	9.28	9.52	9.22	16.79	76.38	36.59	12.47	10.48	9.53	12.89
Skewness	0.49	0.42	0.48	0.57	0.86	0.70	0.67	3.81	1.42	0.15	0.48	0.47	0.63
Coefficient of variation	0.22	0.22	0.23	0.24	0.24	0.22	0.28	0.79	0.49	0.26	0.24	0.23	0.25
Percent of annual flow	7.01	6.98	6.54	6.42	6.54	6.91	9.96	15.77	12.14	7.97	7.00	6.76	¹ 0.641

¹Serial correlation for annual mean flows.

Table E35.3. Serial correlation for 1-year lag for monthly mean flow for station 06431500, Spearfish Creek at Spearfish (October 1946 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.688	0.730	0.637	0.653	0.693	0.704	0.228	0.136	0.260	0.668	0.608	0.740

Table E35.4. Correlation matrix for monthly mean flow for station 06431500, Spearfish Creek at Spearfish (October 1946 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.944	0.887	0.908	0.816	0.926	0.449	0.107	0.223	0.561	0.724	0.707
Nov.	*	1.000	0.922	0.902	0.836	0.900	0.447	0.075	0.141	0.512	0.642	0.711
Dec.	*	*	1.000	0.924	0.822	0.843	0.364	-0.073	0.110	0.455	0.630	0.681
Jan.	*	*	*	1.000	0.863	0.845	0.374	0.027	0.264	0.551	0.728	0.730
Feb.	*	*	*	*	1.000	0.809	0.440	0.095	0.280	0.634	0.715	0.735
Mar.	*	*	*	*	*	1.000	0.547	0.120	0.261	0.619	0.735	0.742
Apr.	*	*	*	*	*	*	1.000	0.226	0.378	0.617	0.542	0.666
May	*	*	*	*	*	*	*	1.000	0.451	0.444	0.405	0.375
June	*	*	*	*	*	*	*	*	1.000	0.813	0.690	0.539
July	*	*	*	*	*	*	*	*	*	1.000	0.911	0.842
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.894
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E35.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06431500, Spearfish Creek at Spearfish

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1947	20.0	13	26.0	19	33.1	32	39.3	37	42.6	37	44.0	36	45.7	38	46.5	38	47.5	37
1948	25.0	18	25.0	14	25.3	9	28.1	10	32.1	16	33.6	20	35.1	20	37.1	23	39.5	25
1949	30.0	35	31.0	30	32.3	29	33.1	27	33.5	22	34.3	22	34.9	19	35.3	17	37.0	19
1950	25.0	19	25.3	16	28.0	15	29.4	15	30.6	13	31.7	13	32.8	13	33.5	13	35.3	16
1951	28.0	28	29.3	27	30.0	20	30.9	17	31.7	15	32.4	15	33.1	14	33.7	14	35.0	14
1952	25.0	20	25.7	17	29.1	18	30.3	16	31.2	14	31.7	14	31.9	11	32.4	10	33.1	9
1953	25.0	21	28.0	24	30.7	25	33.6	29	35.1	27	35.1	23	36.2	23	36.2	19	36.8	18
1954	22.0	14	23.3	12	26.9	14	28.9	12	29.7	10	30.7	10	32.3	12	33.3	12	33.3	10
1955	25.0	22	26.3	20	30.4	21	32.1	22	32.5	20	33.5	18	33.7	17	33.7	15	34.9	13
1956	18.0	9	22.0	11	25.6	11	27.3	8	28.5	8	29.0	7	29.8	6	30.5	6	31.4	6
1957	26.0	24	27.0	21	29.7	19	31.3	18	32.5	21	33.3	17	33.6	16	34.0	16	35.0	15
1958	17.0	7	20.0	9	26.7	13	28.0	9	30.0	11	30.9	11	31.2	8	31.7	9	32.1	8
1959	9.00	1	19.0	6	24.1	8	26.5	7	26.7	6	27.1	5	28.1	5	28.1	4	29.3	4
1960	10.0	2	16.3	1	21.0	5	23.2	5	23.9	4	25.0	3	25.6	2	25.9	2	26.7	2
1961	19.0	11	19.7	8	20.4	4	21.3	3	22.5	1	23.4	1	23.9	1	24.0	1	24.0	1
1962	12.0	3	18.3	4	19.7	3	22.1	4	23.3	3	25.1	4	26.8	3	27.4	3	28.1	3
1963	31.0	39	32.3	34	32.7	31	33.4	28	34.1	24	35.2	24	36.5	25	37.3	24	37.6	22
1964	33.0	41	35.0	40	37.9	39	40.7	38	43.9	40	46.3	39	47.2	39	47.7	39	48.4	39
1965	44.0	46	48.3	46	50.4	46	52.6	46	53.4	45	54.5	45	55.7	45	57.2	45	59.4	46
1966	32.0	40	32.7	35	36.7	38	41.2	39	43.7	39	44.9	38	45.3	37	46.0	36	46.5	35
1967	30.0	36	31.7	32	32.3	30	35.9	33	39.7	35	41.4	32	42.0	32	43.8	34	46.0	34
1968	15.0	5	17.0	2	19.4	2	19.9	2	25.8	5	28.4	6	33.2	15	36.5	22	38.0	24
1969	25.0	23	27.7	23	30.4	22	33.0	26	35.9	28	39.6	30	40.5	29	41.2	29	41.4	27
1970	22.0	15	25.7	18	31.7	26	37.0	35	38.6	32	41.4	33	43.0	34	43.6	33	44.9	32
1971	28.0	29	36.0	41	44.9	41	45.6	41	48.0	42	51.5	43	53.5	43	55.7	43	57.2	43
1972	16.0	6	37.7	42	49.4	45	51.6	45	53.9	46	55.2	46	57.0	46	57.8	46	58.5	45
1973	38.0	43	45.0	44	47.6	44	49.1	44	49.8	43	52.7	44	54.4	44	56.2	44	57.2	44
1974	26.0	25	28.7	25	32.0	28	32.7	25	33.9	23	39.1	28	40.7	30	42.3	31	45.1	33
1975	30.0	37	34.0	37	36.0	36	36.7	34	39.2	33	40.8	31	41.8	31	42.2	30	42.4	30
1976	34.0	42	34.7	39	35.0	35	35.1	31	37.5	30	41.8	34	42.8	33	43.5	32	44.6	31
1977	41.0	44	45.0	45	45.0	43	45.7	42	46.4	41	48.9	41	50.5	41	50.8	41	51.8	41
1978	42.0	45	43.3	43	44.9	42	48.6	43	50.0	44	50.6	42	52.1	42	53.2	42	53.2	42
1979	30.0	38	34.3	38	40.1	40	43.0	40	43.5	38	44.5	37	45.1	36	45.8	35	48.1	38
1980	29.0	30	30.7	29	33.9	34	35.5	32	36.9	29	38.0	27	39.0	27	39.2	27	39.6	26
1981	12.0	4	17.0	3	18.3	1	19.0	1	22.6	2	24.9	2	27.0	4	29.2	5	30.9	5
1982	17.0	8	18.3	5	22.3	7	29.3	14	32.4	19	33.5	19	36.3	24	38.3	26	41.5	28
1983	19.0	12	20.3	10	25.4	10	31.6	19	40.4	36	47.1	40	48.7	40	49.8	40	51.4	40
1984	29.0	31	29.7	28	30.4	23	32.3	24	39.5	34	43.1	35	44.9	35	46.1	37	47.2	36
1985	29.0	32	31.7	33	36.6	37	38.0	36	38.3	31	39.3	29	40.0	28	40.6	28	41.8	29
1986	29.0	33	33.0	36	33.4	33	33.7	30	34.6	26	36.0	26	36.5	26	37.4	25	37.9	23
1987	22.0	16	25.0	15	26.6	12	28.4	11	29.5	9	30.2	9	30.5	7	31.4	7	33.7	12
1988	27.0	26	28.7	26	30.6	24	31.6	20	32.2	17	32.4	16	34.2	18	35.3	18	36.7	17
1989	27.0	27	27.3	22	29.0	17	32.1	23	34.4	25	35.4	25	35.8	22	36.4	20	37.0	20
1990	18.0	10	19.3	7	21.4	6	24.5	6	27.6	7	30.0	8	31.6	10	32.7	11	33.6	11
1991	29.0	34	31.0	31	31.7	27	31.8	21	32.2	18	33.6	21	35.1	21	36.4	21	37.5	21
1992	23.0	17	24.7	13	28.4	16	29.2	13	30.0	12	31.1	12	31.4	9	31.5	8	31.7	7

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E35.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06431500, Spearfish Creek at Spearfish

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1947	609	5	460	5	283	6	177	11	123	13	96.2	16	90.5	13	83.3	13	71.3	13
1948	106	24	97.3	33	86.4	32	75.3	35	70.4	33	62.4	34	61.7	29	58.8	29	53.9	28
1949	147	21	131	22	112	22	99.9	22	90.0	20	77.8	22	68.7	23	62.6	25	55.0	27
1950	106	25	104	24	96.6	27	83.4	30	70.0	34	65.9	30	59.1	32	54.8	32	48.8	33
1951	57.0	45	56.0	45	52.7	45	49.8	45	48.1	45	47.8	43	45.1	43	43.1	44	39.9	44
1952	521	7	407	7	255	10	166	13	114	18	100	13	83.3	17	73.0	18	61.1	20
1953	184	17	154	18	137	18	123	19	114	17	91.7	19	78.9	19	70.1	19	59.0	21
1954	76.0	40	75.0	39	71.4	40	64.1	39	59.6	40	53.6	40	51.5	41	48.1	40	43.8	41
1955	164	18	139	20	119	21	101	21	86.7	21	82.6	21	73.7	21	65.8	22	56.4	24
1956	94.0	35	90.0	35	78.4	36	62.9	41	54.9	42	49.6	42	47.5	42	45.1	42	41.7	43
1957	98.0	33	94.0	34	86.4	33	80.8	31	76.1	28	68.9	27	64.5	27	57.9	30	50.1	30
1958	103	27	100	28	92.3	31	76.5	32	65.9	37	54.9	39	52.6	38	49.6	39	44.4	39
1959	67.0	42	64.0	42	58.6	44	52.7	44	48.2	44	46.1	45	43.9	45	41.3	45	38.2	45
1960	55.0	46	53.0	46	51.0	46	49.5	46	46.1	46	43.0	46	40.3	46	37.7	46	34.3	46
1961	52.0	47	45.0	47	39.7	47	33.9	47	32.3	47	30.7	47	30.4	47	29.6	47	28.8	47
1962	558	6	439	6	299	5	197	7	140	12	99.0	15	78.2	20	67.6	20	53.7	29
1963	438	9	376	9	271	9	190	9	140	11	120	10	109	8	97.0	8	78.0	11
1964	1,480	3	742	4	402	4	258	4	179	7	131	6	114	6	99.2	6	83.3	8
1965	1,880	1	1320	1	763	2	463	2	298	2	202	2	160	2	136	2	110	2
1966	108	23	107	23	98.4	25	92.1	25	84.3	25	73.4	25	67.8	25	64.7	23	63.1	18
1967	190	16	148	19	126	20	106	20	85.5	23	84.7	20	79.3	18	73.7	17	66.3	16
1968	102	29	98.7	30	83.4	35	70.2	37	68.3	35	67.4	29	63.8	28	61.9	27	58.0	23
1969	338	11	286	11	209	12	156	15	116	15	95.2	17	86.0	15	79.2	14	66.6	15
1970	510	8	396	8	278	7	247	5	197	3	176	3	141	3	122	3	96.8	3
1971	220	14	197	15	173	15	157	14	146	9	126	8	106	10	93.5	10	80.0	10
1972	160	20	156	17	144	17	126	17	116	16	107	12	98.2	11	91.8	11	83.8	7
1973	273	12	255	12	242	11	194	8	180	6	147	5	124	4	108	4	91.2	4
1974	102	30	102	26	101	23	95.1	24	85.5	24	74.7	23	69.3	22	66.2	21	62.6	19
1975	143	22	137	21	135	19	124	18	108	19	94.7	18	83.9	16	75.5	16	65.0	17
1976	1,500	2	790	3	508	3	306	3	193	4	128	7	111	7	98.7	7	81.8	9
1977	162	19	161	16	151	16	132	16	117	14	100	14	86.9	14	78.9	15	69.9	14
1978	219	15	208	14	186	14	174	12	152	8	115	11	97.9	12	88.5	12	77.2	12
1979	79.0	39	74.3	40	73.3	39	70.2	38	65.6	38	62.8	33	61.3	30	59.2	28	58.4	22
1980	76.0	41	74.3	41	70.1	41	64.0	40	61.2	39	56.5	38	52.8	37	50.6	37	49.3	31
1981	88.0	36	86.7	36	84.4	34	75.4	34	71.9	31	59.6	36	54.1	35	50.8	35	46.5	36
1982	1,430	4	1,273	2	1,076	1	935	1	585	1	323	1	233	1	187	1	137	1
1983	356	10	333	10	272	8	216	6	188	5	148	4	122	5	107	5	87.6	5
1984	233	13	215	13	194	13	180	10	142	10	125	9	107	9	96.9	9	83.9	6
1985	64.0	43	63.0	44	61.9	42	59.4	42	55.2	41	52.6	41	51.6	39	50.7	36	49.0	32
1986	104	26	102	25	99.9	24	95.2	23	86.5	22	74.2	24	68.5	24	62.9	24	56.4	25
1987	84.0	37	79.7	38	75.4	38	73.9	36	66.4	36	56.7	37	51.6	40	48.0	41	44.1	40
1988	98.0	34	97.7	32	96.7	26	89.5	26	75.5	29	63.4	32	55.5	34	51.5	34	45.6	38
1989	100	31	98.3	31	92.6	29	84.5	29	74.2	30	60.6	35	53.8	36	50.1	38	46.3	37
1990	82.0	38	81.0	37	77.6	37	76.2	33	71.1	32	63.5	31	57.8	33	53.1	33	47.3	35
1991	103	28	101	27	92.4	30	88.1	28	84.3	26	68.0	28	59.8	31	55.0	31	48.2	34
1992	64.0	44	64.0	43	61.0	43	57.1	43	52.6	43	47.3	44	44.5	44	43.2	43	41.8	42
1993	100	32	100	29	96.0	28	88.4	27	76.3	27	73.2	26	67.4	26	62.3	26	55.7	26

Table E36.1. Mean flow, in cubic feet per second, for station 06433000, Redwater River above Belle Fourche

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1946	¹ 102	107	97.9	125	128	140	159	507	834	263	73.9	192	² 227
1947	217	209	205	207	219	232	260	233	439	209	87.8	106	218
1948	152	180	193	190	187	184	174	163	126	111	72.4	41.9	148
1949	99.0	148	135	92.3	136	273	237	251	99.9	18.5	13.5	88.6	132
1950	121	127	145	132	149	151	200	200	48.9	10.9	28.6	64.0	115
1951	127	110	137	129	124	119	123	54.6	101	41.0	33.1	108	100
1952	116	115	113	111	151	167	167	180	48.7	36.0	21.5	38.5	105
1953	77.4	95.3	125	129	130	120	127	268	176	26.2	75.4	55.5	117
1954	72.6	109	141	129	131	126	142	106	124	19.3	6.02	20.3	93.5
1955	67.3	102	123	123	119	122	160	156	151	24.6	25.4	60.3	103
1956	103	110	129	122	130	126	125	102	33.1	9.16	6.39	42.9	86.4
1957	73.4	120	127	83.5	121	114	132	150	150	63.9	21.1	90.9	104
1958	93.0	101	121	115	111	115	145	107	87.9	40.2	15.9	29.5	89.9
1959	60.3	94.6	112	108	117	120	116	57.9	18.7	4.87	2.72	19.3	69.0
1960	83.7	102	109	97.7	105	136	117	35.1	30.1	2.13	9.13	26.4	71.0
1961	50.6	82.7	102	107	112	105	66.0	20.7	7.93	5.50	2.88	26.0	57.1
1962	63.4	84.1	69.9	98.2	110	112	105	291	437	171	31.8	58.6	136
1963	105	97.2	96.0	87.7	158	139	250	285	261	41.8	17.7	99.9	136
1964	88.9	104	92.0	104	105	140	158	150	484	91.7	43.7	95.8	138
1965	105	116	119	134	145	133	180	716	279	117	58.7	147	188
1966	158	160	175	167	157	190	207	170	43.6	25.5	63.7	78.7	133
1967	135	151	146	145	150	152	175	240	195	48.2	20.5	99.4	138
1968	141	162	145	142	147	147	149	107	132	40.0	32.7	105	120
1969	102	149	144	139	140	171	214	316	128	31.3	7.05	40.6	132
1970	118	153	148	124	134	150	217	492	382	35.1	54.6	110	176
1971	156	180	170	159	207	188	235	314	247	57.3	33.1	141	173
1972	196	198	166	165	195	173	190	315	318	148	135	151	196
1973	169	187	183	163	174	187	277	467	312	91.2	115	172	208
1974	187	190	186	156	173	176	237	181	104	19.5	57.7	124	149
1975	124	169	158	151	146	165	214	279	171	37.7	14.3	78.6	142
1976	121	151	162	155	152	143	170	128	739	180	69.5	95.6	188
1977	149	152	150	147	151	156	241	221	75.1	27.1	63.6	127	138
1978	183	163	148	126	140	232	228	459	177	78.7	40.9	104	174
1979	154	173	156	129	138	210	180	124	62.5	48.5	110	77.1	130
1980	110	150	150	137	145	147	130	55.3	76.3	3.48	7.62	74.7	98.5
1981	108	138	136	128	124	111	62.9	52.7	88.9	21.4	50.8	72.6	90.9
1982	124	130	120	104	102	118	132	966	289	64.1	31.1	99.0	191
1983	283	183	155	155	173	206	263	402	174	34.0	50.8	117	183
1984	162	156	122	163	169	153	188	285	504	71.4	50.5	89.6	176
1985	159	144	146	125	132	154	140	33.4	24.3	7.45	19.7	68.5	95.8
1986	139	109	123	144	142	130	194	193	130	24.1	22.2	112	122
1987	149	169	150	128	124	147	187	162	78.6	11.7	57.7	108	123
1988	126	153	135	115	126	151	142	128	4.07	5.39	7.92	35.3	93.9
1989	123	135	121	101	101	128	138	172	47.9	6.91	8.16	61.0	95.1
1990	133	124	109	112	118	125	134	164	56.8	5.15	9.73	29.0	93.3
1991	98.1	132	116	104	111	126	128	111	117	6.36	3.52	53.4	91.8
1992	100	126	115	115	110	108	121	20.0	23.9	31.6	17.6	63.8	79.1
1993	120	136	129	96.2	91.7	156	143	186	203	132	55.0	77.4	127

¹Unpublished value, calculated from published estimate of annual flow.²Estimated value.

Table E36.2. Statistics on mean flow, in cubic feet per second, for station 06433000, Redwater River above Belle Fourche (October 1946 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	47	47	47	47	47	47	47	47	47	47	47	47	47
Maximum	283	209	205	207	219	273	277	966	739	209	135	172	218
Percentile													
75th	152	162	150	147	151	171	214	285	247	64.1	57.7	106	149
50th	121	138	136	128	136	147	167	172	126	34.0	31.1	78.6	127
25th	99.0	110	120	108	118	125	132	107	56.8	11.7	13.5	53.4	95.1
Minimum	50.6	82.7	69.9	83.5	91.7	105	62.9	20.0	4.07	2.13	2.72	19.3	57.1
Mean	125.59	138.93	137.40	129.67	138.99	151.79	170.66	218.50	170.37	49.72	37.95	80.53	129.03
Standard deviation	43.89	32.10	27.09	26.59	28.21	36.37	51.11	177.99	155.67	50.60	31.46	37.32	39.85
Skewness	1.06	0.17	0.23	0.61	0.84	1.27	0.18	2.19	1.63	1.59	1.19	0.25	0.44
Coefficient of variation	0.35	0.23	0.20	0.21	0.20	0.24	0.30	0.81	0.91	1.02	0.83	0.46	0.31
Percent of annual flow	8.10	8.96	8.86	8.37	8.97	9.79	11.01	14.10	10.99	3.21	2.45	5.19	¹ 0.598

¹Serial correlation for annual mean flows.

Table E36.3. Serial correlation for 1-year lag for monthly mean flow for station 06433000, Redwater River above Belle Fourche (October 1946 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.541	0.788	0.703	0.551	0.553	0.415	0.441	0.123	0.103	0.178	0.273	0.504

Table E36.4. Correlation matrix for monthly mean flow for station 06433000, Redwater River above Belle Fourche (October 1946 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.821	0.676	0.664	0.676	0.632	0.652	0.260	0.151	0.244	0.540	0.574
Nov.	*	1.000	0.867	0.722	0.713	0.710	0.636	0.202	0.181	0.287	0.586	0.553
Dec.	*	*	1.000	0.822	0.739	0.619	0.578	0.072	0.072	0.226	0.560	0.433
Jan.	*	*	*	1.000	0.832	0.442	0.510	0.102	0.278	0.373	0.578	0.411
Feb.	*	*	*	*	1.000	0.602	0.698	0.180	0.298	0.375	0.532	0.526
Mar.	*	*	*	*	*	1.000	0.742	0.206	0.099	0.235	0.401	0.369
Apr.	*	*	*	*	*	*	1.000	0.414	0.279	0.225	0.420	0.626
May	*	*	*	*	*	*	*	1.000	0.403	0.317	0.284	0.511
June	*	*	*	*	*	*	*	*	1.000	0.778	0.434	0.451
July	*	*	*	*	*	*	*	*	*	1.000	0.586	0.397
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.617
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E36.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06433000, Redwater River above Belle Fourche

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1947	58.0	44	59.3	44	62.1	44	64.7	44	77.4	44	88.7	44	107	44	120	44	145	44
1948	12.0	39	15.0	39	18.3	40	21.8	40	30.8	38	56.0	40	67.7	39	79.0	35	97.7	32
1949	4.60	30	4.80	29	5.24	27	5.36	19	10.5	21	15.4	14	32.1	17	49.0	18	76.6	20
1950	3.00	20	3.17	19	3.93	18	4.39	14	6.07	12	14.0	13	19.9	11	36.1	15	64.7	16
1951	4.30	29	4.30	27	4.84	26	5.96	23	11.6	23	34.4	28	51.1	26	54.2	21	74.2	19
1952	3.00	21	3.27	21	4.83	25	5.60	21	9.46	18	23.1	19	25.4	15	30.4	12	52.0	9
1953	3.00	22	3.00	17	3.00	12	5.24	18	19.8	32	46.8	37	50.9	25	56.2	22	79.2	22
1954	1.80	11	2.07	11	2.31	8	2.53	7	3.89	7	5.15	6	12.8	6	26.5	9	54.3	11
1955	3.40	26	3.77	24	4.50	22	6.32	24	23.3	34	24.5	22	34.0	18	49.5	19	69.5	17
1956	3.30	25	3.43	23	4.14	20	4.35	13	4.58	8	7.50	10	13.7	8	21.4	7	43.3	4
1957	2.90	18	3.40	22	4.40	21	4.87	17	10.3	20	36.2	30	54.0	29	64.4	26	80.9	25
1958	5.00	32	5.67	33	5.86	30	6.36	25	8.03	15	17.4	16	26.5	16	35.0	14	49.4	8
1959	1.80	12	1.93	10	2.07	7	2.34	6	2.67	4	3.44	1	4.33	1	8.85	2	29.6	3
1960	.20	4	.50	4	.56	1	.72	1	1.10	1	5.53	7	8.41	4	13.1	4	25.2	2
1961	1.00	9	1.10	6	1.26	4	1.50	3	2.15	2	3.58	2	4.66	2	5.34	1	20.7	1
1962	5.00	33	5.67	34	6.57	33	7.64	29	17.6	30	44.2	35	64.4	35	72.5	32	79.3	23
1963	5.00	34	5.27	31	5.49	28	7.67	30	14.0	24	26.4	23	50.8	24	60.4	23	73.4	18
1964	2.90	19	3.90	25	4.51	23	4.76	16	9.58	19	47.8	38	66.0	38	75.8	34	90.6	29
1965	20.0	42	23.3	42	27.9	42	36.2	42	40.3	42	72.6	42	103	43	116	43	135	42
1966	3.20	24	4.00	26	4.59	24	5.43	20	9.02	17	26.8	24	40.2	19	50.7	20	79.7	24
1967	2.80	17	3.20	20	3.70	17	5.75	22	17.2	29	23.1	20	52.8	28	75.1	33	102	34
1968	.25	5	1.22	8	2.66	10	7.33	28	16.0	27	30.1	25	56.0	30	67.7	27	84.5	26
1969	.57	6	1.06	5	1.65	6	2.86	9	5.79	11	10.4	12	23.2	13	46.3	16	78.8	21
1970	3.90	28	4.30	28	5.50	29	19.0	37	26.5	36	43.1	34	62.8	34	85.1	37	116	38
1971	6.70	35	7.30	35	9.34	36	17.1	35	23.2	33	37.4	31	74.5	41	103	41	131	41
1972	73.0	46	76.7	46	94.6	46	105	46	117	46	129	46	140	46	147	46	158	46
1973	68.0	45	69.7	45	70.7	45	72.1	45	80.3	45	98.2	45	124	45	137	45	156	45
1974	7.40	37	7.60	36	8.70	35	10.8	31	15.1	25	33.5	26	56.8	31	71.3	30	98.2	33
1975	2.00	13	2.33	12	3.51	16	6.86	27	8.79	16	17.6	17	41.4	20	60.5	24	92.9	30
1976	30.0	43	32.7	43	41.1	43	45.7	43	63.9	43	80.1	43	97.6	42	112	42	124	40
1977	1.10	10	2.53	14	4.00	19	17.2	36	26.0	35	38.7	32	52.5	27	69.5	29	104	35
1978	11.0	38	14.3	38	18.0	39	19.6	38	37.2	40	56.1	41	70.1	40	86.9	38	116	39
1979	6.90	36	9.20	37	11.2	37	14.6	34	40.2	41	54.5	39	65.5	36	72.4	31	87.4	27
1980	.12	3	.29	2	1.05	3	1.72	4	2.26	3	4.63	5	23.3	14	29.7	11	52.9	10
1981	.0000	1	.16	1	.92	2	1.30	2	15.5	26	35.2	29	45.0	23	48.8	17	57.6	13
1982	.0000	2	.46	3	6.58	34	11.4	32	17.8	31	34.1	27	61.9	33	102	40	135	43
1983	13.0	40	15.7	40	23.3	41	24.2	41	30.2	37	41.1	33	59.9	32	83.6	36	105	36
1984	17.0	41	17.0	41	17.6	38	20.6	39	31.2	39	44.5	36	65.7	37	89.7	39	109	37
1985	.76	8	1.35	9	2.71	11	3.95	12	6.99	14	10.2	11	13.0	7	16.0	5	47.9	7
1986	3.50	27	4.87	30	6.26	32	11.7	33	17.1	28	21.0	18	41.5	21	68.8	28	96.1	31
1987	4.70	31	5.60	32	6.07	31	6.51	26	10.5	22	23.3	21	44.2	22	60.8	25	88.3	28
1988	.72	7	1.11	7	1.39	5	2.30	5	3.30	6	4.56	4	5.44	3	9.14	3	45.9	6
1989	2.50	16	2.60	16	3.10	13	4.59	15	6.25	13	7.25	9	15.5	9	29.4	10	62.7	14
1990	2.30	14	2.40	13	3.24	14	3.57	11	5.09	9	7.18	8	10.9	5	22.6	8	54.8	12
1991	2.40	15	2.53	15	2.61	9	2.72	8	2.88	5	3.61	3	17.8	10	34.8	13	64.2	15
1992	3.00	23	3.07	18	3.30	15	3.49	10	5.45	10	16.3	15	22.5	12	20.7	6	44.2	5

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E36.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06433000, Redwater River above Belle Fourche

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1947	2,310	5	1,910	4	1,233	4	807	4	520	8	347	9	319	7	307	5	272	2
1948	549	20	280	26	264	25	219	28	194	27	194	27	191	23	190	21	187	19
1949	651	17	586	16	465	14	329	16	284	17	255	16	257	15	229	15	188	17
1950	262	34	252	32	242	28	223	27	202	26	201	23	184	24	176	23	163	24
1951	203	40	191	41	171	41	149	43	145	41	137	40	131	42	129	41	125	41
1952	1,060	10	723	13	451	16	295	20	180	31	177	28	173	28	166	28	149	29
1953	568	19	395	22	310	22	285	21	269	19	226	19	192	22	174	24	159	25
1954	186	43	171	43	160	42	150	42	146	40	138	39	134	39	133	38	131	35
1955	422	23	395	21	299	23	213	29	187	29	172	30	161	30	152	30	141	33
1956	400	24	263	28	195	36	163	39	143	42	134	42	131	41	130	40	125	39
1957	249	36	240	35	216	33	179	33	154	37	150	36	145	36	138	35	125	40
1958	205	39	195	39	187	37	169	36	159	36	144	38	134	40	128	42	124	42
1959	163	44	150	44	136	45	126	46	123	46	119	46	119	46	116	45	113	45
1960	277	32	260	29	219	32	169	37	148	39	127	43	122	44	116	46	111	46
1961	121	47	119	47	117	47	116	47	113	47	110	47	109	47	107	47	95.8	47
1962	3,870	4	1,778	5	1,030	5	632	7	598	4	422	6	311	9	253	11	204	12
1963	984	11	797	10	608	12	463	12	348	13	296	14	267	14	235	14	196	13
1964	1,960	6	1,620	6	1,019	6	744	6	530	6	322	11	271	12	239	13	195	14
1965	5,190	2	3,157	3	1,753	3	1,171	3	767	3	506	2	401	2	335	2	269	3
1966	256	35	241	33	233	31	227	26	222	23	208	22	197	21	186	22	182	20
1967	513	21	409	20	358	19	306	19	246	21	220	20	205	19	191	20	176	22
1968	280	31	259	30	216	34	175	35	162	35	155	33	150	33	149	31	148	30
1969	1,080	9	825	9	587	13	439	13	350	12	269	15	236	16	212	16	189	15
1970	1,490	7	1030	8	679	9	627	8	539	5	462	3	369	3	314	4	250	6
1971	572	18	532	17	428	17	374	15	323	15	298	13	270	13	249	12	225	11
1972	761	14	648	15	462	15	379	14	327	14	318	12	280	11	254	10	228	10
1973	820	13	750	12	732	8	564	10	520	7	429	5	357	5	314	3	267	4
1974	316	28	306	24	291	24	275	22	250	20	215	21	201	20	192	19	188	18
1975	465	22	438	19	386	18	327	17	292	16	252	17	227	17	209	17	188	16
1976	5,030	3	3,667	2	2,394	2	1,345	2	789	2	462	4	358	4	307	6	253	5
1977	351	25	344	23	331	21	307	18	272	18	239	18	211	18	196	18	179	21
1978	828	12	753	11	666	10	567	9	485	10	356	8	318	8	280	8	229	9
1979	283	30	241	34	240	29	230	25	213	24	196	24	183	25	170	26	165	23
1980	332	27	205	38	155	43	154	41	153	38	150	35	146	35	146	32	144	32
1981	155	45	143	45	143	44	139	44	138	43	137	41	135	38	133	39	126	38
1982	5,790	1	4,177	1	3,045	1	1,812	1	1,085	1	644	1	473	1	386	1	288	1
1983	711	15	684	14	625	11	492	11	426	11	342	10	295	10	270	9	231	8
1984	1,200	8	1,047	7	954	7	771	5	510	9	397	7	329	6	285	7	244	7
1985	200	41	190	42	180	40	169	38	167	34	153	34	153	31	145	33	144	31
1986	336	26	286	25	250	26	240	24	228	22	194	26	178	26	170	27	158	26
1987	304	29	273	27	246	27	209	30	189	28	175	29	166	29	157	29	153	27
1988	263	33	255	31	234	30	193	32	167	33	158	31	153	32	145	34	141	34
1989	222	38	214	37	209	35	197	31	184	30	158	32	147	34	135	37	128	36
1990	198	42	194	40	186	38	179	34	171	32	150	37	142	37	136	36	127	37
1991	237	37	218	36	182	39	156	40	132	44	127	44	124	43	125	43	119	43
1992	140	46	135	46	133	46	132	45	128	45	121	45	120	45	117	44	116	44
1993	654	16	517	18	348	20	268	23	209	25	195	25	178	27	173	25	152	28

