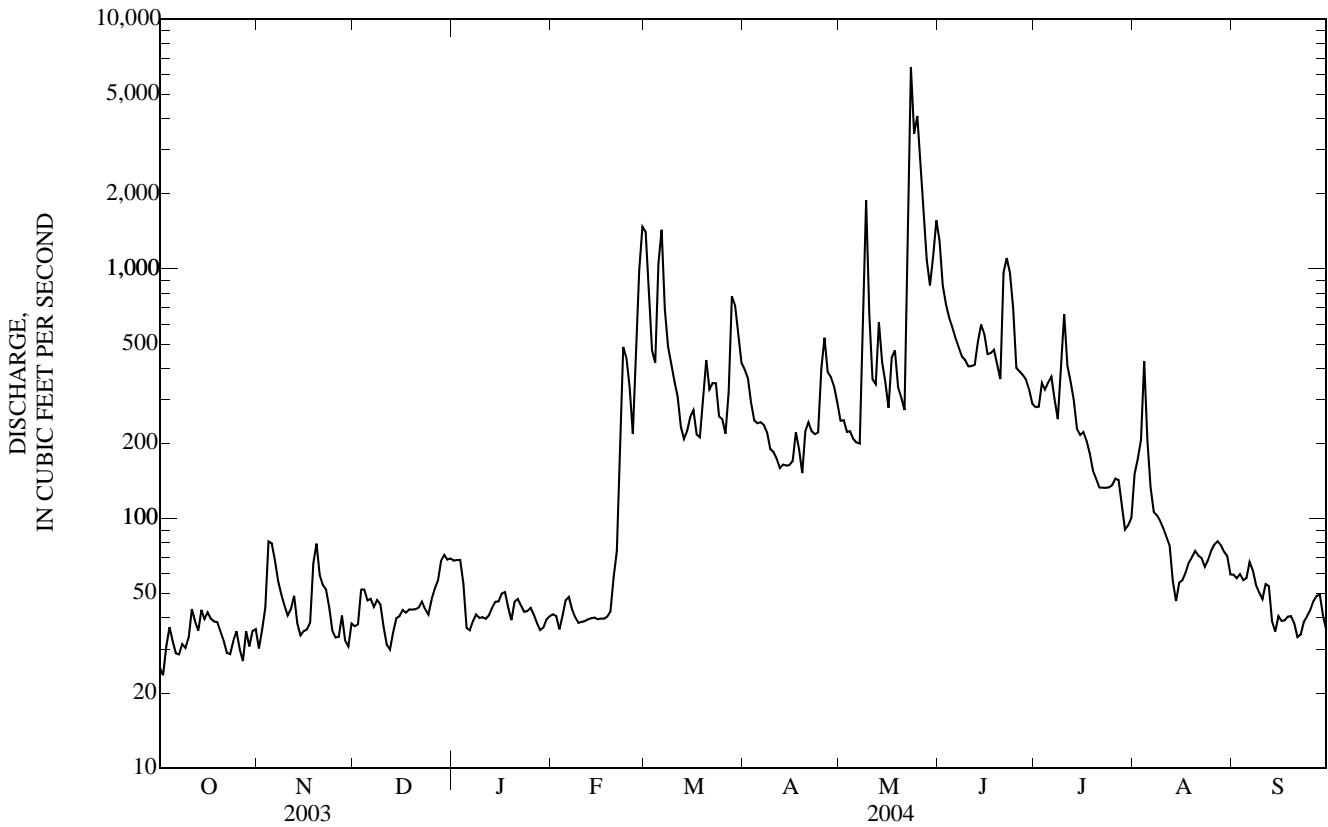


05483600 MIDDLE RACCOON RIVER AT PANORA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1971 - 2004 a	
ANNUAL TOTAL	68,639		94,847			
ANNUAL MEAN	188		259		258	
HIGHEST ANNUAL MEAN					701	1973
LOWEST ANNUAL MEAN					38.6	1977
HIGHEST DAILY MEAN	3,310	Jul 10	6,410	May 23	17,500	Jul 10, 1993
LOWEST DAILY MEAN	18	Sep 8	24	Oct 2	0.00	Jun 9, 1977 b
ANNUAL SEVEN-DAY MINIMUM	24	Sep 2	30	Oct 1	3.1	Jul 8, 1977
MAXIMUM PEAK FLOW			9,970	May 23	22,400	Jul 9, 1993
MAXIMUM PEAK STAGE			13.25	May 23	20.04	Jul 9, 1993
ANNUAL RUNOFF (AC-FT)	136,100		188,100		186,800	
ANNUAL RUNOFF (CFSM)	0.427		0.589		0.586	
ANNUAL RUNOFF (INCHES)	5.80		8.02		7.96	
10 PERCENT EXCEEDS	387		535		571	
50 PERCENT EXCEEDS	64		73		104	
90 PERCENT EXCEEDS	33		36		31	

a Post regulation.
 b Also June 10, 1977, result of gate operations at Lake Panorama.
 e Estimated.



05484000 SOUTH RACCOON RIVER AT REDFIELD, IA

LOCATION.--Lat 41°35'22", long 94°09'04", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.2, T.78 N., R.29 W., Dallas County, Hydrologic Unit 07100007, on right bank 20 ft upstream from bridge on H Avenue, 3.4 mi. downstream from bridge on U.S. Highway 6, 3.4 mi. downstream from Middle Raccoon River, 14.3 mi. upstream from mouth, 44.6 miles upstream of mouth of Raccoon River, and at mile 245.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--994 mi².

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940, WDR IA-87-1:datum.

GAGE.--Water-stage recorder. Datum of gage is 888.88 ft above NGVD of 1929. Prior to June 12, 1946, nonrecording gage, June 12, 1946 to Sept. 30, 1986, water-stage recorder at site 2.4 mi upstream at datum 7.55 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	80	125	129	e83	2,480	910	597	3,300	584	247	165
2	65	83	113	131	e83	1,800	872	581	e2,300	578	334	159
3	67	128	114	135	e71	982	723	557	1,660	722	345	153
4	70	304	131	e89	e73	738	639	534	1,390	745	1,910	149
5	74	214	129	e75	e74	1,660	601	526	1,250	672	800	246
6	69	151	123	e76	e77	2,630	593	495	1,150	733	423	381
7	67	122	112	e79	e71	1,450	573	501	1,030	623	304	220
8	66	102	115	e87	e74	919	554	496	917	549	269	164
9	69	94	125	e77	e79	770	510	4,080	853	1,310	254	151
10	68	96	102	e76	e92	629	482	2,400	839	1,410	234	148
11	73	97	118	e84	e96	555	469	1,490	811	1,090	214	146
12	80	96	124	e81	e89	466	453	1,070	770	1,060	206	147
13	78	95	104	e81	e89	402	438	1,520	1,000	782	199	141
14	84	83	95	e77	e87	411	438	1,450	1,940	620	e170	134
15	88	83	98	e74	e82	418	434	1,130	1,520	537	e168	135
16	84	85	100	e82	e96	479	432	913	1,070	522	e170	138
17	81	87	98	e79	e97	445	496	1,060	893	492	174	133
18	79	113	94	e71	e107	450	487	2,980	913	e420	181	136
19	79	155	102	e68	e114	647	444	1,480	795	e375	184	139
20	79	136	97	e75	e113	882	458	1,140	703	334	177	135
21	76	111	94	e86	e143	726	852	993	786	313	177	130
22	74	101	103	e71	e309	551	659	1,710	2,050	312	172	129
23	72	104	111	e94	e582	623	577	21,500	1,490	298	176	132
24	73	102	110	e85	e532	530	559	11,400	1,260	292	177	133
25	75	107	99	e86	e431	482	738	12,500	861	293	198	134
26	77	100	99	e81	e341	449	1,040	6,960	771	293	216	134
27	76	109	122	e77	e690	625	860	4,360	744	292	210	139
28	79	107	143	e73	1,890	2,210	799	2,950	736	274	200	137
29	82	103	149	e73	2,590	1,750	713	2,650	687	249	181	133
30	80	118	141	e74	---	1,330	682	3,100	617	239	185	130
31	82	---	127	e78	---	1,070	---	3,390	---	239	176	---
TOTAL	2,332	3,466	3,517	2,604	9,255	29,559	18,485	96,513	35,106	17,252	9,031	4,651
MEAN	75.2	116	113	84.0	319	954	616	3,113	1,170	557	291	155
MAX	88	304	149	135	2,590	2,630	1,040	21,500	3,300	1,410	1,910	381
MIN	65	80	94	68	71	402	432	495	617	239	168	129
AC-FT	4,630	6,870	6,980	5,170	18,360	58,630	36,660	191,400	69,630	34,220	17,910	9,230
CFSM	0.08	0.12	0.11	0.08	0.32	0.96	0.62	3.13	1.18	0.56	0.29	0.16
IN.	0.09	0.13	0.13	0.10	0.35	1.11	0.69	3.61	1.31	0.65	0.34	0.17

