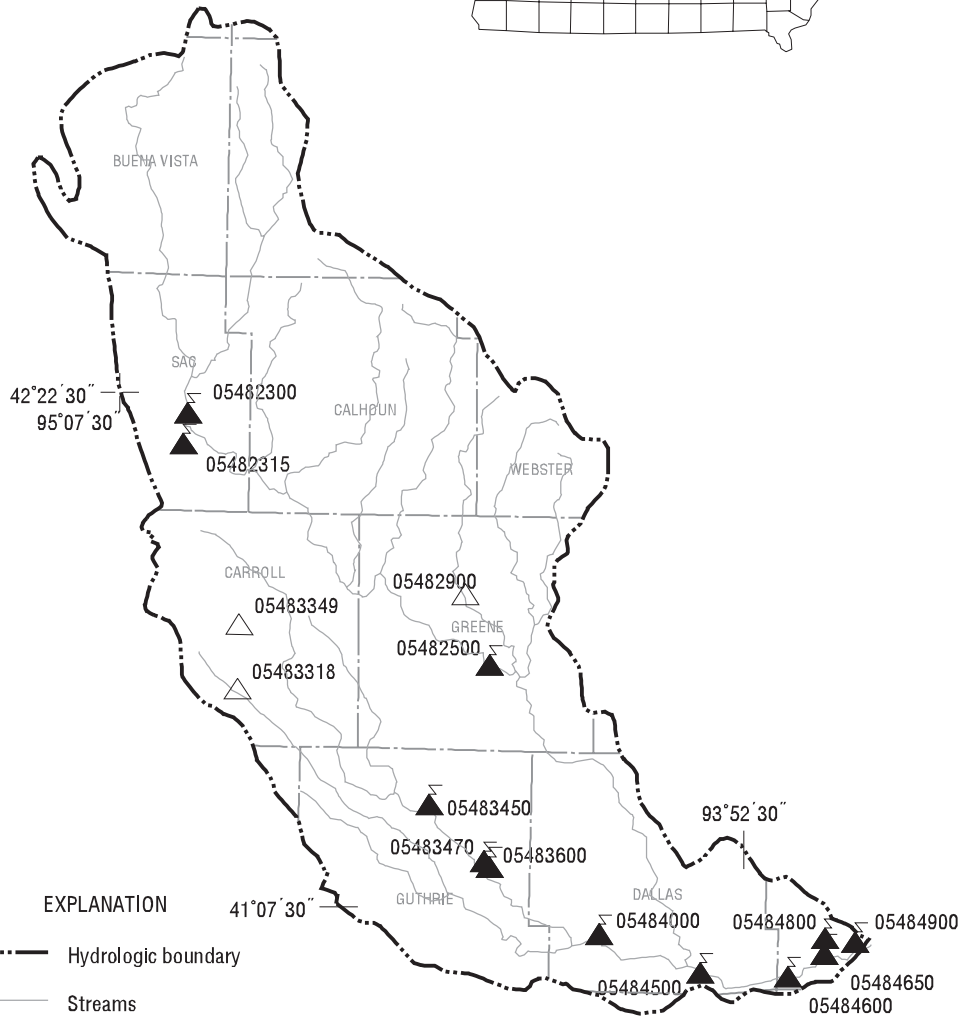
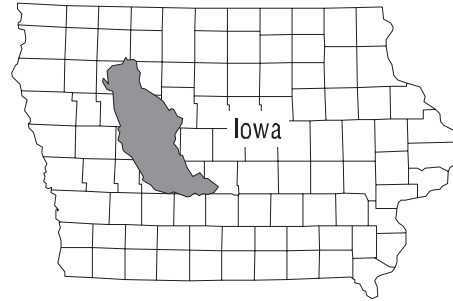




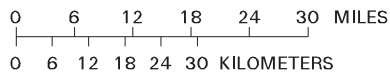


DES MOINES RIVER BASIN
(RACCOON RIVER BASIN)



EXPLANATION

-  Hydrologic boundary
-  Streams
-  05388250 Transmitting gaging station and station number
-  05388310 Crest-stage gaging station and station number



Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05482300	North Raccoon River near Sac City, IA	290
05482315	Black Hawk Lake at Lake View, IA	292
05482500	North Raccoon River near Jefferson, IA	294
05483450	Middle Raccoon River near Bayard, IA	296
05483470	Lake Panorama at Panora, IA	298
05483600	Middle Raccoon River at Panora, IA	300
05484000	South Raccoon River at Redfield, IA	302
05484500	Raccoon River at Van Meter, IA	304
05484600	Raccoon River near West Des Moines, IA	306
05484650	Raccoon River at 63rd Street, Des Moines, IA	308
05484800	Walnut Creek at Des Moines, IA	310
05484900	Raccoon River at Fleur Drive, Des Moines, IA	312

Crest Stage Gaging Stations

05482900	Hardin Creek near Farlin, IA	491
05483318	Brushy Creek near Templeton, IA	491
05483349	Middle Raccoon River Tributary at Carroll, IA	491

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°21'16", long 94°59'26", in NW¹/₄ NW¹/₄ sec.13, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on right bank 5 ft downstream from bridge on county highway, 2.1 mi upstream from Indian Creek, 0.3 mi upstream from Drainage Ditch 73, 4.6 mi south of Sac City, 167.1 miles upstream of mouth of Raccoon River, and at mile 367.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--700 mi².

PERIOD OF RECORD.--June 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,146.03 ft above NGVD of 1929. Prior to Oct. 1, 1987 at site 1.7 miles downstream at datum 1.43 ft lower.

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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 15.61 ft, from floodmark, discharge, 7,000 ft³/s.