Table E37.1. Mean flow, in cubic feet per second, for station 06433500, Hay Creek at Belle Fourche

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1954	0.31	0.55	0.45	0.25	0.34	0.43	1.72	0.85	0.49	0.006	0.000	0.36	0.48
1955	.11	.000	.090	.10	.050	.13	2.36	.58	.093	.15	.12	.81	.38
1956	.35	.15	.15	.11	.000	.33	.41	.17	.000	.24	.000	.010	.16
1957	.63	.000	.000	.000	.018	.15	.14	1.08	7.30	.48	.16	2.23	1.01
1958	.058	.12	.22	.019	.075	.38	4.77	.58	.73	.055	.000	.000	.58
1959	.000	.020	.003	.12	.60	.47	.030	.013	.047	.003	.000	.003	.11
1960	.006	.040	.032	.27	.000	1.42	.097	.45	.043	.000	.016	.000	.20
1961	.003	.000	.000	.000	.000	.019	.073	.016	.000	.019	.000	.010	.012
1962	.081	.11	.000	.10	.43	.54	.27	18.7	12.2	4.55	.048	.003	3.11
1963	.19	.007	.000	.000	.007	.36	2.46	.69	3.41	.029	.000	.12	.60
1964	.026	.020	.068	.010	.000	.061	.10	.37	18.6	.71	.055	.000	1.64
1965	.000	.003	.006	.019	.21	.029	.40	13.7	4.37	.032	.000	.087	1.58
1966	.000	.017	.11	.000	.000	2.83	2.28	.39	.050	.86	.087	.14	.57
1967	.19	.11	.047	.091	.23	.15	.36	9.17	3.91	.16	.000	.14	1.22
1968	.33	.19	.013	.026	.048	.25	.35	.14	1.92	.60	.60	.94	.45
1969	.12	.036	.015	.013	.000	1.02	1.44	1.90	.59	.013	.007	.13	.44
1970	1.43	.10	.000	.000	.000	.58	2.46	8.46	6.08	.23	.30	.015	1.65
1971	.065	.39	.040	.13	17.4	1.02	3.93	5.25	9.11	.16	.022	.32	3.03
1972	2.83	.73	.055	.071	1.69	3.31	1.25	7.64	45.8	2.64	.55	.008	5.50
1973	.084	.40	.94	1.00	1.06	5.00	14.6	9.23	5.46	.79	1.42	.13	3.35
1974	.42	.47	.35	1.52	1.64	1.77	12.2	3.28	1.00	.17	.014	.000	1.89
1975	.005	.000	.000	.087	1.05	2.38	4.25	6.13	2.06	.14	.000	.000	1.34
1976	.000	.000	.000	.040	.12	.17	.50	.23	39.7	1.21	.014	.000	3.45
1977	.000	.000	.006	.000	.22	.31	2.43	.37	.023	.010	.020	.028	.28
1978	.66	.064	.12	.011	.98	23.1	2.32	22.2	2.39	.84	.004	.000	4.46
1979	.000	.026	.020	.000	.000	6.66	1.84	.73	1.67	.000	.34	.000	.95
1980	.069	.000	.000	.000	.060	.11	.17	.073	1.53	.000	.033	1.25	.27
1981	.16	.010	.055	.073	.34	.39	.26	.51	1.64	4.25	.25	.31	.69
1982	.15	.038	.058	.000	.078	1.17	.78	50.0	5.02	.24	.040	.051	4.88
1983	7.99	.59	.47	.60	.96	6.00	7.82	2.40	.42	.031	.036	.006	2.29
1984	.018	.000	.000	.95	.10	.35	.67	10.3	18.0	.75	1.51	.002	2.71
1985	.057	.074	.015	.000	.000	2.15	1.06	.15	.21	.000	.049	.000	.32
1986	.020	.000	.000	.000	2.56	.80	4.34	3.97	1.14	.044	.012	.33	1.09
1987	.39	1.23	.21	.039	.28	2.47	6.45	4.83	1.68	.057	.28	.050	1.50
1988	.021	.067	.019	.000	.000	.26	.99	2.08	.11	.004	.24	.043	.32
1989	.009	.010	.017	.13	.007	.89	1.40	3.65	.30	.12	.000	.25	.57
1990	.38	.21	.062	.36	.41	.24	.76	3.35	.43	.26	.000	.040	.55
1991	.023	.15	.016	.000	.047	.081	.40	1.26	3.03	.007	.045	.19	.44
1992	.030	.072	.11	.27	.099	.10	.073	.049	.13	.25	.063	.014	.11
1993	.23	.007	.000	.006	.026	8.85	1.54	.91	12.7	2.95	.40	.053	2.31

Table E37.2. Statistics on mean flow, in cubic feet per second, for station 06433500, Hay Creek at Belle Fourche (October 1953 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	40	40	40	40	40	40	40	40	40	40	40	40	40
Maximum	7.99	1.23	0.94	1.52	17.4	23.1	14.6	50.0	45.8	4.55	1.51	2.23	5.50
Percentile													
75th	0.32	0.15	0.10	0.13	0.43	2.05	2.45	5.91	5.35	0.68	0.22	0.18	2.19
50th	0.075	0.039	0.019	0.032	0.088	0.45	1.15	1.17	1.65	0.16	0.034	0.041	0.82
25th	0.011	0.004	0.000	0.000	0.002	0.19	0.35	0.37	0.23	0.014	0.000	0.002	0.39
Minimum	0.000	0.000	0.000	0.000	0.000	0.019	0.030	0.013	0.000	0.000	0.000	0.000	0.012
Mean	0.44	0.15	0.09	0.16	0.78	1.92	2.24	4.90	5.33	0.58	0.17	0.20	1.41
Standard deviation	1.32	0.25	0.18	0.32	2.75	3.98	3.17	8.97	9.91	1.10	0.34	0.43	1.41
Skewness	5.19	2.63	3.29	2.98	5.92	4.25	2.56	3.69	3.04	2.69	3.10	3.47	1.36
Coefficient of variation	3.03	1.69	1.91	2.00	3.54	2.07	1.41	1.83	1.86	1.90	2.01	2.11	1.00
Percent of annual flow	2.57	0.89	0.56	0.95	4.59	11.31	13.23	28.87	31.46	3.40	0.99	1.19	¹ 0.226

¹Serial correlation for annual mean flows.

Table E37.3. Serial correlation for 1-year lag for monthly mean flow for station 06433500, Hay Creek at Belle Fourche (October 1953 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.073	0.063	0.139	0.356	0.039	0.138	0.368	-0.151	-0.011	-0.148	-0.002	-0.073

Table E37.4. Correlation matrix for monthly mean flow for station 06433500, Hay Creek at Belle Fourche (October 1953 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.420	0.317	0.200	0.014	0.221	0.271	0.002	0.128	0.022	0.004	-0.055
Nov.	*	1.000	0.511	0.299	0.216	0.086	0.502	-0.002	0.147	-0.005	0.160	-0.121
Dec.	*	*	1.000	0.616	0.016	0.196	0.797	0.021	-0.122	-0.075	0.372	-0.102
Jan.	*	*	*	1.000	0.063	0.025	0.677	0.012	-0.009	-0.044	0.461	-0.156
Feb.	*	*	*	*	1.000	0.016	0.193	0.030	0.095	-0.038	-0.053	0.018
Mar.	*	*	*	*	*	1.000	0.216	0.263	0.006	0.136	0.084	-0.175
Apr.	*	*	*	*	*	*	1.000	0.015	-0.131	-0.137	0.309	-0.153
May	*	*	*	*	*	*	*	1.000	0.100	0.137	0.074	-0.164
June	*	*	*	*	*	*	*	*	1.000	0.448	0.289	-0.089
July	*	*	*	*	*	*	*	*	*	1.000	0.207	-0.055
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.010
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E37.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06433500, Hay Creek at Belle Fourche

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1954	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.043	28	0.059	27	0.081	23
1955	.0000	2	.0000	2	.0000	2	.0000	2	.0000	2	.047	38	.088	34	.092	31	.18	33
1956	.0000	3	.0000	3	.0000	3	.0000	3	.0000	3	.0000	2	.0000	1	.0010	5	.11	26
1957	.0000	4	.0000	4	.0000	4	.0000	4	.0000	4	.033	36	.072	32	.093	32	.093	24
1958	.0000	5	.0000	5	.0000	5	.0000	5	.0000	5	.0000	3	.0000	2	.0000	1	.007	5
1959	.0000	6	.0000	6	.0000	6	.0000	6	.0000	6	.0000	4	.0010	11	.002	9	.011	8
1960	.0000	7	.0000	7	.0000	7	.0000	7	.0000	7	.0000	5	.0000	3	.0000	2	.0010	2
1961	.0000	8	.0000	8	.0000	8	.0000	8	.0000	8	.0000	6	.003	15	.005	12	.012	10
1962	.0000	9	.0000	9	.0000	9	.0000	9	.0000	9	.0000	7	.0000	4	.002	10	.033	16
1963	.0000	10	.0000	10	.0000	10	.0000	10	.0000	10	.0000	8	.017	24	.023	23	.022	14
1964	.0000	11	.0000	11	.0000	11	.0000	11	.0000	11	.0000	9	.0010	12	.0010	6	.011	9
1965	.0000	12	.0000	12	.0000	12	.0000	12	.0000	12	.0000	10	.014	22	.022	22	.035	17
1966	.0000	13	.0000	13	.0000	13	.0000	13	.0000	13	.024	32	.056	30	.074	30	.10	25
1967	.0000	14	.0000	14	.0000	14	.0000	14	.0000	14	.007	24	.026	25	.053	26	.11	28
1968	.0000	15	.0000	15	.0000	15	.0000	15	.0000	15	.0010	23	.005	16	.014	18	.18	32
1969	.0000	16	.0000	16	.0000	16	.0000	16	.0000	16	.0000	11	.0000	5	.009	16	.27	34
1970	.0000	17	.0000	17	.0000	17	.0000	17	.0000	17	.007	25	.078	33	.13	34	.11	27
1971	.0000	18	.0000	18	.0000	18	.0000	18	.0000	18	.011	30	.13	37	.28	37	.66	38
1972	.0000	19	.0000	19	.0000	19	.0000	19	.005	36	.036	37	.14	38	.21	36	.48	36
1973	.0000	20	.0000	20	.0000	20	.0000	20	.097	39	.26	39	.32	39	.34	38	.57	37
1974	.0000	21	.0000	21	.0000	21	.0000	21	.0000	19	.0000	12	.002	13	.0010	7	.004	4
1975	.0000	22	.0000	22	.0000	22	.0000	22	.0000	20	.0000	13	.0000	6	.0000	3	.0000	1
1976	.0000	23	.0000	23	.0000	23	.0000	23	.0000	21	.0000	14	.0000	7	.0000	4	.0010	3
1977	.0000	24	.0000	24	.0000	24	.0000	24	.0010	34	.011	31	.010	20	.016	19	.13	29
1978	.0000	25	.0000	25	.0000	25	.0000	25	.0000	22	.0000	15	.0000	8	.007	15	.008	6
1979	.0000	26	.0000	26	.0000	26	.0000	26	.0000	23	.0000	16	.0000	9	.004	11	.016	12
1980	.0000	27	.0000	27	.0000	27	.0000	27	.0000	24	.0000	17	.038	27	.062	28	.15	30
1981	.0000	28	.0000	28	.0000	28	.0000	28	.0000	25	.007	26	.031	26	.038	25	.072	21
1982	.0000	29	.0000	29	.0000	29	.0000	29	.012	38	.027	34	.097	36	.61	39	1.58	39
1983	.0000	30	.0000	30	.0000	30	.0000	30	.0000	26	.0000	18	.006	18	.005	13	.015	11
1984	.0000	31	.0000	31	.0000	31	.0000	31	.0000	27	.0000	19	.005	17	.019	21	.025	15
1985	.0000	32	.0000	32	.0000	32	.0000	32	.0000	28	.0000	20	.0000	10	.0010	8	.008	7
1986	.0000	33	.0000	33	.0000	33	.0000	33	.004	35	.027	35	.062	31	.19	35	.36	35
1987	.0000	34	.0000	34	.0000	34	.0000	34	.0000	29	.0000	21	.006	19	.013	17	.020	13
1988	.0000	35	.0000	35	.0000	35	.0000	35	.0000	30	.008	28	.011	21	.017	20	.035	18
1989	.0000	36	.0000	36	.0000	36	.0000	36	.0000	31	.010	29	.088	35	.11	33	.17	31
1990	.0000	37	.0000	37	.0000	37	.0000	37	.0000	32	.007	27	.015	23	.023	24	.037	19
1991	.0000	38	.0000	38	.0000	38	.0000	38	.007	37	.026	33	.043	29	.067	29	.075	22
1992	.0000	39	.0000	39	.0000	39	.0000	39	.0000	33	.0000	22	.002	14	.006	14	.045	20

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E37.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06433500, Hay Creek at Belle Fourche

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1954	8.00	36	7.33	35	5.19	34	2.93	33	1.84	34	1.33	33	1.06	32	0.90	31	0.68	30
1955	19.0	23	12.0	26	7.16	28	3.89	31	2.51	30	1.48	31	1.03	34	.81	34	.68	31
1956	4.10	37	1.70	37	1.14	38	.80	38	.59	38	.41	38	.31	38	.27	38	.20	38
1957	73.0	12	32.7	17	22.7	15	13.4	15	7.34	16	4.28	20	3.39	19	2.81	19	1.89	19
1958	24.0	22	15.7	21	8.96	24	5.23	25	4.77	22	2.79	22	2.10	23	1.63	23	1.09	24
1959	2.00	39	1.57	38	1.21	37	.93	37	.88	37	.57	37	.39	37	.30	37	.21	37
1960	13.0	31	12.0	27	6.23	30	2.93	34	1.48	36	.78	36	.69	36	.52	36	.39	36
1961	.60	40	.20	40	.13	40	.11	40	.090	40	.055	40	.037	40	.032	40	.021	40
1962	248	4	104	5	62.9	5	39.0	5	30.4	4	18.0	4	12.1	5	9.22	5	6.16	5
1963	19.0	24	13.3	24	9.49	23	5.92	23	3.42	27	2.77	24	2.19	22	1.74	21	1.16	22
1964	136	6	107	4	51.3	8	29.1	8	19.1	6	9.72	8	6.58	9	4.95	10	3.26	11
1965	71.0	13	51.0	13	31.9	13	22.3	10	17.1	9	9.25	9	6.29	10	4.73	12	3.14	12
1966	14.0	30	8.97	32	6.24	29	5.25	24	3.72	25	2.73	25	1.88	25	1.41	25	1.11	23
1967	64.0	15	54.3	12	32.5	12	17.5	13	9.46	14	6.70	15	4.63	16	3.50	17	2.35	17
1968	9.50	33	7.93	33	4.89	35	2.64	36	1.96	33	1.28	34	1.07	31	1.02	29	.75	29
1969	9.40	34	7.37	34	5.70	32	4.80	26	2.95	28	2.08	28	1.59	26	1.26	27	.84	27
1970	55.0	16	37.7	15	22.1	16	12.5	16	10.4	13	8.07	11	5.76	12	4.47	13	3.02	14
1971	141	5	104	6	63.3	4	32.0	7	16.3	10	8.90	10	7.53	8	7.53	8	5.90	7
1972	610	1	332	1	167	2	85.7	2	46.2	2	26.8	2	18.9	2	14.6	2	10.3	1
1973	82.0	11	66.0	11	41.9	9	28.7	9	17.9	8	13.1	7	10.6	6	8.68	6	6.13	6
1974	65.0	14	50.3	14	31.1	14	20.7	12	12.9	12	7.85	12	5.81	11	4.80	11	3.56	10
1975	16.0	29	12.0	28	9.66	22	8.13	21	6.42	20	5.32	17	4.32	17	3.81	16	2.67	15
1976	365	3	222	3	149	3	75.4	3	40.1	3	20.5	3	13.8	4	10.4	4	6.89	4
1977	17.0	28	13.3	25	7.86	26	4.29	29	2.44	31	1.45	32	1.06	33	.84	33	.55	34
1978	123	8	85.0	8	54.7	6	45.9	4	24.5	5	17.1	5	16.7	3	13.0	3	8.74	3
1979	25.0	21	23.0	18	17.5	18	12.0	17	6.97	18	4.41	18	3.16	20	2.79	20	1.88	20
1980	31.0	19	12.0	29	5.64	33	2.74	35	1.55	35	.81	35	.81	35	.71	35	.51	35
1981	54.0	17	37.7	16	18.5	17	9.07	19	4.62	23	3.10	21	2.20	21	1.73	22	1.27	21
1982	523	2	258	2	177	1	99.5	1	54.9	1	28.4	1	19.3	1	14.7	1	9.68	2
1983	102	9	68.7	10	32.7	11	15.9	14	8.41	15	7.04	14	5.48	14	4.35	14	3.06	13
1984	125	7	95.7	7	53.6	7	32.9	6	18.2	7	14.3	6	9.90	7	7.84	7	5.25	8
1985	13.0	32	10.3	30	7.34	27	4.40	28	2.76	29	1.68	29	1.17	29	.91	30	.61	33
1986	32.0	18	21.0	19	12.0	21	7.88	22	7.10	17	4.35	19	3.81	18	3.19	18	2.11	18
1987	18.0	26	15.3	22	14.3	19	10.3	18	6.50	19	5.61	16	4.72	15	3.92	15	2.64	16
1988	8.70	35	6.90	36	4.39	36	3.25	32	2.20	32	1.60	30	1.15	30	.88	32	.62	32
1989	19.0	25	17.3	20	13.8	20	8.62	20	4.94	21	2.78	23	2.08	24	1.60	24	1.09	25
1990	28.0	20	14.7	23	7.90	25	4.65	27	3.44	26	2.24	26	1.58	27	1.27	26	.93	26
1991	18.0	27	9.73	31	5.91	31	3.98	30	3.87	24	2.18	27	1.58	28	1.20	28	.82	28
1992	2.30	38	1.33	39	.60	39	.35	39	.27	39	.21	39	.19	39	.16	39	.13	39
1993	88.0	10	74.0	9	41.1	10	21.5	11	13.6	11	7.85	13	5.61	13	5.93	9	4.56	9

Table E38.1. Mean flow, in cubic feet per second, for station 06434500, Inlet Canal near Belle Fourche

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1946	114	123	136	159	160	206	129	182	13.1	134	123	151	136
1947	22.4	7.23	8.32	95.2	128	9.84	.000	215	115	180	119	114	84.4
1948	163	179	187	163	149	119	.000	67.3	156	186	101	36.2	126
1949	83.3	120	131	86.1	64.3	3.39	204	337	195	58.1	14.9	92.0	116
1950	121	123	127	130	158	219	711	356	123	29.9	37.2	70.2	183
1951	131	118	141	135	131	149	151	77.1	163	60.2	56.8	243	129
1952	150	142	125	121	199	375	521	299	96.4	87.7	34.9	47.0	183
1953	77.5	96.9	126	133	136	194	192	547	483	123	280	97.5	208
1954	78.0	119	157	138	153	163	238	128	162	36.7	25.6	18.0	118
1955	69.6	104	121	127	118	144	539	473	387	106	94.7	173	204
1956	142	122	173	139	144	317	285	160	81.3	36.8	21.5	46.6	139
1957	77.2	142	136	87.7	138	217	212	271	387	142	57.5	123	166
1958	108	131	141	122	127	179	346	214	167	100	55.6	34.6	144
1959	68.6	110	124	115	123	273	246	130	75.4	110	41.5	17.9	120
1960	95.8	122	127	102	111	406	217	147	66.8	3.82	36.0	28.0	122
1961	55.4	100	119	112	115	155	84.9	31.2	12.0	16.2	2.68	35.2	69.7
1962	78.0	104	101	109	210	379	368	548	669	159	75.9	81.1	240
1963	149	152	146	116	258	233	47.1	175	265	96.3	74.4	148	154
1964	109	152	133	147	146	172	237	256	518	181	127	122	191
1965	134	137	145	158	171	198	487	55.7	2.66	83.1	75.8	148	149
1966	190	189	187	168	55.7	.000	24.4	40.6	122	159	122	117	115
1967	157	160	150	158	194	408	279	432	103	101	105	190	203
1968	163	178	159	155	180	292	202	153	256	125	111	127	175
1969	115	159	147	146	146	321	443	115	235	170	76.2	83.1	179
1970	124	175	163	137	158	204	456	299	149	156	176	131	194
1971	170	217	194	162	337	354	136	8.16	120	136	119	184	177
1972	358	209	185	194	271	145	11.2	1.55	82.7	242	252	207	180
1973	281	235	211	213	16.5	.000	.000	203	238	157	172	212	163
1974	207	225	212	221	284	234	.40	69.5	162	142	152	151	171
1975	131	191	174	163	171	281	523	259	241	99.2	94.0	130	204
1976	136	176	173	170	198	221	268	192	321	85.1	67.2	164	180
1977	174	187	179	167	185	214	579	340	130	123	278	149	225
1978	263	184	170	160	164	693	414	72.0	241	209	146	156	240
1979	167	197	190	143	151	377	348	46.5	179	109	159	120	182
1980	133	170	167	142	157	196	186	88.3	197	64.0	281	133	159
1981	134	153	150	147	151	139	138	273	303	288	125	132	178
1982	127	141	120	89.8	142	165	178	704	265	102	121	143	192
1983	389	210	171	212	116	.000	.000	8.10	208	145	143	142	146
1984	187	181	145	186	188	271	254	460	261	165	108	139	212
1985	184	192	180	144	152	334	231	96.5	70.1	83.3	66.2	83.6	151
1986	153	120	125	146	170	277	420	515	248	95.2	83.7	183	211
1987	222	195	167	155	171	387	240	172	118	125	151	139	187
1988	153	103	146	92.3	107	232	213	220	81.9	88.6	66.8	85.2	133
1989	140	146	133	107	107	270	212	328	94.9	76.5	73.5	96.1	149
1990	142	157	137	150	151	206	184	310	116	67.1	75.8	44.0	145
1991	90.3	110	103	96.4	127	138	161	308	222	55.2	67.4	78.4	130
1992	103	143	132	116	123	130	125	28.6	44.3	71.0	53.7	47.9	93.0
1993	88.0	124	111	90.6	101	283	227	250	542	88.9	88.2	92.6	174

Table E38.2. Statistics on mean flow, in cubic feet per second, for station 06434500, Inlet Canal near Belle Fourche (October 1945 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	48	48	48	48	48	48	48	48	48	48	48	48	48
Maximum	389	235	212	221	337	693	711	704	669	288	281	243	240
Percentile													
75th	166	183	172	160	171	290	347	309	254	153	126	149	190
50th	134	149	145	142	151	215	215	197	162	104	91.1	122	168
25th	97.6	120	127	115	124	150	136	79.9	98.0	78.1	59.7	79.1	134
Minimum	22.4	7.23	8.32	86.1	16.5	0.000	0.000	1.55	2.66	3.82	2.68	17.9	69.7
Mean	143.92	150.65	147.61	140.13	154.45	226.73	243.08	222.13	197.68	113.71	103.93	114.30	163.13
Standard deviation	69.80	42.35	34.03	33.29	55.20	127.97	170.54	164.10	142.06	56.73	66.38	54.58	38.75
Skewness	1.60	-0.48	-1.16	0.38	0.84	0.75	0.64	0.86	1.38	0.63	1.22	0.03	-0.20
Coefficient of variation	0.48	0.28	0.23	0.24	0.36	0.56	0.70	0.74	0.72	0.50	0.64	0.48	0.24
Percent of annual flow	7.35	7.69	7.54	7.16	7.89	11.58	12.41	11.34	10.09	5.81	5.31	5.84	¹ 0.117

¹Serial correlation for annual mean flows.

Table E38.3. Serial correlation for 1-year lag for monthly mean flow for station 06434500, Inlet Canal near Belle Fourche (October 1945 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.409	0.433	0.231	0.416	-0.021	0.133	0.081	-0.260	-0.168	0.152	0.224	0.282

Table E38.4. Correlation matrix for monthly mean flow for station 06434500, Inlet Canal near Belle Fourche (October 1945 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.763	0.658	0.745	0.199	0.041	-0.235	-0.340	-0.176	0.395	0.426	0.460
Nov.	*	1.000	0.896	0.753	0.306	0.145	-0.107	-0.346	-0.086	0.323	0.406	0.389
Dec.	*	*	1.000	0.713	0.236	0.126	-0.082	-0.428	-0.182	0.171	0.326	0.289
Jan.	*	*	*	1.000	0.308	-0.041	-0.149	-0.336	-0.131	0.416	0.464	0.472
Feb.	*	*	*	*	1.000	0.412	0.067	-0.086	-0.009	0.209	0.203	0.277
Mar.	*	*	*	*	*	1.000	0.445	0.031	0.042	-0.042	-0.057	-0.041
Apr.	*	*	*	*	*	*	1.000	0.367	0.090	-0.219	-0.108	-0.082
May	*	*	*	*	*	*	*	1.000	0.490	-0.038	0.032	0.054
June	*	*	*	*	*	*	*	*	1.000	0.292	0.163	0.143
July	*	*	*	*	*	*	*	*	*	1.000	0.494	0.390
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.488
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E38.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06434500, Inlet Canal near Belle Fourche

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1946	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	4.48	2	5.28	1	21.4	2	45.1	2
1947	.0000	2	.0000	2	.0000	2	.0000	2	.0000	2	108	40	112	37	125	39	124	31
1948	.0000	3	.0000	3	.0000	3	.0000	3	.0000	3	32.1	14	50.8	12	71.0	14	81.3	11
1949	.0000	4	.0000	4	5.20	22	5.89	20	13.6	17	36.3	16	50.8	13	65.2	12	85.8	13
1950	10.0	34	10.0	33	10.6	31	11.1	25	15.7	18	28.2	10	39.8	8	58.9	9	81.0	9
1951	5.20	29	6.13	29	6.91	25	7.97	22	18.0	20	56.1	19	82.2	25	86.3	22	123	28
1952	7.00	31	8.00	31	8.71	28	15.9	27	34.4	25	37.9	17	45.4	9	54.1	8	69.1	7
1953	52.0	45	65.3	46	67.3	45	68.9	42	76.0	38	85.8	31	94.7	30	108	29	121	27
1954	2.70	26	2.90	25	3.06	20	3.61	17	9.00	14	17.1	8	22.4	4	35.3	4	62.0	5
1955	56.0	46	57.0	44	60.7	42	64.6	41	92.0	43	99.2	37	116	40	129	40	130	34
1956	4.70	28	5.23	28	6.39	23	9.19	24	18.4	21	25.7	9	33.3	6	43.4	5	64.0	6
1957	6.00	30	6.33	30	7.43	26	8.36	23	30.4	24	84.7	30	89.3	27	96.9	26	110	21
1958	9.00	33	9.33	32	10.1	30	12.8	26	26.3	23	39.1	18	51.5	14	63.9	11	81.1	10
1959	2.70	27	3.03	26	3.50	21	4.03	18	10.0	16	28.2	11	48.0	11	58.9	10	71.1	8
1960	.10	22	.40	22	.44	18	.63	15	3.08	13	16.3	7	20.3	3	27.1	3	46.5	3
1961	.70	23	.77	23	1.47	19	1.63	16	2.03	12	4.82	3	10.2	2	9.75	1	27.9	1
1962	1.20	25	5.00	27	13.6	33	36.9	34	60.0	32	64.7	23	82.0	24	95.9	25	113	23
1963	.0000	5	.0000	5	.0000	4	.079	14	38.7	26	81.4	29	99.4	32	104	27	117	25
1964	48.0	43	49.0	42	60.7	43	84.1	45	87.9	42	118	43	120	42	124	37	131	35
1965	.0000	6	.0000	6	.0000	5	.0000	4	.0000	4	6.28	4	36.2	7	46.8	6	89.4	14
1966	.0000	7	.0000	7	.0000	6	.0000	5	9.83	15	32.3	15	61.9	16	82.2	19	97.6	17
1967	16.0	37	16.0	36	16.9	34	26.4	29	82.4	40	92.3	34	96.7	31	122	35	139	39
1968	40.0	42	50.0	43	62.1	44	84.6	46	109	46	112	42	117	41	117	33	129	33
1969	1.00	24	1.40	24	8.27	27	36.3	33	70.4	35	72.9	27	89.9	28	107	28	126	32
1970	12.0	35	12.7	35	13.3	32	30.2	31	106	45	125	46	148	45	143	44	152	41
1971	.0000	8	.0000	8	.0000	7	.0000	6	.0000	5	9.93	6	57.0	15	72.4	16	111	22
1972	.0000	9	.0000	9	.0000	8	.0000	7	.0000	6	6.40	5	31.1	5	83.2	20	133	37
1973	.0000	10	.0000	10	.0000	9	.0000	8	.0000	7	92.4	35	146	44	150	45	164	45
1974	.0000	11	.0000	11	.0000	10	.0000	9	.0000	8	30.9	12	77.7	22	93.2	24	113	24
1975	.0000	12	.0000	12	9.00	29	61.3	39	74.5	37	89.3	33	102	34	110	31	132	36
1976	.0000	13	.0000	13	16.9	35	34.1	32	64.8	34	71.1	25	88.2	26	109	30	135	38
1977	61.0	47	69.3	47	82.9	47	86.6	47	116	47	124	45	163	47	167	47	180	47
1978	.0000	14	.0000	14	.0000	11	.0000	10	.0000	9	134	47	156	46	155	46	158	44
1979	.0000	15	.0000	15	.0000	12	7.79	21	45.4	28	109	41	110	36	122	36	124	30
1980	18.0	38	18.7	38	20.4	36	25.1	28	51.3	30	119	44	113	38	130	41	144	40
1981	51.0	44	58.7	45	76.3	46	78.9	44	85.1	41	102	38	114	39	118	34	120	26
1982	.0000	16	.0000	16	.0000	13	.0000	11	.0000	10	56.9	20	94.6	29	125	38	177	46
1983	.0000	17	.0000	17	.0000	14	.0000	12	.0000	11	.0000	1	71.1	20	89.3	23	107	20
1984	.0000	18	.0000	18	.0000	15	69.1	43	99.0	44	107	39	123	43	140	42	155	42
1985	8.00	32	10.8	34	26.5	37	40.0	36	48.7	29	70.1	24	69.5	19	72.3	15	91.4	15
1986	15.0	36	17.0	37	30.4	39	63.4	40	81.4	39	.8	32	102	35	142	43	156	43
1987	.0000	19	.0000	19	.0000	16	.0000	13	25.2	22	95.8	36	101	33	112	32	123	29
1988	22.0	40	27.3	40	42.4	41	55.0	38	64.4	33	71.7	26	76.6	21	79.1	18	99.1	18
1989	31.0	41	31.7	41	38.4	40	48.0	37	72.4	36	74.8	28	79.1	23	84.4	21	106	19
1990	.0000	20	.0000	20	6.57	24	28.4	30	42.7	27	59.5	21	62.5	17	68.2	13	81.6	12
1991	19.0	39	20.3	39	29.6	38	39.0	35	52.5	31	61.2	22	65.6	18	72.6	17	94.8	16
1992	.0000	21	.0000	21	.0000	17	4.34	19	16.7	19	32.0	13	46.1	10	48.2	7	55.4	4