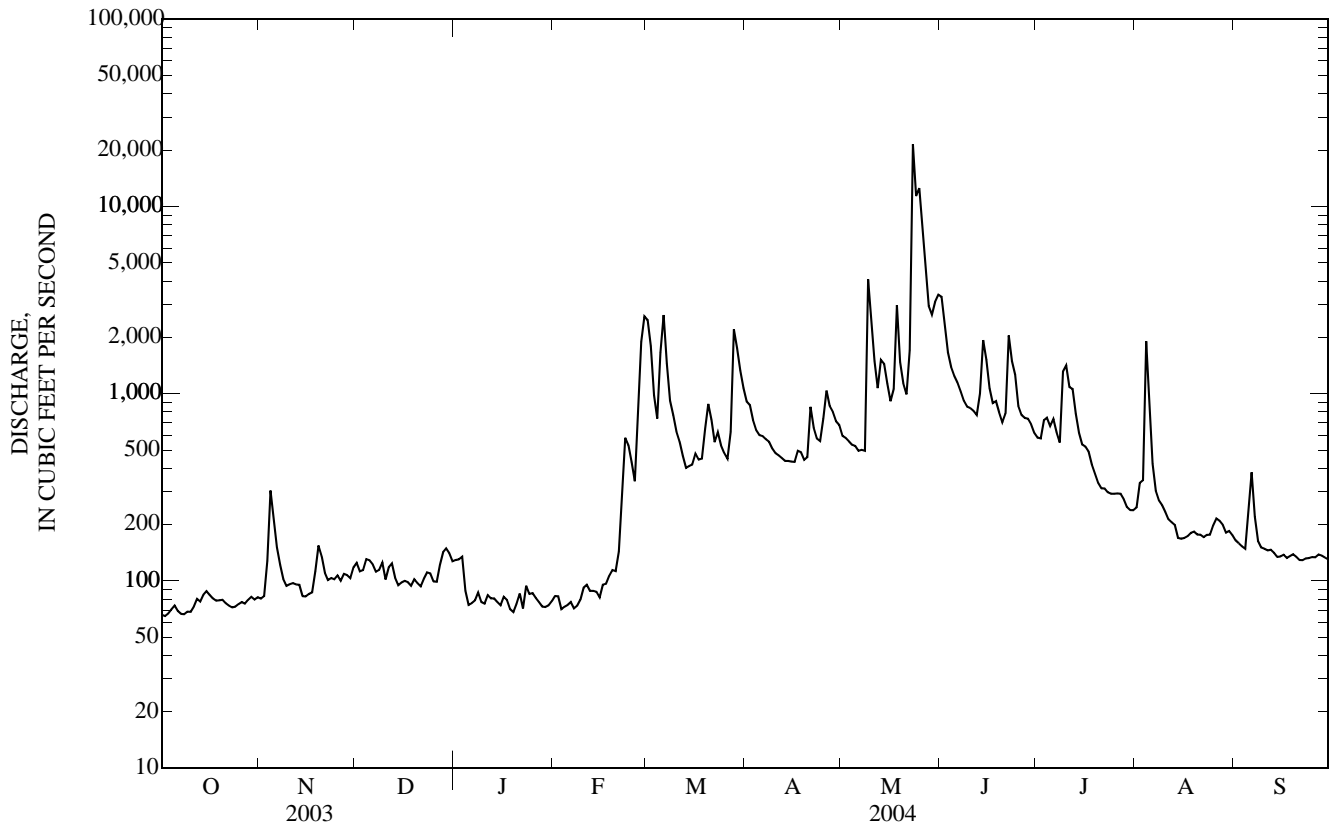
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	230	231	190	171	386	816	750	927	1,031	645	366	276
MAX	1,501	1,162	826	565	1,785	3,112	2,474	3,113	5,017	5,494	2,745	1,385
(WY)	(1987)	(1973)	(1993)	(1983)	(1971)	(1979)	(1984)	(2004)	(1947)	(1993)	(1993)	(1993)
MIN	28.6	36.2	32.4	30.4	35.5	74.2	50.0	62.9	43.2	57.4	37.8	36.0
(WY)	(1941)	(1956)	(1956)	(1950)	(1956)	(1981)	(1956)	(1967)	(1977)	(1954)	(1955)	(1955)

05484000 SOUTH RACCOON RIVER AT REDFIELD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	147,681		231,771			
ANNUAL MEAN	405		633		502	
HIGHEST ANNUAL MEAN					1,632	1993
LOWEST ANNUAL MEAN					91.4	1968
HIGHEST DAILY MEAN	7,220	May 5	21,500	May 23	33,600	Jul 10, 1993
LOWEST DAILY MEAN	65	Sep 30	65	Oct 2	17	Aug 4, 1977
ANNUAL SEVEN-DAY MINIMUM	68	Sep 28	68	Oct 1	20	Jan 24, 1954
MAXIMUM PEAK FLOW			28,300	May 23	44,000	Jul 10, 1993
MAXIMUM PEAK STAGE			22.40	May 23	29.04	Jul 2, 1958
INSTANTANEOUS LOW FLOW			63	Oct 1 a		
ANNUAL RUNOFF (AC-FT)	292,900		459,700		363,400	
ANNUAL RUNOFF (CFSM)	0.407		0.637		0.505	
ANNUAL RUNOFF (INCHES)	5.53		8.67		6.86	
10 PERCENT EXCEEDS	795		1,350		1,110	
50 PERCENT EXCEEDS	149		192		202	
90 PERCENT EXCEEDS	79		77		60	

a Also Oct. 2.
e Estimated.



05484500 RACCOON RIVER AT VAN METER, IA

LOCATION.--Lat 41°32'02", long 93°56'59", in SW¹/₄ SW¹/₄ sec.22, T.78 N., R.27 W., Dallas County, Hydrologic Unit 07100006, on right bank 10 ft downstream from bridge on county highway R16, 0.3 mi northeast of Van Meter, 0.7 mi upstream from small left bank tributary, 1.1 mi downstream from confluence of North and South Raccoon Rivers, 29.1 mi upstream from mouth, and at mile 230.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,441 mi².