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	21	26	e20	e28	e21	1,900	664	428	1,550	325	75	30
2	21	25	26	e27	e20	1,530	551	387	1,270	295	75	29
3	22	36	23	e25	e16	1,140	468	352	1,080	412	74	28
4	23	40	24	e21	e16	775	417	336	944	457	78	27
5	23	38	21	e17	e17	1,280	377	312	860	366	65	27
6	24	34	e20	e17	e19	1,880	354	300	784	395	59	30
7	24	30	26	e18	e18	1,550	318	275	705	393	55	29
8	22	27	23	e24	e16	1,100	298	263	631	318	53	31
9	23	28	e20	e21	e21	831	278	267	571	306	51	29
10	28	25	e14	e21	e28	609	256	266	606	280	48	27
11	34	25	e12	e26	e32	438	245	253	1,130	356	46	26
12	37	24	e12	e24	e25	280	237	251	1,440	919	45	25
13	36	25	e14	e24	e25	253	228	249	1,170	676	44	25
14	35	23	17	e22	e24	216	219	232	940	467	43	28
15	36	23	20	e20	e22	191	215	220	769	348	41	34
16	38	24	e19	e27	e28	175	210	215	2,350	280	40	210
17	31	26	e17	e23	e28	164	199	221	5,100	235	39	279
18	30	27	e21	e20	e32	168	189	219	2,680	201	41	201
19	31	29	e20	e15	e35	206	223	204	1,950	178	40	228
20	29	29	e20	e18	e30	221	253	208	1,600	158	37	209
21	28	26	27	e21	e28	179	392	225	1,350	142	35	157
22	27	23	29	e17	e31	160	499	1,150	1,170	132	33	128
23	27	e22	e27	e22	e60	152	416	3,170	973	118	32	141
24	25	e16	e23	e21	e49	144	378	3,300	848	107	34	142
25	27	18	e24	e19	e38	138	510	3,310	827	99	39	132
26	26	18	28	e16	e34	162	1,080	2,640	684	93	34	116
27	27	21	30	e15	234	244	941	1,920	575	87	34	102
28	28	e19	34	e12	876	1,660	729	1,470	495	82	30	93
29	29	e18	e30	e13	1,940	1,730	603	1,890	427	80	31	82
30	28	21	e24	e15	---	1,170	488	2,230	370	75	29	75
31	26	---	e22	e17	---	841	---	1,940	---	70	29	---
TOTAL	866	766	687	626	3,763	21,487	12,235	28,703	35,849	8,450	1,409	2,720
MEAN	27.9	25.5	22.2	20.2	130	693	408	926	1,195	273	45.5	90.7
MAX	38	40	34	28	1,940	1,900	1,080	3,310	5,100	919	78	279
MIN	21	16	12	12	16	138	189	204	370	70	29	25
AC-FT	1,720	1,520	1,360	1,240	7,460	42,620	24,270	56,930	71,110	16,760	2,790	5,400
CFSM	0.04	0.04	0.03	0.03	0.19	0.99	0.58	1.32	1.71	0.39	0.06	0.13
IN.	0.05	0.04	0.04	0.03	0.20	1.14	0.65	1.53	1.91	0.45	0.07	0.14

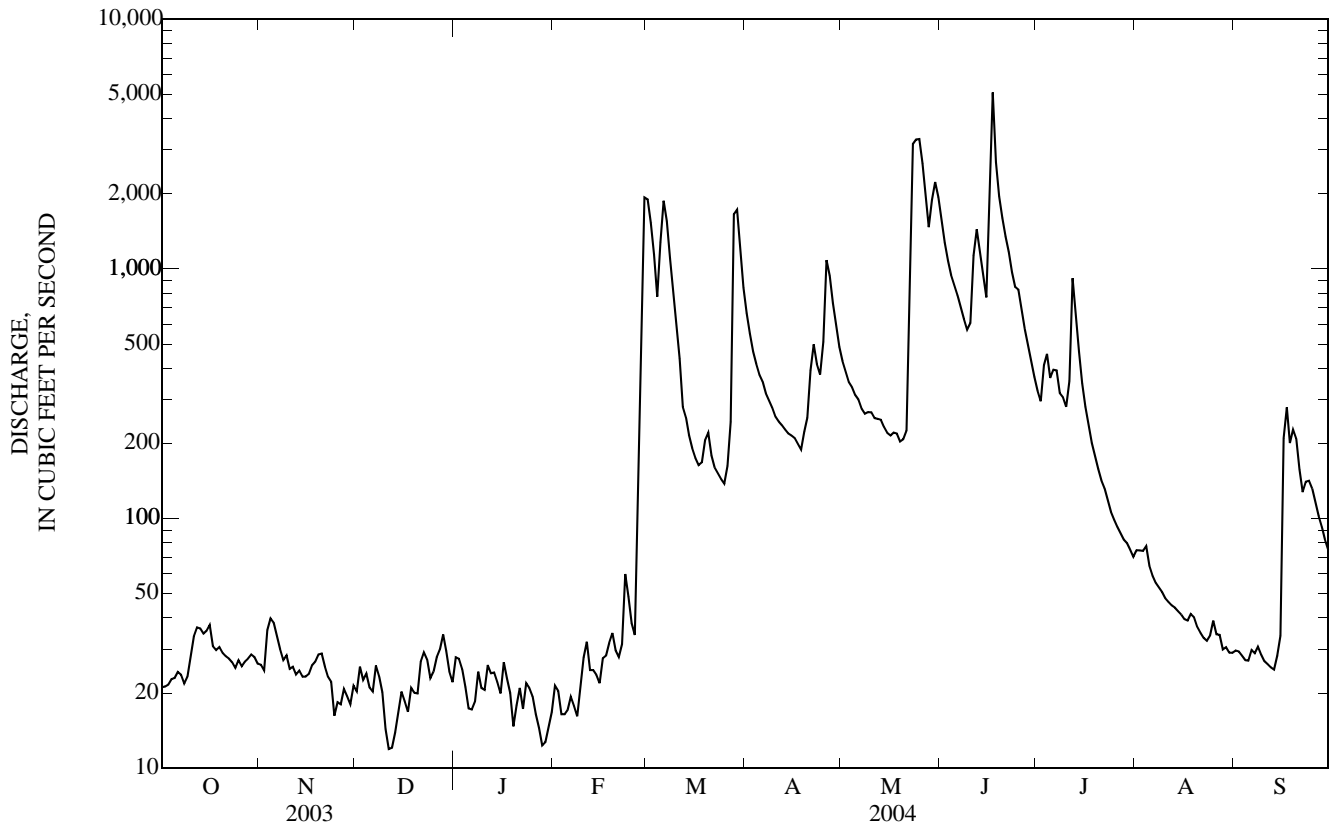
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

MEAN	229	206	132	90.1	173	624	769	675	849	504	236	216
MAX	1,782	1,005	641	498	1,038	2,723	2,726	2,077	3,344	3,096	1,188	1,966
(WY)	(1983)	(1984)	(1983)	(1983)	(1984)	(1983)	(1983)	(1991)	(1984)	(1993)	(1993)	(1962)
MIN	6.39	9.44	4.39	0.87	1.16	27.2	22.7	28.2	24.7	23.0	9.29	7.80
(WY)	(1959)	(1959)	(1959)	(1977)	(1959)	(1968)	(2000)	(2000)	(1977)	(1977)	(1976)	(1976)

