

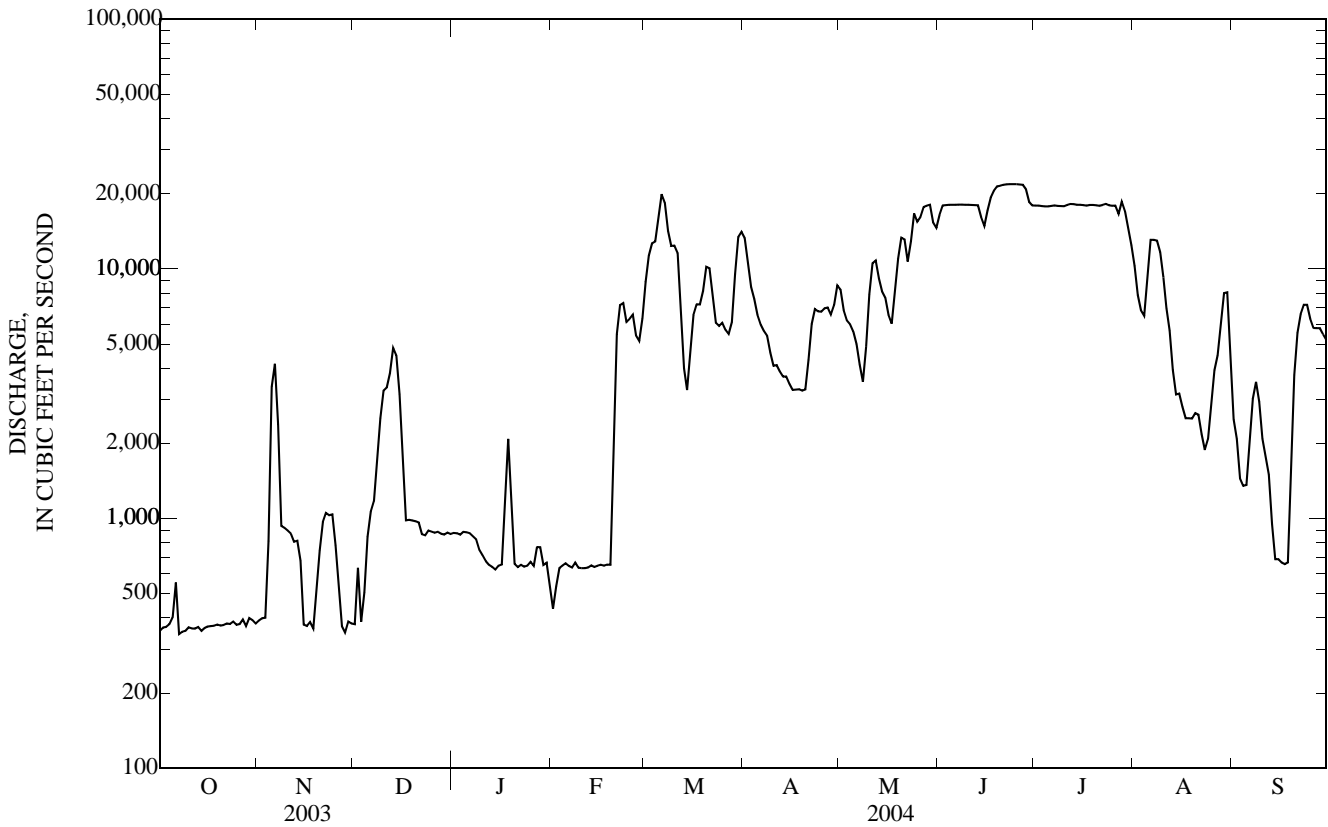
05488110 DES MOINES RIVER NEAR PELLA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1993 - 2004	
ANNUAL TOTAL	1,828,298		2,375,277			
ANNUAL MEAN	5,009		6,490		8,044	
HIGHEST ANNUAL MEAN					24,360	1993
LOWEST ANNUAL MEAN					1,731	2000
HIGHEST DAILY MEAN	18,500	May 16	21,900	Jun 23 a	104,000	Jul 12, 1993
LOWEST DAILY MEAN	263	Sep 14	344	Oct 7	248	Oct 15, 2000
ANNUAL SEVEN-DAY MINIMUM	271	Sep 14	359	Oct 7	254	Oct 9, 2000
MAXIMUM PEAK FLOW			22,100	Jun 23 b	105,000	Jul 12, 1993
MAXIMUM PEAK STAGE			94.53	Jun 25	109.71	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,626,000		4,711,000		5,827,000	
ANNUAL RUNOFF (CFSM)	0.406		0.526		0.652	
ANNUAL RUNOFF (INCHES)	5.52		7.17		8.86	
10 PERCENT EXCEEDS	17,800		18,000		20,800	
50 PERCENT EXCEEDS	1,280		3,910		3,770	
90 PERCENT EXCEEDS	370		390		612	

a Also June 24, 25.

b Also June 25.

e Estimated



05488200 ENGLISH CREEK NEAR KNOXVILLE, IA

LOCATION.--Lat 41°18'02", long 93°02'43", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.16, T.75 N., R.19 W., Marion County, Hydrologic Unit 07100009, on left bank 30 ft from left upstream abutment of bridge on State Highway 92, 3 mi east of Knoxville, and 11.4 mi upstream from mouth at Des Moines River.

DRAINAGE AREA.--90.1 mi².

PERIOD OF RECORD.--July 1985 to current year.

REVISED RECORDS.--WDR IA-97:(M)

GAGE.--Water-stage recorder. Datum of gage is 721.79 ft above NGVD of 1929.

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/dataming2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1982 reached a stage of 30.28 ft, gage datum, discharge 28,000 ft³/s, from contracted-opening indirect computations.

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	0.23	0.79	2.1	4.2	e3.2	104	57	14	104	5.9	4.5	10
2	0.25	8.4	2.3	4.3	e8.9	79	46	14	56	6.3	4.6	7.7
3	0.27	196	3.2	4.9	e7.4	53	40	13	39	7.5	393	6.3
4	0.28	137	3.3	e2.9	e6.7	117	34	12	30	21	1,730	5.3
5	0.29	59	3.5	e2.3	e7.5	1,130	30	12	25	9.4	804	4.5
6	0.24	23	3.8	e2.4	e7.1	328	28	11	23	8.3	54	5.9
7	0.24	12	4.0	e2.8	e5.4	119	26	10	21	8.6	32	6.9
8	0.24	8.1	4.5	e2.3	e5.8	79	23	9.5	18	7.3	24	4.3
9	0.37	5.8	9.2	e2.4	e8.0	62	21	14	16	17	18	3.3
10	0.49	5.4	95	e3.7	e7.1	47	19	15	16	47	14	2.7
11	0.42	4.7	e31	e4.2	e6.3	39	17	11	19	21	12	2.6
12	0.64	4.0	e16	e4.6	e4.1	29	16	9.2	16	87	11	2.3
13	0.95	2.9	e9.8	e3.9	e3.8	27	15	12	24	23	10	2.2
14	2.3	2.6	e7.8	e3.4	e4.4	29	14	21	274	12	9.2	1.8
15	1.2	3.2	e7.5	e3.6	e4.4	28	15	14	320	9.3	8.2	2.1
16	0.73	2.9	e6.7	e3.6	e4.6	27	14	10	49	7.8	7.5	2.5
17	0.54	3.1	e4.8	e20	e4.7	55	13	13	198	8.9	6.8	e2.4
18	0.45	3.0	e3.7	e10	e7.8	233	12	73	54	7.2	6.8	e2.1
19	0.47	3.2	e2.9	e6.9	e22	480	11	42	27	5.9	6.5	e1.8
20	0.56	2.7	e3.1	e6.0	e199	173	21	26	19	5.3	6.2	e1.6
21	0.33	3.1	e3.3	e8.3	e346	91	81	19	16	5.0	6.0	1.2
22	0.42	2.6	e3.1	e5.2	e236	71	31	89	15	228	5.5	1.1
23	0.39	5.5	e2.6	e5.8	e184	63	20	569	12	103	5.2	1.1
24	0.38	4.6	e2.6	e5.7	e146	58	17	245	11	19	5.7	1.0
25	0.53	3.9	e2.9	e7.3	e116	52	20	1,370	9.4	14	8.4	0.97
26	0.54	4.3	e3.1	e6.7	e93	75	18	327	8.7	10	16	0.90
27	0.64	3.9	5.7	e5.6	e83	81	14	97	8.0	8.0	176	0.90
28	0.80	3.3	8.4	e4.9	e88	327	14	65	7.4	6.5	608	0.90
29	0.82	2.8	8.1	e3.7	137	179	13	44	6.9	5.8	102	0.78
30	0.83	2.5	6.0	e2.7	---	97	13	1,090	6.3	5.1	26	0.77
31	0.68	---	4.4	e2.5	---	73	---	994	---	4.8	16	---
TOTAL	17.52	524.29	274.4	156.8	1,757.2	4,405	713	5,264.7	1,448.7	734.9	4,137.1	87.92
MEAN	0.57	17.5	8.85	5.06	60.6	142	23.8	170	48.3	23.7	133	2.93
MAX	2.3	196	95	20	346	1,130	81	1,370	320	228	1,730	10
MIN	0.23	0.79	2.1	2.3	3.2	27	11	9.2	6.3	4.8	4.5	0.77
AC-FT	35	1,040	544	311	3,490	8,740	1,410	10,440	2,870	1,460	8,210	174
CFSM	0.01	0.19	0.10	0.06	0.67	1.58	0.26	1.88	0.54	0.26	1.48	0.03
IN.	0.01	0.22	0.11	0.06	0.73	1.82	0.29	2.17	0.60	0.30	1.71	0.04