PERIOD OF RECORD.--April 1915 to current year. Prior to October 1934, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1927 (M), WSP 1438: Drainage area, WSP 1508: 1915 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 841.16 ft above NGVD of 1929. See WSP 1308 for history of changes prior to Aug. 8, 1934.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	162	240	e273	e115	e5,860	4,190	2,390	11,300	e3,010	e846	487
2	163	178	239	e302	e119	e6,650	3,490	2,110	10,700	e2,890	889	448
3	164	256	237	e226	e119	e5,520	2,900	1,920	8,610	2,800	1,100	427
4	163	619	e225	e84	e128	e4,410	2,500	1,750	6,900	3,710	3,720	400
5	173	491	e239	e68	e133	e4,400	2,220	1,640	5,890	3,760	3,310	e390
6	170	356	e228	e113	e128	e6,340	2,040	1,550	5,170	3,600	3,620	827
7	165	301	e205	e155	e138	e7,060	1,900	1,480	4,520	3,410	2,540	542
8	160	265	e203	e208	e147	e6,250	1,760	1,440	3,970	3,000	1,710	460
9	160	243	e213	e199	e147	e4,730	1,620	5,720	3,520	e3,310	1,390	404
10	158	233	e176	e213	e150	e2,500	1,500	5,140	3,270	e3,960	1,250	e355
11	162	230	e141	e253	e165	e1,960	1,410	3,330	3,170	e3,920	1,120	e330
12	169	222	e183	e249	e162	e1,640	1,340	2,450	3,600	e3,960	994	e312
13	171	206	e203	e235	e171	e2,000	1,270	2,710	4,290	e3,380	893	e306
14	181	195	e188	e236	e175	e1,770	1,230	3,670	6,520	e3,370	812	309
15	184	199	e201	e235	e171	e1,670	1,200	3,130	6,340	e3,270	724	298
16	196	199	e206	e231	e175	e1,690	1,160	2,620	4,760	e2,900	680	293
17	187	203	e207	e221	e188	e1,590	1,190	2,330	4,150	e2,420	644	289
18	184	230	e195	e185	e225	1,540	1,220	6,220	7,480	e2,050	626	287
19	179	283	e202	e175	e277	1,870	1,180	3,670	9,150	e1,790	650	285
20	178	330	e212	e191	e288	2,270	1,170	2,820	11,400	1,700	659	371
21	173	293	e210	e213	e338	2,290	1,730	2,480	14,200	1,590	628	433
22	176	277	e213	e184	e526	2,030	1,630	2,510	13,400	1,470	603	415
23	165	267	e226	e228	e1,200	1,980	1,640	22,900	9,720	1,380	e560	441
24	161	253	e252	e209	e1,600	1,800	1,740	27,500	7,160	1,320	551	423
25	159	201	e257	e211	e1,270	1,630	2,030	24,000	5,870	1,260	528	394
26	159	216	e235	e197	e929	1,530	2,400	17,800	5,220	1,180	e540	373
27	160	225	e226	e163	e1,060	1,550	2,890	15,500	4,710	1,110	e570	378
28	164	218	e246	e129	e1,960	4,380	3,200	12,500	4,240	1,040	e610	372
29	158	203	e247	e104	e3,870	4,950	3,110	9,130	3,950	995	e700	360
30	161	225	e242	e95	---	5,710	2,730	8,460	e3,520	931	e640	349
31	155	---	e269	e106	---	5,310	---	10,200	---	e865	542	---
TOTAL	5,227	7,779	6,766	5,891	16,074	104,880	59,590	211,070	196,700	75,351	34,649	11,758
MEAN	169	259	218	190	554	3,383	1,986	6,809	6,557	2,431	1,118	392
MAX	196	619	269	302	3,870	7,060	4,190	27,500	14,200	3,960	3,720	827
MIN	155	162	141	68	115	1,530	1,160	1,440	3,170	865	528	285
AC-FT	10,370	15,430	13,420	11,680	31,880	208,000	118,200	418,700	390,200	149,500	68,730	23,320
CFSM	0.05	0.08	0.06	0.06	0.16	0.98	0.58	1.98	1.91	0.71	0.32	0.11
IN.	0.06	0.08	0.07	0.06	0.17	1.13	0.64	2.28	2.13	0.81	0.37	0.13

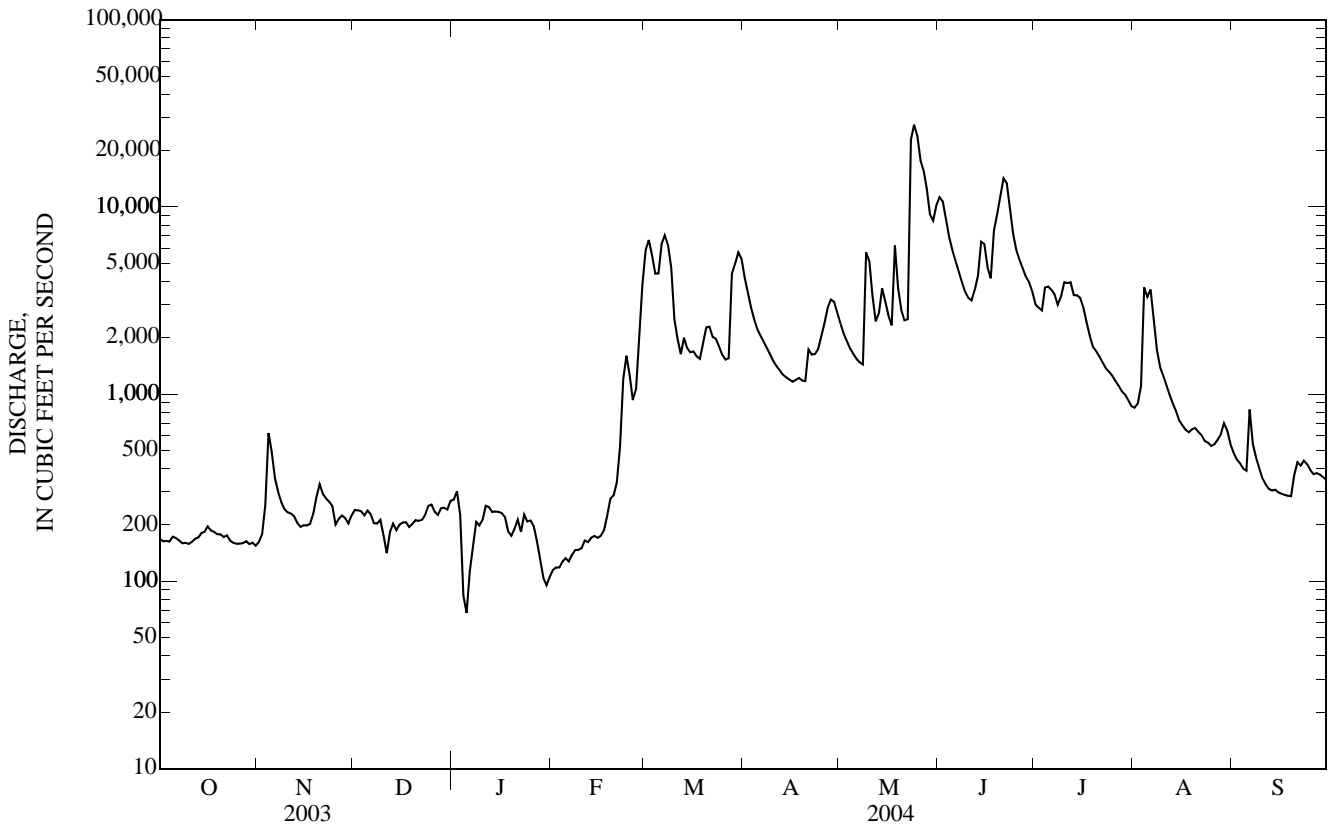
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2004, BY WATER YEAR (WY)