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004	
ANNUAL TOTAL	150,951		117,561			
ANNUAL MEAN	414		321		392	
HIGHEST ANNUAL MEAN					1,331	1983
LOWEST ANNUAL MEAN					25.3	1977
HIGHEST DAILY MEAN	6,550	Jul 10	5,100	Jun 17	12,400	Mar 23, 1979
LOWEST DAILY MEAN	12	Dec 11	12	Dec 11	0.00	Jan 30, 1977
ANNUAL SEVEN-DAY MINIMUM	15	Dec 10	15	Jan 25	0.01	Jan 29, 1977
MAXIMUM PEAK FLOW			5,510	Jun 17	13,100	Mar 23, 1979
MAXIMUM PEAK STAGE			16.95	Jun 17	20.14	Jun 17, 1990
ANNUAL RUNOFF (AC-FT)	299,400		233,200		284,200	
ANNUAL RUNOFF (CFSM)	0.591		0.459		0.560	
ANNUAL RUNOFF (INCHES)	8.02		6.25		7.61	
10 PERCENT EXCEEDS	1,120		953		1,010	
50 PERCENT EXCEEDS	71		47		132	
90 PERCENT EXCEEDS	23		20		17	

a Also Dec. 12 & Jan. 28.
 b Also Jan. 31 to Feb. 4, 1977.
 e Estimated.



05482315 BLACK HAWK LAKE AT LAKE VIEW, IA

LOCATION.--Lat 42°18'15", long 95°02'30", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.33, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on south shore across from swimming beach at Lake View and 2 mi. upstream from lake outlet.

DRAINAGE AREA.--23.3 mi².

PERIOD OF RECORD.--April 1970 to September 1975; April 1978 to September 1992, October 1994 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,213.50 ft above NGVD of 1929 and 7.00 ft below crest of spillway of dam at outlet. Prior to June 25, 1970, nonrecording gage at lake outlet. Prior to Jan. 22, 2001, at datum 5.0 ft higher.

REMARKS.--Gage height was considered reliable for the year. Lake is formed by concrete dam with ungated overflow spillway at elevation 1,220.50 ft. above sea level. Lake is used for conservation and recreation. Area of lake is approximately 957 acres. U.S. Geological Survey data collection platform with satellite telemetry at station.

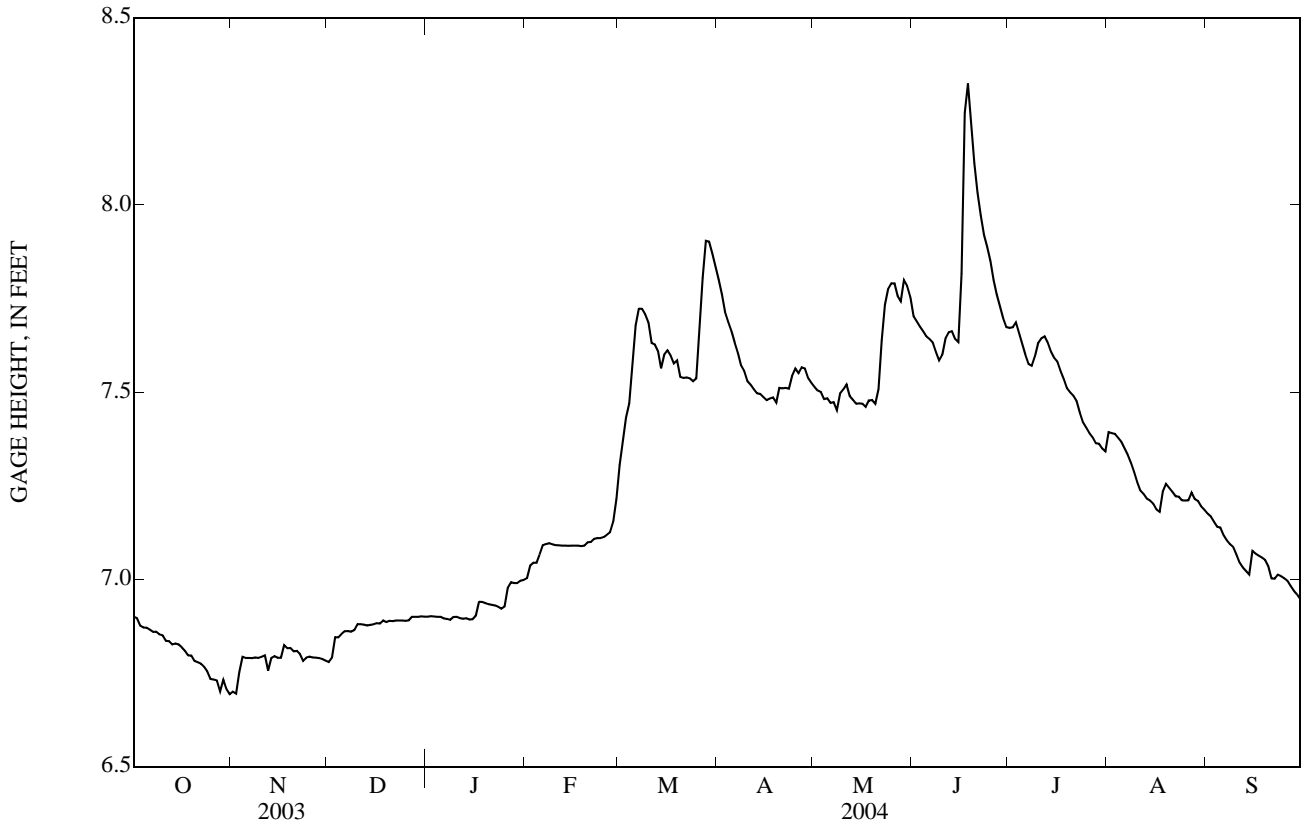
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.34 ft June 22, 1996, datum then in use; minimum, 4.91 ft Jan. 25, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.35 ft on June 18; minimum, 6.64 ft on Nov. 12.