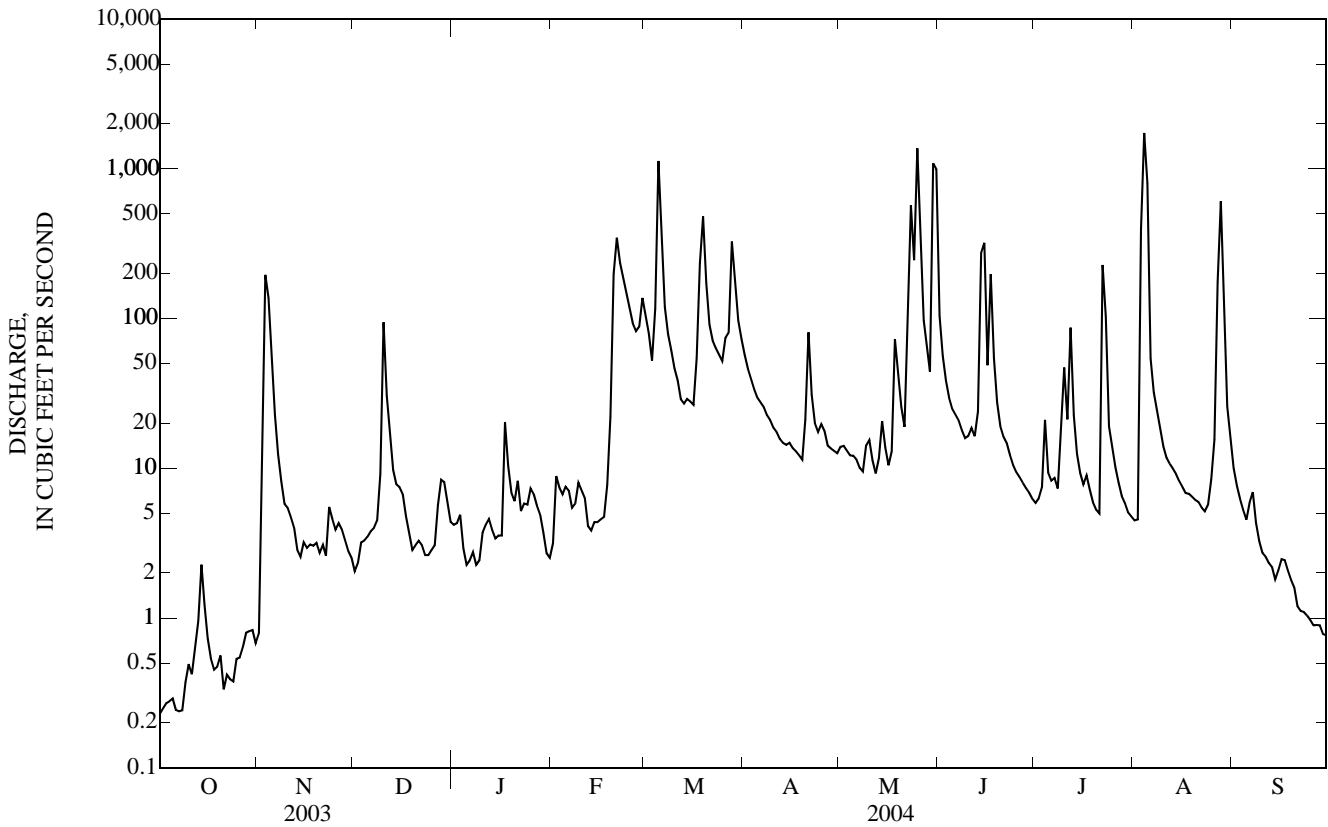
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2004, BY WATER YEAR (WY)

MEAN	22.3	20.8	20.8	12.9	47.7	100	107	140	97.7	82.5	33.2	29.9
MAX	161	100	112	51.8	183	335	476	514	260	1,039	285	159
(WY)	(1987)	(1993)	(1993)	(1998)	(2001)	(1993)	(1991)	(1996)	(2000)	(1993)	(1993)	(1992)
MIN	0.48	0.76	0.31	0.66	0.50	2.05	1.03	1.99	2.27	0.18	0.17	0.03
(WY)	(1995)	(1989)	(1989)	(1989)	(1989)	(1989)	(1989)	(2000)	(1992)	(1988)	(1988)	(1991)

05488200 ENGLISH CREEK NEAR KNOXVILLE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985 - 2004	
ANNUAL TOTAL	11,071.65		19,521.53		60.2	
ANNUAL MEAN	30.3		53.3		214	
HIGHEST ANNUAL MEAN					1993	
LOWEST ANNUAL MEAN					6.71	
HIGHEST DAILY MEAN	2,220	Jun 26	1,730	Aug 4	8,610	Jul 5, 1993
LOWEST DAILY MEAN	0.21	Sep 29	0.23	Oct 1	0.00	Sep 12, 1988
ANNUAL SEVEN-DAY MINIMUM	0.24	Sep 28	0.26	Oct 1	0.00	Sep 25, 1991
MAXIMUM PEAK FLOW			2,220	Aug 5	18,900	Jul 5, 1993
MAXIMUM PEAK STAGE			20.72	Aug 5	27.88	Jul 5, 1993
INSTANTANEOUS LOW FLOW			0.18	Oct 6		
ANNUAL RUNOFF (AC-FT)	21,960		38,720		43,580	
ANNUAL RUNOFF (CFSM)	0.337		0.592		0.668	
ANNUAL RUNOFF (INCHES)	4.57		8.06		9.07	
10 PERCENT EXCEEDS	56		102		101	
50 PERCENT EXCEEDS	3.2		8.1		8.7	
90 PERCENT EXCEEDS	0.50		0.99		0.45	

e Estimated



05488500 DES MOINES RIVER NEAR TRACY, IA

LOCATION.--Lat 41°16'53", long 92°51'41" (revised), in NW¹/₄ SE¹/₄ sec.19, T.75 N., R.17 W., Mahaska County, Hydrologic Unit 07100009, on right bank 250 ft upstream from abandoned Bellefontaine Bridge, 0.8 mi east of Tracy, 3.1 mi upstream from Cedar Creek, 3.8 mi downstream from bridge on newly located State Highway 92, 6.4 mi downstream from English Creek, and at mile 130.4.