MEAN	808	758	562	481	972	2,589	2,612	2,756	3,335	1,927	997	845
MAX	6,840	4,774	3,085	3,461	5,438	10,480	10,630	9,257	13,970	17,260	7,414	7,222
(WY)	(1974)	(1973)	(1983)	(1932)	(1984)	(1979)	(1983)	(1984)	(1947)	(1993)	(1993)	(1926)
MIN	48.6	51.5	31.0	17.2	31.5	146	125	121	112	68.1	28.1	43.1
(WY)	(1940)	(1938)	(1938)	(1940)	(1940)	(1931)	(1956)	(1934)	(1977)	(1936)	(1936)	(1939)

05484500 RACCOON RIVER AT VAN METER, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1916 - 2004	
ANNUAL TOTAL	591,203		735,735		1,554	
ANNUAL MEAN	1,620		2,010		5,717	
HIGHEST ANNUAL MEAN					1993	
LOWEST ANNUAL MEAN					1956	
HIGHEST DAILY MEAN	18,000	May 9	27,500	May 24	57,500	Jul 10, 1993
LOWEST DAILY MEAN	93	Feb 25	68	Jan 5 a	10	Jan 22, 1940 b
ANNUAL SEVEN-DAY MINIMUM	159	Oct 25	112	Jan 29	10	Jan 22, 1940
MAXIMUM PEAK FLOW			36,900	May 23	70,100	Jul 10, 1993
MAXIMUM PEAK STAGE			21.59	May 23	26.34	Jul 10, 1993
INSTANTANEOUS LOW FLOW					10	Jan 22, 1940
ANNUAL RUNOFF (AC-FT)	1,173,000		1,459,000		1,126,000	
ANNUAL RUNOFF (CFSM)	0.471		0.584		0.452	
ANNUAL RUNOFF (INCHES)	6.39		7.95		6.14	
10 PERCENT EXCEEDS	4,490		5,150		3,950	
50 PERCENT EXCEEDS	367		627		600	
90 PERCENT EXCEEDS	184		164		118	

a Ice affected.
 b Also Jan. 23-31, 1940.
 e Estimated.



05484600 RACCOON RIVER NEAR WEST DES MOINES, IA

LOCATION.--Lat 41°31'54", long 93°46'54", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.30, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on right bank, 0.4 mile upstream of bridge on Interstate 35, 13.1 mi. upstream from mouth of Raccoon River, and at mile 215.9 upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,500 mi².

PERIOD OF RECORD.--July 19, 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 782.967 ft above NGVD of 1929.

REMARKS.--Records good. Discharge not published, low-flow use only. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 38.80 ft. May 9, 2003; minimum gage height, 26.14 ft. Dec. 5, 2000.

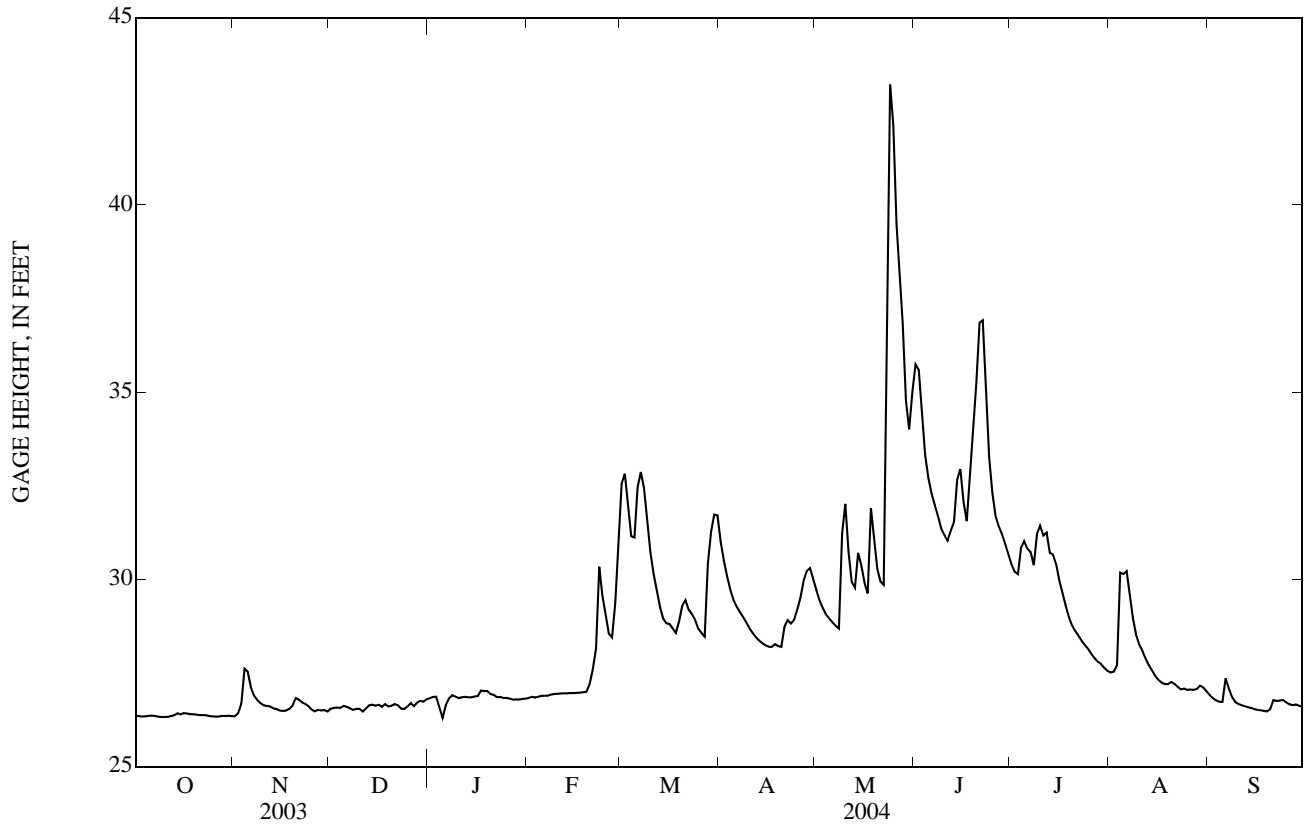
EXTREMES FOR CURRENT YEAR.--Maximum gage height, 44.19 ft on May 24; minimum gage height, 26.17 ft on Jan. 5.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.36	26.34	26.54	26.82	26.83	32.55	31.00	29.70	35.74	e30.40	27.51	26.91
2	26.34	26.42	26.57	26.86	26.86	32.82	30.50	29.43	35.60	e30.20	27.53	26.83
3	26.33	26.67	26.58	26.87	26.84	31.95	30.08	29.23	34.54	e30.14	27.70	26.77
4	26.34	27.61	26.57	26.58	26.87	31.15	29.73	29.06	33.31	30.83	30.18	26.73
5	26.35	27.53	26.62	26.30	26.89	31.11	29.46	28.95	32.71	31.02	30.14	26.72
6	26.36	27.11	26.60	26.64	26.89	32.47	29.27	28.85	32.30	e30.82	e30.22	27.35
7	26.35	26.89	26.55	26.82	26.89	32.86	29.13	28.76	31.99	e30.73	29.58	27.09
8	26.33	26.78	26.51	26.90	26.92	32.43	28.99	28.68	31.69	e30.38	28.95	26.86
9	26.32	26.69	26.54	26.87	26.94	31.50	28.85	31.22	31.37	31.21	28.51	26.73
10	26.32	26.63	26.54	26.83	26.94	30.72	28.69	32.02	31.18	31.43	28.25	26.67
11	26.33	26.62	26.47	26.85	26.95	30.14	28.56	30.74	31.03	e31.17	28.09	26.63
12	26.35	26.60	26.55	26.86	26.96	29.70	28.46	29.93	31.29	31.25	27.88	26.61
13	26.37	26.56	26.64	26.85	26.95	29.26	28.36	29.77	31.52	30.71	27.71	26.59
14	26.42	26.53	26.65	26.85	26.96	28.96	28.29	30.71	32.65	30.66	27.57	26.56
15	26.39	26.49	26.62	26.87	26.96	28.83	28.24	30.37	32.94	e30.40	27.42	26.53
16	26.43	26.49	26.65	26.88	26.97	28.81	28.20	29.91	32.06	e29.96	27.32	26.51
17	26.42	26.49	26.59	27.03	26.97	28.69	28.19	29.62	31.55	e29.62	27.24	26.50
18	26.40	26.54	26.67	27.02	26.99	28.57	28.27	31.90	32.92	e29.29	27.20	26.48
19	26.40	26.62	26.60	27.02	26.99	28.88	28.22	31.04	34.15	e28.99	27.21	26.47
20	26.39	26.83	26.62	26.94	27.20	29.29	28.19	30.28	35.25	e28.76	27.26	26.53
21	26.38	26.78	26.66	26.91	27.60	29.45	28.73	e29.94	36.85	e28.61	27.21	26.77
22	26.37	26.71	26.64	26.85	28.16	29.19	28.91	e29.85	36.92	e28.49	27.13	26.75
23	26.37	26.68	26.55	26.86	30.34	29.07	28.82	37.67	34.93	28.35	27.06	26.76
24	26.35	26.62	26.54	26.83	29.56	28.92	28.92	43.21	33.26	28.24	27.08	26.78
25	26.34	26.52	26.60	26.83	29.04	28.68	29.19	e42.13	32.31	28.14	27.05	26.71
26	26.33	26.47	26.69	26.82	28.55	28.57	29.52	39.49	e31.69	28.01	27.06	26.66
27	26.34	26.51	26.61	26.78	28.45	28.47	29.97	38.18	e31.42	27.90	27.05	26.64
28	26.35	26.50	26.71	26.79	29.36	30.42	30.23	36.81	e31.21	27.80	27.07	26.66
29	26.35	26.51	26.76	26.79	31.10	31.27	30.30	34.77	e30.95	27.74	27.16	26.62
30	26.36	26.47	26.73	26.81	---	31.73	30.00	34.01	e30.67	27.64	27.11	26.60
31	26.34	---	26.79	26.82	---	31.71	---	e35.00	---	27.56	27.01	---
MEAN	26.36	26.67	26.61	26.83	27.62	30.26	29.11	32.30	32.87	29.56	27.79	26.70
MAX	26.43	27.61	26.79	27.03	31.10	32.86	31.00	43.21	36.92	31.43	30.22	27.35
MIN	26.32	26.34	26.47	26.30	26.83	28.47	28.19	28.68	30.67	27.56	27.01	26.47