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	6.90	6.70	6.78	6.90	7.00	7.30	7.80	7.51	7.70	7.67	7.39	7.18
2	6.90	6.69	6.79	6.90	7.04	7.37	7.76	7.50	7.69	7.67	7.39	7.17
3	6.88	6.75	6.85	6.90	7.04	7.43	7.71	7.50	7.67	7.69	7.39	7.15
4	6.87	6.79	6.84	6.90	7.04	7.47	7.69	7.48	7.66	7.66	7.38	7.14
5	6.87	6.79	6.85	6.90	7.07	7.58	7.66	7.48	7.65	7.63	7.37	7.14
6	6.87	6.79	6.86	6.90	7.09	7.68	7.63	7.47	7.64	7.60	7.35	7.12
7	6.86	6.79	6.86	6.89	7.09	7.72	7.61	7.47	7.63	7.57	7.33	7.10
8	6.86	6.79	6.86	6.89	7.10	7.72	7.57	7.45	7.61	7.57	7.31	7.09
9	6.85	6.79	6.86	6.90	7.09	7.71	7.56	7.50	7.58	7.60	7.29	7.09
10	6.85	6.79	6.88	6.90	7.09	7.69	7.53	7.51	7.60	7.63	7.26	7.07
11	6.84	6.80	6.88	6.90	7.09	7.63	7.52	7.52	7.64	7.64	7.24	7.04
12	6.83	6.76	6.88	6.89	7.09	7.63	7.51	7.49	7.66	7.65	7.23	7.03
13	6.83	6.79	6.88	6.90	7.09	7.61	7.50	7.48	7.66	7.63	7.22	7.02
14	6.83	6.79	6.88	6.89	7.09	7.56	7.49	7.47	7.64	7.61	7.21	7.01
15	6.83	6.79	6.88	6.89	7.09	7.60	7.49	7.47	7.63	7.59	7.20	7.08
16	6.82	6.79	6.88	6.90	7.09	7.61	7.48	7.47	7.82	7.58	7.19	7.07
17	6.81	6.82	6.88	6.94	7.09	7.60	7.48	7.46	8.25	7.56	7.18	7.06
18	6.80	6.82	6.89	6.94	7.09	7.58	7.49	7.48	8.32	7.54	7.23	7.06
19	6.80	6.82	6.89	6.94	7.09	7.59	7.47	7.48	8.22	7.51	7.26	7.05
20	6.78	6.81	6.89	6.93	7.10	7.54	7.51	7.47	8.11	7.50	7.24	7.04
21	6.78	6.81	6.89	6.93	7.10	7.54	7.51	7.51	8.03	7.49	7.23	7.00
22	6.77	6.80	6.89	6.93	7.11	7.54	7.51	7.64	7.97	7.48	7.22	7.00
23	6.77	6.78	6.89	6.93	7.11	7.54	7.51	7.73	7.92	7.45	7.22	7.01
24	6.75	6.79	6.89	6.92	7.11	7.53	7.54	7.78	7.89	7.42	7.21	7.01
25	6.73	6.79	6.89	6.93	7.11	7.54	7.56	7.79	7.85	7.41	7.21	7.00
26	6.73	6.79	6.89	6.98	7.12	7.68	7.55	7.79	7.80	7.39	7.21	7.00
27	6.73	6.79	6.90	6.99	7.13	7.81	7.57	7.76	7.76	7.38	7.23	6.98
28	6.70	6.79	6.90	6.99	7.15	7.90	7.56	7.74	7.73	7.36	7.21	6.97
29	6.73	6.79	6.90	6.99	7.21	7.90	7.54	7.80	7.70	7.36	7.21	6.96
30	6.71	6.78	6.90	7.00	---	7.87	7.52	7.78	7.67	7.35	7.19	6.95
31	6.69	---	6.90	7.00	---	7.84	---	7.75	---	7.34	7.19	---
MEAN	6.81	6.79	6.87	6.93	7.09	7.62	7.56	7.57	7.79	7.53	7.26	7.05
MAX	6.90	6.82	6.90	7.00	7.21	7.90	7.80	7.80	8.32	7.69	7.39	7.18
MIN	6.69	6.69	6.78	6.89	7.00	7.30	7.47	7.45	7.58	7.34	7.18	6.95

05482315 BLACK HAWK LAKE AT LAKE VIEW, IA—Continued



05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA

LOCATION.--Lat 41°59'17", long 94°22'36", in SW¹/₄ NW¹/₄ sec.20, T.83 N., R.30 W., Greene County, Hydrologic Unit 07100006, on right bank 20 ft downstream from bridge on State Highway 4, 0.1 mi downstream from Drainage Ditch 33 and 40, 1.9 mi south of Jefferson, 4.7 mi upstream from Hardin Creek, 92.0 miles upstream of mouth of Raccoon River, and at mile 292.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,619 mi².

PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1955, published as "Raccoon River near Jefferson".

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1950-51.

GAGE.--Water-stage recorder. Datum of gage is 967.09 ft above NGVD of 1929. Prior to Apr. 22, 1946, nonrecording gage at site 4 mi upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.

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	57	44	73	e70	e49	3,170	1,690	1,120	6,510	1,440	320	111
2	55	50	68	e69	55	2,980	1,400	993	4,610	1,320	324	105
3	60	90	70	e49	51	2,390	1,200	931	3,340	1,670	320	99
4	59	112	70	e31	51	1,790	1,060	875	2,720	1,650	436	96
5	59	121	69	e27	48	1,970	963	836	2,370	1,800	686	104
6	59	127	60	e27	45	3,470	891	799	2,170	1,740	534	100
7	60	117	74	e40	49	3,830	834	742	1,980	1,580	415	91
8	62	95	e72	e58	54	2,760	766	802	1,750	1,480	353	89
9	66	79	e55	e55	59	1,980	706	908	1,570	1,490	304	89
10	62	78	e30	54	63	1,520	652	774	1,520	1,580	268	86
11	61	73	e28	53	e67	1,230	603	738	1,850	1,510	235	85
12	57	66	e29	55	e64	983	576	695	2,110	1,450	213	81
13	65	52	e38	57	e64	790	547	759	2,980	2,100	197	78
14	80	52	47	59	e63	728	534	709	2,730	1,870	188	76
15	78	49	48	60	e63	677	519	667	2,270	1,480	178	76
16	75	48	46	62	e68	615	514	639	2,050	1,250	169	72
17	68	69	51	e62	e69	551	512	625	4,910	1,060	163	73
18	73	118	60	e56	e73	524	512	656	e7,000	910	190	172
19	81	109	62	e50	e74	592	461	664	e8,900	813	199	318
20	95	105	61	e52	e76	728	474	657	e11,000	742	179	268
21	76	91	66	e57	e74	748	583	642	e9,050	677	160	281
22	67	91	69	e53	e84	689	740	731	e6,600	625	153	275
23	61	85	65	55	e132	620	900	3,970	3,680	566	146	226
24	58	e65	52	53	e132	591	886	6,250	2,990	506	137	193
25	49	68	53	e50	e128	561	952	8,570	2,610	462	136	189
26	42	64	61	e48	e125	531	1,390	7,660	2,460	424	150	194
27	47	73	72	e45	426	670	1,790	5,860	2,220	394	161	184
28	56	68	84	e43	886	1,200	1,810	4,020	1,990	367	140	171
29	53	47	e77	e45	2,130	2,830	1,490	3,140	1,770	346	127	152
30	59	73	e71	e48	---	2,910	1,280	4,860	1,590	330	121	142
31	53	---	e66	e50	---	2,160	---	6,830	---	314	112	---
TOTAL	1,953	2,379	1,847	1,593	5,322	46,788	27,235	68,122	109,300	33,946	7,414	4,276
MEAN	63.0	79.3	59.6	51.4	184	1,509	908	2,197	3,643	1,095	239	143
MAX	95	127	84	70	2,130	3,830	1,810	8,570	11,000	2,100	686	318
MIN	42	44	28	27	45	524	461	625	1,520	314	112	72
AC-FT	3,870	4,720	3,660	3,160	10,560	92,800	54,020	135,100	216,800	67,330	14,710	8,480
CFSM	0.04	0.05	0.04	0.03	0.11	0.93	0.56	1.36	2.25	0.68	0.15	0.09
IN.	0.04	0.05	0.04	0.04	0.12	1.08	0.63	1.57	2.51	0.78	0.17	0.10