DRAINAGE AREA.--12,479 mi².

PERIOD OF RECORD.--March 1920 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1920 (M), 1922 (M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 670.91 ft above NGVD of 1929. Prior to June 26, 1940 and June 30, 1952 to Nov. 4, 1960 nonrecording gage, and June 27, 1940 to June 29, 1952 water-stage recorder, at site 250 ft downstream at same datum.

REMARKS.--Records good except those for periods of estimated daily discharges, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi upstream, since March 12, 1969. 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 FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft³/s, June 14, 1947, gage height, 26.5 ft; minimum daily discharge, 40 ft³/s Jan. 29 to Feb. 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft, discharge, about 130,000 ft³/s. Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.

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	395	487	508	920	e568	8,390	14,700	8,620	17,700	19,100	10,600	2,390
2	400	557	677	919	e663	11,200	11,600	7,130	19,500	19,000	8,100	2,130
3	407	839	570	920	e935	13,000	9,070	6,180	19,600	19,000	6,990	1,460
4	413	1,060	577	e922	e857	13,600	7,840	6,040	19,600	19,000	9,100	1,300
5	413	2,680	866	e914	e804	18,200	6,870	5,670	19,600	18,900	9,550	1,300
6	508	3,940	1,140	e907	e785	22,300	6,040	5,120	19,700	18,900	13,500	1,670
7	430	2,960	1,180	e899	e754	20,500	5,800	4,460	19,700	19,000	13,400	2,570
8	400	1,080	1,540	e834	e732	16,200	5,490	3,730	19,700	18,900	13,300	3,220
9	400	1,030	2,170	e760	e685	13,400	4,980	4,560	19,700	18,800	12,300	2,880
10	410	1,010	3,220	e682	e663	13,400	4,310	7,380	19,700	18,900	9,600	2,030
11	417	996	3,240	e630	e663	12,900	4,310	10,400	19,700	19,100	7,130	1,630
12	418	979	3,470	e613	e666	8,530	4,160	11,400	19,700	19,300	5,490	1,490
13	431	945	4,260	e610	e669	4,650	3,930	9,700	19,700	19,200	4,140	1,090
14	452	923	4,470	e595	e663	3,570	3,920	8,270	18,900	19,000	3,050	681
15	437	532	2,990	e618	e663	4,500	3,770	7,880	17,100	19,000	3,050	676
16	438	501	2,150	e622	e663	6,360	3,540	6,770	18,600	18,900	2,840	667
17	444	497	1,370	e1,060	e663	7,390	3,530	6,060	21,200	18,800	2,470	663
18	450	497	1,020	e2,080	e666	7,560	3,540	7,630	22,400	18,800	2,470	662
19	451	555	e1,020	e1,190	e672	8,970	3,550	11,000	23,300	18,800	2,460	1,080
20	453	798	e1,010	e859	1,810	10,600	3,590	13,800	23,400	18,800	2,530	2,830
21	450	1,000	e984	e735	5,290	11,100	4,210	14,200	23,600	18,600	2,560	4,900
22	458	1,120	933	e782	6,850	8,560	5,890	11,700	23,700	18,900	2,240	5,860
23	462	1,170	932	e743	7,540	6,470	6,800	13,200	23,700	19,300	1,880	6,690
24	467	1,150	e945	757	6,220	5,950	6,930	18,000	23,800	18,800	1,960	6,700
25	476	1,020	e953	750	5,790	6,180	6,720	18,700	23,700	18,600	2,520	6,030
26	474	740	926	772	6,480	5,920	7,050	17,600	23,700	18,600	3,420	5,240
27	485	528	920	853	5,210	5,600	7,030	19,200	23,700	17,100	4,370	5,240
28	494	509	922	e861	4,840	6,340	6,680	19,400	22,900	19,200	6,210	5,240
29	486	503	920	e759	5,670	9,280	6,920	19,500	20,200	18,000	8,020	5,020
30	494	508	e938	e761	---	14,000	8,500	18,400	19,100	15,200	8,050	4,660
31	486	---	922	e665	---	15,200	---	16,800	---	13,000	5,540	---
TOTAL	13,799	31,114	47,743	25,992	69,134	319,820	181,270	338,500	626,600	574,500	188,840	87,999
MEAN	445	1,037	1,540	838	2,384	10,320	6,042	10,920	20,890	18,530	6,092	2,933
MAX	508	3,940	4,470	2,080	7,540	22,300	14,700	19,500	23,800	19,300	13,500	6,700
MIN	395	487	508	595	568	3,570	3,530	3,730	17,100	13,000	1,880	662
AC-FT	27,370	61,710	94,700	51,560	137,100	634,400	359,500	671,400	1,243,000	1,140,000	374,600	174,500
CFSM	0.04	0.08	0.12	0.07	0.19	0.83	0.48	0.88	1.67	1.49	0.49	0.24
IN.	0.04	0.09	0.14	0.08	0.21	0.95	0.54	1.01	1.87	1.71	0.56	0.26

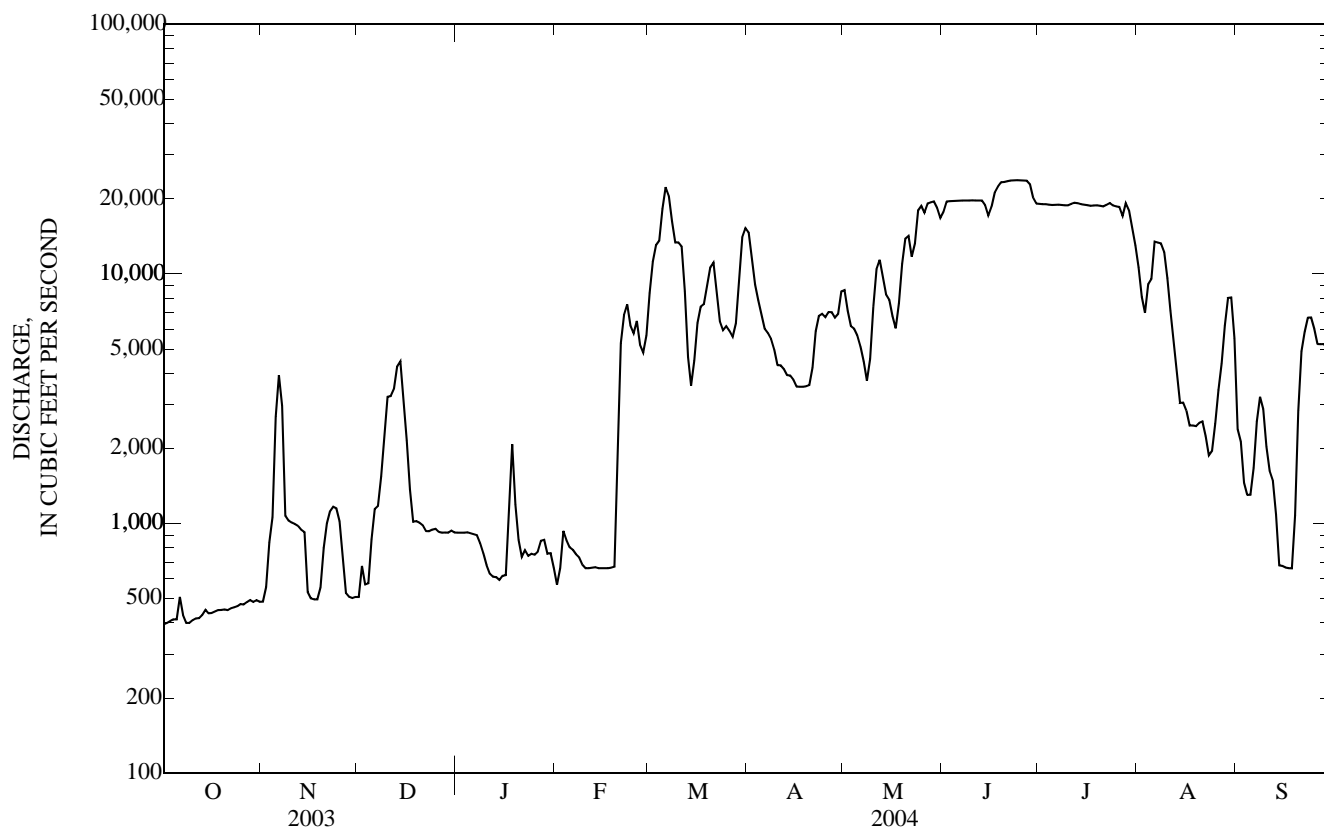
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