e Estimated

05484600 RACCOON RIVER NEAR WEST DES MOINES, IA—Continued



05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA

LOCATION.--Lat 41°33'49", long 93°42'13", in SW¹/₄ NE¹/₄ sec.14, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, at upstream side of bridge on State Highway 28, 2.9 mi. upstream from Walnut Creek, 8.6 mi. upstream from mouth of Raccoon River, and at mile 210.0 upstream from mouth of Des Moines River.

DRAINAGE AREA.-- 3,529 mi².

PERIOD OF RECORD.-- October 1991 to current year. October 1991 to September 1996 gage height record only.

GAGE.--Water-stage recorder. Datum of gage is 773.91 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Army Corps of Engineers rain gage and U.S. Geological Survey data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	165	221	312	e130	6,120	4,380	2,730	11,400	3,120	856	448
2	172	192	233	364	e132	6,850	3,760	2,470	11,100	2,980	872	407
3	166	392	241	e290	e126	5,610	3,350	2,290	9,100	2,950	1,060	370
4	156	1,040	234	e98	e132	4,540	3,010	2,130	6,940	3,300	3,380	348
5	158	788	e253	e89	e140	4,500	2,750	2,020	6,010	3,640	3,250	387
6	165	518	e237	e134	e138	6,410	2,590	1,920	5,470	3,550	3,330	784
7	163	391	e222	e187	e148	7,290	2,450	1,780	5,030	3,470	2,910	596
8	164	336	e214	e228	e159	6,620	2,320	1,670	4,660	3,120	2,180	426
9	165	300	e224	e219	e159	5,240	2,190	4,140	4,310	3,380	1,820	351
10	166	279	e200	e230	e168	4,190	2,040	5,350	4,130	4,040	1,530	317
11	169	278	e153	e263	e172	3,570	1,920	3,650	3,930	3,950	1,370	291
12	169	269	e200	e259	e168	3,170	1,760	2,810	4,230	4,010	1,160	274
13	173	244	e218	e245	e174	2,790	1,620	2,590	4,610	3,440	995	263
14	198	237	e196	e248	e180	2,530	1,500	3,430	5,920	3,430	877	252
15	180	228	199	e241	e174	2,380	1,420	3,210	6,480	3,290	757	247
16	185	223	205	e241	e181	2,350	1,350	2,760	5,250	2,920	675	234
17	188	232	e213	e230	e193	2,280	1,310	2,500	4,600	2,640	605	230
18	184	249	e199	e194	e239	2,190	1,380	4,910	6,130	2,420	572	224
19	181	268	e211	e181	e262	2,350	1,310	4,000	8,040	2,220	564	222
20	178	344	223	e203	e321	2,650	1,340	3,060	9,940	2,060	602	233
21	175	333	216	e221	e450	2,800	1,750	2,730	13,200	1,950	571	362
22	173	304	217	e194	e590	2,600	2,040	2,620	14,200	1,820	531	361
23	173	301	231	e232	e1,470	2,470	1,940	13,800	10,300	1,650	494	368
24	169	264	e261	e210	e1,980	2,380	2,010	29,500	7,000	1,520	525	385
25	167	238	276	e216	e1,770	2,180	2,220	28,200	5,420	1,420	511	351
26	160	216	244	e205	e1,620	2,070	2,470	24,100	4,590	1,290	501	323
27	165	225	233	e169	e1,590	1,980	2,890	19,100	4,240	1,190	510	309
28	168	221	267	e142	e2,130	3,600	3,170	15,500	3,980	1,100	521	314
29	167	189	e262	e119	e3,950	4,720	3,300	11,000	3,640	1,050	566	297
30	171	204	e251	e110	---	5,250	3,010	8,840	3,340	968	563	291
31	170	---	e284	e125	---	5,330	---	10,400	---	883	501	---
TOTAL	5,314	9,468	7,038	6,399	19,046	119,010	68,550	225,210	197,190	78,771	35,159	10,265
MEAN	171	316	227	206	657	3,839	2,285	7,265	6,573	2,541	1,134	342
MAX	198	1,040	284	364	3,950	7,290	4,380	29,500	14,200	4,040	3,380	784
MIN	156	165	153	89	126	1,980	1,310	1,670	3,340	883	494	222
AC-FT	10,540	18,780	13,960	12,690	37,780	236,100	136,000	446,700	391,100	156,200	69,740	20,360
CFSM	0.05	0.09	0.06	0.06	0.19	1.09	0.65	2.06	1.86	0.72	0.32	0.10
IN.	0.06	0.10	0.07	0.07	0.20	1.25	0.72	2.37	2.08	0.83	0.37	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