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E38.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06434500, Inlet Canal near Belle Fourche

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1946	488	43	435	43	392	42	351	39	228	43	191	42	187	41	178	41	168	39
1947	541	42	541	41	488	36	256	46	216	45	168	45	171	45	159	45	124	47
1948	320	46	304	46	291	46	279	45	222	44	184	44	180	44	174	43	160	42
1949	430	44	387	45	383	44	368	37	343	34	304	27	250	31	202	36	151	43
1950	1,110	17	1,110	9	1,073	7	915	4	714	4	572	3	448	3	371	6	286	6
1951	996	21	832	24	580	28	371	36	243	41	154	46	146	46	144	46	138	44
1952	1,330	5	1,170	7	1,108	5	854	5	647	6	459	10	408	8	350	8	276	8
1953	1,180	9	1,068	13	886	14	667	13	551	12	525	5	412	6	373	5	305	2
1954	749	35	599	35	424	39	299	43	240	42	202	41	185	42	175	42	165	40
1955	1,160	12	1,041	15	780	16	706	12	547	13	511	6	470	2	388	2	297	4
1956	708	37	629	34	555	32	495	27	388	24	308	26	263	26	232	29	205	28
1957	790	33	751	28	662	24	536	20	408	23	342	21	292	21	272	18	227	22
1958	880	28	775	26	644	26	507	25	376	27	310	24	260	28	230	30	194	30
1959	720	36	687	32	571	29	409	34	331	35	275	34	230	36	202	37	173	36
1960	1,120	15	1,087	12	998	10	759	9	506	16	337	22	262	27	226	32	189	32
1961	219	47	209	47	197	47	191	47	161	47	139	48	130	48	127	48	115	48
1962	1,340	2	1,327	2	1,311	2	1,198	1	986	1	677	1	558	1	502	1	394	1
1963	632	39	501	42	410	40	376	35	300	37	246	39	204	39	190	39	182	34
1964	1,180	10	1,115	8	1,005	9	846	6	576	10	394	15	341	14	309	14	255	13
1965	1,170	11	1,028	16	746	20	580	18	495	17	350	20	293	20	259	22	218	24
1966	992	22	579	38	370	45	290	44	196	46	190	43	189	40	184	40	132	45
1967	1,120	16	1,061	14	925	11	586	17	439	20	420	12	377	11	333	9	272	11
1968	626	40	581	37	474	37	360	38	296	38	251	37	228	38	226	31	208	26
1969	823	31	688	31	556	31	504	26	478	18	390	17	309	17	288	16	238	18
1970	1,040	19	1,009	18	790	15	625	15	577	9	425	11	339	15	291	15	246	16
1971	909	26	877	19	768	18	555	19	445	19	393	16	318	16	284	17	254	14
1972	977	24	873	20	695	22	520	23	375	28	286	31	253	30	242	26	227	23
1973	751	34	663	33	570	30	488	29	365	31	266	35	242	33	235	27	164	41
1974	859	29	706	30	541	33	434	31	373	29	317	23	275	24	261	21	228	21
1975	988	23	860	21	767	19	663	14	617	7	472	8	382	9	332	10	274	10
1976	946	25	845	22	778	17	525	22	353	32	288	30	283	23	263	20	234	20
1977	1,160	13	1,107	10	924	12	730	11	617	8	468	9	381	10	331	11	277	7
1978	1,340	3	1,317	3	1,229	3	1,099	3	814	3	587	2	444	4	374	4	305	3
1979	633	38	554	39	517	34	466	30	418	21	366	19	294	19	257	23	235	19
1980	887	27	581	36	408	41	318	41	290	39	211	40	182	43	171	44	170	38
1981	1,080	18	843	23	628	27	431	32	352	33	294	29	291	22	256	24	217	25
1982	1,410	1	1370	1	1326	1	1,195	2	868	2	531	4	416	5	351	7	266	12
1983	1,210	8	1,015	17	723	21	535	21	414	22	303	28	260	29	248	25	183	33
1984	1,270	7	1,187	6	1,149	4	829	7	537	14	418	13	367	12	325	13	275	9
1985	825	30	771	27	650	25	492	28	371	30	285	32	246	32	217	33	206	27
1986	1,280	6	1,207	5	1,051	8	735	10	666	5	487	7	409	7	375	3	297	5
1987	1,140	14	1,093	11	899	13	598	16	507	15	378	18	305	18	268	19	241	17
1988	419	45	400	44	385	43	307	42	252	40	249	38	228	37	197	38	170	37
1989	812	32	785	25	669	23	513	24	383	25	309	25	275	25	234	28	194	29
1990	1,030	20	722	29	494	35	345	40	320	36	252	36	234	35	217	34	191	31
1991	623	41	547	40	455	38	426	33	376	26	281	33	236	34	211	35	175	35
1992	173	48	159	48	157	48	153	48	146	48	139	47	132	47	129	47	128	46
1993	1,340	4	1,313	4	1,108	6	812	8	556	11	403	14	347	13	329	12	252	15

Table E39.1. Mean flow, in cubic feet per second, for station 06435500, Belle Fourche River near Belle Fourche

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1906	(1)	(1)	(1)	(1)	(1)	(1)	(1)	940	711	148	266	223	(2)
1907	225	221	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)
1912	(1)	(1)	(1)	113	241	310	3,466	1,118	201	198	966	428	(2)
1913	376	200	220	260	326	792	1,577	320	416	226	221	446	447
1914	355	267	245	330	336	322	285	466	312	121	624	243	326
1915	411	266	228	151	150	304	1,526	740	1,581	1,518	954	704	712
1916	681	246	535	412	966	733	681	863	898	279	284	148	559
1917	223	170	122	221	227	439	1,562	524	312	30.9	34.4	96.2	329
1918	173	183	180	191	563	741	393	549	270	461	163	270	344
1919	189	197	218	287	165	252	392	303	16.4	89.1	107	95.6	193
1920	222	276	215	188	190	4,278	646	1,658	389	153	67.4	131	708
1921	256	181	164	207	378	345	165	104	780	288	105	50.5	250
1922	112	138	137	193	218	476	526	1,898	915	682	416	144	491
1923	166	271	180	202	163	748	956	463	378	650	856	514	464
1924	1,126	266	303	306	739	662	4,855	1,050	436	275	158	144	854
1925	402	251	250	199	937	1,380	699	261	440	114	174	158	435
1926	223	202	196	255	367	966	449	301	281	706	128	139	352
1927	166	184	173	167	185	287	823	1,717	1,184	494	673	213	524
1928	267	258	240	611	386	1,581	649	516	462	782	156	244	515
1929	199	213	175	145	139	1,745	3,355	1,489	1,367	354	88.3	163	786
1930	256	200	231	210	423	414	458	211	425	115	58.1	101	257
1931	224	224	249	175	166	211	245	132	79.8	16.9	37.5	54.7	151
1932	125	132	172	170	216	345	718	348	294	131	52.6	77.1	231
1933	114	137	97.6	146	128	466	409	1,147	230	54.9	26.6	135	259
1934	159	162	140	164	166	166	172	36.4	156	41.8	33.2	59.5	121
1935	100	92.1	137	140	140	234	154	139	301	55.7	5.94	24.6	127
1936	64.1	108	115	160	164	423	204	82.3	9.67	21.8	9.55	28.5	116
1937	85.9	119	131	133	136	158	136	49	381	655	21.7	85.8	175
1938	89.7	112	124	136	141	209	147	131	80.8	22.2	15	71.6	106
1939	68.9	104	109	132	114	270	147	50.1	137	31.7	16.7	19.4	99.8
1940	59.2	62.4	97.8	92.1	115	166	263	195	326	32.2	26.8	26.8	121
1941	68.9	91.2	110	98	108	110	415	315	1,672	152	62.6	311	291
1942	109	95	125	114	118	218	204	1,038	637	110	42.5	71.3	241
1943	91.1	113	152	129	385	973	355	141	412	157	6.9	44.9	246
1944	77.5	123	129	125	127	549	1,275	498	1,639	235	42.1	31.3	402
1945	89.1	131	140	166	217	656	343	326	458	215	48.4	168	246

¹Indicates a no-value month.²Incomplete water year.³Additional records for water years 1946-50, which were computed by combing records for stations 06434500 and 06436000, were published in Water Supply Paper 1309 (U.S. Geological Survey, 1959).

Table E39.2. Statistics on mean flow, in cubic feet per second, for station 06435500, Belle Fourche River near Belle Fourche (October 1912 through September 1945)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	33	33	33	33	33	33	33	33	33	33	33	33	33
Maximum	1,126	276	535	611	966	4,278	4,855	1,898	1,672	1,518	954	704	854
Percentile													
75th	256	235	224	216	372	744	771	802	709	407	168	190	477
50th	166	181	172	170	185	423	415	326	389	153	62.6	131	291
25th	90.4	116	127	138	139	243	225	140	276	55.3	30.0	57.1	184
Minimum	59.2	62.4	97.6	92.1	108	110	136	36.4	9.67	16.9	5.94	19.4	99.8
Mean	222.05	174.93	183.07	200.42	281.75	655.15	763.16	547.26	535.60	280.92	173.16	157.97	347.77
Standard deviation	209.65	64.13	82.53	101.47	224.34	767.14	974.71	524.46	466.07	319.15	248.55	151.34	206.30
Skewness	2.95	0.12	2.54	2.47	1.99	3.60	3.06	1.32	1.38	2.16	2.11	2.10	0.89
Coefficient of variation	0.94	0.37	0.45	0.51	0.80	1.17	1.28	0.96	0.87	1.14	1.44	0.96	0.59
Percent of annual flow	5.32	4.19	4.38	4.80	6.75	15.69	18.28	13.11	12.83	6.73	4.15	3.78	¹ 0.394

¹Serial correlation for annual mean flows.

Table E39.3. Correlation matrix for monthly mean flow for station 06435500, Belle Fourche River near Belle Fourche (October 1912 through September 1945)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.654	0.754	0.515	0.717	0.130	0.694	0.205	0.064	0.168	0.250	0.246
Nov.	*	1.000	0.697	0.616	0.498	0.478	0.414	0.288	0.049	0.400	0.547	0.519
Dec.	*	*	1.000	0.651	0.760	0.219	0.275	0.150	0.067	0.171	0.283	0.220
Jan.	*	*	*	1.000	0.514	0.227	0.164	0.069	-0.134	0.233	0.181	0.180
Feb.	*	*	*	*	1.000	0.181	0.261	0.016	-0.048	0.025	0.060	0.045
Mar.	*	*	*	*	*	1.000	0.197	0.434	0.017	0.065	-0.052	0.065
Apr.	*	*	*	*	*	*	1.000	0.399	0.309	0.187	0.153	0.245
May	*	*	*	*	*	*	*	1.000	0.421	0.273	0.342	0.183
June	*	*	*	*	*	*	*	*	1.000	0.456	0.359	0.387
July	*	*	*	*	*	*	*	*	*	1.000	0.679	0.704
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.790
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E39.4. Serial correlation for 1-year lag for monthly mean flow for station 06435500, Belle Fourche River near Belle Fourche (October 1912 through September 1945)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.338	0.714	0.249	0.048	0.154	-0.017	0.044	-0.160	0.096	0.109	0.451	0.198

Table E39.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06435500, Belle Fourche River near Belle Fourche

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1912	100	32	100	30	107	29	139	30	194	30	196	30	226	29	236	29	302	30
1913	94.0	30	94.7	28	94.9	27	94.9	26	133	27	180	29	263	31	265	31	286	29
1914	.0000	1	.0000	1	30.9	19	51.1	20	74.9	22	150	25	167	25	183	25	240	28
1915	240	33	240	33	240	33	240	33	240	33	390	33	399	33	426	33	525	33
1916	83.0	28	88.7	27	115	32	116	27	119	25	141	24	167	24	166	22	184	23
1917	8.00	14	8.67	12	9.29	11	10.2	11	18.8	11	31.3	9	48.9	9	75.3	12	113	14
1918	30.0	22	38.7	22	53.4	23	58.1	23	144	29	175	28	189	28	195	27	210	26
1919	.0000	2	.0000	2	.0000	1	4.71	4	13.9	7	39.7	12	71.5	15	74.7	11	120	16
1920	25.0	21	28.0	20	45.3	21	57.0	21	64.9	20	83.7	18	109	19	144	19	154	18
1921	3.00	10	12.3	15	13.1	13	16.5	13	35.5	15	55.8	16	77.4	16	92.9	16	118	15
1922	78.0	27	104	31	107	28	125	29	135	28	151	27	179	27	187	26	187	24
1923	50.0	25	62.7	25	92.4	26	162	32	207	32	261	32	272	32	317	32	517	32
1924	92.0	29	98.0	29	109	30	119	28	129	26	150	26	176	26	221	28	233	27
1925	22.0	20	30.7	21	37.4	20	43.2	19	54.3	18	127	21	142	21	163	21	177	21
1926	64.0	26	66.3	26	67.3	25	80.6	25	118	24	130	22	142	20	149	20	158	20
1927	99.0	31	107	32	115	31	144	31	203	31	233	31	242	30	239	30	328	31
1928	32.0	23	41.0	24	53.1	22	57.6	22	80.0	23	140	23	152	22	167	23	178	22
1929	39.0	24	39.0	23	57.0	24	69.9	24	73.5	21	96.5	19	164	23	175	24	187	25
1930	19.0	19	19.7	19	22.1	18	32.2	18	48.7	17	71.2	17	89.9	17	120	18	157	19
1931	5.00	11	5.67	11	6.14	9	7.64	9	16.9	9	25.3	8	29.7	6	42.0	6	71.5	7
1932	15.0	16	15.3	16	17.9	14	23.1	16	40.9	16	46.0	14	61.9	12	77.3	14	91.9	9
1933	8.00	15	9.67	13	12.1	12	13.9	12	19.1	12	33.0	10	69.5	14	90.0	15	112	13
1934	2.00	3	3.00	9	3.29	5	5.79	7	18.0	10	24.6	7	42.9	8	57.3	8	70.4	6
1935	2.00	4	2.00	3	2.00	2	2.14	1	4.50	1	14.5	4	27.5	5	36.8	3	61.2	5
1936	2.00	5	2.00	4	4.71	8	5.00	5	6.10	2	10.5	1	13.6	1	14.8	1	36.2	1
1937	5.00	12	5.33	10	7.29	10	7.93	10	13.9	8	52.6	15	64.9	13	75.3	13	94.8	12
1938	2.00	6	2.67	8	3.29	6	4.36	3	10.9	6	12.1	2	25.3	3	39.6	5	57.9	4
1939	2.00	7	2.00	5	2.00	3	2.57	2	10.6	5	12.6	3	21.8	2	31.3	2	47.4	2
1940	2.00	8	2.33	7	3.14	4	6.29	8	10.2	4	23.8	6	26.9	4	37.9	4	57.5	3
1941	15.0	17	17.3	17	20.6	17	29.2	17	57.5	19	96.8	20	103	18	109	17	125	17
1942	18.0	18	18.3	18	18.4	15	19.6	14	27.8	14	42.6	13	60.9	11	68.6	10	92.2	10
1943	2.00	9	2.00	6	3.29	7	5.14	6	6.80	3	14.9	5	36.4	7	52.3	7	77.5	8
1944	6.00	13	11.3	14	19.3	16	20.3	15	23.3	13	36.2	11	52.8	10	65.1	9	93.6	11

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E39.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for station 06435500, Belle Fourche River near Belle Fourche

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1913	5,450	10	5,027	9	3,710	9	2,485	9	1,697	8	1,195	8	925	10	785	11	620	12
1914	4,930	15	3,550	14	2,016	20	1,126	22	675	24	456	25	427	23	391	23	369	21
1915	7,450	8	6,537	4	4,254	6	2,438	10	1,794	6	1,668	4	1,371	4	1,382	4	1,169	4
1916	2,670	22	2,523	20	2,033	19	1,500	17	1,216	15	900	14	831	12	849	8	757	7
1917	5,400	11	3,417	15	3,066	13	2,512	8	1,670	10	1,080	10	889	11	724	12	544	13
1918	2,340	23	1,853	23	1,309	23	1,135	21	920	19	656	19	627	17	563	16	494	15
1919	877	30	699	30	583	29	465	28	451	27	393	26	323	26	288	26	279	25
1920	15,300	2	11,850	2	9,069	2	8,068	2	4,569	2	3,050	1	2,257	2	1,796	3	1,242	3
1921	3,860	19	2,603	19	1,555	22	1,057	23	879	20	554	21	407	24	364	24	344	24
1922	11,500	4	5,920	6	4,491	4	3,217	4	2,135	4	1,503	6	1,247	6	1,038	6	826	6
1923	4,410	16	3,407	16	2,894	14	1,967	12	1,310	14	905	13	751	14	653	13	678	10
1924	22,400	1	17,900	1	12,500	1	8,240	1	4,892	1	2,964	2	2,208	3	1,836	2	1,330	2
1925	3,890	18	3,093	17	2,227	16	1,607	16	1,471	12	1,197	7	1,007	8	820	10	647	11
1926	2,740	21	2,180	22	1,600	21	1,288	19	982	18	724	18	600	18	528	18	518	14
1927	8,140	6	5,397	8	3,869	7	2,597	7	2,065	5	1,559	5	1,271	5	1,085	5	868	5
1928	8,170	5	5,887	7	3,714	8	2,661	6	1,725	7	1,170	9	932	9	842	9	736	8
1929	15,000	3	11,380	3	7,004	3	5,143	3	3,717	3	2,671	3	2,461	1	2,019	1	1,404	1
1930	2,060	24	1,125	25	834	27	659	26	499	25	483	24	431	22	423	22	359	22
1931	460	31	365	31	308	31	272	31	256	31	247	29	237	29	220	29	213	27
1932	6,180	9	4,100	13	2,317	15	1,314	18	826	21	562	20	476	20	434	21	355	23
1933	5,090	14	4,387	12	3,181	12	1,760	14	1,163	16	813	16	705	15	574	15	424	17
1934	410	32	289	33	258	33	234	33	182	33	173	33	171	32	168	31	164	31
1935	953	29	721	29	544	30	415	30	305	29	221	30	201	30	208	30	185	30
1936	1,400	27	1,075	26	943	25	667	25	453	26	330	27	271	27	241	27	199	28
1937	3,920	17	2,650	18	2,040	18	1,234	20	678	23	528	22	367	25	310	25	253	26
1938	326	33	305	32	277	32	262	32	214	32	183	32	167	33	160	33	150	32
1939	987	28	896	28	645	28	424	29	284	30	211	31	179	31	167	32	146	33
1940	2,040	25	1,007	27	852	26	550	27	335	28	323	28	268	28	241	28	193	29
1941	8,090	7	6,367	5	4,303	5	2,900	5	1,672	9	1,002	12	817	13	643	14	483	16
1942	2,830	20	2,430	21	2,149	17	1,680	15	1,359	13	852	15	642	16	539	17	396	19
1943	5,400	12	4,710	10	3,310	11	1,955	13	1,133	17	768	17	580	19	510	19	407	18
1944	5,220	13	4,510	11	3,587	10	2,393	11	1,658	11	1,069	11	1,155	7	1,022	7	719	9
1945	1,480	26	1,480	24	1,216	24	964	24	758	22	523	23	463	21	461	20	372	20

Table E40.1. Mean flow, in cubic feet per second, for station 06436000, Belle Fourche River near Fruitdale

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1946	(1)	34.8	3.90	3.55	3.57	54.9	184	726	2,011	331	19.8	479	(2)
1947	556	288	228	108	344	691	815	171	999	220	17.2	5.93	369
1948	15.1	45.4	12.5	18.2	59.3	586	368	177	264	132	11.2	26.3	143
1949	47.2	53.7	25.4	6.35	98.8	909	580	119	47.2	12.0	5.63	10.7	160
1950	12.3	17.3	17.0	6.16	7.82	12.3	203	328	16.7	6.87	7.64	11.3	54.1
1951	11.0	11.3	5.13	2.74	2.68	2.86	3.40	3.79	14.9	10.4	8.57	18.5	7.95
1952	11.4	16.5	5.13	4.23	6.24	39.4	14.4	10.8	6.57	18.3	9.13	10.5	12.8
1953	14.0	15.6	8.00	4.81	4.57	6.32	5.16	6.80	102	8.34	142	10.8	27.4
1954	13.6	17.9	6.26	4.16	4.79	5.27	3.92	4.54	5.65	3.08	2.38	7.29	6.56
1955	15.8	16.9	11.3	2.52	1.32	3.26	24.3	4.64	7.47	5.96	9.02	9.90	9.37
1956	14.7	11.9	9.97	3.71	3.41	3.50	3.80	5.30	8.23	6.76	6.23	8.50	7.18
1957	8.13	8.07	4.26	1.97	2.36	3.88	4.10	5.55	8.13	8.43	12.7	10.8	6.55
1958	6.02	5.38	3.72	3.60	3.27	3.29	4.95	3.87	9.76	11.7	9.52	10.6	6.32
1959	9.52	7.43	5.74	4.00	4.00	4.00	5.00	6.00	5.00	3.00	1.68	2.24	4.81
1960	4.62	4.04	3.71	2.75	3.12	44.4	4.30	3.27	2.86	.22	.30	2.47	6.38
1961	3.82	4.07	3.77	3.65	3.77	3.81	3.44	3.39	.33	.79	.84	4.36	3.00
1962	5.48	6.07	4.50	4.85	3.57	3.95	2.92	799	524	324	35.2	7.90	145
1963	7.16	5.62	4.85	3.50	6.84	57.4	478	342	323	9.55	9.19	13.3	105
1964	20.5	7.56	4.86	4.63	4.06	3.73	3.97	3.47	508	67.3	11.8	9.01	53.5
1965	6.69	20.4	26.0	12.6	3.79	5.75	26.8	1,209	540	137	15.7	8.02	169
1966	6.12	5.01	4.38	3.16	110	335	291	190	8.88	7.45	8.57	7.58	81.3
1967	5.58	5.04	4.08	3.44	3.21	3.20	3.39	263	436	11.1	10.2	7.88	63.0
1968	4.13	5.59	3.23	3.04	2.78	4.87	2.55	6.77	7.52	4.97	9.16	8.62	5.27
1969	6.43	4.94	3.33	3.18	2.17	3.36	6.15	491	13.1	9.73	4.66	8.43	47.1
1970	10.7	5.79	3.52	3.53	3.08	3.00	4.64	767	577	9.76	13.9	7.60	118
1971	4.47	5.51	4.33	4.31	90.3	9.89	953	715	530	6.22	8.12	19.6	195
1972	11.4	13.2	4.44	4.55	4.94	973	375	704	983	56.2	17.7	8.65	263
1973	6.98	6.78	5.44	4.44	222	294	633	554	361	19.2	18.9	11.5	177
1974	33.6	9.92	11.3	9.44	8.92	112	544	240	12.1	14.4	20.3	11.2	85.5
1975	10.2	7.81	3.82	3.54	3.84	4.87	6.94	655	153	29.6	10.0	8.00	75.6
1976	5.60	4.17	4.68	6.51	6.03	3.83	4.29	4.54	1,149	218	67.7	9.49	122
1977	7.26	4.87	4.40	3.76	4.09	2.46	6.64	3.13	7.97	11.0	11.3	4.51	5.96
1978	5.74	4.37	4.20	3.79	3.74	130	5.94	1,717	585	13.9	17.1	13.7	211
1979	7.29	3.33	3.68	3.24	4.48	4.73	7.59	133	13.0	9.84	10.8	8.62	17.7
1980	5.43	4.68	4.15	3.15	3.74	4.23	3.08	3.53	11.3	3.38	5.62	5.25	4.79
1981	4.81	4.15	3.77	3.61	3.98	3.02	2.30	6.60	3.51	45.4	8.25	8.30	8.22
1982	5.84	4.85	3.65	2.34	3.09	3.45	4.01	924	181	41.8	10.2	6.25	101
1983	44.1	7.86	6.86	5.26	135	389	428	550	16.4	10.3	15.0	11.4	135
1984	6.26	6.05	3.97	4.14	3.25	3.24	3.77	303	974	16.9	10.4	8.62	111
1985	5.18	4.98	3.29	3.15	2.84	3.37	4.09	3.12	5.90	11.1	8.21	6.17	5.13
1986	5.81	3.62	3.29	3.40	5.84	6.71	7.11	40.8	3.31	8.21	8.65	7.74	8.77
1987	6.63	6.57	3.93	3.32	3.71	4.79	297	163	49.2	7.89	5.19	6.21	46.3
1988	4.44	55.8	3.69	2.80	2.87	4.12	3.97	4.93	10.8	10.1	13.7	10.7	10.6
1989	4.95	4.12	3.50	3.03	3.09	3.86	3.55	3.64	3.89	7.86	11.0	6.58	4.94
1990	4.06	4.12	4.36	4.02	3.39	3.48	3.37	24.7	4.38	8.97	7.36	10.6	6.95
1991	27.5	28.2	4.95	4.31	4.47	3.56	4.51	4.70	5.54	10.2	10.6	11.1	9.99
1992	7.29	6.70	5.40	4.30	5.64	7.11	7.35	7.03	9.36	13.3	10.7	11.8	8.00
1993	8.18	5.15	6.21	7.30	8.29	6.97	9.44	16.0	280	525	88.0	54.4	85.2

Table E40.2. Statistics on mean flow, in cubic feet per second, for station 06436000, Belle Fourche River near Fruitdale (October 1946 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	47	47	47	47	47	47	47	47	47	47	47	47	47
Maximum	556	288	228	108	344	973	953	1,717	1,149	525	142	54.4	369
Percentile													
75th	12.3	13.2	6.21	4.63	6.24	39.4	203	342	361	19.2	13.9	11.1	118
50th	7.16	6.07	4.40	3.76	3.98	4.73	5.16	24.7	13.1	10.3	10.2	8.62	46.3
25th	5.58	4.87	3.77	3.18	3.21	3.48	3.92	4.64	7.47	7.86	8.12	7.58	6.95
Minimum	3.82	3.33	3.23	1.97	1.32	2.46	2.30	3.12	0.33	0.33	0.30	2.24	3.00
Mean	22.32	16.94	10.98	6.73	26.10	100.43	131.49	249.04	208.25	45.27	16.11	10.40	70.43
Standard deviation	80.10	42.14	32.73	15.34	63.96	233.45	242.13	374.83	316.96	96.96	24.05	7.75	81.50
Skewness	80.10	42.14	32.73	15.34	63.96	233.45	242.13	374.83	316.96	96.96	24.05	7.75	1.56
Coefficient of variation	6.71	6.07	6.62	6.54	3.63	2.72	1.91	2.00	1.61	3.54	4.05	4.31	1.16
Percent of annual flow	3.59	2.49	2.98	2.28	2.45	2.32	1.84	1.51	1.52	2.14	1.49	0.75	¹ 0.485

¹Serial correlation for annual mean flows.