MEAN	3,366	4,262	3,683	2,402	4,153	8,993	11,460	12,150	13,520	13,910	7,577	3,971
MAX	17,190	19,160	12,540	11,510	15,560	21,520	24,370	28,280	30,260	80,800	45,240	33,670
(WY)	(1974)	(1987)	(1983)	(1973)	(1973)	(1983)	(1998)	(1993)	(1984)	(1993)	(1993)	(1993)
MIN	318	340	344	305	276	746	866	425	277	220	591	342
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1989)	(1976)

05488500 DES MOINES RIVER NEAR TRACY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	1,923,912		2,505,311			
ANNUAL MEAN	5,271		6,845		7,470	
HIGHEST ANNUAL MEAN					24,450	1993
LOWEST ANNUAL MEAN					898	1977
HIGHEST DAILY MEAN	20,100	May 16	23,800	Jun 24	107,000	Jul 12, 1993
LOWEST DAILY MEAN	326	Sep 29	395	Oct 1	165	Feb 20, 1977
ANNUAL SEVEN-DAY MINIMUM	352	Sep 24	415	Oct 7	210	Oct 9, 1980
MAXIMUM PEAK FLOW			23,800	Jun 23 b	109,000	Jul 12, 1993
MAXIMUM PEAK STAGE			10.89	Jun 24	24.16	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,816,000		4,969,000		5,411,000	
ANNUAL RUNOFF (CFSM)	0.422		0.549		0.599	
ANNUAL RUNOFF (INCHES)	5.74		7.47		8.13	
10 PERCENT EXCEEDS	18,500		19,100		19,200	
50 PERCENT EXCEEDS	1,370		3,940		3,770	
90 PERCENT EXCEEDS	451		508		550	

a Post regulation.
 b Also June 24, 25.
 e Estimated.



05489000 CEDAR CREEK NEAR BUSSEY, IA

LOCATION.--(revised) Lat 41°13'08", long 92°54'30", at SW corner sec.11, T.74 N., R.18 W., Marion County, Hydrologic Unit 07100009, on left bank 10 ft downstream from bridge on State Highway 156, 0.8 mi downstream from North Cedar Creek, 1.6 mi northwest of Bussey, 3.0 mi upstream from Honey Creek, and 8.9 mi upstream from mouth.

DRAINAGE AREA.--374 mi².

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water stage recorder. Datum of gage is 682.15 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1946 reached a stage of 28.45 ft on upstream side and 28.05 ft on downstream side of bridge, levels to floodmarks by U.S. Army Corps of Engineers, discharge, 31,500 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	1.8	1.0	8.9	26	e9.9	328	240	36	272	25	16	232
2	1.8	12	7.6	27	e17	270	196	40	146	23	26	197
3	1.8	507	7.5	28	e15	195	162	32	95	49	906	181
4	1.7	388	7.7	17	e13	340	136	29	70	146	5,090	170
5	1.7	159	8.9	e11	e14	5,330	119	28	57	57	725	154
6	1.8	66	9.0	e10	e12	1,610	108	27	49	37	242	178
7	2.0	39	10	e6.8	e8.5	624	97	27	46	33	139	175
8	2.2	24	10	e6.5	e9.2	399	92	25	39	25	91	e110
9	2.3	17	15	e7.4	e11	307	71	37	31	37	64	e80
10	2.2	14	280	e7.7	e11	244	63	e25	38	74	49	e62
11	2.7	13	e117	11	e9.4	203	57	e17	99	44	42	e57
12	3.8	12	e64	12	e8.4	154	53	13	80	296	37	e51
13	3.8	10	e42	13	e7.7	139	50	16	108	157	33	e45
14	6.1	10	e32	16	e9.5	156	47	38	2,050	57	30	e37
15	6.9	9.6	e27	18	e9.0	156	46	36	2,660	33	27	35
16	2.8	10	e28	21	e9.0	133	45	22	485	23	24	34
17	2.2	10	e29	60	e9.0	218	43	20	1,340	41	23	35
18	1.2	11	e25	204	e9.3	746	40	123	474	31	26	28
19	1.0	13	e22	e92	e16	1,440	37	139	259	17	105	24
20	0.85	14	e23	e64	e406	642	44	80	177	13	92	21
21	0.86	15	e26	e52	e1,160	325	110	54	139	11	45	19
22	0.99	12	e26	e38	e787	227	71	46	116	272	37	17
23	1.1	21	e24	e31	e576	195	44	342	85	135	40	17
24	0.96	60	e19	e26	e409	177	40	331	66	50	40	17
25	0.75	39	e18	e25	e307	158	44	1,520	56	34	94	16
26	0.72	23	e17	e24	e231	194	44	477	49	22	476	15
27	0.77	17	24	e19	e326	276	34	197	43	15	2,670	13
28	1.1	13	45	e15	537	1,380	30	131	38	12	4,740	14
29	1.1	9.6	95	e9.7	333	1,100	29	88	33	9.9	1,410	12
30	1.4	10	42	e8.5	---	476	28	1,300	28	10	540	12
31	1.3	---	33	e8.0	---	311	---	952	---	13	346	---
TOTAL	61.70	1,559.2	1,142.6	914.6	5,279.9	18,453	2,220	6,248	9,228	1,801.9	18,225	2,058
MEAN	1.99	52.0	36.9	29.5	182	595	74.0	202	308	58.1	588	68.6
MAX	6.9	507	280	204	1,160	5,330	240	1,520	2,660	296	5,090	232
MIN	0.72	1.0	7.5	6.5	7.7	133	28	13	28	9.9	16	12
AC-FT	122	3,090	2,270	1,810	10,470	36,600	4,400	12,390	18,300	3,570	36,150	4,080
CFSM	0.01	0.14	0.10	0.08	0.49	1.59	0.20	0.54	0.82	0.16	1.57	0.18
IN.	0.01	0.16	0.11	0.09	0.53	1.84	0.22	0.62	0.92	0.18	1.81	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2004, BY WATER YEAR (WY)

MEAN	108	124	86.5	82.0	225	408	404	422	315	271	112	145
MAX	950	1,331	844	894	952	1,371	1,552	1,797	1,258	3,846	1,070	1,384
(WY)	(1974)	(1962)	(1983)	(1974)	(1949)	(1960)	(1973)	(1996)	(1967)	(1982)	(1993)	(1992)
MIN	0.18	0.33	0.39	0.20	2.29	3.78	0.79	7.19	2.74	2.26	2.51	0.60
(WY)	(1957)	(1956)	(1956)	(1956)	(1954)	(1954)	(1956)	(1956)	(1977)	(1988)	(1953)	(1953)