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

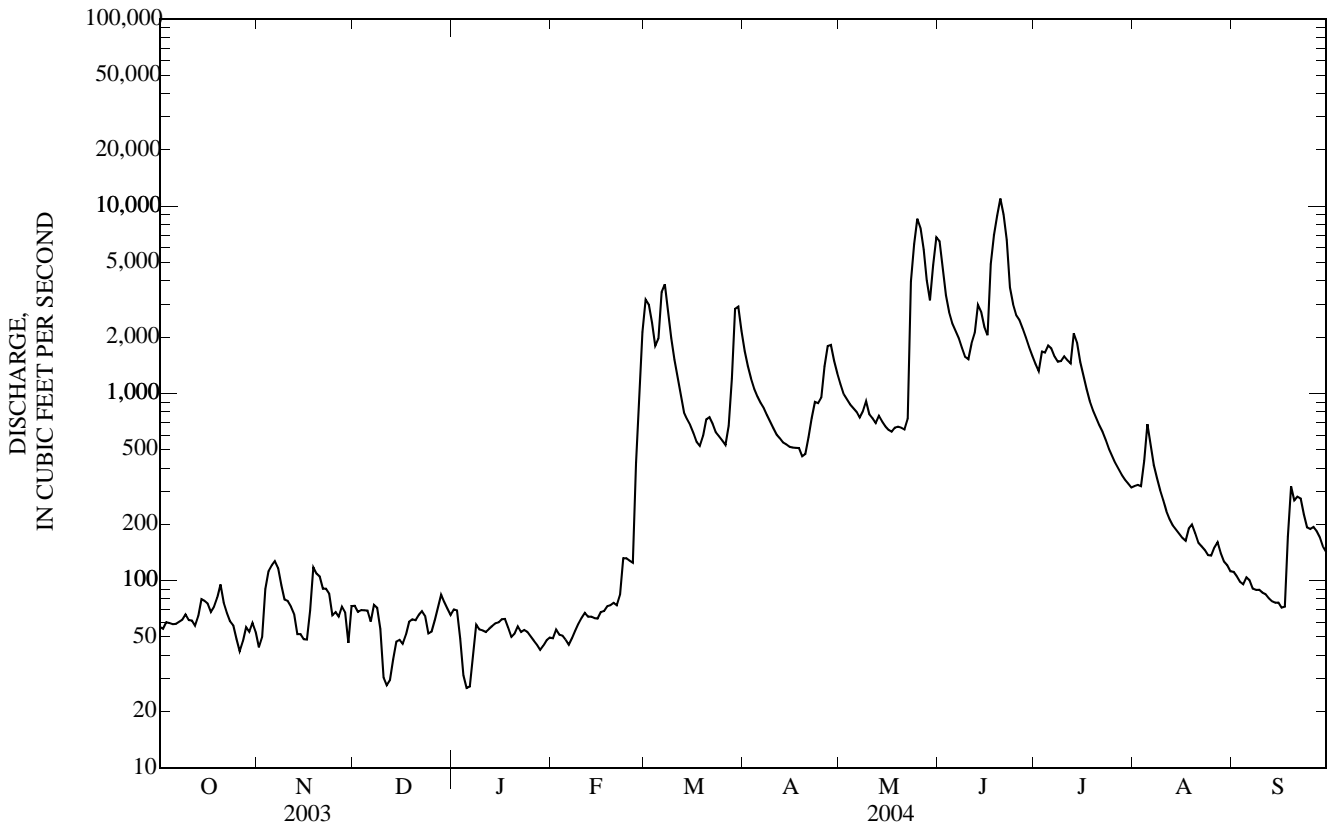
MEAN	418	376	267	197	399	1,260	1,495	1,482	1,879	1,066	502	378
MAX	3,654	2,011	1,228	1,045	2,407	4,990	5,650	4,702	6,831	7,584	3,007	2,823
(WY)	(1974)	(1974)	(1974)	(1973)	(1984)	(1983)	(1983)	(1984)	(1984)	(1993)	(1993)	(1962)
MIN	5.04	19.8	13.4	3.58	6.89	68.5	46.3	48.4	61.9	18.1	12.1	16.6
(WY)	(1957)	(1956)	(1977)	(1977)	(1977)	(1956)	(1956)	(2000)	(1977)	(1956)	(1956)	(1955)

05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	336,694		310,175			
ANNUAL MEAN	922		847		811	
HIGHEST ANNUAL MEAN					2,615	1993
LOWEST ANNUAL MEAN					32.8	1956
HIGHEST DAILY MEAN	12,200	Jul 12	11,000	Jun 20	23,200	Jun 24, 1947
LOWEST DAILY MEAN	28	Dec 11	27	Jan 5 a	0.60	Oct 5, 1956
ANNUAL SEVEN-DAY MINIMUM	38	Dec 10	38	Dec 10	0.91	Oct 4, 1956
MAXIMUM PEAK FLOW			11,500	Jun 20 e	29,100	Jun 23, 1947
MAXIMUM PEAK STAGE					22.30	Jun 23, 1947
ANNUAL RUNOFF (AC-FT)	667,800		615,200		587,200	
ANNUAL RUNOFF (CFSM)	0.570		0.523		0.501	
ANNUAL RUNOFF (INCHES)	7.74		7.13		6.80	
10 PERCENT EXCEEDS	2,460		2,180		2,050	
50 PERCENT EXCEEDS	188		175		289	
90 PERCENT EXCEEDS	61		52		43	

a Also Jan. 6.