Table E40.3. Serial correlation for 1-year lag for monthly mean flow for station 06436000, Belle Fourche River near Fruitdale (October 1946 through September 1993)

Month												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
0.072	0.491	0.235	0.750	0.077	0.377	0.360	0.119	0.117	0.004	-0.092	0.097	

Table E40.4. Correlation matrix for monthly mean flow for station 06436000, Belle Fourche River near Fruitdale (October 1946 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.967	0.991	0.983	0.763	0.430	0.459	-0.036	0.353	0.257	0.009	-0.077
Nov.	*	1.000	0.972	0.966	0.738	0.483	0.454	-0.059	0.328	0.252	0.002	-0.041
Dec.	*	*	1.000	0.989	0.750	0.426	0.454	-0.007	0.366	0.279	0.012	-0.069
Jan.	*	*	*	1.000	0.749	0.430	0.460	-0.001	0.403	0.331	0.037	-0.013
Feb.	*	*	*	*	1.000	0.586	0.741	0.087	0.293	0.160	-0.020	0.021
Mar.	*	*	*	*	*	1.000	0.617	0.146	0.324	0.102	-0.048	0.061
Apr.	*	*	*	*	*	*	1.000	0.190	0.278	0.027	-0.077	0.135
May	*	*	*	*	*	*	*	1.000	0.441	0.086	-0.039	0.001
June	*	*	*	*	*	*	*	*	1.000	0.429	0.235	0.073
July	*	*	*	*	*	*	*	*	*	1.000	0.494	0.643
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.422
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E40.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436000, Belle Fourche River near Fruitdale

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1946	2.50	34	4.33	47	5.69	47	7.56	47	13.2	47	73.5	47	156	47	199	47	277	47
1947	.0000	1	.0000	1	.0000	1	2.89	29	5.79	46	8.16	45	11.7	45	15.3	45	18.2	45
1948	.0000	2	.0000	2	2.11	18	3.79	45	4.97	43	11.3	46	25.3	46	30.3	46	28.2	46
1949	2.00	24	2.00	21	2.43	23	3.21	38	5.29	44	6.87	43	8.45	43	9.57	44	11.5	40
1950	1.00	11	1.00	10	1.14	10	1.57	9	2.13	8	2.27	6	2.76	6	3.34	11	6.00	27
1951	2.00	25	2.00	22	2.57	27	2.79	23	2.97	20	3.54	27	4.71	34	5.59	36	7.95	34
1952	3.00	44	3.00	42	3.00	39	3.10	36	3.51	33	4.65	39	4.93	38	5.89	38	8.91	37
1953	3.00	45	3.00	43	3.43	45	3.57	40	4.00	39	4.47	38	4.74	35	5.11	32	8.67	36
1954	.10	7	.10	5	.14	4	.63	4	1.37	4	1.92	4	2.38	4	3.89	22	4.46	15
1955	2.00	26	2.30	28	2.86	36	3.00	32	3.17	27	3.35	20	3.54	20	5.15	33	7.36	32
1956	1.00	12	1.00	11	1.00	9	1.00	5	1.47	5	2.13	5	2.74	5	3.09	5	4.82	20
1957	2.00	27	2.00	23	2.00	17	2.39	15	3.12	24	3.28	18	3.36	15	3.44	13	4.22	12
1958	2.70	40	2.77	40	3.06	42	3.26	39	3.83	37	4.00	32	4.00	27	4.42	29	5.81	26
1959	.0000	3	.033	4	.17	5	.49	3	.74	3	1.66	3	2.25	3	2.83	3	3.17	3
1960	.10	8	.10	6	.10	3	.12	2	.16	1	.24	1	.67	2	1.27	2	2.13	1
1961	.0000	4	.0000	3	.0000	2	.029	1	.19	2	.52	2	.64	1	1.21	1	2.19	2
1962	1.70	20	1.97	20	2.16	20	2.51	16	2.73	14	4.05	33	4.57	31	4.97	31	5.61	24
1963	3.00	46	3.07	45	3.29	43	3.58	41	3.70	35	3.89	30	4.13	30	4.29	27	7.60	33
1964	1.00	13	2.00	24	2.29	21	2.65	19	2.82	18	3.36	21	7.49	42	9.45	43	12.6	42
1965	2.50	35	2.53	32	2.57	28	2.76	22	3.15	25	3.64	28	4.10	29	4.40	28	6.57	30
1966	2.90	43	3.00	44	3.01	40	3.04	34	3.17	28	3.21	14	3.28	14	3.48	14	4.12	11
1967	2.00	28	2.27	26	2.46	24	2.53	17	2.75	15	2.88	11	2.97	10	3.41	12	3.85	6
1968	1.70	21	1.83	17	1.87	15	1.94	13	2.07	7	2.49	7	2.80	7	3.02	4	3.95	10
1969	1.40	17	1.40	14	1.43	12	1.65	10	1.94	6	2.72	9	2.96	9	3.19	8	4.97	22
1970	2.50	36	2.73	39	2.84	35	3.75	43	4.03	40	4.20	34	4.57	32	4.60	30	6.03	28
1971	3.50	47	3.77	46	3.87	46	3.98	46	4.27	41	4.39	37	4.58	33	6.56	40	9.63	38
1972	1.50	18	1.83	18	2.14	19	2.86	28	4.43	42	4.88	40	5.51	39	5.84	37	8.15	35
1973	2.80	42	2.90	41	3.03	41	3.77	44	5.35	45	8.13	44	8.67	44	9.06	42	13.4	44
1974	2.50	37	2.63	35	2.91	37	3.06	35	3.34	31	3.52	26	3.71	25	3.99	25	5.73	25
1975	1.80	23	2.33	29	2.60	29	2.71	20	3.81	36	4.34	36	4.79	36	5.21	34	5.13	23
1976	1.00	14	1.40	15	1.57	14	1.71	11	2.43	11	3.24	15	3.42	18	3.66	18	4.49	16
1977	.010	6	.12	7	.72	7	1.72	12	2.48	12	3.72	29	3.81	26	3.98	24	4.31	14
1978	2.60	38	2.67	36	2.76	33	2.83	26	3.15	26	3.36	22	3.40	16	3.65	16	4.51	18
1979	2.60	39	2.67	37	2.80	34	2.93	30	3.07	22	3.36	23	3.62	23	3.80	20	4.23	13
1980	.81	10	1.00	12	1.27	11	1.46	6	2.18	9	3.29	19	3.52	19	3.58	15	3.89	7
1981	.0000	5	.27	8	.95	8	1.50	7	2.24	10	2.59	8	2.84	8	3.10	6	3.89	8
1982	2.30	32	2.53	33	2.93	38	3.19	37	3.46	32	5.31	42	5.93	41	6.64	41	13.0	43
1983	2.70	41	2.70	38	2.73	32	2.80	24	3.02	21	3.24	16	3.55	21	3.65	17	4.49	17
1984	2.00	29	2.27	27	2.41	22	2.56	18	2.79	16	2.92	12	2.99	11	3.16	7	3.82	5
1985	2.20	31	2.33	30	2.47	25	2.80	25	3.09	23	3.27	17	3.40	17	3.68	19	4.51	19
1986	1.60	19	2.33	31	2.63	30	3.03	33	3.30	30	3.46	25	3.60	22	3.93	23	4.84	21
1987	.22	9	.53	9	.66	6	1.50	8	2.61	13	2.82	10	3.06	12	3.23	9	12.1	41
1988	2.00	30	2.10	25	2.50	26	2.84	27	2.95	19	3.02	13	3.14	13	3.31	10	3.79	4
1989	1.10	15	1.30	13	1.54	13	2.04	14	2.81	17	3.40	24	3.64	24	3.82	21	3.91	9
1990	1.10	16	1.53	16	1.89	16	2.74	21	3.23	29	3.95	31	4.03	28	4.28	26	9.96	39
1991	1.70	22	1.87	19	3.30	44	3.58	42	3.93	38	4.29	35	4.87	37	5.48	35	6.08	29
1992	2.40	33	2.57	34	2.67	31	2.94	31	3.58	34	5.17	41	5.88	40	6.45	39	7.01	31

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E40.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436000, Belle Fourche River near Fruitdale

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1947	6,620	3	5,190	3	3,317	3	2,004	2	1,175	5	793	5	662	4	706	2	540	1
1948	2,100	16	1,927	15	1,827	10	1,151	12	745	13	541	13	397	13	368	10	266	9
1949	2,120	14	1,837	16	1,569	11	1,321	10	1,007	8	761	7	563	7	440	7	294	7
1950	1110	21	990	20	696	22	566	22	342	24	271	22	186	22	143	22	96.9	22
1951	346	32	127	35	62.6	35	35.0	35	21.8	35	15.8	35	15.4	33	13.2	33	9.89	36
1952	945	24	419	26	198	27	97.5	28	51.5	28	29.9	28	22.5	27	20.9	27	17.2	27
1953	1,750	18	981	21	602	23	287	25	147	25	125	25	86.5	25	67.1	25	45.9	25
1954	108	38	65.3	37	34.6	36	23.1	36	18.6	36	15.8	36	12.7	36	10.6	37	8.65	37
1955	363	31	163	34	77.4	34	45.4	34	24.3	34	18.3	33	14.9	34	11.8	35	11.2	32
1956	145	37	59.0	38	28.3	39	17.8	39	16.1	37	13.4	37	12.4	37	10.2	39	7.89	40
1957	77.0	39	39.7	39	31.1	38	21.3	37	15.1	38	13.1	38	11.2	39	10.2	40	8.30	39
1958	52.0	40	33.3	40	20.6	40	14.2	41	12.1	43	11.1	41	10.8	40	10.5	38	8.40	38
1959	13.0	46	12.0	46	11.1	46	10.2	46	9.57	46	8.52	45	7.63	45	6.73	45	5.80	45
1960	662	28	414	27	187	28	90.1	29	47.1	30	25.5	31	18.0	32	14.1	32	10.5	33
1961	7.00	47	7.00	47	6.43	47	5.71	47	4.36	47	4.00	47	3.97	47	3.85	47	3.82	47
1962	3,850	6	3,290	6	3,047	4	1,652	7	1,190	4	790	6	572	6	431	8	284	8
1963	1,490	19	1,400	18	1,156	17	821	16	594	16	429	16	392	15	304	14	203	14
1964	2,590	12	2,393	10	1,339	15	796	17	569	19	289	21	197	21	150	21	99.4	21
1965	5,690	4	4,000	4	2,430	6	1,963	4	1,392	2	910	3	644	5	489	5	325	6
1966	979	23	786	24	586	24	440	23	379	22	332	20	288	18	235	17	156	18
1967	1,240	20	1,110	19	890	19	689	20	441	21	356	19	240	20	182	20	121	20
1968	23.0	43	15.3	45	12.1	45	10.6	45	10.0	45	8.97	44	7.66	44	7.82	43	6.61	42
1969	2,120	15	1,940	14	1,528	12	943	15	508	20	260	23	177	23	134	23	90.1	23
1970	3,050	9	2,410	9	1,994	9	1,395	9	994	9	685	9	460	10	349	12	231	12
1971	2,590	13	1,970	12	1,494	13	1,280	11	1,066	7	920	2	742	2	558	4	381	4
1972	4,840	5	3,833	5	2,428	7	1,493	8	1,083	6	848	4	725	3	780	1	519	2
1973	2,810	11	2,033	11	1,422	14	1,119	13	911	12	658	10	537	8	471	6	344	5
1974	1,110	22	950	22	799	20	748	18	594	17	428	17	304	17	231	18	157	17
1975	1,880	17	1,653	17	1,320	16	984	14	725	14	426	18	286	19	217	19	145	19
1976	9,110	1	5,540	2	3,796	1	2,227	1	1,280	3	710	8	482	9	363	11	240	11
1977	44.0	41	26.0	41	17.3	42	13.9	42	12.9	40	11.4	40	10.3	41	9.03	41	7.47	41
1978	3,400	8	2,680	7	2,471	5	1,999	3	1,929	1	1,180	1	820	1	625	3	416	3
1979	243	33	235	30	227	26	217	26	140	26	76.7	26	54.2	26	43.4	26	30.9	26
1980	187	34	69.2	36	32.5	37	19.5	38	12.2	42	7.46	46	6.74	46	6.48	46	5.35	46
1981	713	27	348	28	155	31	79.4	31	46.9	31	28.1	30	21.1	29	16.8	28	12.5	29
1982	8,320	2	6,133	1	3,654	2	1,903	5	958	11	586	12	394	14	298	15	197	15
1983	869	25	844	23	776	21	671	21	590	18	499	14	460	11	383	9	255	10
1984	3,440	7	2,597	8	2,114	8	1,866	6	976	10	643	11	434	12	328	13	217	13
1985	17.0	45	15.7	44	14.3	44	12.4	44	11.3	44	9.81	43	8.83	42	7.94	42	6.45	43
1986	620	29	337	29	155	30	75.1	32	42.1	32	24.5	32	18.5	31	15.8	31	12.7	28
1987	746	26	633	25	504	25	439	24	363	23	254	24	172	24	131	24	87.6	24
1988	176	36	167	33	167	29	107	27	55.8	27	30.1	27	21.3	28	16.7	29	12.1	31
1989	27.0	42	24.7	42	17.0	43	13.1	43	12.3	41	10.4	42	8.60	43	7.46	44	6.13	44
1990	548	30	227	31	99.4	33	47.8	33	26.6	33	17.1	34	14.0	35	13.1	34	9.96	34
1991	187	35	168	32	146	32	89.9	30	49.5	29	28.5	29	20.5	30	16.5	30	12.2	30
1992	21.0	44	20.0	43	17.7	41	15.5	40	13.8	39	12.3	39	12.0	38	11.4	36	9.93	35
1993	2,980	10	1,947	13	1,081	18	737	19	620	15	439	15	305	16	242	16	163	16

Table E41.1. Mean flow, in cubic feet per second, for station 06436170, Whitewood Creek at Deadwood

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1982	8.57	8.22	6.51	4.80	8.54	12.5	22.4	311	35.7	26.9	16.7	13.6	40.0
1983	44.0	34.7	20.2	17.1	16.0	38.6	101	153	35.2	21.5	24.3	18.2	43.8
1984	16.6	13.8	8.88	13.2	12.4	18.4	40.0	213	102	29.4	19.1	14.7	42.0
1985	13.6	11.5	11.4	10.1	9.40	12.2	20.6	14.7	13.9	10.4	11.8	10.7	12.5
1986	12.5	10.3	8.95	9.95	12.0	20.9	66.6	50.2	41.5	19.0	13.7	16.4	23.5
1987	15.1	13.3	10.7	11.7	11.6	15.9	59.9	34.2	18.9	13.3	13.5	11.7	19.2
1988	11.3	12.6	12.0	11.2	13.4	16.5	29.9	62.1	20.2	14.4	11.5	13.2	19.1
1989	14.3	14.2	12.8	12.5	14.5	17.2	23.6	56.5	21.1	17.7	14.2	14.5	19.5
1990	11.5	12.1	9.57	11.8	12.4	19.0	33.1	47.5	21.0	14.6	12.3	10.4	18.0
1991	11.3	10.7	9.91	10.1	11.4	13.9	23.0	54.4	60.3	14.4	12.5	10.6	20.2
1992	10.7	11.5	10.9	9.31	10.5	14.7	20.2	22.1	17.4	12.9	10.3	9.64	13.3
1993	8.90	9.87	9.10	9.55	9.87	13.7	33.6	76.2	104	30.5	17.7	13.8	28.1

Table E41.2. Statistics on mean flow, in cubic feet per second, for station 06436170, Whitewood Creek at Deadwood (October 1981 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	12	12	12	12	12	12	12	12	12	12	12	12	12
Maximum	44.0	34.7	20.2	17.1	16.0	38.6	101	311	104	30.5	24.3	18.2	43.8
Percentile													
75th	14.9	13.7	11.8	12.3	13.1	18.8	54.9	134	55.6	25.5	17.5	14.6	37.0
50th	12.0	11.8	10.3	10.6	11.8	16.2	31.5	55.4	28.1	16.1	13.6	13.4	19.8
25th	10.9	10.4	8.99	9.65	10.0	13.7	22.5	37.5	19.2	13.6	11.9	10.6	18.3
Minimum	8.57	8.22	6.51	4.80	8.54	12.2	20.2	14.7	13.9	10.4	10.3	9.64	12.5
Mean	14.86	13.57	10.91	10.94	11.83	17.79	39.49	91.24	40.93	18.75	14.80	13.12	24.93
Standard deviation	9.48	6.87	3.37	2.88	2.14	7.08	24.58	89.47	31.81	6.84	4.00	2.62	11.05
Skewness	3.08	3.07	2.00	0.04	0.39	2.63	1.71	1.74	1.41	0.75	1.34	0.47	0.86
Coefficient of variation	0.64	0.51	0.31	0.26	0.18	0.40	0.62	0.98	0.78	0.37	0.27	0.20	0.44
Percent of annual flow	4.98	4.55	3.66	3.67	3.97	5.97	13.24	30.59	13.72	6.29	4.96	4.40	¹ 0.472

¹Serial correlation for annual mean flows.**Table E41.3.** Serial correlation for 1-year lag for monthly mean flow for station 06436170, Whitewood Creek at Deadwood (October 1981 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.086	-0.174	-0.547	-0.323	-0.131	-0.197	-0.062	0.483	-0.349	-0.104	0.361	0.047

Table E41.4. Correlation matrix for monthly mean flow for station 06436170, Whitewood Creek at Deadwood (October 1981 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.989	0.891	0.794	0.698	0.938	0.821	0.170	-0.059	0.078	0.740	0.623
Nov.	*	1.000	0.929	0.819	0.748	0.938	0.782	0.124	-0.092	0.050	0.706	0.588
Dec.	*	*	1.000	0.809	0.765	0.817	0.631	-0.169	-0.281	-0.211	0.458	0.435
Jan.	*	*	*	1.000	0.873	0.784	0.654	-0.200	0.021	-0.073	0.477	0.437
Feb.	*	*	*	*	1.000	0.781	0.592	-0.109	-0.132	-0.081	0.386	0.551
Mar.	*	*	*	*	*	1.000	0.880	0.148	-0.043	0.125	0.703	0.707
Apr.	*	*	*	*	*	*	1.000	0.100	0.029	0.156	0.665	0.720
May	*	*	*	*	*	*	*	1.000	0.363	0.732	0.624	0.441
June	*	*	*	*	*	*	*	*	1.000	0.804	0.487	0.289
July	*	*	*	*	*	*	*	*	*	1.000	0.715	0.570
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.787
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E41.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436170, Whitewood Creek at Deadwood

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1982	5.90	2	7.03	2	10.3	9	11.5	11	13.2	11	13.5	11	16.6	11	20.4	11	24.1	11
1983	7.40	5	7.60	4	7.94	3	8.39	3	8.76	2	10.6	7	11.1	7	11.9	9	13.6	10
1984	8.60	10	8.87	9	8.91	6	9.12	6	9.41	6	9.76	4	9.99	3	10.5	4	11.3	5
1985	7.20	4	7.47	3	7.59	2	8.06	2	8.42	1	8.96	1	9.46	2	9.94	2	10.6	3
1986	8.00	7	8.67	8	9.74	8	10.1	8	10.6	8	11.1	8	11.3	8	11.7	7	13.0	9
1987	7.00	3	8.33	6	10.4	11	10.8	10	11.1	9	11.3	9	11.8	9	11.7	8	11.9	6
1988	9.90	11	9.97	11	10.3	10	10.6	9	11.1	10	11.7	10	12.5	10	13.0	10	12.9	8
1989	5.00	1	5.07	1	5.61	1	6.54	1	9.35	5	10.5	6	10.9	6	11.1	6	12.0	7
1990	8.50	9	8.97	10	9.41	7	9.53	7	9.81	7	9.91	5	10.2	4	10.5	5	10.6	4
1991	8.00	8	8.43	7	8.70	5	8.96	5	9.26	4	9.54	3	10.2	5	10.4	3	10.5	2
1992	7.50	6	7.83	5	8.29	4	8.46	4	8.90	3	9.14	2	9.23	1	9.25	1	9.45	1

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E41.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436170, Whitewood Creek at Deadwood

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1982	1,960	1	1,396	1	1,100	1	607	1	321	1	178	1	128	1	102	1	71.9	1
1983	479	4	430	3	328	3	227	3	198	3	131	3	101	3	83.2	3	62.4	3
1984	523	3	519	2	495	2	352	2	219	2	160	2	122	2	98.1	2	70.7	2
1985	31.0	12	30.0	12	28.1	12	24.2	12	20.6	12	17.7	12	16.6	12	15.5	12	14.0	12
1986	169	7	157	7	131	7	99.0	5	77.6	6	60.4	5	53.1	5	45.1	5	35.3	5
1987	136	9	125	8	97.3	9	76.8	9	62.2	8	47.8	7	38.2	7	32.5	8	25.9	8
1988	170	6	162	6	138	6	92.2	7	63.3	7	47.0	8	38.2	8	33.0	7	26.2	7
1989	137	8	119	9	101	8	79.5	8	59.4	9	41.8	9	34.3	10	30.2	10	25.3	9
1990	75.0	10	72.0	10	64.6	10	57.7	10	49.9	10	40.7	10	34.7	9	30.5	9	24.7	10
1991	224	5	203	5	140	5	97.3	6	85.9	5	58.9	6	46.3	6	38.8	6	29.7	6
1992	53.0	11	50.7	11	43.9	11	35.2	11	28.3	11	22.7	11	20.4	11	18.7	11	16.4	11
1993	584	2	413	4	245	4	165	4	105	4	91.3	4	73.0	4	61.8	4	46.5	4

Table E42.1. Mean flow, in cubic feet per second, for station 06436180, Whitewood Creek above Whitewood

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1983	(1)	41.6	20.3	12.5	18.0	47.4	108	150	36.7	23.1	24.9	19.5	(2)
1984	19.5	16.1	10.3	11.9	14.0	20.5	42.4	129	101	31.2	17.5	14.7	35.7
1985	16.5	13.6	12.8	13.0	12.0	16.0	22.2	15.0	13.4	10.6	9.45	11.4	13.8
1986	13.0	9.85	8.84	11.7	14.6	22.3	69.2	50.8	37.7	16.9	16.3	16.5	24.0
1987	16.2	16.4	14.6	12.3	13.1	18.5	48.7	41.4	30.0	19.3	17.2	14.3	21.9
1988	14.8	14.2	13.9	12.1	15.3	22.8	34.8	60.5	24.1	15.4	12.3	15.0	21.3
1989	16.1	15.8	13.6	12.2	13.6	18.7	26.3	59.7	22.0	16.0	12.7	13.2	20.0
1990	13.0	15.8	10.4	13.5	14.5	21.9	35.5	52.7	24.3	18.3	11.7	10.9	20.2
1991	14.2	13.5	7.63	10.6	14.3	18.6	27.4	73.6	55.6	15.6	12.1	11.1	22.9
1992	11.4	14.2	15.6	14.5	14.3	15.5	23.7	28.4	19.1	16.1	12.4	11.5	16.4
1993	11.3	11.4	8.58	7.77	8.57	17.2	44.4	78.0	79.3	31.4	19.8	15.4	27.8

¹Indicates a no-value month.²Incomplete water year.**Table E42.2.** Statistics on mean flow, in cubic feet per second, for station 06436180, Whitewood Creek above Whitewood (October 1983 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	10	10	10	10	10	10	10	10	10	10	10	10	10
Maximum	19.5	16.4	15.6	14.5	15.3	22.8	69.2	129	101	31.4	19.8	16.5	35.7
Percentile													
75th	16.3	15.9	14.1	13.1	14.5	22.0	45.5	74.7	61.5	22.3	17.3	15.1	24.9
50th	14.5	14.2	11.6	12.1	14.1	18.6	35.2	56.2	27.1	16.5	12.5	13.7	21.6
25th	12.6	13.0	8.77	11.4	12.8	16.9	25.6	38.2	21.3	15.5	12.0	11.3	19.1
Minimum	11.3	9.85	7.63	7.77	8.57	15.5	22.2	15.0	13.4	10.6	9.45	10.9	13.8
Mean	14.60	14.08	11.62	11.96	13.43	19.20	37.46	58.91	40.65	19.08	14.14	13.40	22.40
Standard deviation	2.56	2.14	2.82	1.81	1.93	2.59	14.40	31.21	29.02	6.83	3.30	2.05	6.06
Skewness	0.46	-0.93	-0.05	-1.27	-2.05	0.05	1.18	1.07	1.33	1.26	0.45	0.03	1.02
Coefficient of variation	0.18	0.15	0.24	0.15	0.14	0.14	0.38	0.53	0.71	0.36	0.23	0.15	0.27
Percent of annual flow	5.44	5.25	4.33	4.45	5.00	7.15	13.95	21.94	15.14	7.11	5.27	4.99	¹ -0.824

¹Serial correlation for annual mean flows.**Table E42.3.** Serial correlation for 1-year lag for monthly mean flow for station 06436180, Whitewood Creek above Whitewood (October 1983 through September 1993)

Month												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
0.418	-0.176	-0.427	-0.936	-0.331	-0.237	-0.067	-0.738	-0.525	-0.441	-0.303	0.047	

Table E42.4. Correlation matrix for monthly mean flow for station 06436180, Whitewood Creek above Whitewood (October 1983 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.570	0.143	0.163	0.213	0.143	-0.080	0.397	0.242	0.084	-0.025	0.074
Nov.	*	1.000	0.517	0.478	0.299	-0.022	-0.463	0.140	-0.097	-0.001	-0.222	-0.410
Dec.	*	*	1.000	0.658	0.232	-0.282	-0.386	-0.505	-0.616	-0.394	-0.322	-0.157
Jan.	*	*	*	1.000	0.678	-0.003	-0.328	-0.472	-0.642	-0.591	-0.638	-0.490
Feb.	*	*	*	*	1.000	0.547	-0.021	-0.020	-0.340	-0.482	-0.469	-0.173
Mar.	*	*	*	*	*	1.000	0.534	0.375	0.093	0.067	0.101	0.430
Apr.	*	*	*	*	*	*	1.000	0.239	0.319	0.373	0.703	0.796
May	*	*	*	*	*	*	*	1.000	0.897	0.786	0.553	0.379
June	*	*	*	*	*	*	*	*	1.000	0.889	0.713	0.404
July	*	*	*	*	*	*	*	*	*	1.000	0.846	0.485
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.755
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E42.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436180, Whitewood Creek above Whitewood

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1983	9.00	10	9.00	9	9.36	7	9.75	7	10.2	6	10.9	5	11.6	5	12.9	7	15.1	10
1984	7.50	5	7.67	5	8.43	5	9.64	6	10.6	7	12.0	7	12.6	7	12.8	5	13.7	6
1985	5.00	1	5.67	4	6.43	4	6.79	4	7.80	3	8.67	2	9.98	2	10.6	2	10.5	2
1986	8.10	7	8.87	8	10.2	9	10.6	9	11.5	9	12.4	9	13.1	9	14.0	10	14.8	9
1987	8.00	6	9.00	10	11.4	10	11.8	10	12.0	10	12.6	10	13.1	10	13.5	8	14.0	7
1988	8.50	9	8.83	7	9.64	8	10.3	8	11.0	8	12.1	8	12.8	8	13.5	9	14.0	8
1989	5.10	3	5.27	2	5.73	3	6.37	3	8.60	4	11.2	6	12.4	6	12.8	6	13.1	5
1990	5.50	4	5.50	3	5.50	1	5.71	1	6.62	2	8.73	3	10.1	3	11.2	3	11.4	3
1991	8.40	8	8.70	6	8.99	6	9.22	5	9.93	5	10.8	4	11.3	4	11.6	4	12.9	4
1992	5.00	2	5.00	1	5.57	2	6.14	2	6.60	1	7.87	1	8.29	1	8.94	1	9.80	1

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E42.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436180, Whitewood Creek above Whitewood

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1984	266	2	252	1	246	1	187	1	132	1	116	1	93.1	1	76.9	1	57.0	1
1985	29.0	10	27.3	10	25.6	10	24.1	10	22.2	10	19.5	10	17.9	10	16.7	10	15.3	10
1986	152	4	146	3	130	3	101	4	79.8	4	60.9	4	52.9	3	45.3	3	35.7	3
1987	82.0	8	78.3	8	67.1	8	58.5	8	51.2	8	46.9	6	40.3	6	35.3	6	29.2	5
1988	136	6	133	5	118	5	86.1	5	61.5	6	48.2	5	41.8	5	36.2	5	29.0	6
1989	141	5	124	6	107	6	82.5	6	62.1	5	44.3	8	36.6	8	32.3	8	26.2	8
1990	83.0	7	80.3	7	73.1	7	64.6	7	56.1	7	44.7	7	38.3	7	33.9	7	28.0	7
1991	185	3	143	4	119	4	110	3	96.0	2	66.5	3	52.8	4	44.7	4	34.3	4
1992	54.0	9	52.7	9	48.7	9	41.3	9	34.4	9	27.3	9	24.4	9	22.0	9	19.5	9
1993	291	1	216	2	150	2	113	2	83.6	3	80.4	2	68.5	2	59.1	2	45.4	2

Table E43.1. Mean flow, in cubic feet per second, for station 06436190, Whitewood Creek near Whitewood

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1982	9.95	11.3	8.89	6.42	12.2	18.5	29.5	258	46.6	25.8	11.2	10.4	37.8
1983	57.8	44.6	26.7	23.9	20.2	35.1	120	136	41.5	22.5	27.0	20.2	48.1
1984	22.1	20.0	11.6	14.3	16.7	22.1	48.9	135	84.2	32.2	18.5	15.3	36.8
1985	20.1	17.7	14.7	15.6	14.7	18.1	21.9	18.7	11.1	4.24	4.74	8.04	14.1
1986	13.3	11.2	10.4	12.5	17.2	25.0	85.8	76.1	44.5	18.5	12.2	24.5	29.2
1987	20.1	18.1	15.5	14.2	14.5	19.4	63.3	45.5	22.9	14.3	11.6	12.2	22.6
1988	14.4	16.2	15.4	15.4	17.8	23.6	32.3	85.7	17.7	20.9	9.50	11.4	23.4
1989	15.9	19.2	12.5	13.3	16.5	23.1	25.3	66.3	21.0	13.3	10.2	10.6	20.6
1990	11.3	18.0	11.3	14.8	17.1	24.3	39.0	48.9	18.6	9.21	7.61	6.70	18.9
1991	11.1	10.9	6.57	5.95	12.6	16.2	26.9	54.0	75.6	14.2	8.89	9.60	21.0
1992	11.7	13.2	12.8	12.0	12.8	17.7	25.3	23.7	17.4	20.4	6.44	7.18	15.1
1993	9.03	10.6	9.21	11.1	11.4	20.8	40.9	87.2	105	36.5	20.9	20.0	31.9

Table E43.2. Statistics on mean flow, in cubic feet per second, for station 06436190, Whitewood Creek near Whitewood (October 1981 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	12	12	12	12	12	12	12	12	12	12	12	12	12
Maximum	57.8	44.6	26.7	23.9	20.2	35.1	120	258	105	36.5	27.0	24.5	48.1
Percentile													
75th	20.1	18.9	15.2	15.2	17.2	24.1	59.7	123	68.3	25.0	16.9	18.8	35.6
50th	13.8	17.0	12.0	13.7	15.6	21.4	35.7	71.2	32.2	19.5	10.7	11.0	23.0
25th	11.1	11.2	9.51	11.3	12.6	18.2	25.7	46.3	17.9	13.5	7.93	8.43	19.3
Minimum	9.03	10.6	6.57	5.95	11.4	16.2	21.9	18.7	11.1	4.24	4.74	6.70	14.1
Mean	18.06	17.58	12.96	13.29	15.31	21.99	46.59	86.26	42.17	19.34	12.40	13.01	26.62
Standard deviation	13.23	9.21	5.11	4.62	2.69	5.02	29.70	65.66	30.76	9.22	6.52	5.75	10.30
Skewness	2.85	2.58	1.82	0.54	0.13	1.64	1.71	1.77	1.01	0.35	1.22	0.91	0.80
Coefficient of variation	0.73	0.52	0.39	0.35	0.18	0.23	0.64	0.76	0.73	0.48	0.53	0.44	0.39
Percent of annual flow	5.66	5.51	4.06	4.17	4.80	6.89	14.61	27.04	13.22	6.06	3.89	4.08	¹ 0.378

¹Serial correlation for annual mean flows.**Table E43.3.** Serial correlation for 1-year lag for monthly mean flow for station 06436190, Whitewood Creek near Whitewood (October 1981 through September 1993)

Month												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
-0.009	-0.065	-0.264	-0.296	0.027	-0.177	-0.057	0.472	-0.397	-0.024	0.079	-0.173	

Table E43.4. Correlation matrix for monthly mean flow for station 06436190, Whitewood Creek near Whitewood (October 1981 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.971	0.910	0.822	0.662	0.789	0.772	0.159	-0.079	0.028	0.666	0.360
Nov.	*	1.000	0.920	0.867	0.725	0.829	0.697	0.128	-0.172	-0.031	0.614	0.235
Dec.	*	*	1.000	0.920	0.693	0.761	0.666	0.002	-0.376	-0.088	0.480	0.218
Jan.	*	*	*	1.000	0.808	0.811	0.642	-0.159	-0.336	-0.107	0.460	0.272
Feb.	*	*	*	*	1.000	0.845	0.620	-0.010	-0.353	-0.191	0.318	0.295
Mar.	*	*	*	*	*	1.000	0.817	0.204	-0.071	0.131	0.681	0.555
Apr.	*	*	*	*	*	*	1.000	0.191	0.099	0.190	0.726	0.751
May	*	*	*	*	*	*	*	1.000	0.337	0.562	0.444	0.250
June	*	*	*	*	*	*	*	*	1.000	0.750	0.584	0.506
July	*	*	*	*	*	*	*	*	*	1.000	0.683	0.535
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.739
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E43.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436190, Whitewood Creek near Whitewood