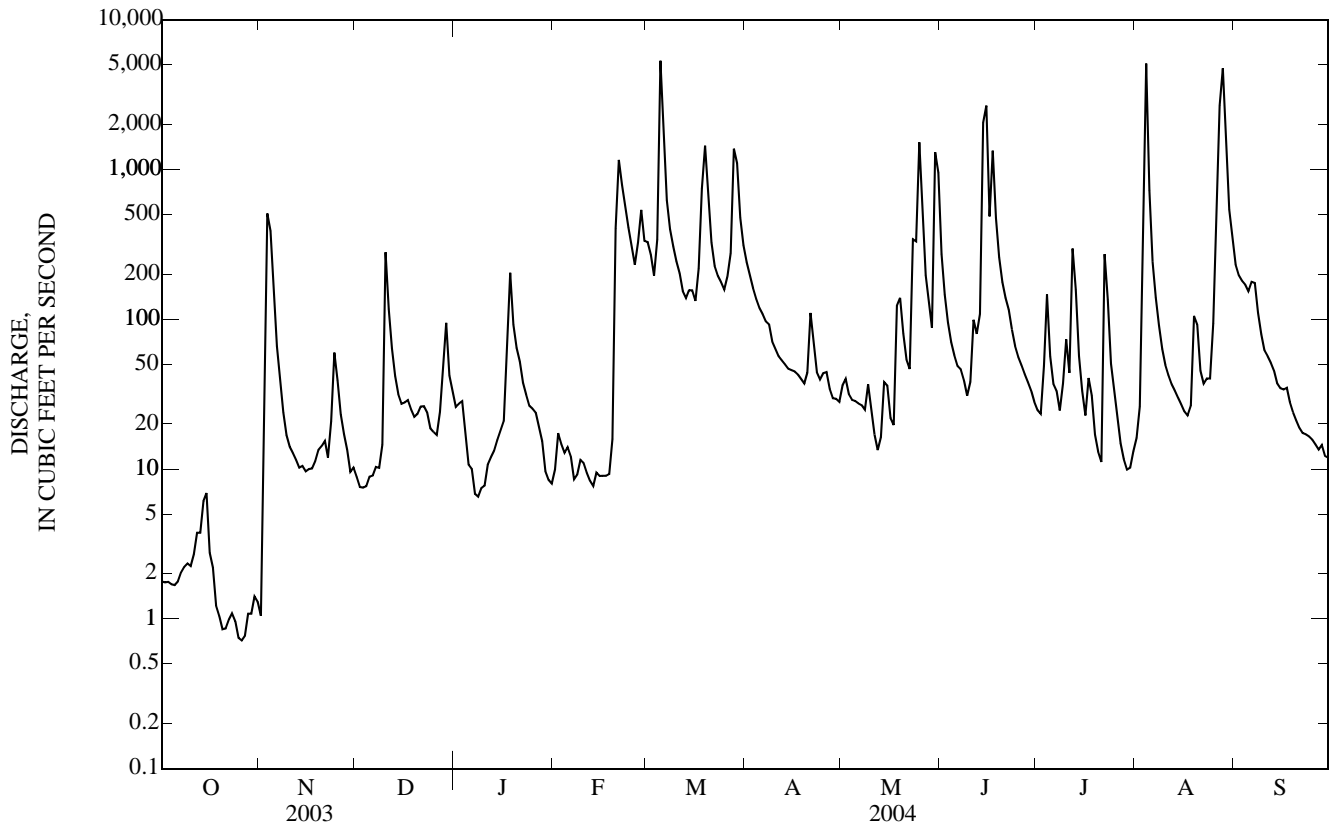
05489000 CEDAR CREEK NEAR BUSSEY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1948 - 2004	
ANNUAL TOTAL	20,684.70		67,191.90		225	
ANNUAL MEAN	56.7		184		768	
HIGHEST ANNUAL MEAN					1993	
LOWEST ANNUAL MEAN					1989	
HIGHEST DAILY MEAN	2,400	May 5	5,330	Mar 5	42,000	Jul 3, 1982
LOWEST DAILY MEAN	0.72	Oct 26	0.72	Oct 26	0.00	Sep 6, 1955 a
ANNUAL SEVEN-DAY MINIMUM	0.88	Oct 21	0.88	Oct 21	0.00	Sep 6, 1955
MAXIMUM PEAK FLOW			6,100	Aug 4	96,000	Jul 3, 1982
MAXIMUM PEAK STAGE			18.19	Aug 4	34.61	Jul 3, 1982
INSTANTANEOUS LOW FLOW			0.69	Oct 25 b		
ANNUAL RUNOFF (AC-FT)	41,030		133,300		162,900	
ANNUAL RUNOFF (CFSM)	0.152		0.491		0.601	
ANNUAL RUNOFF (INCHES)	2.06		6.68		8.17	
10 PERCENT EXCEEDS	107		343		400	
50 PERCENT EXCEEDS	10		36		36	
90 PERCENT EXCEEDS	2.1		7.6		2.7	

a Also Sept. 7-20, 1955, Oct. 11, 12, 1956, Aug. 12, 13, 1989.

b Also Oct. 26, 27.

e Estimated.



05489500 DES MOINES RIVER AT OTTUMWA, IA

LOCATION.--Lat 41°00'39", long 92°24'40", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.72 N., R.14 W., Wapello County, Hydrologic Unit 07100009, on right bank 15 ft downstream from Colorado and Eastern Railroad Bridge at Ottumwa, 0.4 mi downstream from Ottumwa powerplant, 6.5 mi upstream from Village Creek, 9.5 mi downstream from South Avery Creek, and at mile 94.1.

DRAINAGE AREA.--13,374 mi².

PERIOD OF RECORD.--March 1917 to current year (published as "at Eldon" October 1930 to March 1935). Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1917-20. WSP 1308: 1917-23 (M), 1925-27 (M), 1931. WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 622.00 ft above NGVD of 1929. Prior to Sept. 30, 1930, nonrecording gage at Market Street Bridge 1,700 ft upstream at datum 0.83 ft higher. Oct. 1, 1930 to Mar. 31, 1935, nonrecording gage at Eldon 15 mi downstream at different datum. Apr. 1, 1935 to Oct. 25, 1963, water-stage recorder at site 1,100 ft downstream at Vine Street Bridge at datum 0.77 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Dec. 12, 1958 and since Nov. 30, 1960, diurnal fluctuation at low and medium stages are caused by powerplant upstream of station about $\frac{1}{2}$ mile. Flow regulated by Lake Red Rock (station 05488100) 48.2 mi upstream since March 12, 1969. 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 FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s June 7, 1947, gage height, 20.2 ft, site and datum then in use; minimum daily discharge, 26 ft³/s Oct. 25, 1990, when gates at dam in Ottumwa were closed.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1850, that of June 7, 1947. Flood of May 31, 1903, reached a stage of 19.4 ft, former site and datum at Vine Street Bridge or about 22 ft at Market Street Bridge, from information by U.S. Army Corps of Engineers and U.S. National Weather Service, discharge, about 140,000 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	320	236	334	745	e780	6,670	14,800	8,810	17,700	19,500	12,500	3,660
2	451	381	292	735	e1,040	9,310	12,900	7,700	19,000	19,500	12,100	2,620
3	310	851	640	734	e859	e11,800	9,850	6,230	19,400	19,400	10,300	2,170
4	328	1,470	310	690	e820	e14,000	8,170	6,070	19,400	19,500	20,400	1,660
5	564	1,560	549	430	e694	e17,600	7,480	5,770	19,500	19,300	12,200	1,540
6	315	3,030	727	582	e918	22,900	6,220	5,320	19,600	19,300	12,800	1,670
7	334	3,420	876	864	e918	20,900	6,000	4,800	19,600	19,400	13,100	2,230
8	551	1,650	1,070	745	e754	e17,500	5,560	3,850	19,600	19,400	13,000	3,070
9	356	785	1,530	720	e984	e16,100	5,430	3,650	19,600	19,400	12,700	3,300
10	332	798	2,650	685	e964	14,000	4,420	5,460	19,900	19,300	10,500	2,600
11	406	755	3,250	533	e971	12,000	4,240	8,880	19,700	19,600	8,040	2,070
12	340	771	3,460	659	e1,100	10,100	4,240	11,100	19,600	20,500	5,870	1,730
13	285	704	3,660	385	823	5,400	3,940	10,200	19,800	20,000	5,030	1,430
14	499	728	4,550	692	757	3,310	3,870	8,520	22,500	19,700	3,420	1,090
15	399	659	3,460	529	827	3,340	3,840	8,020	20,800	19,500	3,230	793
16	250	253	2,690	683	710	4,870	3,660	7,320	18,600	19,400	2,970	779
17	427	423	1,100	727	779	6,620	3,550	6,060	20,600	19,300	2,660	778
18	364	449	917	1,270	687	7,980	3,440	6,360	22,200	19,200	2,790	662
19	395	416	914	1,940	676	10,800	3,520	9,350	22,500	19,300	2,980	757
20	218	474	1,030	1,440	1,420	10,000	3,440	12,300	22,700	19,300	2,700	1,500
21	212	572	1,160	792	4,790	11,200	3,740	14,200	22,800	19,100	2,930	3,640
22	316	754	926	1,020	7,790	9,110	5,110	12,800	23,000	19,500	2,550	5,050
23	347	1,080	748	630	8,590	6,830	6,230	11,100	23,000	20,200	2,160	6,090
24	439	1,120	533	680	7,000	5,460	7,080	17,000	22,900	19,400	2,140	6,280
25	216	859	795	691	5,460	5,650	6,480	22,000	22,900	19,200	3,040	6,290
26	369	830	834	e859	6,150	6,000	6,890	18,100	22,900	19,100	4,070	5,200
27	216	550	787	e694	5,690	5,590	6,920	19,100	22,900	18,600	11,200	4,990
28	244	347	974	e714	4,870	7,330	6,830	19,200	22,800	18,400	11,700	5,090
29	309	364	790	e681	4,860	9,230	6,260	19,400	21,300	19,500	11,000	5,050
30	276	390	751	e582	---	12,600	7,570	21,000	19,500	16,900	8,880	4,790
31	400	---	889	e688	---	14,900	---	18,900	---	14,900	7,590	---
TOTAL	10,788	26,679	43,196	23,819	72,681	319,100	181,680	338,570	626,300	594,600	236,550	88,579
MEAN	348	889	1,393	768	2,506	10,290	6,056	10,920	20,880	19,180	7,631	2,953
MAX	564	3,420	4,550	1,940	8,590	22,900	14,800	22,000	23,000	20,500	20,400	6,290
MIN	212	236	292	385	676	3,310	3,440	3,650	17,700	14,900	2,140	662
AC-FT	21,400	52,920	85,680	47,240	144,200	632,900	360,400	671,600	1,242,000	1,179,000	469,200	175,700
CFSM	0.03	0.07	0.10	0.06	0.19	0.77	0.45	0.82	1.56	1.43	0.57	0.22
IN.	0.03	0.07	0.12	0.07	0.20	0.89	0.51	0.94	1.74	1.65	0.66	0.25