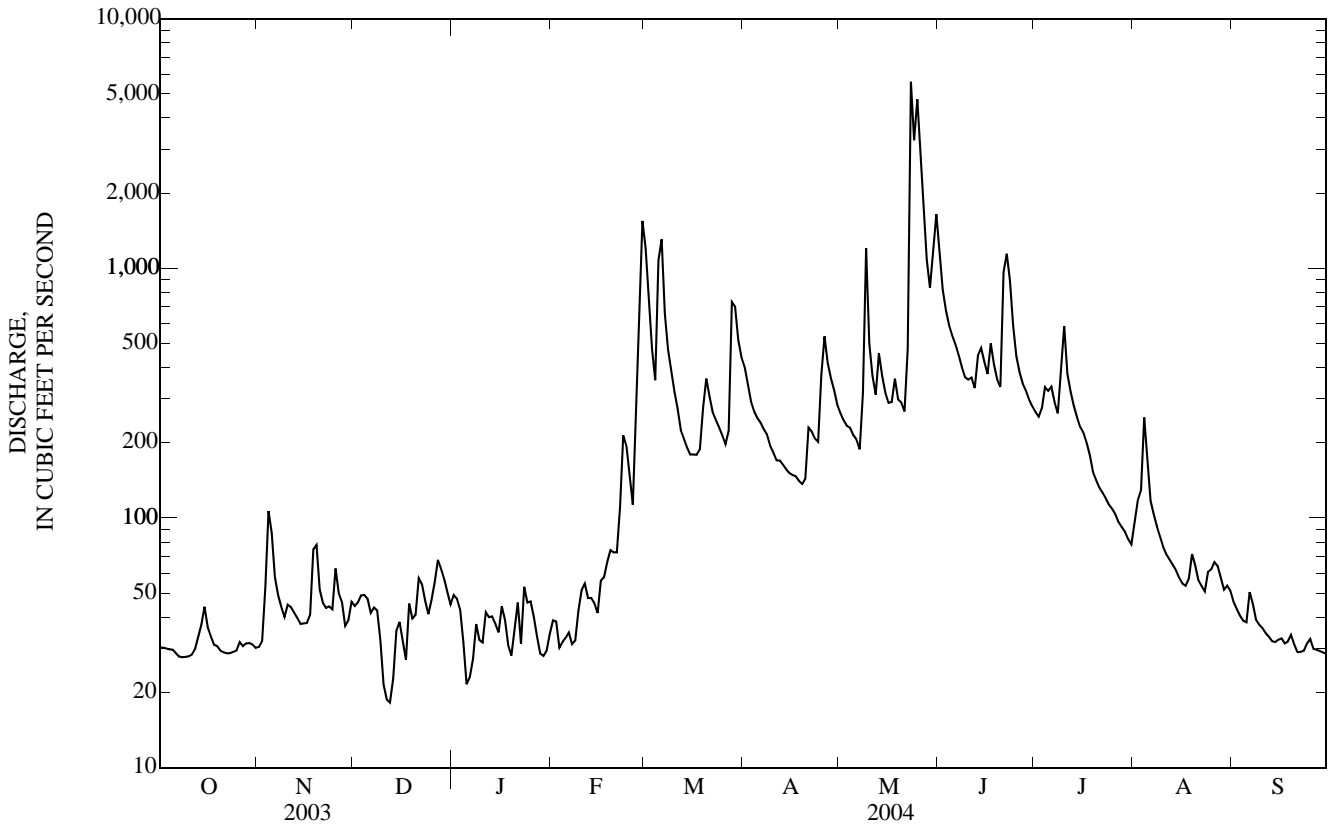
e Estimated.



05483450 MIDDLE RACCOON RIVER NEAR BAYARD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1980 - 2004	
ANNUAL TOTAL	68,370		85,924			
ANNUAL MEAN	187		235		244	
HIGHEST ANNUAL MEAN					677	1993
LOWEST ANNUAL MEAN					54.1	1981
HIGHEST DAILY MEAN	3,130	Jul 10	5,590	May 23	18,100	Jul 9, 1993
LOWEST DAILY MEAN	18	Jan 10	18	Dec 12	5.5	Jun 13, 1981
ANNUAL SEVEN-DAY MINIMUM	27	Dec 9	27	Dec 9	7.3	Jun 8, 1981
MAXIMUM PEAK FLOW			6,880	May 23	27,500	Jul 9, 1993
MAXIMUM PEAK STAGE			21.85	May 23	29.02	Jul 9, 1993
ANNUAL RUNOFF (AC-FT)	135,600		170,400		177,100	
ANNUAL RUNOFF (CFSM)	0.500		0.626		0.652	
ANNUAL RUNOFF (INCHES)	6.78		8.52		8.86	
10 PERCENT EXCEEDS	378		475		550	
50 PERCENT EXCEEDS	67		66		107	
90 PERCENT EXCEEDS	30		30		32	

e Estimated



05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in SW¹/₄ NE¹/₄ sec.31, T.80 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, in gate control building of dam on Middle Raccoon River, 0.5 mi upstream from State Highway 44, 1.0 mi west of Panora, 4.4 mi upstream from Bay Branch, 67.7 mi. upstream from mouth of Raccoon River, and at mile 268.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--433 mi².

PERIOD OF RECORD.--May 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft above NGVD of 1929.

REMARKS.--Lake is formed by earthfill dam with 100 ft bascule gate and concrete chute spillway, and 300 ft earthen emergency spillway. Low-flow outlet is 30-inch conduit and gate valve through dam. Dam was completed in August, 1970 and began filling April 27, 1971. Total storage, 60,000 acre-ft, surface area, 2,900 acres, at top of dam, elevation 1,068 ft. Storage unknown at top of spillway, elevation 1,048 ft. Normal storage, 19,700 acre-ft, surface area, 1,270 acres with bascule gate closed, elevation 1,045 ft. Dead storage unknown with bascule gate open, elevation 1,036 ft. Present lake classification is utility (industrial) but is also used for recreation. U.S. Geological Survey data collection platform with satellite and telephone modem telemetry at station.