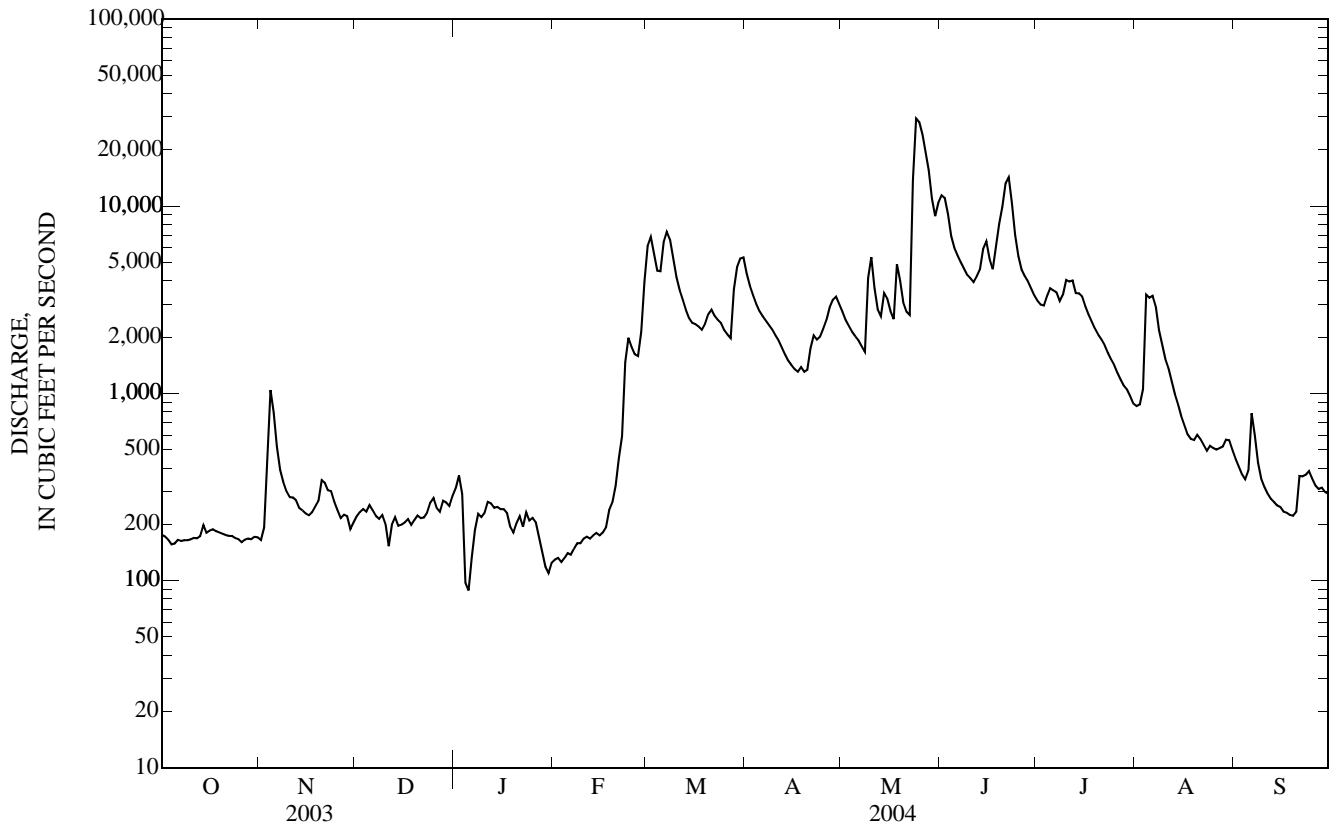
MEAN	555	737	593	437	1,031	2,308	3,512	5,100	5,078	3,107	1,121	406
MAX	1,286	2,484	1,873	1,236	3,205	4,914	9,591	7,830	12,460	7,560	2,220	694
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(2001)	(1999)	(1999)	(1998)	(1998)	(1998)	(1998)
MIN	124	246	148	200	211	407	281	334	603	714	339	164
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2000)

05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	662,792		781,420			
ANNUAL MEAN	1,816		2,135		2,001	
HIGHEST ANNUAL MEAN					3,352	1998
LOWEST ANNUAL MEAN					375	2000
HIGHEST DAILY MEAN	18,400	May 9	29,500	May 24	36,300	Jun 16, 1998
LOWEST DAILY MEAN	153	Dec 11	89	Jan 5 a	80	Dec 25, 2000
ANNUAL SEVEN-DAY MINIMUM	162	Oct 3	125	Jan 29	94	Dec 20, 2000
MAXIMUM PEAK FLOW			30,800	May 24	40,300	Jun 16, 1998
MAXIMUM PEAK STAGE			38.22	May 24	40.77	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	1,315,000		1,550,000		1,450,000	
ANNUAL RUNOFF (CFSM)	0.515		0.605		0.567	
ANNUAL RUNOFF (INCHES)	6.99		8.24		7.71	
10 PERCENT EXCEEDS	4,620		5,090		5,180	
50 PERCENT EXCEEDS	440		581		700	
90 PERCENT EXCEEDS	193		169		221	

a Ice affected.

e Estimated.



05484800 WALNUT CREEK AT DES MOINES, IA

LOCATION.--Lat 41°35'14", long 93°42'11", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.2, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, 25 ft downstream from bridge on 63rd Street in Des Moines, and 2.2 mi upstream from Raccoon River.

DRAINAGE AREA.--78.4 mi².

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-73-1: 1972. WDR IA-75-1: 1973-74.