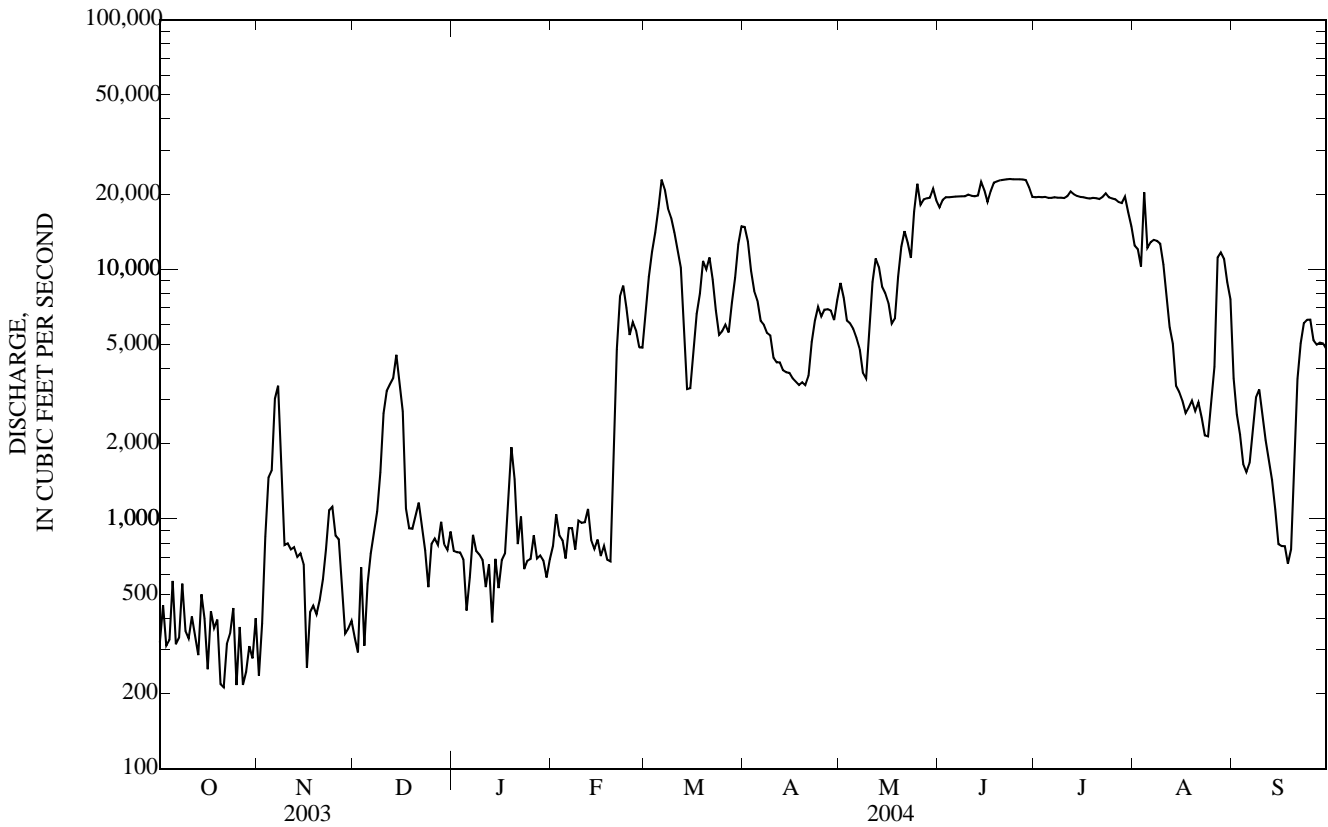
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

MEAN	3,718	4,617	4,073	2,716	4,564	9,771	12,240	13,130	14,220	14,620	7,999	4,338
MAX	18,390	19,250	13,980	12,380	16,470	21,750	25,330	29,770	31,980	85,570	47,380	34,790
(WY)	(1974)	(1987)	(1993)	(1973)	(1973)	(1983)	(1983)	(1993)	(1984)	(1993)	(1993)	(1993)
MIN	307	327	381	290	328	891	962	519	282	238	610	366
(WY)	(2001)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1988)	(1976)

05489500 DES MOINES RIVER AT OTTUMWA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	1,919,481		2,562,542			
ANNUAL MEAN	5,259		7,001		8,017	
HIGHEST ANNUAL MEAN					26,350	1993
LOWEST ANNUAL MEAN					1,120	1977
HIGHEST DAILY MEAN	20,900	May 9	23,000	Jun 22 b	110,000	Jul 12, 1993
LOWEST DAILY MEAN	212	Oct 21	212	Oct 21	26	Oct 25, 1990 c
ANNUAL SEVEN-DAY MINIMUM	290	Oct 25	290	Oct 25	182	Jul 7, 1977
MAXIMUM PEAK FLOW			25,400	Jun 14	112,000	Jul 12, 1993
MAXIMUM PEAK STAGE			8.93	Mar 6	22.15	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,807,000		5,083,000		5,808,000	
ANNUAL RUNOFF (CFSM)	0.393		0.524		0.599	
ANNUAL RUNOFF (INCHES)	5.34		7.13		8.14	
10 PERCENT EXCEEDS	17,800		19,500		20,100	
50 PERCENT EXCEEDS	1,470		3,700		4,200	
90 PERCENT EXCEEDS	397		421		630	

- a Post regulation.
- b Also June 23.
- c Gates at dam in Ottumwa closed.
- e Estimated.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.36, T.69 N., R.10 W., Van Buren County, Hydrologic Unit 07100009, on right bank 10 ft upstream from bridge on State Highway 1 at Keosauqua, 4.0 mi downstream from Chequest Creek, and at mile 51.3.