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1982	6.30	7	6.77	7	7.39	7	7.62	7	8.41	6	10.7	7	14.5	9	21.4	11	29.1	11
1983	10.0	11	10.0	11	10.4	11	11.1	10	11.6	9	12.5	9	13.8	8	15.1	8	17.3	10
1984	7.60	9	8.00	8	9.29	8	11.6	11	13.9	11	14.7	11	15.0	11	15.5	9	16.3	8
1985	2.90	1	3.07	1	3.26	1	3.52	2	3.92	1	4.36	1	5.30	1	6.80	1	8.49	2
1986	9.30	10	9.53	10	9.81	10	10.3	9	11.9	10	14.2	10	14.7	10	15.5	10	17.0	9
1987	7.00	8	8.37	9	9.33	9	9.93	8	11.1	8	11.8	8	12.4	7	12.9	6	13.9	7
1988	4.70	5	5.57	6	6.70	6	6.96	6	7.69	4	9.65	5	12.0	6	13.3	7	13.5	6
1989	5.10	6	5.17	5	5.70	5	6.62	5	9.09	7	10.3	6	10.3	5	11.1	5	12.4	5
1990	3.00	2	3.27	2	3.44	2	3.49	1	4.31	2	6.18	2	7.60	3	8.58	3	8.09	1
1991	3.30	3	5.07	4	5.59	4	6.49	4	7.69	5	8.96	4	9.81	4	10.2	4	11.1	4
1992	4.10	4	4.47	3	4.59	3	4.86	3	6.37	3	6.68	3	7.50	2	8.28	2	8.84	3

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E43.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436190, Whitewood Creek near Whitewood

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1982	1,840	1	998	1	833	1	488	1	269	1	156	1	115	1	92.2	1	66.2	1
1983	420	2	298	3	248	2	222	2	185	2	132	2	101	2	84.1	2	63.7	2
1984	244	5	238	5	229	3	182	3	138	3	112	3	91.2	3	76.0	3	57.1	3
1985	29.0	12	26.3	12	24.7	12	23.3	12	21.9	12	21.1	12	19.7	12	18.6	12	17.4	12
1986	153	7	148	7	142	7	120	7	106	5	81.7	5	70.2	5	58.7	5	44.5	5
1987	110	9	103	9	89.0	9	78.1	9	66.7	9	55.9	8	45.1	8	38.1	8	30.1	8
1988	197	6	195	6	174	6	128	5	87.3	7	60.2	7	49.2	7	41.3	7	33.2	6
1989	147	8	137	8	118	8	93.3	8	68.2	8	47.0	9	39.8	9	34.5	9	28.0	9
1990	79.0	10	74.3	10	67.1	10	59.0	10	54.4	10	44.3	10	37.8	10	33.3	10	27.1	10
1991	360	3	300	2	194	5	122	6	96.1	6	66.9	6	52.6	6	43.9	6	33.1	7
1992	62.0	11	58.3	11	49.9	11	39.5	11	32.2	11	25.0	11	23.2	11	22.0	11	19.6	11
1993	341	4	297	4	204	4	159	4	108	4	96.7	4	79.5	4	68.0	4	52.4	4

Table E44.1. Mean flow, in cubic feet per second, for station 06436198, Whitewood Creek above Vale

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1983	(1)	(1)	27.3	27.5	21.3	52.1	125	156	40.9	22.3	22.2	17.3	(2)
1984	28.3	16.3	11.5	15.9	20.1	30.4	51.1	150	156	35.1	18.1	11.4	45.3
1985	16.5	17.0	10.5	9.88	12.0	21.2	21.0	15.9	8.64	2.12	1.77	4.76	11.8
1986	11.0	9.86	11.8	13.6	24.0	26.2	84.3	67.0	45.5	23.1	10.7	38.9	30.4
1987	23.6	22.2	17.2	17.1	17.4	26.7	76.0	54.0	33.0	17.2	14.9	12.2	27.6
1988	13.9	14.2	13.5	10.5	15.9	25.4	35.4	60.2	17.7	7.27	6.13	8.32	19.0
1989	12.2	14.9	14.2	11.7	13.9	22.6	25.7	68.1	22.6	11.5	5.67	7.94	19.3
1990	9.77	15.4	10.8	16.2	16.8	22.4	35.8	64.5	21.3	10.6	4.28	5.90	19.5
1991	9.82	10.8	8.01	8.15	14.9	20.5	28.5	78.2	64.5	12.7	5.83	7.39	22.4
1992	9.38	13.7	11.5	9.11	10.0	15.4	22.1	23.7	17.7	11.6	5.25	4.09	12.8
1993	9.25	11.1	8.74	9.06	13.4	31.3	46.5	93.7	104	40.4	19.3	13.9	33.4

¹Indicates a no-value month.²Incomplete water year.**Table E44.2.** Statistics on mean flow, in cubic feet per second, for station 06436198, Whitewood Creek above Vale (October 1983 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	10	10	10	10	10	10	10	10	10	10	10	10	10
Maximum	28.3	22.2	17.2	17.1	24.0	31.3	84.3	150	156	40.4	19.3	38.9	45.3
Percentile													
75th	18.3	16.5	13.7	16.0	18.1	27.6	57.3	82.1	74.4	26.1	15.7	12.6	31.2
50th	11.6	14.5	11.5	11.1	15.4	24.0	35.6	65.7	27.8	12.1	5.98	8.13	21.0
25th	9.67	11.0	10.1	9.10	13.0	21.0	24.8	46.4	17.7	9.77	5.01	5.61	17.4
Minimum	9.25	9.86	8.01	8.15	10.0	15.4	21.0	15.9	8.64	2.12	1.77	4.09	11.8
Mean	14.37	14.55	11.77	12.12	15.84	24.21	42.64	67.53	49.09	17.16	9.19	11.48	24.15
Standard deviation	6.61	3.61	2.68	3.33	4.05	4.79	22.14	37.17	47.18	12.23	6.18	10.16	10.22
Skewness	1.44	0.80	0.69	0.43	0.73	-0.19	1.06	0.96	1.61	1.02	0.72	2.60	0.89
Coefficient of variation	0.46	0.25	0.23	0.27	0.26	0.20	0.52	0.55	0.96	0.71	0.67	0.88	0.42
Percent of annual flow	4.96	5.02	4.06	4.18	5.46	8.35	14.71	23.29	16.93	5.92	3.17	3.96	¹ -0.631

¹Serial correlation for annual mean flows.**Table E44.3.** Serial correlation for 1-year lag for monthly mean flow for station 06436198, Whitewood Creek above Vale (October 1983 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.296	-0.386	0.289	-0.084	-0.126	-0.278	0.139	-0.798	-0.482	-0.451	-0.322	-0.108

Table E44.4. Correlation matrix for monthly mean flow for station 06436198, Whitewood Creek above Vale (October 1983 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.701	0.477	0.608	0.348	0.463	0.348	0.438	0.453	0.240	0.464	-0.039
Nov.	*	1.000	0.714	0.593	-0.086	0.049	0.097	-0.146	-0.170	-0.241	0.054	-0.398
Dec.	*	*	1.000	0.575	0.199	0.091	0.389	-0.163	-0.328	-0.210	0.081	0.060
Jan.	*	*	*	1.000	0.642	0.393	0.610	0.330	0.158	0.178	0.332	0.242
Feb.	*	*	*	*	1.000	0.557	0.819	0.518	0.357	0.374	0.404	0.791
Mar.	*	*	*	*	*	1.000	0.603	0.723	0.689	0.773	0.842	0.424
Apr.	*	*	*	*	*	*	1.000	0.305	0.276	0.494	0.627	0.816
May	*	*	*	*	*	*	*	1.000	0.912	0.769	0.714	0.205
June	*	*	*	*	*	*	*	*	1.000	0.872	0.803	0.186
July	*	*	*	*	*	*	*	*	*	1.000	0.932	0.417
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.374
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E44.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436198, Whitewood Creek above Vale

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1983	9.00	10	9.00	10	9.00	10	9.71	10	11.0	10	12.6	9	14.2	9	15.8	9	18.1	9
1984	5.00	7	5.20	7	5.60	7	6.80	7	8.32	7	8.78	7	10.6	7	12.1	7	12.9	7
1985	.0000	1	.14	1	.79	1	1.21	1	1.60	1	1.73	1	2.26	1	4.02	1	6.17	1
1986	6.50	8	6.60	8	7.71	8	8.37	8	10.4	9	15.1	10	17.1	10	18.4	10	20.7	10
1987	8.00	9	8.00	9	8.57	9	9.14	9	9.83	8	11.1	8	12.6	8	12.9	8	13.0	8
1988	2.40	4	2.80	3	3.74	5	4.92	6	5.36	6	5.68	4	6.86	4	8.19	5	10.3	6
1989	2.60	5	3.03	4	4.23	6	4.71	5	5.23	5	6.05	5	7.26	5	8.46	6	10.1	5
1990	1.40	2	1.67	2	2.39	2	2.82	2	3.73	2	5.01	3	6.28	3	7.50	3	7.74	3
1991	2.80	6	3.10	6	3.21	3	3.67	4	4.84	4	6.50	6	7.48	6	8.07	4	9.41	4
1992	2.20	3	3.03	5	3.26	4	3.56	3	4.03	3	4.53	2	5.85	2	7.14	2	7.70	2

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E44.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436198, Whitewood Creek above Vale

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1984	604	1	375	1	311	1	235	1	156	1	155	1	122	1	100	1	73.9	1
1985	55.0	9	39.3	10	31.7	10	26.1	10	22.0	10	21.3	10	19.5	10	18.1	10	15.3	10
1986	390	3	213	3	146	3	117	4	104	4	76.7	3	66.1	3	57.1	3	44.9	3
1987	116	8	111	7	97.6	7	83.9	6	76.0	5	65.3	5	55.8	5	47.8	5	37.5	4
1988	126	7	123	6	111	6	83.6	7	61.2	8	48.3	8	41.4	7	35.7	7	27.6	8
1989	137	6	128	5	117	5	92.9	5	70.7	6	48.7	7	41.0	8	35.4	8	27.8	7
1990	138	5	92.0	8	81.0	8	73.5	8	67.0	7	50.9	6	42.2	6	36.8	6	29.5	6
1991	340	4	212	4	138	4	117	3	108	2	73.7	4	57.7	4	48.5	4	36.5	5
1992	52.0	10	49.3	9	43.7	9	35.4	9	29.2	9	24.1	9	21.4	9	19.8	9	16.8	9
1993	490	2	363	2	233	2	160	2	107	3	99.6	2	83.1	2	71.7	2	55.9	2

Table E45.1. Mean flow, in cubic feet per second, for station 06436700, Indian Creek near Arpan

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1961	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.000	0.29	(2)
1962	0.071	0.000	0.000	0.097	2.00	16.8	0.44	234	94.3	17.9	1.76	.000	30.9
1963	2.94	.097	.010	.035	3.12	6.23	55.8	18.3	126	2.99	.026	12.2	18.8
1964	.000	.000	.000	.000	.000	.12	.097	.016	135	10.3	2.39	.46	12.2
1965	.000	.000	.000	.000	.39	2.45	24.9	102	34.0	29.9	.010	.000	16.3
1966	.000	.000	.000	.000	.000	25.2	2.31	.000	2.66	5.38	.27	3.12	3.28
1967	1.06	.000	.000	1.69	2.11	3.30	1.91	229	319	.055	.013	1.13	46.6
1968	.000	.000	.000	.000	.041	.68	.000	.016	.73	.91	.84	.002	.27
1969	.000	.000	.000	.000	.000	15.0	9.56	15.0	.47	31.3	1.26	.016	6.14
1970	.000	.000	.000	.000	.000	.000	59.6	27.9	6.11	.015	.24	.042	7.79
1971	.000	.000	.000	.000	137	135	40.3	4.03	76.7	.000	1.89	68.7	37.7
1972	164	2.95	1.17	.10	34.4	270	2.14	137	20.8	1.74	20.7	.000	55.2
1973	.032	.027	.030	2.01	3.83	9.96	5.17	4.23	2.45	.52	1.45	.000	2.47
1974	1.89	.097	.000	4.13	3.69	.21	6.11	.19	5.31	2.40	.000	.000	1.98
1975	.000	.000	.000	.000	.000	6.58	98.3	145	46.9	7.34	.13	.000	25.5
1976	.000	.000	.000	.052	.39	.004	.000	.000	341	12.0	.47	.038	29.0
1977	.063	.000	.000	.000	.000	.35	99.3	.002	5.75	1.36	.001	.047	8.79
1978	63.5	.003	.049	.000	.000	434	30.5	248	13.2	153	1.58	.000	80.0
1979	.000	.000	.000	.000	.001	89.8	37.0	.068	.073	5.52	2.22	.018	11.3
1980	.000	.000	.000	.000	.000	.000	.000	.000	1.98	.000	.000	2.81	.39
1981	6.19	.010	.000	.000	.000	.000	.000	.000	6.43	45.6	.91	.000	5.01

¹Indicates a no-value month.²Incomplete water year.**Table E45.2.** Statistics on mean flow, in cubic feet per second, for station 06436700, Indian Creek near Arpan (October 1961 through September 1981)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	20	20	20	20	20	20	20	20	20	20	20	20	20
Maximum	164	2.95	1.17	4.13	137	434	99.3	248	341	153	20.7	68.7	80.0
Percentile													
75th	1.68	0.008	0.000	0.086	2.87	23.1	39.5	128	89.9	16.4	1.71	0.96	30.4
50th	0.000	0.000	0.000	0.000	0.021	4.76	5.64	4.13	9.82	4.18	0.65	0.017	11.7
25th	0.000	0.000	0.000	0.000	0.000	0.14	0.18	0.005	2.50	0.62	0.016	0.000	3.71
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.073	0.000	0.000	0.000	0.27
Mean	11.99	0.16	0.06	0.41	9.35	50.78	23.67	58.24	61.94	16.41	1.81	4.43	19.98
Standard deviation	38.46	0.66	0.26	1.04	30.99	111.76	32.20	89.57	101.13	34.55	4.52	15.38	21.30
Skewness	3.72	4.46	4.46	2.93	4.09	2.76	1.42	1.32	2.10	3.60	4.23	4.25	1.48
Coefficient of variation	3.21	4.13	4.14	2.57	3.32	2.20	1.36	1.54	1.63	2.11	2.50	3.47	1.07
Percent of annual flow	5.01	0.07	0.03	0.17	3.91	21.23	9.89	24.34	25.89	6.86	0.76	1.85	¹ -0.143

¹Serial correlation for annual mean flows.

Table E45.3. Serial correlation for 1-year lag for monthly mean flow for station 06436700, Indian Creek near Arpan (October 1961 through September 1981)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.105	-0.055	-0.037	0.247	0.168	0.107	-0.201	-0.382	-0.100	-0.129	0.028	-0.090

Table E45.4. Correlation matrix for monthly mean flow for station 06436700, Indian Creek near Arpan (October 1961 through September 1981)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.929	0.944	-0.093	0.151	0.731	-0.136	0.375	-0.133	0.252	0.928	-0.091
Nov.	*	1.000	0.998	-0.041	0.187	0.456	-0.156	0.198	-0.097	-0.106	0.980	-0.067
Dec.	*	*	1.000	-0.064	0.186	0.494	-0.157	0.224	-0.103	-0.065	0.984	-0.072
Jan.	*	*	*	1.000	-0.074	-0.161	-0.237	-0.022	0.048	-0.174	-0.106	-0.110
Feb.	*	*	*	*	1.000	0.279	0.074	-0.086	0.018	-0.144	0.241	0.952
Mar.	*	*	*	*	*	1.000	-0.002	0.485	-0.174	0.705	0.517	0.151
Apr.	*	*	*	*	*	*	1.000	0.012	-0.188	-0.037	-0.201	0.146
May	*	*	*	*	*	*	*	1.000	0.245	0.475	0.207	-0.168
June	*	*	*	*	*	*	*	*	1.000	-0.136	-0.111	0.060
July	*	*	*	*	*	*	*	*	*	1.000	-0.053	-0.138
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	-0.021
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E45.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436700, Indian Creek near Arpan

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1962	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.018	17	0.048	17	0.055	16	0.59	13
1963	.0000	2	.0000	2	.0000	2	.0000	2	.0000	2	.0000	1	.0000	1	.0000	1	.0010	7
1964	.0000	3	.0000	3	.0000	3	.0000	3	.0000	3	.0000	2	.0000	2	.0000	2	.14	12
1965	.0000	4	.0000	4	.0000	4	.0000	4	.0000	4	.0000	3	.0000	3	.0000	3	.0000	1
1966	.0000	5	.0000	5	.0000	5	.0000	5	.0000	5	.0000	4	.0000	4	.52	18	1.00	16
1967	.0000	6	.0000	6	.0000	6	.0000	6	.0000	6	.0000	5	.0000	5	.0000	4	.12	11
1968	.0000	7	.0000	7	.0000	7	.0000	7	.0000	7	.0000	6	.0000	6	.0000	5	.0000	2
1969	.0000	8	.0000	8	.0000	8	.0000	8	.0000	8	.0000	7	.0000	7	.0000	6	.0000	3
1970	.0000	9	.0000	9	.0000	9	.0000	9	.0000	9	.0000	8	.0000	8	.0000	7	.021	9
1971	.0000	10	.0000	10	.0000	10	.0000	10	.0000	10	.043	19	1.14	19	2.69	19	30.9	19
1972	.0000	11	.0000	11	.0000	11	.0000	11	.0000	11	.017	16	.012	15	.023	15	1.05	17
1973	.0000	12	.0000	12	.0000	12	.0000	12	.0000	12	.039	18	.060	18	.51	17	.67	14
1974	.0000	13	.0000	13	.0000	13	.0000	13	.0000	13	.0000	9	.0000	9	.0000	8	.0000	4
1975	.0000	14	.0000	14	.0000	14	.0000	14	.0000	14	.0000	10	.0000	10	.0000	9	.021	10
1976	.0000	15	.0000	15	.0000	15	.0000	15	.0000	15	.0000	11	.0000	11	.0000	10	.011	8
1977	.0000	16	.0000	16	.0000	16	.0000	16	.0000	16	.0000	12	.017	16	.013	14	10.8	18
1978	.0000	17	.0000	17	.0000	17	.0000	17	.0000	17	.0000	13	.0000	12	.0000	11	.0000	5
1979	.0000	18	.0000	18	.0000	18	.0000	18	.0000	18	.0000	14	.0000	13	.0000	12	.0000	6
1980	.0000	19	.0000	19	.0000	19	.0000	19	.0000	19	.0000	15	.0000	14	.0000	13	.79	15

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E45.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436700, Indian Creek near Arpan

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1962	1,340	5	898	6	781	4	503	5	306	4	175	4	119	4	91.2	5	61.5	5
1963	1,050	7	720	8	393	8	213	8	126	9	82.4	8	66.9	8	51.6	8	35.8	8
1964	901	10	635	10	365	10	208	9	141	8	73.4	10	49.6	10	37.2	10	24.4	10
1965	1,000	9	567	11	288	11	173	11	124	10	79.3	9	57.8	9	48.8	9	32.5	9
1966	140	16	130	16	78.6	15	46.9	16	27.6	16	14.2	16	9.68	16	7.75	16	6.03	16
1967	1,930	3	1,597	3	935	3	619	3	320	3	278	2	186	2	140	2	92.5	2
1968	11.0	20	7.47	20	4.52	20	2.91	20	1.75	20	1.21	20	.84	20	.64	20	.54	20
1969	185	15	133	15	68.2	16	55.9	15	32.3	15	20.2	15	16.3	15	14.9	14	12.2	14
1970	470	13	384	12	216	13	114	13	79.7	13	45.3	13	31.5	13	23.6	13	15.5	13
1971	1,020	8	756	7	485	7	255	7	197	7	141	6	104	6	96.1	4	63.7	4
1972	1,430	4	1,007	4	748	5	520	4	306	5	157	5	143	3	117	3	79.8	3
1973	49.0	19	39.3	18	23.6	18	12.9	17	11.9	17	8.35	17	6.37	17	6.33	17	4.58	17
1974	74.0	17	48.0	17	26.1	17	12.2	18	6.13	18	3.94	18	4.01	18	3.52	18	3.20	18
1975	1,300	6	900	5	575	6	293	6	225	6	124	7	99.3	7	76.0	7	50.8	7
1976	3,710	1	2,347	1	1,426	1	681	2	346	2	177	3	118	5	88.4	6	58.0	6
1977	854	11	674	9	389	9	197	10	99.4	12	49.8	12	35.1	12	26.6	12	17.5	12
1978	2,450	2	1,937	2	1,377	2	891	1	467	1	344	1	247	1	214	1	149	1
1979	407	14	339	13	243	12	172	12	117	11	64.9	11	43.3	11	32.5	11	22.6	11
1980	56.0	18	27.6	19	12.1	19	5.63	19	2.81	19	1.41	19	.94	19	1.20	19	.79	19
1981	574	12	312	14	144	14	92.7	14	47.5	14	27.2	14	18.2	14	13.6	15	8.94	15

Table E46.1. Mean flow, in cubic feet per second, for station 06436760, Horse Creek above Vale

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1981	10.9	2.20	3.00	2.52	3.86	1.70	.96	6.48	35.4	90.3	39.8	45.5	20.3
1982	3.58	3.01	2.54	1.04	8.61	22.4	21.6	901	206	65.5	59.5	47.9	113
1983	169	9.85	8.50	31.7	34.2	37.7	13.8	7.48	37.4	67.5	63.8	39.6	43.7
1984	11.2	5.33	2.05	5.39	10.2	7.29	19.3	239	252	65.2	67.6	59.5	62.1
1985	7.31	3.98	2.77	2.86	4.41	120	6.60	20.8	35.4	77.6	66.4	32.4	32.1
1986	3.37	2.27	2.63	2.73	9.34	251	163	349	21.6	68.7	57.5	311	104
1987	44.0	12.4	7.23	3.66	13.5	62.8	229	36.0	30.8	79.9	82.6	60.2	55.2
1988	10.2	3.38	2.62	1.85	2.40	4.54	2.44	20.8	65.7	70.1	65.5	39.9	24.2
1989	3.62	2.50	2.12	2.12	2.05	12.4	50.1	111	26.7	43.2	44.8	21.4	27.1
1990	3.74	3.54	3.23	6.43	11.0	17.9	2.23	23.8	20.0	46.1	30.7	17.0	15.6
1991	1.56	1.82	1.30	2.67	2.65	2.31	2.79	17.1	11.3	35.8	38.0	21.8	11.7
1992	1.46	3.09	1.53	.96	1.24	1.30	.75	9.66	16.1	51.1	25.7	11.3	10.4
1993	2.48	2.22	1.15	1.06	2.80	127	47.5	139	106	464	65.7	35.0	83.8

Table E46.2. Statistics on mean flow, in cubic feet per second, for station 06436760, Horse Creek above Vale (October 1980 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	13	13	13	13	13	13	13	13	13	13	13	13	13
Maximum	169	12.4	8.50	31.7	34.2	251	229	901	252	464	82.6	311	113
Percentile													
75th	11.0	4.65	3.11	4.52	10.6	91.4	48.8	189	85.8	78.7	66.0	53.7	72.9
50th	3.74	3.09	2.62	2.67	4.41	17.9	13.8	23.8	35.4	67.5	59.5	39.6	32.1
25th	2.92	2.24	1.79	1.45	2.53	3.42	2.34	13.4	20.8	48.6	38.9	21.6	17.9
Minimum	1.46	1.82	1.15	0.96	1.24	1.30	0.75	6.48	11.3	35.8	25.7	11.3	10.4
Mean	20.96	4.28	3.13	5.00	8.17	51.41	43.08	144.70	66.49	94.23	54.43	57.12	46.40
Standard deviation	45.87	3.22	2.21	8.19	8.81	73.93	71.15	250.56	76.83	112.19	16.95	77.80	34.98
Skewness	3.27	1.95	1.85	3.37	2.39	1.96	2.11	2.66	1.84	3.48	-0.31	3.36	0.89
Coefficient of variation	2.19	0.75	0.71	1.64	1.08	1.44	1.65	1.73	1.16	1.19	0.31	1.36	0.75
Percent of annual flow	3.79	0.77	0.57	0.90	1.48	9.30	7.79	26.17	12.02	17.04	9.84	10.33	¹ -0.046

¹Serial correlation for annual mean flows.**Table E46.3.** Serial correlation for 1-year lag for monthly mean flow for station 06436760, Horse Creek above Vale (October 1980 through September 1993)

Month												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
-0.103	-0.101	-0.109	-0.061	0.112	0.304	0.269	-0.303	-0.161	-0.168	0.418	0.010	

Table E46.4. Correlation matrix for monthly mean flow for station 06436760, Horse Creek above Vale (October 1980 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.703	0.862	0.963	0.925	-0.061	0.049	-0.204	-0.119	-0.092	0.308	-0.068
Nov.	*	1.000	0.900	0.567	0.719	-0.053	0.510	-0.191	-0.017	-0.141	0.588	-0.080
Dec.	*	*	1.000	0.761	0.863	0.000	0.394	-0.184	-0.200	-0.212	0.445	0.013
Jan.	*	*	*	1.000	0.931	-0.073	-0.107	-0.209	-0.098	-0.134	0.162	-0.062
Feb.	*	*	*	*	1.000	0.054	0.159	-0.003	0.030	-0.155	0.336	0.102
Mar.	*	*	*	*	*	1.000	0.557	0.169	-0.153	0.342	0.357	0.810
Apr.	*	*	*	*	*	*	1.000	0.097	-0.152	0.058	0.516	0.578
May	*	*	*	*	*	*	*	1.000	0.652	0.000	0.189	0.303
June	*	*	*	*	*	*	*	*	1.000	0.174	0.390	-0.056
July	*	*	*	*	*	*	*	*	*	1.000	0.277	-0.051
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.209
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E46.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436760, Horse Creek above Vale

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1981	0.60	6	0.65	5	0.71	5	0.80	3	0.86	2	1.43	4	1.85	4	2.20	5	4.83	6
1982	2.10	12	2.13	12	2.43	12	3.18	12	5.14	12	8.14	12	13.3	12	18.8	12	49.0	12
1983	.40	4	.49	4	.61	3	.96	5	1.89	6	3.25	10	4.12	10	4.53	10	6.89	7
1984	1.90	11	2.10	11	2.19	11	2.46	11	2.64	9	2.75	8	3.00	8	3.31	8	9.01	9
1985	.070	1	.47	3	.72	6	1.18	7	2.21	8	2.38	7	2.45	7	2.45	7	9.51	10
1986	1.00	8	1.33	8	1.94	10	2.30	9	3.64	11	4.10	11	6.77	11	8.78	11	24.5	11
1987	.48	5	.78	7	.82	7	1.05	6	1.70	5	1.95	5	2.26	6	2.42	6	4.18	5
1988	1.60	10	1.67	9	1.71	8	1.85	8	1.96	7	2.03	6	2.06	5	2.15	4	3.02	3
1989	1.50	9	1.67	10	1.86	9	2.31	10	2.75	10	3.16	9	3.41	9	3.90	9	7.58	8
1990	.15	2	.23	1	.28	1	.30	1	.97	4	1.40	3	1.51	3	1.68	2	2.04	2
1991	.60	7	.67	6	.71	4	.87	4	.91	3	1.02	1	1.17	1	1.25	1	1.59	1
1992	.19	3	.27	2	.31	2	.43	2	.66	1	1.09	2	1.44	2	1.68	3	3.47	4

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E46.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436760, Horse Creek above Vale

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1981	535	9	366	9	207	9	156	9	94.0	9	74.4	8	62.0	10	54.1	10	36.6	10
1982	14,000	1	6,470	1	3,477	1	1,822	1	1,060	1	570	1	409	1	321	1	220	1
1983	1,470	5	1,186	5	632	6	314	6	173	6	92.2	6	64.3	9	56.2	9	48.8	8
1984	1,570	4	1,238	4	841	3	473	4	253	4	249	4	187	4	158	4	117	4
1985	1,100	7	767	7	463	8	241	8	127	8	73.4	9	65.3	8	57.5	8	59.4	6
1986	5,640	2	3,025	2	1,451	2	790	2	487	2	275	3	262	2	201	3	162	2
1987	1,450	6	1,133	6	814	4	441	5	232	5	147	5	111	5	94.1	5	88.9	5
1988	206	11	166	11	122	11	93.3	10	77.2	10	70.8	10	68.2	7	64.2	7	44.2	9
1989	840	8	735	8	573	7	300	7	153	7	87.9	7	72.2	6	65.1	6	51.3	7
1990	181	12	113	12	69.3	12	56.9	12	47.5	12	39.1	12	36.1	11	33.1	11	24.1	11
1991	74.0	13	50.3	13	47.0	13	41.1	13	39.0	13	38.0	13	33.9	12	28.7	12	21.3	12
1992	315	10	246	10	145	10	78.1	11	54.9	11	40.6	11	31.7	13	28.6	13	19.3	13
1993	1,990	3	1,469	3	751	5	557	3	478	3	312	2	253	3	202	2	161	3

Table E47.1. Mean flow, in cubic feet per second, for station 06436800, Horse Creek near Vale

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1962	(1)	(1)	(1)	(1)	(1)	(1)	1.11	484	205	57.3	58.2	52.8	(2)
1963	31.2	4.31	3.04	1.43	4.73	24.0	60.6	40.1	213	80.8	87.4	63.5	51.2
1964	33.1	5.05	3.26	3.08	2.79	7.22	5.48	8.42	286	111	115	61.9	53.4
1965	27.8	4.47	4.74	4.27	4.98	5.50	36.2	278	63.2	106	93.3	77.5	59.3
1966	16.1	4.23	4.84	2.16	3.18	54.7	18.9	10.1	92.2	88.5	88.0	67.4	37.7
1967	16.2	5.81	4.37	7.79	25.6	25.2	13.3	283	465	99.2	132	103	98.4
1968	17.4	6.85	10.3	4.50	6.59	16.1	5.50	27.2	41.0	85.4	84.2	75.9	31.9
1969	14.6	6.45	4.20	2.85	1.87	15.8	51.1	60.2	45.8	104	116	79.0	42.0
1970	19.3	4.43	3.26	1.36	4.77	8.08	76.2	68.5	46.2	102	107	62.8	42.2
1971	9.67	5.68	3.91	3.47	36.6	215	62.9	27.7	147	105	149	176	78.6
1972	244	10.3	6.27	3.42	35.8	264	9.52	108	120	100	123	83.6	93.0
1973	15.6	7.76	3.41	4.95	6.78	40.6	19.3	33.7	49.2	122	91.5	40.8	36.6
1974	15.7	5.95	2.53	5.80	6.55	4.93	12.3	13.4	66.7	123	110	63.3	36.0
1975	4.97	4.54	2.37	2.24	3.64	22.5	173	167	55.8	92.0	129	76.6	61.5
1976	13.2	3.76	2.57	2.67	12.9	7.71	4.07	18.8	680	185	223	111	105
1977	7.70	3.24	4.21	2.65	5.48	7.83	122	44.1	95.7	117	127	26.6	47.2
1978	84.2	6.18	4.51	3.79	4.29	628	42.1	299	47.2	262	123	108	136
1979	15.0	4.03	3.24	.86	1.49	24.4	72.4	26.1	143	121	121	122	54.7
1980	14.8	4.50	3.50	2.85	2.43	4.93	3.48	51.0	52.9	88.8	82.5	7.46	26.8

¹Indicates a no-value month.²Incomplete water year.**Table E47.2.** Statistics on mean flow, in cubic feet per second, for station 06436800, Horse Creek near Vale (October 1962 through September 1980)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	18	18	18	18	18	18	18	18	18	18	18	18	18
Maximum	244	10.3	10.3	7.79	36.6	628	173	299	680	262	223	176	136
Percentile													
75th	28.6	6.25	4.57	4.33	8.31	44.1	65.3	123	163	121	127	104	82.2
50th	15.9	4.80	3.70	2.96	4.87	19.3	27.7	42.1	79.4	104	115	76.2	52.3
25th	14.2	4.29	3.19	2.22	3.08	7.59	8.51	24.3	48.7	91.2	90.6	62.6	37.4
Minimum	4.97	3.24	2.37	0.86	1.49	4.93	3.48	8.42	41.0	80.8	82.5	7.46	26.8
Mean	33.36	5.42	4.14	3.34	9.47	76.47	43.80	86.91	150.55	116.26	116.77	78.13	60.64
Standard deviation	55.37	1.70	1.82	1.69	11.17	155.83	45.95	99.67	170.96	43.09	32.69	37.75	29.87
Skewness	3.65	1.48	2.49	1.03	1.89	3.04	1.59	1.46	2.29	2.71	2.06	0.67	1.21
Coefficient of variation	1.66	0.31	0.44	0.51	1.18	2.04	1.05	1.15	1.14	0.37	0.28	0.48	0.49
Percent of annual flow	4.60	0.75	0.57	0.46	1.31	10.55	6.04	11.99	20.78	16.04	16.11	10.78	¹ -0.190

¹Serial correlation for annual mean flows.