GAGE.--Water-stage recorder. Datum of gage is 801.04 ft above NGVD of 1929 (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Geological Survey data collection platform with satellite and telephone modem telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.94	6.3	17	11	e4.9	75	84	83	139	35	36	5.0
2	1.4	69	16	9.8	e5.1	65	78	80	112	39	72	4.4
3	0.91	564	e15	e6.9	e4.8	53	75	79	99	91	285	4.2
4	1.0	467	e16	e5.9	e5.2	112	71	78	91	44	423	3.6
5	1.2	100	e18	e4.1	e5.6	219	70	77	86	51	53	140
6	1.2	70	e14	e2.4	e5.5	109	69	77	83	48	34	71
7	1.3	59	e12	e3.0	e4.8	80	68	75	76	41	26	21
8	1.5	53	e17	e4.8	e5.0	66	66	76	70	37	22	13
9	1.8	48	e15	e4.0	e5.2	60	63	175	66	70	19	8.1
10	1.9	45	e9.6	e4.9	e4.8	56	62	89	124	65	17	10
11	14	45	e2.6	e7.1	e5.1	52	61	81	84	231	15	6.3
12	9.1	42	e2.0	e6.5	e4.3	47	62	80	72	90	14	3.5
13	16	40	e2.6	e6.1	e4.2	53	61	107	135	55	12	2.7
14	52	37	e3.9	e6.9	e4.4	58	62	100	178	44	12	5.5
15	13	36	e7.9	e8.2	e4.0	54	62	88	113	37	9.4	12
16	7.0	35	e11	69	e4.4	71	63	85	196	33	8.1	4.3
17	5.1	47	e7.7	105	e4.2	78	79	159	83	29	7.8	1.9
18	4.5	56	11	101	e13	97	65	332	68	27	18	1.5
19	4.3	37	11	46	e34	106	64	191	62	24	14	1.1
20	4.2	32	9.0	37	e167	94	188	141	58	23	9.1	0.80
21	4.1	29	e8.0	33	e142	75	259	118	59	34	7.8	0.72
22	4.3	26	12	e24	e254	70	163	184	54	34	6.5	0.65
23	4.3	e21	e9.3	e20	193	67	122	1,220	50	25	5.9	0.63
24	4.4	e14	e8.9	e12	75	66	155	745	49	23	92	0.75
25	4.3	e20	9.5	e13	52	65	147	1,690	46	20	33	0.73
26	4.3	e19	9.0	e8.2	48	63	115	324	43	18	20	0.96
27	9.5	e19	11	e5.3	55	95	102	204	42	17	23	1.6
28	20	e14	15	e4.7	59	184	97	157	60	16	17	2.6
29	8.5	e15	15	e4.3	60	120	89	131	40	29	11	2.3
30	6.6	e16	15	e3.9	---	100	86	260	36	18	14	2.7
31	5.5	---	15	e4.4	---	90	---	202	---	15	7.6	---
TOTAL	218.15	2,081.3	346.0	582.4	1,233.5	2,600	2,808	7,488	2,474	1,363	1,344.2	333.54
MEAN	7.04	69.4	11.2	18.8	42.5	83.9	93.6	242	82.5	44.0	43.4	11.1
MAX	52	564	18	105	254	219	259	1,690	196	231	423	140
MIN	0.91	6.3	2.0	2.4	4.0	47	61	75	36	15	5.9	0.63
AC-FT	433	4,130	686	1,160	2,450	5,160	5,570	14,850	4,910	2,700	2,670	662
CFSM	0.09	0.88	0.14	0.24	0.54	1.07	1.19	3.08	1.05	0.56	0.55	0.14
IN.	0.10	0.99	0.16	0.28	0.59	1.23	1.33	3.55	1.17	0.65	0.64	0.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2004, BY WATER YEAR (WY)

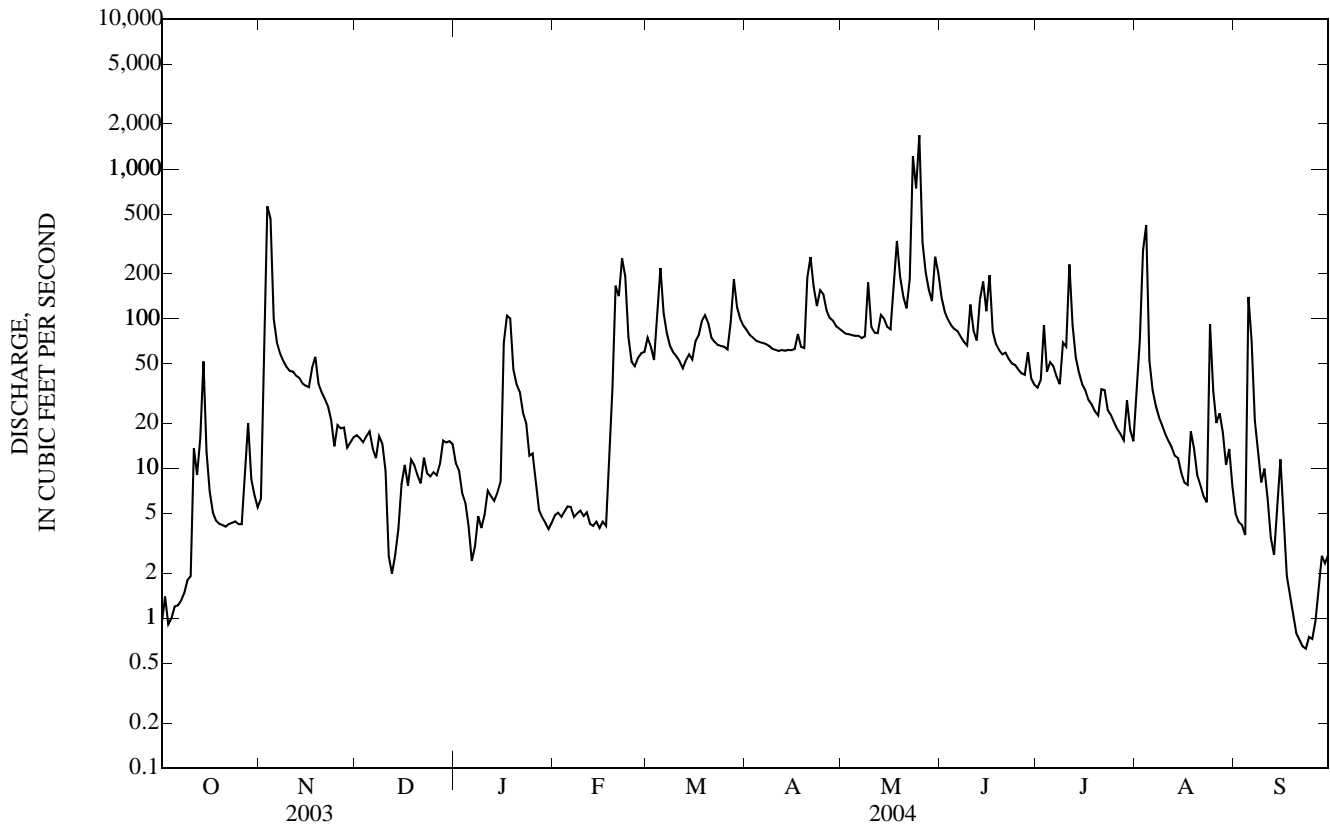
MEAN	29.6	36.0	28.0	20.8	41.6	70.7	96.1	127	117	78.2	44.4	28.6
MAX	166	147	119	123	178	214	310	390	385	427	329	214
(WY)	(1974)	(1973)	(1983)	(1974)	(1973)	(1990)	(1973)	(1996)	(1990)	(1993)	(1993)	(1993)
MIN	1.33	0.88	0.17	0.00	0.48	3.17	2.72	6.36	7.62	2.96	2.10	0.57
(WY)	(1972)	(1977)	(1977)	(1977)	(1977)	(1981)	(1981)	(1977)	(1977)	(1985)	(2003)	(1976)