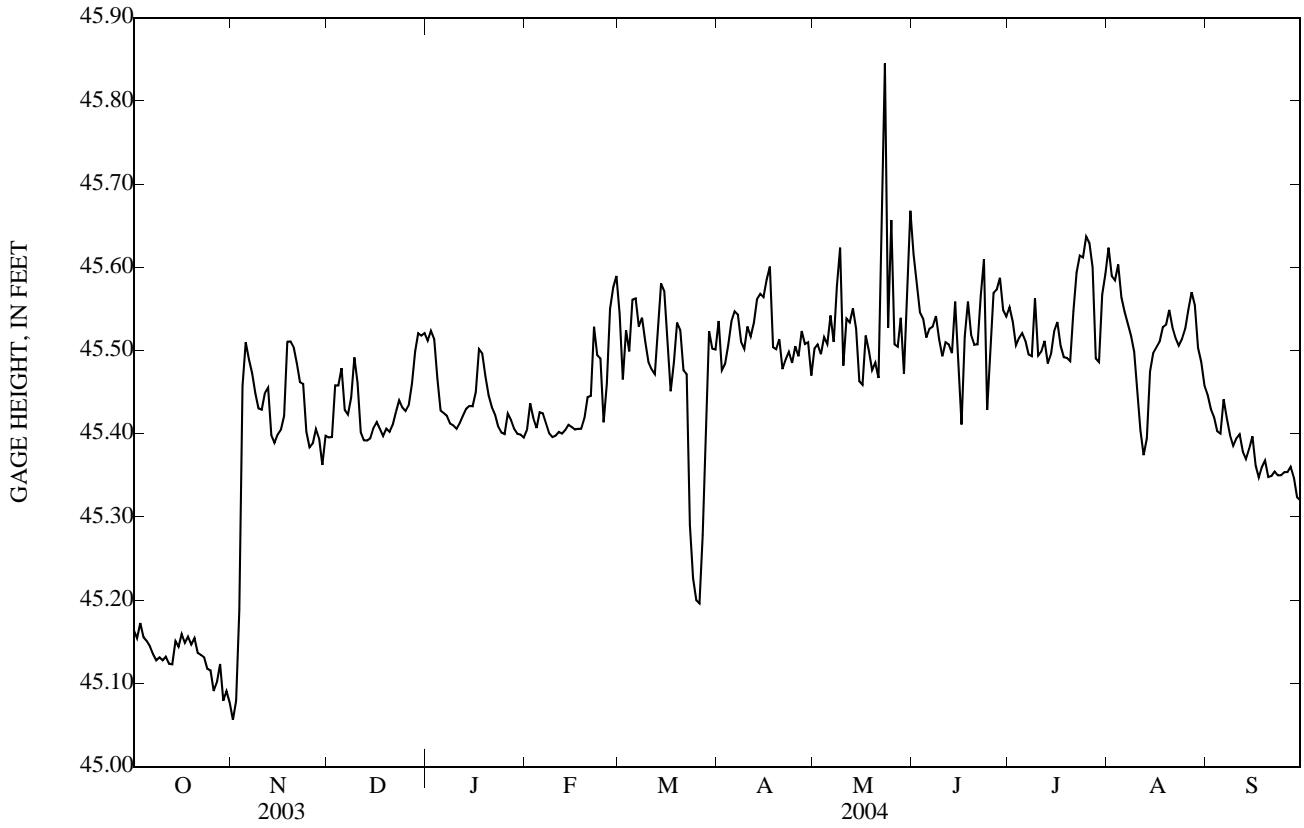
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height,50.68 ft July 9, 1993; minimum, 41.53 ft Oct. 20-21, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 46.83 ft on May 23; minimum recorded, 45.00 ft on Oct 29.

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	45.16	45.06	45.40	45.51	45.40	45.54	45.54	45.50	45.62	45.55	45.62	45.45
2	45.15	45.08	45.40	45.52	45.44	45.47	45.48	45.51	45.58	45.53	45.59	45.43
3	45.17	45.19	45.46	45.51	45.42	45.52	45.48	45.50	45.55	45.51	45.58	45.42
4	45.16	45.46	45.46	45.47	45.41	45.50	45.51	45.52	45.54	45.52	45.60	45.40
5	45.15	45.51	45.48	45.43	45.43	45.56	45.54	45.51	45.52	45.52	45.56	45.40
6	45.14	45.49	45.43	45.42	45.42	45.56	45.55	45.54	45.53	45.51	45.55	45.44
7	45.14	45.47	45.42	45.42	45.41	45.53	45.54	45.51	45.53	45.50	45.53	45.42
8	45.13	45.45	45.44	45.41	45.40	45.54	45.51	45.58	45.54	45.49	45.52	45.40
9	45.13	45.43	45.49	45.41	45.40	45.51	45.50	45.62	45.51	45.56	45.50	45.39
10	45.13	45.43	45.46	45.41	45.40	45.49	45.53	45.48	45.49	45.49	45.45	45.39
11	45.13	45.45	45.40	45.41	45.40	45.48	45.52	45.54	45.51	45.50	45.40	45.40
12	45.12	45.46	45.39	45.42	45.40	45.47	45.53	45.53	45.51	45.51	45.37	45.38
13	45.12	45.40	45.39	45.43	45.40	45.53	45.56	45.55	45.50	45.48	45.39	45.37
14	45.15	45.39	45.39	45.43	45.41	45.58	45.57	45.53	45.56	45.50	45.47	45.38
15	45.14	45.40	45.41	45.43	45.41	45.57	45.56	45.46	45.49	45.52	45.50	45.40
16	45.16	45.40	45.41	45.45	45.41	45.50	45.59	45.46	45.41	45.53	45.50	45.36
17	45.15	45.42	45.41	45.50	45.41	45.45	45.60	45.52	45.52	45.51	45.51	45.35
18	45.16	45.51	45.40	45.50	45.41	45.49	45.50	45.50	45.56	45.49	45.53	45.36
19	45.15	45.51	45.41	45.47	45.42	45.53	45.50	45.48	45.52	45.49	45.53	45.37
20	45.15	45.50	45.40	45.45	45.44	45.52	45.51	45.49	45.51	45.49	45.55	45.35
21	45.14	45.48	45.41	45.43	45.45	45.48	45.48	45.47	45.51	45.55	45.53	45.35
22	45.13	45.46	45.43	45.42	45.53	45.47	45.49	45.61	45.57	45.59	45.51	45.35
23	45.13	45.46	45.44	45.41	45.49	45.29	45.50	45.84	45.61	45.61	45.51	45.35
24	45.12	45.40	45.43	45.40	45.49	45.23	45.49	45.53	45.43	45.61	45.51	45.35
25	45.12	45.38	45.43	45.40	45.41	45.20	45.51	45.66	45.50	45.64	45.53	45.35
26	45.09	45.39	45.43	45.42	45.46	45.20	45.49	45.51	45.57	45.63	45.55	45.35
27	45.10	45.41	45.46	45.42	45.55	45.28	45.52	45.50	45.57	45.60	45.57	45.36
28	45.12	45.39	45.50	45.41	45.58	45.42	45.51	45.54	45.59	45.49	45.55	45.35
29	45.08	45.36	45.52	45.40	45.59	45.52	45.51	45.47	45.55	45.49	45.50	45.32
30	45.09	45.40	45.52	45.40	---	45.50	45.47	45.58	45.54	45.57	45.49	45.32
31	45.08	---	45.52	45.40	---	45.50	---	45.67	---	45.59	45.46	---
MEAN	45.13	45.40	45.44	45.44	45.44	45.47	45.52	45.54	45.53	45.53	45.51	45.38
MAX	45.17	45.51	45.52	45.52	45.59	45.58	45.60	45.84	45.62	45.64	45.62	45.45
MIN	45.08	45.06	45.39	45.40	45.40	45.20	45.47	45.46	45.41	45.48	45.37	45.32