Table E47.3. Serial correlation for 1-year lag for monthly mean flow for station 06436800, Horse Creek near Vale (October 1962 through September 1980)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.138	0.400	0.141	0.033	0.299	-0.040	-0.296	-0.457	-0.164	0.039	0.114	-0.273

Table E47.4. Correlation matrix for monthly mean flow for station 06436800, Horse Creek near Vale (October 1962 through September 1980)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.724	0.303	0.027	0.508	0.532	-0.241	0.209	-0.074	0.137	0.011	0.071
Nov.	*	1.000	0.454	0.427	0.520	0.394	-0.389	0.108	-0.221	0.004	-0.153	0.092
Dec.	*	*	1.000	0.241	0.187	0.153	-0.315	0.067	-0.244	-0.157	-0.317	0.028
Jan.	*	*	*	1.000	0.365	0.069	-0.444	0.422	0.162	0.069	-0.018	0.049
Feb.	*	*	*	*	1.000	0.294	-0.182	0.127	0.299	-0.073	0.384	0.556
Mar.	*	*	*	*	*	1.000	-0.047	0.460	-0.165	0.713	0.114	0.396
Apr.	*	*	*	*	*	*	1.000	0.116	-0.293	-0.098	0.071	0.036
May	*	*	*	*	*	*	*	1.000	-0.003	0.353	0.001	0.178
June	*	*	*	*	*	*	*	*	1.000	0.208	0.749	0.324
July	*	*	*	*	*	*	*	*	*	1.000	0.468	0.290
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.541
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E47.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436800, Horse Creek near Vale

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1962	0.20	2	0.20	2	0.30	2	0.60	3	0.84	2	1.83	2	2.47	3	3.02	3	11.9	12
1963	2.00	13	2.17	14	2.29	13	2.49	12	2.75	12	2.80	9	2.93	7	3.24	5	9.18	10
1964	.40	5	.47	5	.84	5	2.67	13	3.78	16	4.23	16	4.42	14	4.52	12	9.12	9
1965	.50	6	.83	6	1.14	7	1.36	5	2.00	7	2.66	8	3.33	10	3.52	9	13.3	13
1966	1.80	12	1.93	12	2.39	14	3.12	17	4.37	18	4.75	18	5.06	16	7.04	17	14.3	15
1967	1.00	7	1.07	8	1.21	8	1.51	6	2.54	10	4.47	17	6.65	18	6.82	16	10.4	11
1968	1.50	9	1.60	9	1.63	9	1.76	7	1.81	5	2.08	3	2.56	4	3.37	7	7.64	8
1969	.20	3	.23	3	.30	3	.41	2	.90	3	2.24	5	2.87	6	3.34	6	7.29	7
1970	2.40	16	2.60	17	2.84	17	3.04	15	3.20	14	3.41	12	3.85	11	4.38	11	16.9	16
1971	2.20	15	2.27	15	2.53	15	3.10	16	3.33	15	3.86	14	5.64	17	7.07	18	78.6	18
1972	2.50	17	2.50	16	2.56	16	2.69	14	3.19	13	4.10	15	4.86	15	5.59	15	13.6	14
1973	.30	4	.43	4	.46	4	.63	4	1.25	4	2.92	10	4.11	13	4.91	14	7.13	6
1974	1.00	8	1.00	7	1.10	6	1.76	8	1.90	6	2.14	4	2.40	2	2.99	2	6.18	3
1975	1.50	10	1.70	10	1.96	10	2.01	9	2.18	8	2.36	6	2.93	8	3.45	8	7.09	5
1976	2.00	14	2.00	13	2.14	12	2.43	11	2.60	11	3.32	11	3.28	9	3.78	10	5.32	1
1977	3.00	18	3.10	18	3.50	18	3.68	18	3.78	17	3.82	13	4.09	12	4.68	13	19.2	17
1978	.0000	1	.0000	1	.0000	1	.0000	1	.76	1	1.14	1	1.60	1	2.07	1	7.02	4
1979	1.50	11	1.70	11	2.06	11	2.21	10	2.38	9	2.60	7	2.81	5	3.18	4	5.54	2

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E47.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06436800, Horse Creek near Vale

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1963	1,300	6	898	8	530	8	330	7	219	9	152	9	134	9	112	10	90.6	10
1964	1,290	7	968	6	565	7	329	8	311	5	203	4	172	4	144	5	97.6	9
1965	2,030	3	1,637	3	855	4	464	5	313	4	190	5	160	5	143	6	110	7
1966	230	16	179	16	136	18	119	17	105	17	92.0	17	90.7	16	84.5	15	61.9	15
1967	1,490	5	1,300	5	914	3	769	3	468	3	379	3	291	3	249	3	182	3
1968	232	15	211	15	175	15	135	16	108	16	98.2	16	83.4	17	72.5	17	53.4	17
1969	299	12	257	12	200	12	151	13	133	11	123	12	101	13	87.0	14	76.3	13
1970	495	11	427	11	255	11	141	14	126	14	111	14	92.3	14	88.7	13	77.3	12
1971	859	10	787	9	522	9	332	6	238	8	189	6	153	6	147	4	138	4
1972	1,950	4	1,623	4	848	5	465	4	297	6	156	8	135	8	130	7	125	5
1973	250	14	212	14	189	14	158	12	128	13	108	15	92.0	15	81.9	16	61.4	16
1974	176	18	165	18	155	16	138	15	124	15	118	13	107	12	94.0	12	65.0	14
1975	1,180	8	899	7	579	6	313	9	259	7	174	7	135	7	128	8	116	6
1976	6,660	1	3,920	1	2,593	1	1,288	2	684	1	466	1	369	1	302	1	203	2
1977	971	9	763	10	455	10	232	10	130	12	123	11	114	11	103	11	88.9	11
1978	3,120	2	2,877	2	2,028	2	1,297	1	681	2	452	2	335	2	298	2	246	1
1979	291	13	256	13	194	13	159	11	148	10	134	10	129	10	127	9	102	8
1980	216	17	175	17	141	17	118	18	102	18	88.2	18	81.5	18	70.9	18	48.2	18

Table E48.1. Mean flow, in cubic feet per second, for station 06437000, Belle Fourche River near Sturgis

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1946	(1)	(1)	26.5	25.0	52.0	117	241	1,951	3,404	670	267	636	(2)
1947	787	325	252	169	712	1,464	1,238	370	2,168	477	261	241	702
1948	95.9	90.6	44.8	25.2	96.7	730	511	316	793	434	298	295	311
1949	157	145	56.0	28.0	117	1,873	1049	328	344	286	254	232	408
1950	89.0	84.1	25.0	5.39	11.1	37.2	1,243	663	248	262	267	261	266
1951	92.5	48.9	26.1	20.5	17.1	75.6	45.3	87.3	245	181	200	222	105
1952	105	77.6	42.6	22.1	169	515	399	269	251	261	248	189	212
1953	81.2	54.2	39.2	39.5	28.9	154	78.5	369	830	258	436	270	220
1954	125	100	45.1	21.9	91.9	55.4	227	265	232	188	243	224	152
1955	90.7	67.6	52.3	33.4	26.8	105	157	97.9	178	241	182	203	120
1956	75.5	46.1	21.9	20.3	29.7	207	63.0	85.5	194	312	159	120	112
1957	66.8	95.6	44.7	21.8	32.0	50.5	59.7	176	91.9	159	202	142	95.7
1958	72.2	57.8	39.4	30.6	51.1	61.9	86.1	59.6	397	292	242	189	132
1959	73.3	60.2	46.1	12.0	24.7	140	62.3	69.6	118	137	70.5	35.6	71.2
1960	33.0	20.1	33.0	14.0	19.9	365	53.1	57.7	84.5	52.4	103	33.0	73.0
1961	30.5	36.2	14.6	14.6	12.1	30.3	21.9	15.8	80.7	58.9	2.39	10.2	27.4
1962	16.2	26.7	11.5	5.71	46.6	123	38.5	1,915	1,466	671	200	177	394
1963	147	58.2	35.3	22.4	123	148	727	584	1,026	293	255	244	304
1964	126	61.5	24.9	22.8	26.8	44.7	76.6	147	1,301	454	330	217	235
1965	113	55.7	40.2	43.5	38.2	45.2	153	2,340	882	469	307	255	399
1966	96.4	57.7	61.0	27.7	109	530	437	281	250	250	265	199	214
1967	93.0	50.9	53.4	34.7	48.9	75.9	118	1,022	1,411	310	339	324	324
1968	82.5	44.3	29.0	26.9	36.6	93.5	62.1	150	233	268	273	225	127
1969	69.6	71.6	32.9	18.1	12.8	237	278	826	248	344	300	269	227
1970	102	44.4	34.7	10.2	19.3	49.9	326	1,041	921	322	348	261	291
1971	72.8	59.4	29.5	22.7	511	446	1,134	1,112	911	288	367	406	444
1972	393	111	61.6	35.4	243	1,503	474	1,105	1,685	428	428	303	565
1973	96.1	54.8	32.1	28.3	209	497	788	962	789	383	481	216	378
1974	123	70.8	29.2	25.4	72.7	159	559	353	260	340	354	245	216
1975	58.8	47.7	28.1	23.5	23.6	150	601	1,193	454	336	402	303	303
1976	97.4	50.1	41.0	47.9	68.4	178	84.1	129	2,499	800	625	349	412
1977	69.5	49.6	40.8	20.0	43.4	77.8	518	212	286	299	374	115	176
1978	178	55.1	59.4	29.5	37.4	1,715	270	2,304	788	526	405	348	566
1979	119	48.3	31.4	4.71	6.62	200	234	221	411	320	470	329	201
1980	99.8	57.8	50.0	20.9	21.7	55.6	51.9	112	249	256	172	39.7	99.2
1981	37.0	27.5	24.4	32.8	65.5	32.8	21.2	66.5	336	396	177	244	122
1982	51.5	57.8	25.0	6.28	28.0	159	157	3,478	911	327	327	284	489
1983	529	89.3	66.2	137	302	514	674	813	289	342	401	277	370
1984	80.1	53.8	22.2	21.3	63.2	61.9	91.4	992	2,225	377	356	322	387
1985	73.0	52.7	33.4	27.2	54.9	431	57.3	192	204	286	294	163	157
1986	51.3	42.2	40.1	46.9	148	627	583	688	207	320	302	723	315
1987	198	90.0	79.5	57.2	62.7	265	795	472	232	322	320	198	258
1988	69.8	73.6	29.6	10.5	19.4	177	71.5	163	267	277	256	171	133
1989	43.8	44.0	29.0	28.3	27.5	86.5	125	265	151	174	188	111	107
1990	41.1	55.8	53.1	76.6	95.2	75.3	55.4	154	92.0	192	132	112	94.7
1991	38.6	60.7	15.4	18.4	28.7	66.3	72.2	255	134	146	155	124	93.4
1992	43.9	75.8	36.0	28.1	31.8	44.5	39.5	64.2	95.5	177	123	97.1	71.5
1993	36.5	29.8	27.9	30.7	36.1	573	214	628	550	1,473	347	250	353

¹Indicates a no-value month.²Incomplete water year.

Table E48.2. Statistics on mean flow, in cubic feet per second, for station 06437000, Belle Fourche River near Sturgis (October 1946 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	47	47	47	47	47	47	47	47	47	47	47	47	47
Maximum	787	325	252	169	712	1,873	1,243	3,478	2,499	1,473	625	723	702
Percentile													
75th	113	73.6	46.1	32.8	95.2	446	518	826	882	377	354	277	370
50th	82.5	57.7	35.3	25.2	38.2	150	157	281	286	299	273	225	220
25th	58.8	48.3	28.1	20.0	26.8	61.9	62.3	147	207	250	200	163	120
Minimum	16.2	20.1	11.5	4.71	6.62	30.3	21.2	15.8	80.7	52.4	2.39	10.2	27.4
Mean	115.35	66.76	42.35	31.27	87.26	325.66	322.99	584.45	596.14	335.43	281.72	224.84	251.77
Standard deviation	132.49	44.85	34.33	29.39	129.63	447.35	345.90	705.85	606.41	217.63	117.06	116.40	153.34
Skewness	3.80	4.40	5.14	3.39	3.44	2.33	1.34	2.30	1.67	3.39	0.23	1.42	0.82
Coefficient of variation	1.15	0.67	0.81	0.94	1.49	1.37	1.07	1.21	1.02	0.65	0.42	0.52	0.61
Percent of annual flow	3.83	2.21	1.41	1.04	2.89	10.80	10.72	19.39	19.78	11.13	9.35	7.46	¹ 0.333

¹Serial correlation for annual mean flows.

Table E48.3. Serial correlation for 1-year lag for monthly mean flow for station 06437000, Belle Fourche River near Sturgis (October 1946 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.037	0.254	0.031	-0.113	0.172	0.142	0.313	-0.051	0.078	-0.003	0.583	0.161

Table E48.4. Correlation matrix for monthly mean flow for station 06437000, Belle Fourche River near Sturgis (October 1946 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.823	0.849	0.831	0.753	0.556	0.509	0.045	0.389	0.099	0.227	0.141
Nov.	*	1.000	0.895	0.671	0.714	0.549	0.559	-0.070	0.301	-0.012	0.028	0.042
Dec.	*	*	1.000	0.803	0.727	0.519	0.461	-0.053	0.329	0.063	0.058	0.060
Jan.	*	*	*	1.000	0.703	0.360	0.364	-0.058	0.265	0.134	0.135	0.149
Feb.	*	*	*	*	1.000	0.504	0.652	0.053	0.389	0.086	0.185	0.274
Mar.	*	*	*	*	*	1.000	0.491	0.186	0.239	0.235	0.235	0.287
Apr.	*	*	*	*	*	*	1.000	0.115	0.137	0.052	0.305	0.365
May	*	*	*	*	*	*	*	1.000	0.349	0.265	0.334	0.373
June	*	*	*	*	*	*	*	*	1.000	0.454	0.543	0.368
July	*	*	*	*	*	*	*	*	*	1.000	0.471	0.315
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.620
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E48.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06437000, Belle Fourche River near Sturgis

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1946	50.0	47	56.7	47	66.4	47	93.9	47	120	47	160	47	211	47	267	47	398	47
1947	5.00	10	5.00	9	5.00	7	13.6	18	18.8	17	28.5	31	44.3	36	51.9	39	85.6	38
1948	13.0	25	13.7	24	14.1	22	16.9	24	26.6	34	36.2	38	55.5	44	77.9	45	132	44
1949	.0000	1	.0000	1	.0000	1	2.29	2	3.27	2	7.05	3	9.97	2	15.6	2	41.1	9
1950	5.00	11	5.00	10	5.00	8	6.43	8	11.8	11	17.8	11	20.9	11	23.4	6	48.2	12
1951	5.00	12	5.00	11	7.86	14	9.29	15	12.2	13	25.3	20	47.0	39	54.7	42	75.5	35
1952	10.0	19	10.0	19	10.7	18	15.7	21	26.0	33	33.1	35	34.7	29	38.8	27	66.7	29
1953	5.00	13	5.00	12	6.43	11	8.21	11	21.3	25	31.8	34	50.0	42	52.4	40	73.7	32
1954	20.0	39	20.0	38	23.6	37	24.3	34	25.7	31	28.0	28	35.4	30	42.7	30	63.9	27
1955	15.0	27	16.7	30	18.6	31	18.9	28	19.8	21	21.1	15	22.0	12	29.1	12	60.1	24
1956	15.0	28	15.0	27	17.9	30	18.6	27	19.5	20	26.7	25	31.1	21	37.1	22	52.5	20
1957	10.0	20	10.0	20	12.1	20	15.7	22	23.3	27	25.9	23	33.9	27	39.1	28	52.7	21
1958	8.00	16	8.00	16	8.57	16	9.07	14	11.4	10	18.2	12	26.4	15	35.6	21	60.6	25
1959	8.00	17	9.33	18	10.7	19	11.4	17	12.9	14	16.7	10	17.5	5	20.7	5	24.5	3
1960	2.00	3	2.67	4	3.86	5	4.57	5	7.70	5	13.4	6	13.6	4	17.9	3	23.1	2
1961	.0000	2	.30	2	.56	2	.99	1	2.17	1	6.12	2	8.95	1	13.3	1	11.9	1
1962	10.0	21	13.3	23	16.1	26	17.4	25	21.8	26	28.0	29	37.9	32	50.5	37	85.0	37
1963	8.00	18	8.00	17	9.14	17	10.6	16	20.9	24	21.1	16	23.8	13	29.0	11	51.3	18
1964	15.0	29	20.0	39	24.3	40	26.8	40	35.0	43	36.9	39	39.5	33	41.0	29	57.5	23
1965	10.0	22	11.7	21	15.0	25	18.9	29	26.7	35	42.7	43	47.8	40	51.2	38	92.4	40
1966	20.0	40	21.3	41	24.1	39	26.1	38	28.2	38	37.9	40	45.1	37	46.8	34	60.7	26
1967	10.0	23	12.0	22	13.9	21	14.6	19	19.0	18	25.8	22	28.2	18	33.8	18	52.3	19
1968	6.00	14	6.67	14	7.50	13	8.25	12	10.0	8	14.6	8	18.2	6	28.8	10	50.4	15
1969	6.00	15	6.67	15	7.86	15	8.14	10	9.33	7	13.6	7	19.2	8	24.4	7	45.0	11
1970	15.0	30	15.0	28	17.1	27	19.4	31	20.3	23	23.2	18	31.8	23	38.7	26	111	41
1971	18.0	35	19.3	35	22.9	36	24.5	36	28.9	39	35.7	37	54.9	43	69.7	43	199	45
1972	17.0	34	17.3	31	17.4	29	18.9	30	25.9	32	29.6	33	35.7	31	44.6	33	119	42
1973	3.00	6	3.67	6	5.29	9	6.79	9	17.8	15	25.5	21	34.2	28	47.6	35	75.2	34
1974	12.0	24	14.0	25	14.9	23	15.5	20	19.3	19	20.8	14	23.9	14	30.4	15	50.0	13
1975	15.0	31	18.3	32	22.1	35	30.0	42	33.5	41	38.9	41	45.5	38	50.4	36	80.7	36
1976	15.0	32	15.0	29	17.1	28	17.9	26	19.8	22	28.7	32	32.6	25	38.1	25	50.9	16
1977	25.0	44	25.0	43	25.0	42	28.2	41	29.0	40	33.3	36	39.5	34	44.3	32	70.3	31
1978	2.00	4	2.00	3	2.21	3	3.07	3	4.58	3	5.66	1	12.4	3	20.1	4	69.7	30
1979	13.0	26	14.3	26	14.9	24	16.4	23	18.5	16	21.2	17	28.3	19	35.1	20	51.2	17
1980	18.0	36	18.7	33	20.7	33	22.6	33	23.9	29	25.2	19	27.5	17	29.6	13	36.2	5
1981	3.60	7	3.90	7	4.07	6	4.24	4	6.04	4	10.8	4	19.3	9	28.5	9	38.9	7
1982	40.0	46	48.7	46	51.1	46	56.4	46	62.8	46	69.6	46	94.0	46	117	46	226	46
1983	4.50	9	5.07	13	6.89	12	8.94	13	12.1	12	20.3	13	31.3	22	37.5	23	50.3	14
1984	18.0	37	19.7	37	21.9	34	24.4	35	25.6	30	26.9	26	32.7	26	37.8	24	86.3	39
1985	23.0	43	23.3	42	24.4	41	32.0	44	36.2	44	39.7	42	42.3	35	44.1	31	74.3	33
1986	20.0	41	26.7	45	40.7	45	45.5	45	55.7	45	59.5	45	66.2	45	72.1	44	128	43
1987	2.90	5	2.97	5	3.50	4	4.86	6	8.42	6	11.9	5	18.9	7	32.8	17	53.7	22
1988	18.0	38	19.3	36	19.7	32	21.4	32	23.3	28	26.1	24	27.4	16	29.6	14	35.6	4
1989	25.0	45	26.0	44	28.3	44	31.2	43	34.7	42	47.1	44	48.8	41	53.7	41	65.6	28
1990	4.00	8	4.83	8	5.79	10	5.89	7	10.6	9	16.5	9	20.1	10	25.5	8	37.7	6
1991	20.0	42	21.0	40	23.7	38	26.5	39	27.6	37	28.2	30	31.8	24	34.9	19	43.3	10
1992	15.0	33	18.7	34	25.3	43	25.7	37	26.7	36	27.1	27	28.9	20	30.8	16	39.8	8

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E48.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06437000, Belle Fourche River near Sturgis

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1947	13,400	3	11,190	3	7,000	3	3,931	4	2,303	6	1,462	8	1,251	6	1,373	1	1,074	1
1948	3,820	19	2,843	20	2,085	19	1,427	21	917	23	720	20	591	21	636	17	530	16
1949	5,000	13	4,500	11	4,000	8	2,999	8	2,136	8	1,485	7	1,105	8	912	10	692	10
1950	4,000	18	3,407	15	2,327	16	2,160	11	1,254	15	964	15	724	17	610	18	490	19
1951	1,010	39	696	41	498	40	322	41	251	41	225	39	224	38	212	36	163	39
1952	5,620	11	4,770	10	3,140	9	1,688	13	901	24	568	25	457	25	419	25	350	26
1953	4,720	16	3,183	18	2,767	13	1,507	18	926	22	663	22	535	22	474	22	373	24
1954	2,460	26	1,741	28	904	32	587	34	396	34	280	34	272	33	266	33	230	31
1955	762	42	518	44	377	44	283	43	249	42	214	41	211	40	202	39	176	37
1956	1,650	32	1,291	32	728	34	450	36	331	36	262	36	230	37	203	38	174	38
1957	848	41	709	40	480	41	306	42	218	43	200	43	170	43	171	42	139	42
1958	1,340	34	1,015	34	713	35	652	32	401	32	348	31	312	31	282	31	211	33
1959	478	46	328	46	233	46	176	46	150	46	133	46	116	46	101	46	100	45
1960	2,500	25	1,933	27	1,313	27	744	29	400	33	220	40	178	42	147	44	122	44
1961	392	47	290	47	172	47	130	47	116	47	70.7	47	52.7	47	45.1	47	36.5	47
1962	8,090	5	6,060	5	5,597	4	4,061	3	2,894	2	1,927	2	1,408	3	1,104	5	757	5
1963	3,090	23	2,260	24	1,744	23	1,474	19	1,033	19	872	18	783	15	662	16	523	17
1964	6,740	6	5,077	7	2,795	11	1,571	16	1,506	10	891	17	701	18	578	20	419	21
1965	9,890	4	6,743	4	4,271	7	3,853	5	2,650	4	1,706	4	1,265	5	1,024	7	739	8
1966	1,800	31	1,347	31	1,091	29	796	27	658	26	534	26	435	26	387	26	337	27
1967	4,990	14	3,840	13	2,784	12	2,176	10	1,411	12	1,240	11	932	12	781	11	587	13
1968	618	44	593	42	502	39	379	39	324	37	293	33	265	35	255	35	202	35
1969	2,940	24	2,623	23	2,044	20	1,415	22	929	21	621	24	501	24	452	24	400	23
1970	4,190	17	2,940	19	2,243	17	1,629	14	1,256	14	1,048	14	804	14	697	14	537	15
1971	3,500	22	2,833	21	1,830	21	1,560	17	1,287	13	1,261	10	1,087	10	923	9	747	6
1972	5,510	12	4,260	12	2,803	10	2,321	9	1,686	9	1,407	9	1,100	9	1,202	4	949	3
1973	3,580	20	2,797	22	1,824	22	1,414	23	1,165	17	1,056	13	859	13	768	13	653	11
1974	1,030	38	914	36	760	33	748	28	617	27	467	27	401	28	382	28	364	25
1975	3,570	21	3,337	16	2,729	14	1,807	12	1,243	16	944	16	780	16	666	15	550	14
1976	15,900	2	12,740	2	8,796	2	4,664	2	2,730	3	1,754	3	1,335	4	1,077	6	744	7
1977	2,410	27	2,117	25	1,425	26	841	26	535	28	382	29	348	29	335	29	303	29
1978	6,570	7	5,887	6	4,597	5	3,121	7	2,493	5	1,587	6	1,632	2	1,342	2	1,028	2
1979	932	40	838	37	675	36	595	33	483	29	417	28	402	27	384	27	331	28
1980	643	43	587	43	399	43	338	40	283	40	256	37	234	36	201	40	151	40
1981	2,220	30	1,741	29	1,043	30	678	31	428	31	372	30	330	30	293	30	207	34
1982	29,700	1	19,030	1	11,650	1	6,933	1	3,959	1	2,295	1	1,651	1	1,315	3	934	4
1983	4,840	15	3,230	17	1,722	24	985	25	937	20	752	19	673	19	589	19	509	18
1984	5,910	10	4,920	8	4,594	6	3,807	6	2,263	7	1,615	5	1,204	7	994	8	725	9
1985	2,340	29	1,687	30	1,150	28	724	30	446	30	310	32	272	32	272	32	254	30
1986	6,520	8	4,790	9	2,433	15	1,429	20	1,082	18	667	21	672	20	551	21	470	20
1987	2,410	28	2,117	26	1,637	25	1,131	24	799	25	637	23	529	23	458	23	404	22
1988	1,140	36	730	38	537	38	385	38	319	38	274	35	267	34	257	34	218	32
1989	1,310	35	1,125	33	935	31	573	35	332	35	233	38	213	39	206	37	178	36
1990	519	45	381	45	333	45	246	45	196	44	170	44	158	44	152	43	124	43
1991	1,650	33	979	35	629	37	427	37	303	39	208	42	191	41	182	41	148	41
1992	1,090	37	711	39	438	42	260	44	189	45	157	45	138	45	130	45	99.7	46
1993	6,070	9	3,610	14	2,220	18	1,576	15	1,495	11	1,099	12	934	11	768	12	651	12

Table E49.1. Mean flow, in cubic feet per second, for station 06437500, Bear Butte Creek near Sturgis

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1946	3.00	5.30	5.68	4.84	4.68	4.86	14.0	339	330	35.2	7.28	23.4	64.9
1947	39.0	19.8	14.1	18.6	55.2	72.5	58.1	25.2	133	26.2	4.35	2.47	38.7
1948	5.14	8.53	7.19	6.68	10.1	16.7	10.6	8.39	19.7	3.54	2.27	.55	8.26
1949	1.46	3.74	2.07	1.18	2.02	32.3	35.0	25.4	7.61	1.27	.11	.24	9.40
1950	2.78	2.84	2.74	1.50	2.14	3.00	53.7	28.8	4.88	1.62	.20	.20	8.68
1951	1.27	1.99	2.26	1.90	3.09	3.14	2.36	6.31	4.77	1.66	5.52	9.07	3.61
1952	2.63	2.13	2.00	2.19	12.4	36.7	9.64	49.7	7.62	1.51	.34	.047	10.6
1953	1.07	.53	1.00	1.79	1.84	3.84	4.16	69.1	31.3	4.08	7.95	.15	10.7
1954	.74	1.73	1.98	1.98	2.62	2.53	10.6	6.01	14.9	.89	.000	.000	3.64
1955	.22	.73	1.03	.98	.80	1.75	12.2	1.08	14.1	.006	.000	.000	2.72
1956	.000	.000	.000	.53	.73	3.56	1.88	1.66	.21	.000	.000	.000	.72
1957	.000	1.73	.65	.35	1.52	1.29	2.31	34.2	14.7	4.10	.000	.000	5.10
1958	.000	.000	.45	.58	.55	1.00	3.50	1.06	.67	1.92	.000	.000	.81
1959	.000	.000	.000	.055	.089	3.37	.64	.11	.000	2.84	.000	.000	.60
1960	.000	.000	.000	.000	.000	12.7	.29	.000	.000	.000	.000	.000	1.10
1961	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1962	.000	.000	.000	.000	.000	3.92	.000	108	220	27.2	2.76	.000	30.1
1963	.73	1.49	1.82	1.34	11.2	12.9	58.4	66.1	63.9	11.0	.84	.36	19.1
1964	.50	1.32	1.18	1.61	2.66	3.35	3.85	13.3	137	8.27	1.02	.80	14.4
1965	1.54	1.73	1.70	1.82	2.77	3.28	4.36	199	54.1	15.5	3.00	2.86	24.6
1966	4.50	5.50	5.13	3.08	2.96	26.1	29.6	16.7	4.34	.71	4.54	1.02	8.72
1967	1.71	2.78	2.57	3.46	6.04	7.08	12.9	85.4	134	15.0	3.60	1.82	23.0
1968	3.02	6.30	3.50	5.25	4.83	6.15	6.36	3.94	9.19	2.85	.71	.69	4.38
1969	1.84	1.01	1.02	.97	1.03	15.0	25.7	62.8	6.03	2.16	.40	.18	9.94
1970	1.22	1.38	.68	.76	.82	1.43	27.2	93.9	73.2	4.74	.21	.25	17.2
1971	.65	1.03	.82	3.36	38.7	12.0	49.9	133	57.4	6.16	.97	.98	25.3
1972	4.15	6.23	5.43	5.02	16.0	10.7	12.2	45.2	226	22.4	6.15	2.42	29.9

Table E49.2. Statistics on mean flow, in cubic feet per second, for station 06437500, Bear Butte Creek near Sturgis (October 1945 through September 1972)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	27	27	27	27	27	27	27	27	27	27	27	27	27
Maximum	39.0	19.8	14.1	18.6	55.2	72.5	58.4	339	330	35.2	7.95	23.4	64.9
Percentile													
75th	2.78	3.74	2.74	3.36	6.04	12.9	27.2	69.1	73.2	11.0	3.60	1.02	23.0
50th	1.22	1.73	1.70	1.61	2.62	3.92	10.6	25.4	14.7	2.85	0.71	0.24	9.40
25th	0.000	0.53	0.65	0.58	0.80	3.00	2.36	3.94	4.77	1.27	0.000	0.000	3.61
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mean	2.86	2.88	2.41	2.59	6.84	11.15	16.65	52.72	58.10	7.44	1.93	1.76	13.93
Standard deviation	7.37	4.08	3.03	3.66	12.49	15.54	18.89	75.05	85.40	9.75	2.49	4.70	14.71
Skewness	4.87	3.01	2.53	3.46	3.05	2.77	1.26	2.55	1.88	1.63	1.19	4.19	1.85
Coefficient of variation	2.58	1.42	1.26	1.42	1.83	1.39	1.13	1.42	1.47	1.31	1.29	2.67	1.06
Percent of annual flow	1.71	1.72	1.44	1.55	4.09	6.67	9.95	31.51	34.72	4.45	1.16	1.05	¹ 0.559

¹Serial correlation for annual mean flows.