05484800 WALNUT CREEK AT DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1972 - 2004	
ANNUAL TOTAL	14,754.86		22,872.09		59.8	
ANNUAL MEAN	40.4		62.5		158	
HIGHEST ANNUAL MEAN					1993	
LOWEST ANNUAL MEAN					10.3	
HIGHEST DAILY MEAN	1,680	May 4	1,690	May 25	4,520	Jul 1, 1973
LOWEST DAILY MEAN	0.23	Jan 23	0.63	Sep 23	0.00	Jan 3, 1977 a
ANNUAL SEVEN-DAY MINIMUM	0.47	Sep 4	0.75	Sep 20	0.00	Jan 3, 1977
MAXIMUM PEAK FLOW			3,370	May 25	12,500	May 10, 1986
MAXIMUM PEAK STAGE			13.57	May 25	18.32	May 10, 1986
INSTANTANEOUS LOW FLOW			0.50	Sep 22		
ANNUAL RUNOFF (AC-FT)	29,270		45,370		43,320	
ANNUAL RUNOFF (CFSM)	0.516		0.797		0.763	
ANNUAL RUNOFF (INCHES)	7.00		10.85		10.36	
10 PERCENT EXCEEDS	71		126		140	
50 PERCENT EXCEEDS	9.5		34		22	
90 PERCENT EXCEEDS	0.97		4.1		2.4	

a Many days in 1977, Aug. 21, 1994, many days in 2000, and Aug. 14, 2001.

e Estimated.



05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA

LOCATION.--Lat 41°34'54", long 93°38'34", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.8, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100006, on downstream side of Fleur Drive bridge(SW 18th St.) attached to handrail 465 ft. from right edge of bridge, 3.0 miles downstream from Walnut Creek, 2.6 miles upstream from mouth, and at mile 204.1 above mouth of Des Moines River.

DRAINAGE AREA.-- 3,625 mi².

PERIOD OF RECORD.-- June 1984 to current year; June 1984 to September 1996 gage-height record only.

GAGE.--Water-stage recorder. Datum of gage is 780.70 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Discharges are affected by withdrawal by Des Moines Water Works. U.S. Geological Survey data collection platform with satellite telemetry and U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	165	198	e307	e159	6,150	4,440	2,620	11,600	3,300	899	516
2	143	409	e216	e339	e167	6,950	3,820	2,350	11,500	3,080	965	468
3	137	1,020	228	e276	e155	5,690	3,380	2,170	9,300	3,180	1,150	431
4	136	1,480	217	e112	e167	4,770	2,990	1,990	6,900	3,390	3,820	416
5	138	791	260	e83	e192	4,770	2,690	1,870	5,770	3,880	3,330	e472
6	147	569	247	e132	e167	5,970	2,470	1,800	5,320	3,730	3,310	e897
7	143	400	223	e186	e188	7,000	2,310	1,700	4,930	3,620	2,950	e676
8	140	345	212	e230	e182	6,290	2,160	1,660	4,580	3,220	2,070	544
9	130	330	e240	e217	e187	5,150	2,020	3,560	4,260	3,370	1,630	432
10	130	289	e235	e227	e190	4,230	1,860	5,260	4,170	4,270	1,380	374
11	141	262	e180	e262	e195	3,550	1,740	3,720	3,920	4,330	1,260	353
12	151	e248	e208	e257	e198	3,110	1,640	2,830	4,120	4,320	1,100	333
13	155	e230	e224	e244	e206	2,700	1,550	2,570	4,450	3,630	957	320
14	249	e219	e204	e245	e204	2,410	1,480	3,390	5,690	3,570	835	313
15	185	e210	e210	e247	e201	2,260	1,430	3,300	6,520	3,470	733	313
16	167	e200	e215	e241	e209	2,250	1,390	2,800	5,350	3,030	664	284
17	174	e216	e221	e237	e227	2,220	1,370	2,550	4,580	2,690	601	270
18	168	247	e212	e208	e275	2,170	1,410	4,840	5,770	2,420	563	264
19	170	230	e219	e186	e308	2,340	1,360	4,280	8,090	2,180	547	259
20	161	352	e225	e204	e370	2,650	1,550	3,180	9,930	1,960	568	261
21	159	367	e220	e224	e498	2,840	1,830	2,770	13,700	1,790	540	403
22	155	305	e221	e182	e654	2,630	2,030	2,710	15,200	1,690	497	407
23	148	349	e231	e216	e1,660	2,450	1,830	11,700	10,900	1,550	447	391
24	142	249	e256	e189	e2,150	2,370	1,940	30,400	7,520	1,440	603	413
25	153	e218	e263	e204	e1,930	2,140	2,180	e29,000	5,730	1,370	512	380
26	155	e199	e232	e179	e1,720	2,000	2,380	e25,100	4,930	1,260	471	345
27	159	e217	e228	e135	e1,670	1,930	2,780	19,300	4,560	1,180	500	323
28	184	e201	e253	e126	e2,220	3,460	3,050	15,600	4,320	1,090	554	330
29	172	e177	e267	e138	e4,130	4,660	3,170	10,800	3,940	1,070	540	318
30	172	e184	e251	e138	---	5,020	2,900	8,610	3,610	972	601	307
31	170	---	e279	e147	---	5,200	---	10,100	---	890	563	---
TOTAL	4,877	10,678	7,095	6,318	20,779	117,330	67,150	224,530	201,160	80,942	35,160	11,813
MEAN	157	356	229	204	717	3,785	2,238	7,243	6,705	2,611	1,134	394
MAX	249	1,480	279	339	4,130	7,000	4,440	30,400	15,200	4,330	3,820	897
MIN	130	165	180	83	155	1,930	1,360	1,660	3,610	890	447	259
AC-FT	9,670	21,180	14,070	12,530	41,220	232,700	133,200	445,400	399,000	160,500	69,740	23,430
CFSM	0.04	0.10	0.06	0.06	0.20	1.04	0.62	2.00	1.85	0.72	0.31	0.11
IN.	0.05	0.11	0.07	0.06	0.21	1.20	0.69	2.30	2.06	0.83	0.36	0.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

MEAN	527	729	553	403	1,028	2,293	3,598	5,194	5,121	3,108	1,105	388
MAX	1,156	2,527	1,873	1,235	3,280	4,877	9,905	7,915	12,570	7,266	2,252	664
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(2001)	(1999)	(1999)	(1998)	(1998)	(1998)	(1998)
MIN	120	265	177	169	180	349	277	370	671	670	334	124
(WY)	(2001)	(2000)	(2001)	(2000)	(2003)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2000)

05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	646,121		787,832			
ANNUAL MEAN	1,770		2,153		2,006	
HIGHEST ANNUAL MEAN					3,350	
LOWEST ANNUAL MEAN					381	
HIGHEST DAILY MEAN	18,600	May 9	30,400	May 24	40,100	Jun 16, 1998
LOWEST DAILY MEAN	43	Feb 25	83	Jan 5 a	43	Feb 25, 2003
ANNUAL SEVEN-DAY MINIMUM	138	Oct 4	138	Oct 4	85	Sep 28, 2000
MAXIMUM PEAK FLOW			38,400	May 24	45,000	Jun 16, 1998
MAXIMUM PEAK STAGE			19.45	May 24	26.80	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	1,282,000		1,563,000		1,454,000	
ANNUAL RUNOFF (CFSM)	0.488		0.594		0.553	
ANNUAL RUNOFF (INCHES)	6.63		8.08		7.52	
10 PERCENT EXCEEDS	5,000		4,960		5,200	
50 PERCENT EXCEEDS	336		602		675	
90 PERCENT EXCEEDS	163		168		200	

a Ice affected.
e Estimated.