05483470 LAKE PANORAMA AT PANORA, IOWA—Continued



05483600 MIDDLE RACCOON RIVER AT PANORA, IA

LOCATION.--Lat 41°41'14", long 94°22'15", in NE¼ NW¼ sec.5, T.79 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, on left bank 15 ft downstream from bridge on Soldier Trail, 0.2 mi southwest of Panora, 1.5 mi upstream from Andy's Branch, 1.6 mi downstream from Lake Panorama, 18.1 mi upstream from mouth, 66.1 mi. upstream from mouth of Raccoon River, and at mile 267.2 upstream from mouth of Des Moines River.

DRAINAGE AREA.--440 mi².

PERIOD OF RECORD.--June 1958 to current year.

REVISED RECORDS.--WDR IA-74-1: 1973 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft above NGVD of 1929.

REMARKS.--Records good. City of Panora diverts approximately 100 acre-ft/yr upstream of station. Flow regulated by dam on Lake Panorama since August 1970. 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. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, reached a stage of 14.3 ft, from floodmark, discharge, about 14,000 ft³/s.

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	25	30	37	68	41	1,410	397	247	1,290	279	151	60
2	24	36	38	68	e41	821	366	248	859	281	173	58
3	31	44	52	68	e36	472	291	223	722	350	207	60
4	37	81	52	e55	41	420	247	224	639	329	428	57
5	32	80	e47	e36	47	1,050	241	209	584	351	206	58
6	29	68	48	e36	49	1,440	243	202	529	370	133	67
7	29	56	44	e39	43	689	237	200	486	300	106	62
8	31	50	47	41	40	489	222	620	446	250	103	54
9	30	45	e45	40	38	417	190	1,880	432	413	98	51
10	33	41	e37	40	39	355	185	657	407	660	91	48
11	43	43	e31	40	39	308	174	362	408	410	85	55
12	39	49	e30	41	39	234	160	346	413	354	78	54
13	36	38	e35	44	40	208	164	612	512	298	56	39
14	43	34	40	46	40	224	163	424	599	228	47	35
15	40	35	41	47	40	256	164	352	549	216	55	41
16	42	36	43	50	40	271	170	278	455	222	57	39
17	40	38	42	e51	40	217	222	441	460	205	61	39
18	39	66	43	e44	40	212	189	472	475	182	67	40
19	39	79	43	e39	42	313	152	336	416	156	70	41
20	35	59	43	e46	58	432	223	305	362	144	74	38
21	32	54	44	48	74	329	243	272	970	133	71	34
22	29	52	46	45	214	348	224	993	1,110	133	70	34
23	29	e44	e43	42	487	349	218	6,410	964	133	64	39
24	32	e36	e41	43	441	257	221	3,480	697	133	68	41
25	35	33	47	44	336	250	399	4,100	402	136	74	43
26	30	34	52	e41	219	219	530	2,690	389	145	79	47
27	27	41	56	e38	406	322	386	1,650	376	143	81	49
28	35	e32	68	e36	990	777	369	1,090	361	113	78	49
29	31	31	72	e37	1,480	715	338	859	329	90	74	41
30	35	38	68	e39	---	547	291	1,120	288	94	71	36
31	36	---	69	41	---	421	---	1,560	---	101	60	---
TOTAL	1,048	1,403	1,444	1,393	5,480	14,772	7,619	32,862	16,929	7,352	3,136	1,409
MEAN	33.8	46.8	46.6	44.9	189	477	254	1,060	564	237	101	47.0
MAX	43	81	72	68	1,480	1,440	530	6,410	1,290	660	428	67
MIN	24	30	30	36	36	208	152	200	288	90	47	34
AC-FT	2,080	2,780	2,860	2,760	10,870	29,300	15,110	65,180	33,580	14,580	6,220	2,790
CFSM	0.08	0.11	0.11	0.10	0.43	1.08	0.58	2.41	1.28	0.54	0.23	0.11
IN.	0.09	0.12	0.12	0.12	0.46	1.25	0.64	2.78	1.43	0.62	0.27	0.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2004, BY WATER YEAR (WY)

MEAN	122	136	118	95.7	208	363	373	514	488	381	164	129
MAX	670	588	356	439	838	1,479	1,222	1,458	1,646	2,731	668	528
(WY)	(1987)	(1973)	(1993)	(1973)	(1971)	(1979)	(1984)	(1974)	(1990)	(1993)	(1996)	(1973)
MIN	19.5	12.8	7.60	6.95	27.8	20.2	26.4	20.0	9.40	5.56	22.2	19.3
(WY)	(1981)	(1971)	(1971)	(1971)	(1972)	(1981)	(1977)	(1977)	(1977)	(1977)	(1971)	(1980)