Table E49.3. Serial correlation for 1-year lag for monthly mean flow for station 06437500, Bear Butte Creek near Sturgis (October 1945 through September 1972)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.116	0.452	0.559	0.420	0.124	-0.015	0.045	-0.031	0.250	0.352	0.096	0.140

Table E49.4. Correlation matrix for monthly mean flow for station 06437500, Bear Butte Creek near Sturgis (October 1945 through September 1972)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.915	0.875	0.937	0.788	0.831	0.472	-0.041	0.210	0.412	0.278	0.080
Nov.	*	1.000	0.979	0.967	0.721	0.780	0.444	0.012	0.284	0.440	0.370	0.198
Dec.	*	*	1.000	0.951	0.691	0.739	0.441	0.091	0.350	0.489	0.473	0.304
Jan.	*	*	*	1.000	0.823	0.761	0.436	0.066	0.321	0.483	0.401	0.210
Feb.	*	*	*	*	1.000	0.724	0.606	0.090	0.239	0.385	0.212	0.042
Mar.	*	*	*	*	*	1.000	0.526	-0.098	0.046	0.217	0.137	-0.046
Apr.	*	*	*	*	*	*	1.000	0.102	0.041	0.134	-0.029	-0.038
May	*	*	*	*	*	*	*	1.000	0.681	0.694	0.464	0.723
June	*	*	*	*	*	*	*	*	1.000	0.934	0.580	0.625
July	*	*	*	*	*	*	*	*	*	1.000	0.597	0.588
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.589
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E49.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06437500, Bear Butte Creek near Sturgis

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1946	1.00	25	1.00	25	1.00	25	1.50	25	5.89	26	14.7	26	16.9	26	19.8	26	20.3	26
1947	1.70	26	1.77	26	1.87	26	2.00	26	2.35	25	2.86	25	3.91	25	4.91	25	5.69	25
1948	.40	21	.40	21	.40	21	.40	20	.44	17	.73	18	1.39	19	1.85	19	1.72	19
1949	.0000	1	.0000	1	.0000	1	.043	15	.090	11	.17	10	.37	11	1.05	17	1.63	18
1950	.0000	2	.0000	2	.0000	2	.029	14	.10	12	.19	11	.47	13	.79	13	1.25	14
1951	.30	20	.30	20	.30	20	.31	18	.66	20	1.99	23	2.11	22	2.14	21	3.79	22
1952	.0000	3	.0000	3	.0000	3	.0000	1	.047	10	.16	9	.37	9	.50	10	.73	10
1953	.0000	4	.0000	4	.0000	4	.043	16	.14	15	.35	16	.69	16	1.00	16	1.40	16
1954	.0000	5	.0000	5	.0000	5	.0000	2	.0000	1	.0000	1	.0000	1	.19	8	.42	8
1955	.0000	6	.0000	6	.0000	6	.0000	3	.0000	2	.0000	2	.0000	2	.0000	1	.0000	1
1956	.0000	7	.0000	7	.0000	7	.0000	4	.0000	3	.0000	3	.0000	3	.0000	2	.17	7
1957	.0000	8	.0000	8	.0000	8	.0000	5	.0000	4	.0000	4	.0000	4	.0000	3	.12	6
1958	.0000	9	.0000	9	.0000	9	.0000	6	.0000	5	.0000	5	.0000	5	.0000	4	.009	5
1959	.0000	10	.0000	10	.0000	10	.0000	7	.0000	6	.0000	6	.0000	6	.0000	5	.0000	2
1960	.0000	11	.0000	11	.0000	11	.0000	8	.0000	7	.0000	7	.0000	7	.0000	6	.0000	3
1961	.0000	12	.0000	12	.0000	12	.0000	9	.0000	8	.0000	8	.0000	8	.0000	7	.0000	4
1962	.0000	13	.0000	13	.0000	13	.0000	10	.0000	9	.21	13	.48	14	.80	14	1.26	15
1963	.0000	14	.0000	14	.0000	14	.0000	11	.13	14	.23	14	.44	12	.65	11	.93	12
1964	.50	23	.60	23	.70	23	.76	22	.79	22	.88	19	1.11	18	1.26	18	1.43	17
1965	.0000	15	.0000	15	.0000	15	1.07	24	2.04	24	2.46	24	3.08	24	3.74	24	3.91	24
1966	.40	22	.40	22	.41	22	.46	21	.52	19	1.21	21	1.53	20	1.86	20	2.21	20
1967	.68	24	.73	24	.86	24	.88	23	1.43	23	1.87	22	2.70	23	3.50	23	3.85	23
1968	.0000	16	.0000	16	.047	18	.19	17	.45	18	.67	17	.99	17	1.00	15	1.04	13
1969	.0000	17	.0000	17	.0000	16	.0000	12	.18	16	.26	15	.56	15	.75	12	.76	11
1970	.0000	18	.0000	18	.0000	17	.0000	13	.11	13	.21	12	.37	10	.50	9	.64	9
1971	.0000	19	.0000	19	.10	19	.37	19	.66	21	.90	20	1.78	21	2.70	22	3.70	21

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E49.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06437500, Bear Butte Creek near Sturgis

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1946	4,650	1	1,810	1	865	1	703	1	528	1	340	1	238	1	182	1	125	1
1947	1,030	6	834	5	481	5	262	5	145	6	80.8	8	72.8	7	76.9	4	61.3	2
1948	221	15	110	16	60.7	18	34.3	18	19.7	18	14.6	18	13.4	18	14.0	18	12.0	17
1949	181	17	79.3	19	66.0	17	61.9	16	48.7	15	35.3	15	31.5	14	25.5	14	17.3	14
1950	235	14	182	13	118	14	86.6	14	54.0	14	41.6	13	29.6	15	22.8	15	15.6	15
1951	111	19	64.7	20	42.6	21	21.8	22	13.7	21	7.38	21	5.94	22	6.44	21	5.17	21
1952	543	9	335	10	191	11	104	12	55.3	13	38.5	14	34.5	13	27.8	13	19.8	12
1953	294	12	152	15	95.7	15	88.5	13	70.5	12	51.2	11	35.8	12	29.1	11	20.3	11
1954	79.0	21	54.0	22	40.4	22	26.1	21	17.1	19	10.9	19	10.5	19	8.57	19	6.40	19
1955	75.0	23	63.3	21	46.1	20	27.2	19	14.1	20	7.66	20	9.19	20	7.30	20	5.10	22
1956	12.0	26	10.0	26	6.66	26	3.82	26	3.66	25	2.76	24	2.39	24	2.02	24	1.43	25
1957	236	13	190	12	123	13	75.2	15	44.4	16	26.9	17	18.2	17	14.3	17	9.75	18
1958	20.0	25	16.0	25	9.64	25	5.65	25	3.81	24	2.52	25	2.00	25	1.87	25	1.47	24
1959	78.0	22	29.3	24	12.6	24	5.87	24	3.49	26	2.07	26	1.44	26	1.09	26	1.20	26
1960	111	20	87.3	18	50.9	19	26.4	20	13.4	22	6.68	23	4.46	23	3.34	23	2.19	23
1961	.0000	27	.0000	27	.0000	27	.0000	27	.0000	27	.0000	27	.0000	27	.0000	27	.0000	27
1962	4,150	2	1,647	2	796	2	395	3	309	2	177	2	121	2	90.6	2	60.1	3
1963	472	10	340	9	249	9	157	9	99.7	10	79.1	9	63.8	9	51.5	8	37.1	8
1964	1,360	5	824	6	430	6	242	6	140	7	77.4	10	53.1	10	40.8	10	27.8	10
1965	1,870	4	1,020	4	528	4	380	4	222	4	132	4	92.0	4	69.9	5	47.0	6
1966	133	18	104	17	72.4	16	46.7	17	39.3	17	32.6	16	25.3	16	19.6	16	14.1	16
1967	897	7	546	7	382	7	238	7	134	8	112	6	80.2	6	62.6	7	43.3	7
1968	40.0	24	32.0	23	19.0	23	11.8	23	9.80	23	6.70	22	6.51	21	6.41	22	6.07	20
1969	393	11	267	11	197	10	129	11	75.9	11	49.2	12	36.3	11	28.3	12	18.9	13
1970	220	16	173	14	166	12	139	10	107	9	93.2	7	66.3	8	50.6	9	33.5	9
1971	601	8	462	8	259	8	208	8	149	5	114	5	81.5	5	67.3	6	49.5	5
1972	2,940	3	1,348	3	657	3	399	2	230	3	137	3	98.8	3	77.0	3	55.1	4

Table E50.1. Mean flow, in cubic feet per second, for station 06438000, Belle Fourche River near Elm Springs

Water year	Month												Annual
	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	
1928	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	571	(2)
1929	330	188	(1)	(1)	(1)	(1)	3,684	2,334	3,413	419	348	554	(2)
1930	349	115	(1)	(1)	(1)	688	193	378	868	407	386	282	(2)
1931	188	63.7	(1)	(1)	(1)	66.3	133	147	189	301	81.4	32.8	(2)
1932	164	62.3	(1)	(1)	(1)	305	1,352	985	1,101	(1)	(1)	(1)	(2)
1934	(1)	(1)	(1)	(1)	(1)	(1)	81.2	73.3	187	140	99.7	78.4	(2)
1935	165	70.6	42.7	18.0	85.3	141	101	117	970	113	104	87.5	167
1936	63.3	62.6	37.9	18.9	4.53	497	223	90.2	69.7	91.1	2.34	.22	97.3
1937	29.3	42.3	14.4	4.10	7.29	119	234	29.3	728	2,415	135	193	332
1938	67.5	45.7	26.5	32.8	54.5	150	45.1	195	465	152	75.9	104	118
1939	66.3	43.9	35.5	17.5	4.86	278	61.1	51.8	79.7	70.4	22.1	19.5	63.2
1940	72.2	62.8	34.5	2.03	6.28	128	184	65.5	490	98.9	54.5	56.6	104
1941	50.0	38.1	14.8	10.5	31.1	61.7	611	111	5,231	199	217	243	562
1942	92.4	96.7	43.1	17.3	16.0	39.2	230	3,026	1,541	494	281	194	510
1943	67.1	75.8	37.5	33.9	1,026	1,254	555	136	1,196	476	198	183	431
1944	74.3	91.7	48.7	23.4	16.5	601	3,603	451	4,541	532	302	238	868
1945	138	104	80.2	139	293	3,175	370	321	1,095	329	239	247	547
1946	90.9	112	33.7	24.0	49.2	114	244	3,031	5,074	832	238	689	877
1947	901	468	312	196	768	1,582	1,389	398	2,768	500	248	269	812
1948	120	107	80.0	50.0	136	1,052	527	303	940	389	338	237	357
1949	156	149	88.4	30.2	73.2	3,292	1,837	387	384	273	215	227	596
1950	98.7	72.2	22.2	9.13	26.6	166	2,182	993	248	258	339	268	390
1951	103	62.2	35.3	27.6	22.9	115	55.5	92.0	325	191	205	245	123
1952	126	71.5	54.7	18.2	322	1,025	1,248	402	285	279	240	206	356
1953	76.7	53.8	42.9	39.2	34.8	293	187	687	1,314	328	511	257	319
1954	123	96.5	41.3	16.0	96.2	47.7	457	312	643	169	229	211	203
1955	94.2	69.5	52.4	29.7	27.0	158	184	96.5	221	253	158	225	131
1956	77.2	34.2	20.0	25.2	22.6	568	76.6	99.5	186	306	161	112	142
1957	64.6	110	36.9	16.0	35.2	71.1	78.2	486	166	140	207	130	129
1958	76.7	58.4	40.2	33.1	66.4	69.0	148	67.9	780	327	240	183	174
1959	67.9	57.1	48.1	12.5	25.8	154	74.0	62.8	111	125	58.8	29.4	69.3
1960	27.4	14.8	37.8	12.3	27.9	512	64.4	77.8	85.5	34.0	97.7	23.8	85.4
1961	18.5	28.2	6.84	13.3	17.2	45.3	23.1	13.6	76.1	95.1	.77	2.65	28.4
1962	13.9	22.0	2.45	.23	55.3	154	43.8	4,683	2,647	608	221	169	724
1963	136	57.5	44.3	29.8	134	278	856	750	1,422	293	236	247	373
1964	123	58.1	14.2	38.0	36.8	61.3	86.8	165	2,857	451	298	213	364
1965	125	46.7	30.9	43.7	45.2	54.2	196	3,428	998	504	316	228	506
1966	66.3	56.1	52.0	30.8	42.7	876	657	329	252	230	279	228	259
1967	111	56.3	54.0	35.3	58.6	181	195	1,740	2,503	347	356	308	496
1968	71.5	60.9	44.9	31.5	52.2	105	80.9	132	293	273	278	240	139
1969	75.7	54.8	32.6	2.87	2.45	313	411	897	224	424	278	240	248
1970	120	54.7	33.5	8.89	22.8	58.0	844	1,276	989	296	331	261	359
1971	78.1	54.7	27.7	11.3	484	1,303	1,427	1,659	1,311	281	410	442	623
1972	451	80.3	42.3	20.4	285	1,716	507	1,319	1,975	488	392	287	631
1973	110	55.4	25.2	27.6	240	569	952	1,082	776	392	559	231	419
1974	138	72.4	37.3	25.2	89.1	171	667	351	239	337	360	242	228
1975	57.9	57.7	25.7	13.4	5.45	194	1,584	1,679	531	342	387	285	432
1976	103	33.8	48.8	41.9	87.1	178	105	129	2,985	787	634	357	455
1977	85.2	47.8	34.5	19.2	50.2	74.0	841	235	282	288	343	150	204
1978	262	58.5	58.7	33.3	35.8	2,457	338	2,594	898	563	405	356	680
1979	98.4	38.8	19.8	5.00	3.96	309	333	233	446	384	430	343	222
1980	152	56.7	39.5	11.3	20.6	69.8	63.7	97.3	388	206	149	54.4	109
1981	60.4	33.5	27.6	55.5	54.0	29.7	13.4	62.0	400	560	223	254	148
1982	52.0	42.9	20.6	4.10	35.4	323	267	3901	942	352	313	285	551
1983	732	106	65.6	112	321	581	728	932	318	326	395	280	409
1984	107	41.4	20.4	18.5	94.0	75.5	136	1481	2,768	382	385	338	486
1985	75.5	69.8	41.3	43.7	22.6	399	70.5	168	201	289	281	185	155
1986	49.5	37.5	35.5	50.9	459	1,237	1,185	1,378	275	311	274	768	505
1987	253	102	102	78.6	70.2	339	1,135	859	281	307	265	149	330
1988	63.5	72.1	31.4	10.2	18.0	231	97.4	203	281	312	253	159	145
1989	48.4	42.0	24.6	13.0	10.3	96.8	125	294	118	144	167	107	99.9
1990	35.4	55.6	42.6	72.0	80.5	90.7	51.1	170	76.1	171	109	98.7	88.0
1991	30.9	62.9	14.9	.016	.45	65.5	122	634	225	130	142	113	129
1992	39.5	58.6	34.3	20.3	26.5	33.7	31.5	46.1	103	244	65.2	61.0	63.8
1993	27.6	27.8	13.9	12.0	14.5	982	388	1269	819	1,791	355	244	501

¹Indicates a no-value month.

²Incomplete water year.

Table E50.2. Statistics on mean flow, in cubic feet per second, for station 06438000, Belle Fourche River near Elm Springs (October 1934 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	59	59	59	59	59	59	59	59	59	59	59	59	59
Maximum	901	468	312	196	1,026	3,292	3,603	4,683	5,231	2,415	634	768	877
Percentile													
75th	123	72.2	44.9	33.9	87.1	569	667	1,082	1,196	424	339	261	501
50th	77.2	57.7	36.9	20.4	36.8	178	230	321	465	307	248	228	330
25th	63.3	43.9	25.7	12.3	20.6	75.5	80.9	111	239	199	161	130	131
Minimum	13.9	14.8	2.45	0.016	0.45	29.7	13.4	13.6	69.7	34.0	0.77	0.22	28.4
Mean	119.66	69.05	42.57	30.35	106.00	496.83	500.51	784.38	997.22	377.67	254.34	217.01	333.45
Standard deviation	148.53	58.63	40.32	33.12	185.39	715.09	646.77	1044.62	1217.67	369.22	131.49	136.18	221.69
Skewness	4.02	5.63	5.36	3.12	3.30	2.51	2.57	2.05	2.06	3.97	0.30	1.63	0.65
Coefficient of variation	1.24	0.85	0.95	1.09	1.75	1.44	1.29	1.33	1.22	0.98	0.52	0.63	0.66
Percent of annual flow	2.99	1.73	1.07	0.76	2.65	12.43	12.53	19.63	24.96	9.45	6.37	5.43	¹ 0.382

¹Serial correlation for annual mean flows.

Table E50.3. Serial correlation for 1-year lag for monthly mean flow for station 06438000, Belle Fourche River near Elm Springs (October 1934 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.018	0.224	0.105	-0.009	-0.031	0.059	0.134	-0.131	0.168	-0.092	0.566	0.234

Table E50.4. Correlation matrix for monthly mean flow for station 06438000, Belle Fourche River near Elm Springs (October 1934 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.759	0.766	0.720	0.475	0.333	0.214	0.018	0.137	-0.006	0.215	0.140
Nov.	*	1.000	0.936	0.713	0.489	0.352	0.313	-0.058	0.198	-0.015	0.015	0.097
Dec.	*	*	1.000	0.801	0.485	0.413	0.274	-0.119	0.114	-0.053	0.044	0.066
Jan.	*	*	*	1.000	0.511	0.422	0.132	-0.114	0.096	-0.021	0.117	0.159
Feb.	*	*	*	*	1.000	0.451	0.252	-0.021	0.115	0.009	0.139	0.288
Mar.	*	*	*	*	*	1.000	0.332	0.037	0.003	0.065	0.158	0.248
Apr.	*	*	*	*	*	*	1.000	0.039	0.237	0.018	0.288	0.291
May	*	*	*	*	*	*	*	1.000	0.317	0.187	0.323	0.421
June	*	*	*	*	*	*	*	*	1.000	0.232	0.295	0.427
July	*	*	*	*	*	*	*	*	*	1.000	0.232	0.265
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.586
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E50.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06438000, Belle Fourche River near Elm Springs

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1934	7.00	27	7.00	26	7.00	24	8.14	22	17.4	32	29.4	39	41.1	48	49.5	47	73.8	41
1935	2.20	13	2.20	11	2.20	9	2.31	9	4.28	10	11.2	12	18.8	15	30.8	21	45.3	15
1936	.0000	1	.0000	1	.0000	1	.0000	1	.0000	1	.96	2	8.64	5	16.9	7	15.3	2
1937	10.0	33	10.0	33	11.3	35	16.6	37	20.6	39	27.3	36	33.4	32	39.0	29	63.3	34
1938	.0000	2	.0000	2	.86	6	2.07	8	3.50	8	10.7	10	16.4	11	21.1	10	38.2	12
1939	.0000	3	.0000	3	.0000	2	.50	4	1.37	4	3.55	5	12.6	8	24.4	14	32.8	8
1940	4.00	17	4.00	17	4.00	17	5.07	18	7.00	13	12.2	15	18.2	14	22.8	12	33.2	9
1941	10.0	34	10.0	34	10.0	31	11.0	31	13.4	24	16.5	22	17.7	13	28.1	18	51.5	20
1942	4.00	18	4.33	19	5.00	19	7.21	20	22.4	41	30.7	42	38.9	43	47.0	44	85.5	47
1943	4.00	19	4.67	21	5.86	21	9.00	24	12.8	23	14.6	20	19.4	17	28.6	19	50.9	18
1944	18.0	50	28.7	56	38.6	57	41.4	56	62.7	56	74.8	58	95.5	58	112	57	151	55
1945	16.0	47	16.0	46	16.9	45	17.8	40	19.8	36	21.9	27	32.9	31	51.2	49	70.3	39
1946	56.0	59	57.3	59	66.3	59	111	59	144	59	185	59	269	59	327	59	460	59
1947	30.0	57	30.0	57	30.0	56	36.4	55	39.0	55	52.0	55	69.9	55	75.9	54	120	52
1948	20.0	52	20.0	51	20.0	50	23.2	51	26.5	46	34.9	48	60.6	54	82.0	55	123	54
1949	2.00	9	2.33	12	3.29	13	4.57	16	7.50	14	10.9	11	18.9	16	32.3	23	60.9	30
1950	5.00	22	5.00	22	7.14	25	8.93	23	14.5	28	24.1	29	27.4	27	32.0	22	61.2	31
1951	4.00	20	4.33	20	6.86	23	9.14	25	16.8	31	27.8	37	47.7	51	55.8	53	108	51
1952	15.0	43	15.0	43	17.9	47	22.5	49	29.3	51	36.2	51	37.8	41	40.8	33	66.5	35
1953	2.00	10	2.00	9	2.57	10	4.36	14	15.4	29	25.5	31	47.8	52	48.8	46	70.4	40
1954	20.0	53	20.0	52	21.4	51	22.9	50	23.7	44	27.1	35	35.1	36	42.3	37	69.8	38
1955	15.0	44	16.7	47	18.6	48	18.9	45	19.7	35	22.2	28	22.3	22	25.1	15	67.1	36
1956	5.00	23	6.67	25	8.57	26	10.7	29	14.0	26	21.4	26	26.9	26	39.1	30	56.1	23
1957	15.0	45	15.0	44	15.7	41	20.4	47	28.3	50	30.2	41	37.2	38	41.5	36	57.6	24
1958	8.00	28	8.33	27	9.00	27	9.57	26	11.6	21	19.0	23	27.5	28	35.8	27	62.2	32
1959	5.00	24	5.00	23	5.57	20	7.79	21	11.4	20	19.4	24	19.5	19	22.5	11	24.0	4
1960	2.00	11	2.00	10	2.71	11	3.79	11	6.17	12	10.0	9	10.7	6	15.3	4	17.4	3
1961	.0000	4	.0000	4	.0000	3	.0000	2	.0000	2	1.00	3	5.33	2	9.43	1	6.93	1
1962	9.00	32	9.00	30	9.43	29	13.8	34	21.1	40	36.1	50	42.9	49	52.4	50	92.7	49
1963	2.00	12	3.00	14	3.29	14	4.29	12	13.8	25	25.5	32	28.9	29	33.8	25	55.2	22
1964	10.0	35	11.3	37	14.7	38	16.9	38	27.4	48	34.0	46	36.7	37	41.2	34	59.0	26
1965	10.0	36	11.7	38	15.0	39	18.6	42	23.2	43	31.3	43	37.3	39	43.2	39	68.9	37
1966	20.0	54	22.3	54	24.3	54	24.8	52	30.8	53	42.1	53	48.0	53	50.8	48	78.1	43
1967	12.0	40	14.0	42	16.1	43	18.1	41	24.2	45	36.0	49	40.9	46	46.8	43	59.1	27
1968	1.00	7	1.00	7	1.14	7	1.36	5	2.07	5	2.17	4	6.64	3	16.5	6	47.2	16
1969	5.00	25	5.00	24	5.86	22	6.71	19	7.78	15	13.7	17	20.1	20	27.9	17	51.1	19
1970	10.0	37	10.0	35	10.4	33	10.9	30	11.2	19	14.4	19	25.6	24	34.2	26	106	50
1971	8.00	29	9.00	31	11.6	36	14.0	35	15.8	30	25.8	33	34.9	35	54.8	52	208	57
1972	10.0	38	10.0	36	10.7	34	12.1	33	18.5	33	24.5	30	34.1	33	44.7	41	122	53
1973	3.00	15	3.17	16	3.79	16	4.32	13	14.2	27	28.1	38	37.7	40	53.3	51	83.0	46
1974	4.00	21	4.17	18	4.29	18	4.46	15	5.45	11	9.59	8	14.4	10	21.0	9	41.9	13
1975	10.0	39	12.3	39	16.1	44	20.7	48	32.9	54	37.1	52	40.3	45	44.1	40	82.2	45
1976	15.0	46	15.0	45	15.0	40	15.6	36	18.7	34	26.2	34	30.3	30	37.4	28	52.5	21
1977	25.0	56	25.0	55	25.0	55	25.0	53	27.9	49	33.6	45	40.9	47	44.8	42	90.3	48
1978	2.50	14	2.83	13	3.07	12	3.61	10	3.88	9	4.53	6	7.98	4	14.5	3	59.8	29
1979	8.50	31	8.83	29	9.57	30	9.85	28	10.7	18	14.9	21	21.3	21	27.3	16	58.8	25
1980	12.0	41	13.3	41	15.9	42	17.0	39	20.5	38	29.9	40	37.8	42	40.7	32	43.4	14
1981	.0000	5	.0000	5	.17	5	1.67	6	3.02	7	6.56	7	16.4	12	23.7	13	38.0	11
1982	40.0	58	42.7	58	48.6	58	59.2	58	64.9	58	72.9	57	87.5	57	116	58	254	58
1983	1.50	8	1.63	8	1.84	8	2.00	7	2.41	6	14.1	18	24.0	23	40.3	31	59.2	28
1984	18.0	51	18.0	49	18.6	49	19.3	46	23.0	42	31.9	44	34.2	34	41.4	35	76.1	42
1985	12.0	42	12.3	40	12.9	37	18.6	43	26.8	47	34.7	47	38.9	44	42.8	38	80.6	44
1986	16.0	48	18.0	50	22.6	52	46.1	57	64.8	57	69.8	56	79.8	56	87.8	56	162	56
1987	3.00	16	3.00	15	3.43	15	4.79	17	8.30	16	11.9	14	19.4	18	32.5	24	49.2	17
1988	8.00	30	8.50	28	9.00	28	9.71	27	10.2	17	11.5	13	12.5	7	16.9	8	27.9	6
1989	21.0	55	21.7	53	23.6	53	26.4	54	29.5	52	44.8	54	43.8	50	47.1	45	62.2	33
1990	.0000	6	.0000	6	.0000	4	.0000	3	.009	3	.20	1	3.35	1	11.6	2	29.0	7
1991	17.0	49	17.0	48	17.6	46	18.6	44	20.1	37	21.1	25	26.2	25	28.6	20	35.5	10
1992	6.80	26	9.00	32	10.3	32	11.0	32	11.9	22	12.7	16	13.2	9	16.2	5	25.2	5

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E50.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06438000, Belle Fourche River near Elm Springs

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1935	14,400	12	7,560	19	3,640	24	1,788	29	1,002	34	563	34	410	40	339	40	259	39
1936	1,890	47	1,570	46	1,050	47	765	45	516	44	375	43	276	46	225	49	164	52
1937	26,700	3	15,750	8	9,624	7	4,932	12	2,514	15	1,613	19	1,117	22	888	23	627	26
1938	5,410	30	2,847	35	1,445	42	817	44	477	46	376	42	280	45	235	48	180	49
1939	1,740	48	1,447	47	1,014	48	552	51	307	54	179	56	140	56	133	56	95.5	57
1940	4,290	36	2,260	41	1,209	44	661	48	491	45	327	46	246	51	218	50	169	51
1941	30,400	2	27,670	1	17,010	1	10,030	1	5,243	3	2,720	3	2,008	5	1,552	6	1,087	7
1942	12,300	17	10,470	13	7,620	11	5,004	11	3,692	8	2,310	8	1,733	8	1,400	10	966	11
1943	13,300	14	6,860	20	4,714	19	2,950	21	1,697	24	1,341	24	991	25	970	20	777	20
1944	17,900	9	16,330	6	11,920	4	7,922	3	4,587	4	2,615	5	2,968	2	2,422	1	1,683	1
1945	11,100	19	9,363	16	7,270	14	5,505	9	3,380	9	1,876	13	1,329	17	1,268	13	939	14
1946	21,600	6	13,670	9	8,597	9	7,052	5	6,267	2	4,099	1	3,016	1	2,324	2	1,679	2
1947	19,000	8	15,970	7	9,656	6	5,307	10	2,946	12	1,659	18	1,501	13	1,579	5	1,231	5
1948	4,040	38	3,503	32	2,741	30	2,014	27	1,240	29	864	30	649	31	744	28	598	28
1949	11,200	18	9,723	15	8,447	10	5,947	6	4,083	6	2,619	4	1,873	6	1,501	7	1,069	9
1950	6,490	27	5,020	26	3,999	23	3,739	18	2,199	19	1,601	20	1,152	21	933	22	715	22
1951	1,200	52	942	53	715	52	448	53	325	52	263	52	263	48	242	47	191	47
1952	12,500	16	11,000	11	7,481	13	4,249	17	2,247	17	1,292	25	956	27	805	27	604	27
1953	7,200	23	5,593	23	4,356	22	2,472	24	1,425	27	1,014	28	777	29	718	29	566	29
1954	3,950	39	2,163	43	1,552	40	855	43	760	38	507	38	474	34	401	36	335	37
1955	791	56	664	56	428	56	282	56	265	55	241	54	217	53	216	51	190	48
1956	2,050	46	1,280	48	1,114	45	881	41	584	41	331	45	253	50	262	46	235	43
1957	3,220	41	2,254	42	1,667	38	951	40	573	42	338	44	295	42	265	45	202	46
1958	4,330	35	2,597	38	1,533	41	1,371	35	784	36	558	36	451	36	384	38	289	38
1959	397	59	337	59	221	59	193	59	159	58	124	58	105	58	104	58	98.2	56
1960	3,100	43	2,567	39	1,869	36	1,067	37	566	43	301	49	239	52	192	53	148	54
1961	537	58	393	58	224	58	196	58	151	59	87.5	59	62.6	59	53.3	59	45.0	59
1962	24,600	5	18,670	3	12,970	3	9,796	2	6,511	1	3,902	2	2,745	3	2,104	3	1,418	3
1963	4,600	34	3,777	31	2,761	29	2,086	26	1,431	26	1,159	27	1,014	24	855	25	651	25
1964	20,200	7	17,100	4	9,134	8	4,551	14	3,061	11	1,667	16	1,209	20	958	21	672	23
1965	16,100	10	12,240	10	6,914	15	5,689	7	3,842	7	2,353	7	1,696	10	1,350	12	953	13
1966	3,410	40	3,027	34	2,137	34	1,413	34	1,123	31	838	31	648	32	545	32	444	33
1967	10,800	20	8,183	17	6,403	16	4,255	16	2,510	16	2,168	9	1,558	12	1,256	15	914	15
1968	848	55	700	55	495	55	383	55	324	53	299	50	290	43	275	42	216	45
1969	3,220	42	2,777	36	2,103	35	1,634	32	1,072	32	750	33	593	33	505	33	450	32
1970	5,310	31	3,997	30	2,790	28	2,000	28	1,668	25	1,398	22	1,068	23	882	24	665	24
1971	7,950	22	5,280	24	3,224	26	2,770	22	2,027	21	1,792	14	1,700	9	1,451	8	1,100	6
1972	6,970	24	5,160	25	3,529	25	2,664	23	1,990	22	1,668	15	1,288	18	1,380	11	1,085	8
1973	4,720	32	3,457	33	2,284	33	1,725	31	1,388	28	1,188	26	980	26	854	26	724	21
1974	1,240	50	1,128	50	964	49	859	42	701	39	525	37	431	37	398	37	378	35
1975	6,840	25	6,163	22	4,419	21	3,003	19	2,092	20	1,662	17	1,288	19	1,056	19	811	19
1976	26,400	4	16,900	5	11,170	5	5,664	8	3,179	10	1,996	12	1,495	14	1,200	16	828	18
1977	5,930	28	4,663	27	2,719	31	1,483	33	879	35	561	35	464	35	419	34	356	36
1978	14,200	13	10,870	12	7,620	12	4,546	15	2,812	14	2,054	11	2,030	4	1,649	4	1,238	4
1979	886	54	738	54	687	53	595	50	475	47	444	41	424	38	403	35	381	34
1980	4,260	37	2,089	44	1,061	46	687	47	436	48	298	51	256	49	215	52	163	53
1981	2,980	44	2,463	40	1,587	39	973	39	606	40	500	39	421	39	366	39	253	41
1982	35,200	1	22,770	2	14,570	2	7,905	4	4,425	5	2,545	6	1,821	7	1,449	9	1,058	10
1983	6,800	26	4,567	28	2,456	32	1,281	36	1,041	33	836	32	754	30	663	31	551	30
1984	8,380	21	6,587	21	5,711	17	4,839	13	2,814	13	2,137	10	1,562	11	1,268	14	912	16
1985	2,240	45	1,797	45	1,272	43	761	46	435	49	313	47	270	47	268	44	257	40
1986	13,300	15	9,800	14	5,048	18	2,989	20	2,239	18	1,392	23	1,414	15	1,125	18	834	17
1987	4,720	33	4,003	29	2,829	27	1,767	30	1,135	30	1,001	29	814	28	668	30	533	31
1988	1,230	51	983	52	676	54	451	52	360	50	309	48	285	44	270	43	245	42
1989	1,100	53	1,080	51	957	50	606	49	350	51	248	53	201	54	190	54	172	50
1990	650	57	531	57	411	57	236	57	174	57	148	57	143	55	137	55	114	55
1991	5,430	29	2,607	37	1,811	37	1,062	38	774	37	459	40	343	41	293	41	229	44
1992	1,620	49	1,252	49	800	51	434	54	255	56	179	55	139	57	125	57	92.3	58
1993	14,500	11	8,167	18	4,696	20	2,435	25	1,829	23	1,401	21	1,349	16	1,139	17	957	12