DRAINAGE AREA.--14,038 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1903 to July 1906, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915- 18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 547.36 ft above NGVD of 1929. Prior to Dec. 24, 1933, nonrecording gage, and Dec. 25, 1933, to Sept. 30, 1972, water-stage recorder, at same site at datum 10.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by power plant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi upstream, since March 12, 1969. 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 FOR PERIOD OF RECORD.--Maximum discharge, 146,000 ft³/s June 1, 1903, gage height, 27.85 ft, from floodmark, datum then in use; minimum daily discharge, 40 ft³/s Jan. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1851, reached a stage of 24 ft, discharge not determined.

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	363	451	546	1,140	e788	6,270	15,000	8,340	18,900	19,400	14,000	7,040
2	353	461	470	964	e1,380	8,790	14,200	8,470	18,400	19,400	12,600	3,460
3	373	429	440	928	e1,100	11,200	11,600	7,310	19,500	19,500	14,200	3,090
4	518	1,140	631	912	e1,010	13,600	9,590	6,360	19,400	19,600	19,800	2,460
5	396	1,870	692	e582	e954	27,600	8,420	6,240	19,400	19,500	17,800	1,840
6	541	2,070	616	e594	e1,160	25,300	7,560	5,910	19,400	19,400	11,700	1,850
7	463	3,950	805	e629	e1,170	22,800	6,690	5,440	19,400	19,300	13,400	2,000
8	378	3,830	1,010	e998	e977	19,900	6,450	4,900	19,500	19,300	13,000	2,660
9	607	1,790	1,390	1,280	e1,300	15,700	6,000	4,060	19,400	19,200	12,800	3,690
10	455	1,000	3,690	1,160	1,270	13,400	5,680	4,150	19,700	19,200	11,700	3,700
11	445	1,010	4,060	1,120	1,250	13,300	4,760	6,960	20,600	19,500	9,620	2,760
12	520	991	3,710	987	1,390	12,700	4,660	9,820	20,000	20,800	7,610	2,220
13	410	977	3,490	902	1,250	9,390	4,530	10,700	20,000	20,500	6,100	1,980
14	498	891	4,260	885	1,240	6,190	4,210	9,340	23,000	19,800	5,190	1,530
15	575	913	5,190	805	1,350	4,730	4,180	8,060	25,300	19,500	3,730	1,360
16	539	927	3,570	897	1,110	5,350	4,100	7,720	20,100	19,400	3,680	987
17	420	492	2,990	e1,240	1,260	7,340	3,940	6,830	20,100	19,300	3,400	850
18	410	663	1,440	e1,730	1,210	9,900	3,750	6,310	22,700	19,200	3,020	849
19	488	545	1,180	e2,440	1,210	11,900	3,740	7,690	22,900	19,200	3,520	820
20	539	568	980	e2,980	1,750	12,200	3,890	10,600	23,300	19,200	3,300	762
21	404	508	1,400	e2,310	4,330	11,900	4,080	12,900	23,300	19,200	3,100	1,750
22	305	735	1,510	e1,720	e8,460	11,600	4,360	13,100	23,500	19,400	3,310	4,870
23	346	1,220	1,160	e1,240	e10,600	9,450	5,980	11,300	23,400	20,400	2,830	5,790
24	430	1,900	880	e1,060	e8,220	7,730	6,840	13,500	23,400	19,800	2,660	6,760
25	416	1,480	1,070	e1,090	7,260	6,950	7,140	20,000	23,400	19,300	3,200	6,770
26	543	1,180	997	e916	6,420	7,530	6,840	19,500	23,300	19,100	5,740	6,450
27	377	1,120	1,170	e750	6,990	7,850	7,130	17,600	23,300	19,000	12,600	5,560
28	432	809	1,110	e670	6,030	8,270	7,010	18,600	23,200	17,800	16,300	5,580
29	332	584	1,630	e758	5,630	10,700	6,830	18,800	22,300	19,500	13,500	5,560
30	346	570	1,140	e667	---	11,800	6,900	27,600	20,200	18,300	10,200	5,480
31	449	---	1,040	e758	---	14,600	---	27,500	---	15,900	8,850	---
TOTAL	13,671	35,074	54,267	35,112	88,069	365,940	196,060	345,610	640,300	597,900	272,460	100,478
MEAN	441	1,169	1,751	1,133	3,037	11,800	6,535	11,150	21,340	19,290	8,789	3,349
MAX	607	3,950	5,190	2,980	10,600	27,600	15,000	27,600	25,300	20,800	19,800	7,040
MIN	305	429	440	582	788	4,730	3,740	4,060	18,400	15,900	2,660	762
AC-FT	27,120	69,570	107,600	69,640	174,700	725,800	388,900	685,500	1,270,000	1,186,000	540,400	199,300
CFSM	0.03	0.08	0.12	0.08	0.22	0.84	0.47	0.79	1.52	1.37	0.63	0.24
IN.	0.04	0.09	0.14	0.09	0.23	0.97	0.52	0.92	1.70	1.58	0.72	0.27

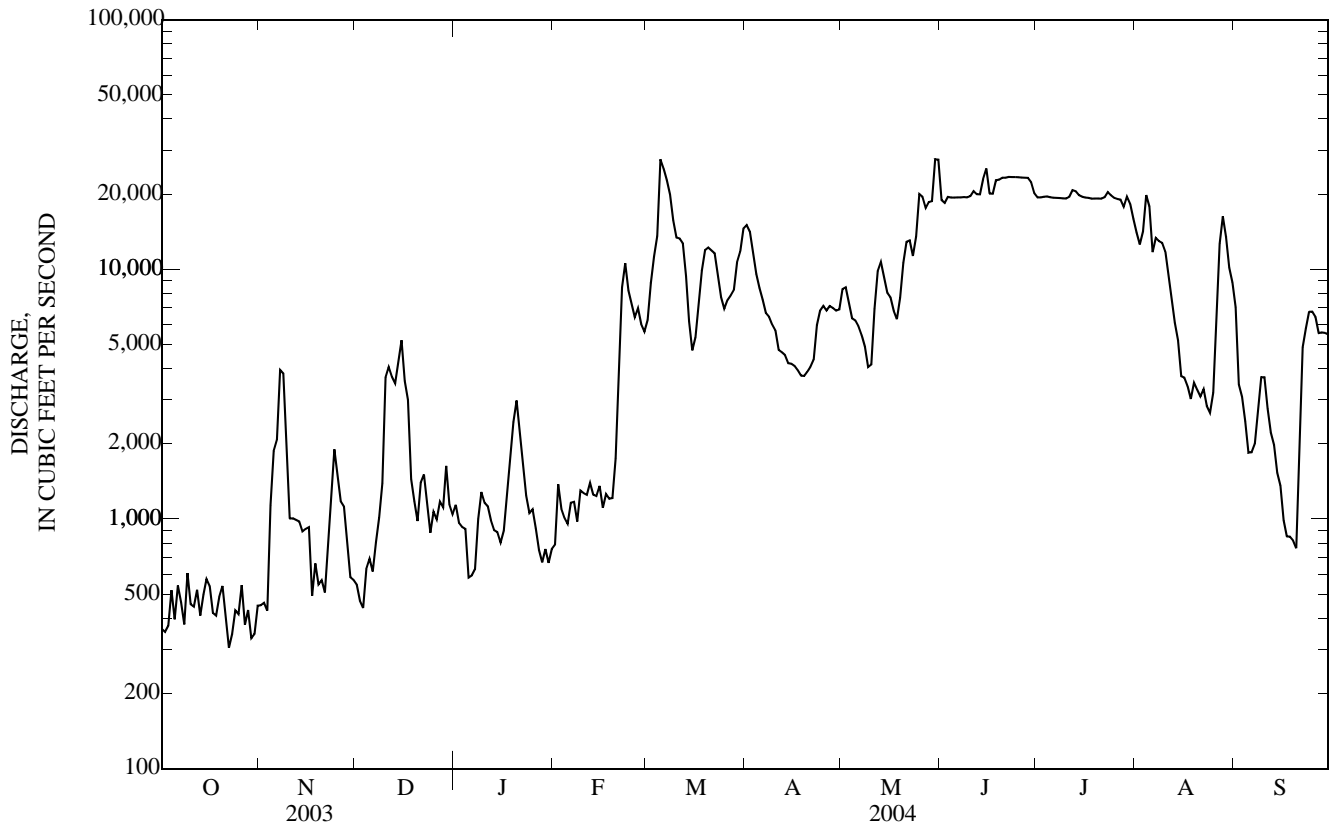
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