Table E51.1. Mean flow, in cubic feet per second, for station 06438500, Cheyenne River near Plainview

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1951	220	125	97.1	102	93.4	289	152	137	782	397	290	545	269
1952	219	135	46.6	12.5	596	2,715	2,571	1,457	894	589	491	317	837
1953	229	159	160	221	261	1,122	528	1,700	1,982	507	754	333	665
1954	190	169	113	60.2	268	277	562	380	839	159	284	254	295
1955	197	132	123	80.0	73.4	442	505	405	650	511	367	1,110	383
1956	228	123	202	166	153	924	315	436	310	468	359	171	323
1957	116	325	144	81.9	240	326	450	3,096	2,076	494	380	238	666
1958	234	188	170	180	212	334	517	225	1,378	945	584	251	435
1959	199	171	106	92.9	134	443	279	370	215	292	116	163	216
1960	126	93.8	157	56.0	119	874	201	170	206	61.8	147	43.0	189
1961	53.6	94.0	46.1	71.6	143	173	71.3	83.3	172	197	48.0	16.2	97.2
1962	39.2	114	28.6	10.0	188	667	139	6,279	6,278	2,585	494	256	1,430
1963	321	163	134	43.7	199	632	953	1,203	3,215	599	265	388	675
1964	206	142	80.0	104	148	177	358	553	4,766	860	434	256	669
1965	209	203	119	108	170	204	552	5,475	3,381	1,484	595	428	1,084
1966	378	211	206	88.7	101	2,225	1,438	530	296	350	565	401	570
1967	275	235	176	147	215	663	676	2,880	8,981	805	503	512	1,334
1968	263	215	150	133	231	388	375	233	1,492	479	535	382	405
1969	178	160	94.4	44.4	65.9	514	666	1,300	351	1,946	424	330	511
1970	269	191	122	84.7	201	240	2,478	1,702	1,424	366	339	360	647
1971	229	177	98.8	57.4	1,431	2,385	2,640	4,065	3,343	447	466	479	1,314
1972	745	317	154	89.0	378	2,040	720	1,705	2,549	1,065	719	413	910
1973	282	189	151	145	474	1,074	1,273	1,744	1,249	555	578	402	677
1974	325	202	154	437	741	473	962	501	329	367	402	334	433
1975	148	166	102	66.1	74.6	494	2,409	2,080	1,019	468	410	330	648
1976	207	127	139	54.0	152	376	398	378	3,522	982	638	387	610
1977	186	127	93.5	63.8	82.6	403	1,888	498	400	414	512	343	417
1978	381	166	110	88.5	88.7	4,359	735	5,106	1,512	901	681	423	1,227
1979	210	135	103	31.6	42.1	940	624	353	880	782	835	398	447
1980	228	189	134	33.6	119	415	304	171	708	172	284	134	241
1981	219	169	92.9	165	277	124	73.4	191	395	912	383	279	274

Table E51.2. Statistics on mean flow, in cubic feet per second, for station 06438500, Cheyenne River near Plainview (October 1950 through September 1981)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	31	31	31	31	31	31	31	31	31	31	31	31	31
Maximum	745	325	206	437	1,431	4,359	2,640	6,279	8,981	2,585	835	1,110	1,430
Percentile													
75th	269	191	154	133	261	940	962	1,744	2,549	901	578	402	677
50th	219	166	122	84.7	170	473	552	530	1,019	507	434	334	570
25th	190	132	97.1	56.0	101	326	315	353	395	367	339	254	323
Minimum	39.2	93.8	28.6	10.0	42.1	124	71.3	83.3	172	61.8	48.0	16.2	97.2
Mean	235.80	171.38	122.81	100.60	247.47	861.68	832.67	1464.72	1793.35	682.57	447.81	344.39	609.62
Standard deviation	121.41	53.16	41.96	79.96	268.95	942.64	771.99	1702.01	1990.55	529.42	183.44	188.02	357.46
Skewness	2.42	1.31	-0.19	2.66	3.27	2.29	1.42	1.61	2.11	2.08	-0.07	2.03	0.91
Coefficient of variation	0.51	0.31	0.34	0.79	1.09	1.09	0.93	1.16	1.11	0.78	0.41	0.55	0.59
Percent of annual flow	3.23	2.35	1.68	1.38	3.39	11.80	11.40	20.05	24.55	9.34	6.13	4.71	¹ 0.044

¹Serial correlation for annual mean flows.

Table E51.3. Serial correlation for 1-year lag for monthly mean flow for station 06438500, Cheyenne River near Plainview (October 1950 through September 1981)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.123	0.253	0.149	-0.007	0.147	0.021	0.134	-0.221	0.032	-0.186	0.243	0.046

Table E51.4. Correlation matrix for monthly mean flow for station 06438500, Cheyenne River near Plainview (October 1950 through September 1981)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.571	0.449	0.219	0.165	0.468	0.135	-0.022	0.026	-0.048	0.432	0.252
Nov.	*	1.000	0.437	0.218	0.191	0.097	0.079	0.217	0.202	0.004	0.278	0.100
Dec.	*	*	1.000	0.446	-0.052	0.037	-0.102	-0.241	-0.044	-0.333	0.211	0.089
Jan.	*	*	*	1.000	0.246	-0.136	-0.134	-0.165	-0.089	-0.174	0.098	0.017
Feb.	*	*	*	*	1.000	0.321	0.484	0.233	0.116	-0.113	0.071	0.071
Mar.	*	*	*	*	*	1.000	0.361	0.387	-0.016	0.014	0.411	0.132
Apr.	*	*	*	*	*	*	1.000	0.177	-0.060	-0.196	0.150	0.174
May	*	*	*	*	*	*	*	1.000	0.559	0.587	0.319	0.128
June	*	*	*	*	*	*	*	*	1.000	0.478	0.264	0.163
July	*	*	*	*	*	*	*	*	*	1.000	0.392	0.096
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.332
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E51.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06438500, Cheyenne River near Plainview

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1951	7.00	2	7.00	2	7.57	2	9.07	2	12.1	2	18.6	2	58.2	3	81.3	4	197	22
1952	100	30	100	30	100	29	121	30	151	29	156	28	165	27	188	28	219	23
1953	15.0	4	18.3	4	20.0	3	20.7	3	50.3	9	73.3	10	109	17	122	15	172	15
1954	55.0	23	58.3	23	63.6	23	67.9	20	71.3	16	76.9	12	92.7	10	101	7	143	8
1955	60.0	24	60.0	24	68.6	24	80.0	25	108	25	138	26	159	25	161	23	295	28
1956	30.0	11	30.0	11	35.0	12	40.7	11	49.7	8	96.3	19	141	23	160	22	169	13
1957	80.0	27	86.7	27	100	30	106	28	153	30	163	30	171	29	175	24	195	21
1958	50.0	20	50.0	20	55.7	19	72.9	22	90.7	24	96.5	20	107	15	125	17	158	10
1959	20.0	6	21.7	6	33.6	10	51.1	15	55.2	11	86.0	13	91.8	9	103	9	116	3
1960	10.0	3	16.7	3	22.1	5	23.4	5	42.3	6	47.6	4	63.2	5	58.8	2	68.8	2
1961	.0000	1	.0000	1	1.00	1	1.00	1	5.62	1	14.8	1	25.5	1	47.1	1	37.0	1
1962	15.0	5	20.0	5	20.7	4	22.1	4	30.7	5	73.7	11	103	14	125	16	186	19
1963	24.0	7	29.3	10	32.6	8	38.1	9	77.6	17	88.1	15	107	16	117	13	141	6
1964	60.0	25	66.7	25	70.0	25	75.7	24	83.5	20	110	22	123	20	140	19	169	14
1965	50.0	21	53.3	22	57.9	20	61.8	19	77.7	18	92.7	17	118	19	146	21	224	24
1966	80.0	28	86.7	28	95.7	28	110	29	126	27	161	29	178	30	192	29	241	26
1967	90.0	29	93.3	29	94.3	27	99.3	27	111	26	137	25	159	24	177	25	228	25
1968	25.0	8	28.3	9	32.9	9	35.7	8	44.3	7	51.5	5	61.7	4	82.5	5	127	4
1969	45.0	17	48.3	18	55.0	18	60.4	18	82.5	19	102	21	117	18	137	18	182	17
1970	50.0	22	50.0	21	51.0	17	52.1	17	56.9	13	60.9	6	90.3	8	118	14	191	20
1971	45.0	18	45.0	17	46.3	16	49.1	14	59.4	15	96.2	18	132	22	185	27	339	30
1972	75.0	26	78.3	26	83.6	26	98.6	26	134	28	144	27	160	26	184	26	268	27
1973	30.0	12	30.0	12	33.6	11	48.9	13	83.5	21	124	23	169	28	219	30	337	29
1974	35.0	14	38.3	15	44.7	15	51.1	16	59.1	14	68.5	8	80.4	7	101	8	132	5
1975	34.0	13	35.0	13	35.7	13	38.4	10	52.5	10	87.1	14	101	13	115	12	161	11
1976	35.0	15	35.7	14	37.4	14	41.6	12	55.9	12	69.4	9	79.5	6	90.6	6	153	9
1977	48.0	19	49.3	19	59.7	22	73.6	23	84.1	22	88.2	16	93.4	11	104	10	184	18
1978	25.0	9	25.3	8	26.3	6	27.9	7	29.7	3	36.1	3	58.1	2	73.1	3	141	7
1979	25.0	10	25.0	7	26.3	7	27.4	6	30.3	4	63.5	7	94.4	12	115	11	180	16
1980	35.0	16	38.3	16	59.3	21	69.1	21	89.1	23	128	24	132	21	142	20	161	12

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E51.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06438500, Cheyenne River near Plainview

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1951	2,730	29	1,738	29	1,546	28	1,018	29	784	28	593	27	539	27	505	27	404	26
1952	30,900	2	24,300	3	16,140	3	9,115	4	4,954	7	3,012	6	2,407	6	1,992	6	1,481	7
1953	11,700	12	9,717	12	6,094	12	3,544	16	2,079	16	1,872	15	1,421	16	1,361	14	1,109	12
1954	4,700	24	3,163	25	2,022	25	1,171	27	974	25	614	26	596	24	517	25	426	25
1955	13,400	11	7,433	13	3,770	18	1,969	20	1,110	22	742	23	665	23	669	23	593	21
1956	3,000	28	2,667	27	1,983	26	1,326	25	952	27	652	25	568	26	524	24	473	24
1957	27,000	5	14,610	8	9,440	9	6,375	9	4,494	8	2,698	8	1,973	8	1,571	10	1,146	11
1958	5,650	20	3,773	21	2,526	23	2,206	19	1,383	20	1,188	19	979	18	839	18	669	20
1959	3,510	27	1,997	28	1,010	30	743	30	470	30	430	30	376	30	346	30	292	29
1960	4,870	23	4,133	19	2,843	20	1,757	22	968	26	564	28	436	28	372	29	279	30
1961	1,340	31	753	31	551	31	324	31	255	31	207	31	162	31	139	31	144	31
1962	30,800	3	25,700	1	16,780	2	13,660	2	10,420	1	7,279	1	5,257	1	4,012	1	2,776	1
1963	13,600	10	9,773	11	6,217	11	4,910	10	3,234	11	2,263	12	1,795	11	1,572	9	1,149	10
1964	25,100	6	19,070	4	11,430	6	7,600	7	5,174	6	2,847	7	2,081	7	1,659	8	1,196	8
1965	29,000	4	17,970	5	11,080	7	9,310	3	6,543	3	4,751	3	3,562	5	2,800	5	1,995	5
1966	6,240	17	6,040	17	5,123	15	3,563	15	2,749	13	1,953	14	1,436	15	1,152	16	915	16
1967	32,700	1	24,670	2	20,330	1	14,410	1	8,981	2	6,031	2	4,267	2	3,384	2	2,407	2
1968	4,930	22	3,480	23	2,709	21	1,867	21	1,560	19	1,005	20	846	21	726	21	583	23
1969	6,110	18	5,650	18	5,303	13	3,623	14	2,085	15	1,232	17	1,222	17	1,077	17	898	17
1970	11,000	13	10,230	10	7,566	10	4,590	11	3,266	10	2,414	9	1,894	9	1,514	12	1,109	13
1971	16,700	9	12,400	9	9,651	8	8,185	5	5,595	4	4,431	4	3,730	4	3,269	3	2,397	3
1972	8,170	16	6,350	16	4,147	17	3,665	13	2,672	14	2,145	13	1,791	12	1,752	7	1,487	6
1973	4,590	25	4,053	20	2,871	19	2,289	18	1,970	17	1,798	16	1,514	14	1,353	15	1,089	14
1974	1,990	30	1,627	30	1,519	29	1,313	26	1,025	24	751	22	763	22	721	22	586	22
1975	9,410	14	6,860	15	4,837	16	4,100	12	3,034	12	2,317	11	1,891	10	1,565	11	1,154	9
1976	20,700	7	16,930	6	11,500	5	6,541	8	3,844	9	2,339	10	1,764	13	1,429	13	1,055	15
1977	8,900	15	7,103	14	5,143	14	3,152	17	1,900	18	1,196	18	947	19	805	19	689	19
1978	19,300	8	16,600	7	12,020	4	8,073	6	5,577	5	3,434	5	3,778	3	3,046	4	2,257	4
1979	5,940	19	2,987	26	2,229	24	1,650	23	1,199	21	997	21	850	20	790	20	752	18
1980	5,130	21	3,383	24	1,909	27	1,086	28	730	29	447	29	414	29	403	28	342	28
1981	4,560	26	3,567	22	2,548	22	1,598	24	1,056	23	714	24	587	25	507	26	374	27

Table E52.1. Mean flow, in cubic feet per second, for station 06439300, Cheyenne River at Cherry Creek

Water year	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1960	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	136	51.0	(2)
1961	53.0	91.2	40.2	55.8	156	187	78.3	90.8	180	209	55.8	13.0	100
1962	32.5	98.6	16.3	.16	175	660	159	6,905	7,043	2,841	606	269	1,575
1963	412	171	123	45.0	188	631	976	1,245	3,661	784	300	350	739
1964	220	157	83.4	109	156	205	401	736	4,783	854	403	271	694
1965	223	215	100	79.2	159	206	561	6,470	3,756	1,657	592	450	1,214
1966	393	219	211	80.2	89.3	3,909	1,791	652	312	379	562	368	753
1967	278	248	160	135	229	804	669	3,072	10,210	1,207	534	496	1,498
1968	283	224	150	137	261	442	430	316	1,865	547	515	384	461
1969	169	158	97.4	45.3	68.2	699	994	1,589	345	2,244	461	297	603
1970	281	193	126	86.8	246	246	2,823	1,836	1,527	361	346	363	701
1971	211	181	102	57.2	1,617	3,735	2,667	4,155	4,055	434	371	723	1,521
1972	560	326	164	90.8	436	2,271	679	2,495	3,496	902	691	421	1,046
1973	278	222	127	177	454	1,403	1,543	1,848	1,257	576	609	399	742
1974	341	229	162	435	726	561	963	488	345	372	386	323	442
1975	152	177	106	68.7	71.6	512	2,708	2,951	1,125	740	393	327	780
1976	191	134	141	55.6	157	366	386	390	3,848	999	678	403	642
1977	187	130	100	65.1	84.8	395	2,579	514	462	448	573	423	496
1978	638	163	117	98.7	97.9	7,645	1,705	6,065	2,025	967	775	433	1,748
1979	216	145	120	33.8	40.7	1,004	841	366	901	924	834	364	485
1980	208	233	138	38.3	124	445	398	175	681	178	297	138	254
1981	227	144	97.8	191	310	163	77.0	197	400	1,036	516	289	305
1982	164	146	89.8	36.9	112	860	891	9,947	2,172	1,080	716	591	1,416
1983	2,362	312	242	248	476	904	1,126	1,922	765	465	472	349	808
1984	222	191	78.3	78.1	386	365	709	3,447	5,569	674	542	394	1,051
1985	218	223	152	153	126	1,398	286	229	266	264	295	285	327
1986	168	143	87.6	259	999	5,240	4,296	3,721	2,022	563	381	930	1,569
1987	1,039	522	388	279	454	4,518	4,212	2,763	986	455	449	302	1,370
1988	197	194	152	47.3	61.0	655	348	508	281	510	287	227	290
1989	153	120	66.7	70.1	78.5	971	259	646	131	167	154	326	264
1990	113	184	90.3	146	209	387	112	485	331	234	157	162	218
1991	77.5	147	56.2	6.86	34.3	243	316	2,172	4,224	353	320	226	681
1992	128	228	194	105	212	303	150	156	417	580	180	158	234
1993	90.2	132	93.5	71.8	141	3,431	915	3,616	2,350	4,622	1,125	530	1,442

¹Indicates a no-value month.²Incomplete water year.

Table E52.2. Statistics on mean flow, in cubic feet per second, for station 06439300, Cheyenne River at Cherry Creek (October 1960 through September 1993)

Statistic	Month												Annual
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Number	33	33	33	33	33	33	33	33	33	33	33	33	33
Maximum	2,362	522	388	435	1,617	7,645	4,296	9,947	10,210	4,622	1,125	930	1,748
Percentile													
75th	282	223	152	141	348	1,400	1,624	3,259	3,708	983	599	422	1,292
50th	216	181	117	79.2	159	655	709	1,589	1,257	576	461	350	701
25th	158	144	90.1	51.4	93.6	365	332	437	372	375	310	278	384
Minimum	32.5	91.2	16.3	0.16	34.3	163	77.0	90.8	131	167	55.8	13.0	100
Mean	317.73	193.96	126.44	108.66	276.83	1,386.79	1,122.68	2,186.90	2,175.48	867.45	471.99	363.15	802.09
Standard deviation	413.46	79.60	66.43	90.42	317.71	1,774.29	1,138.27	2,356.56	2,314.98	886.49	219.53	168.34	484.63
Skewness	4.17	2.36	1.99	1.88	2.90	2.09	1.54	1.62	1.71	2.93	0.65	1.18	0.49
Coefficient of variation	1.30	0.41	0.53	0.83	1.15	1.28	1.01	1.08	1.06	1.02	0.47	0.46	0.60
Percent of annual flow	3.31	2.02	1.32	1.13	2.88	14.45	11.70	22.78	22.67	9.04	4.92	3.78	¹ -0.151

¹Serial correlation for annual mean flows.

Table E52.3. Serial correlation for 1-year lag for monthly mean flow for station 06439300, Cheyenne River at Cherry Creek (October 1960 through September 1993)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.088	-0.016	-0.064	0.101	0.148	0.085	0.261	-0.307	-0.104	-0.146	0.101	0.020

Table E52.4. Correlation matrix for monthly mean flow for station 06439300, Cheyenne River at Cherry Creek (October 1960 through September 1993)

Month	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.597	0.626	0.428	0.162	0.210	0.215	0.008	-0.120	-0.163	0.075	0.024
Nov.	*	1.000	0.903	0.498	0.202	0.230	0.343	-0.056	-0.057	-0.241	-0.023	-0.046
Dec.	*	*	1.000	0.504	0.118	0.283	0.374	-0.201	-0.224	-0.249	0.020	-0.042
Jan.	*	*	*	1.000	0.439	0.199	0.314	-0.178	-0.234	-0.239	-0.104	0.151
Feb.	*	*	*	*	1.000	0.355	0.471	0.133	0.113	-0.169	-0.093	0.583
Mar.	*	*	*	*	*	1.000	0.577	0.330	-0.048	0.108	0.338	0.518
Apr.	*	*	*	*	*	*	1.000	0.201	-0.118	-0.139	0.082	0.566
May	*	*	*	*	*	*	*	1.000	0.436	0.414	0.444	0.508
June	*	*	*	*	*	*	*	*	1.000	0.315	0.260	0.290
July	*	*	*	*	*	*	*	*	*	1.000	0.670	0.200
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.451
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table E52.5. Lowest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06439300, Cheyenne River at Cherry Creek

Water year ¹	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		14		30		60		90		120		183	
1961	.0000	1	.0000	1	.0000	1	.0000	1	.067	1	4.73	1	24.1	1	35.9	1	29.3	1
1962	15.0	3	15.0	3	20.0	3	21.4	3	28.5	3	64.0	9	98.9	12	128	17	202	22
1963	27.0	8	31.7	8	32.4	8	40.9	10	81.9	20	93.0	18	112	17	125	16	154	9
1964	35.0	11	38.3	13	39.3	13	41.8	11	57.3	13	86.4	16	104	16	124	14	164	13
1965	50.0	21	53.3	22	57.1	21	59.3	20	71.2	18	82.2	15	112	19	140	20	226	24
1966	80.0	28	86.7	29	98.6	30	109	30	125	29	145	30	169	28	187	27	235	25
1967	80.0	29	80.0	28	85.7	28	91.4	28	108	27	140	28	168	27	186	26	249	27
1968	30.0	9	32.0	10	35.4	10	37.9	8	45.1	8	52.6	6	63.3	4	83.6	5	128	5
1969	50.0	22	55.0	24	60.7	25	66.1	22	79.0	19	104	21	126	22	147	23	189	19
1970	45.0	17	45.0	17	46.1	16	47.1	14	53.4	11	61.4	7	92.9	10	117	13	189	18
1971	45.0	18	45.0	18	48.9	17	49.5	16	63.3	17	100	20	139	24	189	28	344	29
1972	50.0	23	53.3	23	57.1	22	65.4	21	126	30	143	29	170	29	192	29	274	28
1973	30.0	10	31.7	9	35.0	9	49.3	15	87.8	24	131	26	177	30	230	30	351	30
1974	35.0	12	38.3	14	44.3	15	49.6	17	58.9	15	69.6	11	82.2	7	105	9	135	7
1975	35.0	13	35.3	11	35.6	11	38.2	9	52.7	10	89.6	17	103	15	115	12	160	12
1976	35.0	14	35.7	12	38.9	12	44.6	12	58.0	14	72.8	13	83.2	8	93.8	7	157	10
1977	50.0	24	55.0	25	61.4	26	77.1	26	84.2	21	97.6	19	102	14	113	11	243	26
1978	25.0	5	25.7	5	27.4	6	29.6	5	31.0	4	37.1	3	61.3	3	78.9	4	144	8
1979	25.0	6	25.7	6	27.3	5	29.9	6	32.1	5	67.1	10	98.9	13	125	15	179	17
1980	40.0	16	42.7	16	60.4	24	71.9	24	90.7	25	117	24	137	23	144	22	169	15
1981	25.0	7	25.7	7	28.7	7	31.4	7	34.8	6	44.4	4	71.3	6	90.9	6	133	6
1982	142	31	142	31	155	31	175	31	228	31	239	31	244	31	293	31	704	32
1983	45.0	19	46.7	19	50.0	19	53.3	19	56.4	12	72.1	12	112	18	136	19	214	23
1984	55.0	26	56.7	26	59.6	23	75.5	25	117	28	134	27	143	25	163	24	201	21
1985	70.0	27	73.3	27	77.9	27	78.9	27	85.8	23	105	22	126	20	143	21	190	20
1986	180	32	185	32	191	32	200	32	270	32	326	32	365	32	394	32	589	31
1987	20.0	4	21.7	4	25.0	4	27.8	4	36.1	7	49.8	5	85.5	9	112	10	159	11
1988	35.0	15	38.3	15	43.7	14	45.1	13	50.8	9	63.0	8	70.1	5	78.8	3	111	3
1989	50.0	25	51.7	21	56.4	20	67.5	23	85.7	22	109	23	126	21	132	18	167	14
1990	5.00	2	5.47	2	5.70	2	5.83	2	6.77	2	14.6	2	30.7	2	56.9	2	78.8	2
1991	84.0	30	86.7	30	88.9	29	93.4	29	98.8	26	124	25	154	26	163	25	173	16
1992	47.0	20	48.7	20	49.7	18	52.4	18	62.5	16	80.2	14	97.2	11	95.1	8	114	4

¹Low-flow water year is Apr. 1 to Mar. 31.

Table E52.6. Highest mean flow, in cubic feet per second, and ranking for the following number of consecutive days, for station 06439300, Cheyenne River at Cherry Creek

Water year	Flow, in cubic feet per second, and ranking for number of consecutive days																	
	1		3		7		15		30		60		90		120		183	
1961	2,130	32	935	33	566	33	331	33	244	33	219	33	171	33	148	33	155	33
1962	32,500	3	26,500	3	18,700	4	15,750	3	11,910	1	8,137	1	5,849	1	4,461	2	3,071	2
1963	12,000	18	10,160	17	6,727	18	5,420	15	3,661	18	2,479	18	1,969	17	1,727	14	1,267	15
1964	24,800	6	20,770	6	12,120	8	7,847	10	5,190	11	2,849	15	2,162	15	1,705	16	1,232	16
1965	32,300	4	20,800	5	13,650	5	11,050	5	7,736	5	5,490	5	4,083	7	3,192	7	2,258	8
1966	13,800	16	12,670	15	10,170	13	6,756	14	4,782	12	3,039	13	2,181	14	1,714	15	1,284	13
1967	37,500	2	33,570	2	26,200	2	16,450	2	10,290	3	6,822	2	4,873	3	3,851	4	2,732	5
1968	6,250	23	4,980	23	3,439	24	2,399	24	1,988	23	1,230	23	987	23	835	24	682	24
1969	8,940	20	7,203	21	6,533	19	4,292	20	2,424	20	1,492	22	1,423	20	1,307	20	1,084	20
1970	15,300	14	13,900	12	9,630	15	5,385	16	3,850	15	2,756	16	2,090	16	1,662	17	1,209	18
1971	13,400	17	12,010	16	9,814	14	9,303	7	6,264	8	4,716	7	4,389	6	3,840	5	2,782	4
1972	14,400	15	9,290	19	5,873	20	5,209	17	3,667	17	3,052	12	2,327	12	2,223	11	1,787	11
1973	8,250	22	6,613	22	4,010	23	2,771	22	2,290	22	1,988	19	1,746	19	1,530	18	1,213	17
1974	2,390	31	1,833	31	1,689	28	1,383	28	1,035	28	793	28	781	25	740	25	602	25
1975	8,330	21	7,470	20	5,843	21	5,037	18	3,849	16	2,921	14	2,336	11	1,952	12	1,415	12
1976	24,000	8	17,330	9	12,230	7	7,223	12	4,178	14	2,532	17	1,898	18	1,530	19	1,118	19
1977	10,200	19	10,100	18	7,777	17	4,541	19	2,608	19	1,555	20	1,190	22	1,004	22	833	22
1978	28,400	5	26,330	4	20,640	3	13,900	4	8,653	4	5,571	4	5,684	2	4,515	1	3,249	1
1979	3,620	26	2,630	27	2,299	26	1,876	26	1,426	25	1,080	24	906	24	888	23	829	23
1980	2,950	28	2,710	26	1,680	29	964	31	690	30	432	31	436	30	428	30	362	30
1981	5,800	24	4,167	25	2,942	25	1,880	25	1,273	26	831	27	673	26	576	26	422	28
1982	48,400	1	37,070	1	26,910	1	19,300	1	11,150	2	6,508	3	4,578	5	3,681	6	2,654	7
1983	19,200	10	13,210	14	7,929	16	4,157	21	2,424	21	1,540	21	1,332	21	1,199	21	956	21
1984	17,400	13	16,370	10	12,990	6	9,771	6	5,644	9	4,566	8	3,359	10	2,644	10	1,886	10
1985	5,200	25	4,477	24	4,070	22	2,593	23	1,486	24	862	26	666	27	557	27	470	26
1986	21,400	9	18,170	8	11,770	10	9,030	8	6,304	7	4,903	6	4,748	4	4,069	3	2,833	3
1987	18,000	12	13,700	13	10,450	12	7,459	11	6,608	6	4,445	9	3,956	8	3,176	8	2,242	9
1988	3,170	27	2,133	29	1,610	30	1,127	29	731	29	590	29	511	29	515	29	434	27
1989	2,800	29	2,467	28	2,029	27	1,744	27	1,105	27	880	25	642	28	517	28	396	29
1990	2,610	30	1,895	30	1,525	31	1,041	30	640	31	414	32	354	32	339	32	293	32
1991	18,500	11	14,830	11	10,700	11	8,205	9	5,254	10	3,276	11	2,307	13	1,810	13	1,268	14
1992	1,830	33	1,363	32	1,037	32	825	32	602	32	506	30	409	31	352	31	307	31
1993	24,500	7	18,400	7	12,060	9	6,814	13	4,716	13	3,751	10	3,619	9	3,016	9	2,706	6