MEAN	3,932	4,767	4,291	2,888	4,877	10,280	12,870	13,890	14,620	15,110	8,265	4,713
MAX	19,850	19,320	14,510	13,120	17,370	22,200	30,030	31,260	30,900	86,150	47,320	35,210
(WY)	(1974)	(1987)	(1983)	(1973)	(1973)	(1983)	(1973)	(1993)	(1984)	(1993)	(1993)	(1993)
MIN	383	332	385	291	331	1,170	1,224	696	300	258	528	362
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1981)	(1977)	(1977)	(1977)	(1977)	(1989)	(1976)

05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	2,019,903		2,744,941		8,391	
ANNUAL MEAN	5,534		7,500		26,920	
HIGHEST ANNUAL MEAN					1,303	1993
LOWEST ANNUAL MEAN					1,303	1977
HIGHEST DAILY MEAN	20,700	May 9	27,600	Mar 5 b	108,000	Jul 13, 1993
LOWEST DAILY MEAN	305	Oct 22	305	Oct 22	115	Oct 27, 1990 c
ANNUAL SEVEN-DAY MINIMUM	403	Oct 21	403	Oct 21	204	Jul 3, 1977
MAXIMUM PEAK FLOW			35,700	May 30	111,000	Jul 12, 1993
MAXIMUM PEAK STAGE			19.99	May 30	32.66	Jul 13, 1993
ANNUAL RUNOFF (AC-FT)	4,006,000		5,445,000		6,079,000	
ANNUAL RUNOFF (CFSM)	0.394		0.534		0.598	
ANNUAL RUNOFF (INCHES)	5.35		7.27		8.12	
10 PERCENT EXCEEDS	17,900		19,500		21,000	
50 PERCENT EXCEEDS	1,790		4,300		4,560	
90 PERCENT EXCEEDS	507		544		694	

- a Post regulation.
- b Also May 30.
- c Gates at dam in Ottumwa closed.
- e Estimated.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

(Large river mass contaminants station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30,2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unflab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of saturation (00301)	pH, water, unfltrd, std units (00400)	Specif. conductance, wat unfl, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR 18...	1230	9,990	590	120	--	12.3	--	7.9	477	5.8	--	166	--
APR 22...	0910	4,170	550	31	745	16.2	165	8.6	571	15.0	179	206	6
MAY 17...	1400	6,800	590	38	739	12.2	139	9.0	525	20.0	183	179	22
JUN 14...	1400	22,100	--	40	--	--	--	--	--	--	135	164	--
JUL 19...	1600	19,200	600	25	--	9.0	--	8.3	542	26.0	164	200	--
AUG 16...	1330	4,140	470	25	--	11.6	--	8.6	515	23.7	168	188	8
SEP 13...	1330	1,920	570	11	--	13.9	--	9.0	499	24.9	168	168	18

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unfl by analysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR 18...	24.1	11.0	50.4	.32	4.23	.037	.45	.202	.23	.48	4.91	5.53	3.5
APR 22...	31.1	7.9	58.7	<.04	6.57	.016	.74	.146	.165	.29	6.86	7.20	4.3
MAY 17...	32.9	3.2	50.2	<.04	7.56	.019	.78	.071	.091	.19	7.63	7.97	4.5
JUN 14...	17.1	14.9	22.9	<.04	8.79	.089	.18	.162	.169	.26	9.75	9.21	1.5
JUL 19...	22.0	18.2	40.9	<.04	8.83	.070	.32	.079	.098	.29	9.56	7.92	1.8
AUG 16...	22.9	13.0	55.0	<.04	4.74	<.008	.31	.099	.117	.18	4.97	5.34	2.1
SEP 13...	27.5	10.0	60.1	<.04	2.64	.008	.49	.063	.074	.142	3.06	3.37	2.9

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethyl-aniline water fltrd, 0.7u GF, ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd, 0.7u GF, ug/L (82686)	Ben-flur-alin, water, fltrd, 0.7u GF, ug/L (82673)
MAR 18...	<.1	3.4	6.6	4.2	5.0	<.006	E.025	.049	<.007	<.005	.124	<.050	<.010
APR 22...	<.1	4.3	4.3	22.9	40.0	<.006	E.028	.049	<.005	<.005	.147	<.050	<.010
MAY 17...	<.1	4.5	3.8	33.1	53.6	<.006	E.071	.422	.020	<.005	2.30	<.050	<.010
JUN 14...	<.1	1.4	4.1	1.8	2.6	<.006	E.199	.776	.017	<.005	2.61	<.050	<.010
JUL 19...	<.1	1.8	4.0	12.8	26.5	<.006	E.126	.148	<.005	<.005	1.44	<.050	<.010
AUG 16...	<.1	2.0	3.8	13.0	30.9	<.006	E.067	.018	<.005	<.005	.488	<.050	<.010
SEP 13...	<.1	2.9	3.7	14.8	40.3	<.006	E.059	.012	<.005	<.005	.313	<.050	<.010

05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butyl- ate, water, fltrd, ug/L (04028)	Car- baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo- furan, water, fltrd 0.7u GF ug/L (82674)	Chlor- pyrifos water, fltrd, ug/L (38933)	cis- Per- methrin water fltrd 0.7u GF ug/L (82687)	Cyana- zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulf- inyl fipron- nil, water, fltrd, ug/L (62170)	Diazi- non, water, fltrd, ug/L (39572)	Diel- drin, water, fltrd, ug/L (39381)	Disul- foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal- flur- alin, water, fltrd 0.7u GF ug/L (82663)
MAR 18...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR 22...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY 17...	<.004	<.041	<.020	<.007	<.006	E.008	<.003	E.004	<.005	<.009	<.02	<.007	<.009
JUN 14...	<.004	<.041	<.040	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUL 19...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG 16...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP 13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Etho- prop, water, fltrd 0.7u GF ug/L (82672)	Desulf- inyl- fipro- nil amide, wat flt ug/L (62169)	Fipro- nil sulfide water, fltrd, ug/L (62167)	Fipro- nil sulfone water, fltrd, ug/L (62168)	Fipro- nil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala- thion, water, fltrd, ug/L (39532)	Methyl para- thion, water, fltrd 0.7u GF ug/L (82667)	Metola- chlor, water, fltrd, ug/L (39415)	Metri- buzin, water, fltrd, ug/L (82630)	Moli- nate, water, fltrd 0.7u GF ug/L (82671)
MAR 18...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.953	<.006	<.003
APR 22...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.337	<.006	<.003
MAY 17...	<.005	<.029	<.013	<.024	E.004	<.003	<.004	<.035	<.027	<.015	.612	<.006	<.003
JUN 14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.704	.012	<.003
JUL 19...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.199	<.006	<.003
AUG 16...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.074	<.006	<.003
SEP 13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.064	<.006	<.003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Naprop- amide, water, fltrd 0.7u GF ug/L (82684)	p,p'- DDE, water, fltrd, ug/L (34653)	Para- thion, water, fltrd, ug/L (39542)	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Propy- zamide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)
MAR 18...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.022	<.02
APR 22...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02
MAY 17...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.024	<.02
JUN 14...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.015	<.02
JUL 19...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.012	<.02
AUG 16...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.009	<.02
SEP 13...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.012	<.02

DES MOINES RIVER BASIN

05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sedi- ment concen- tration mg/L (80154)	Number of sam- pling points, count (00063)
MAR 18...	<.034	<.02	<.010	<.002	<.009	328	11
APR 22...	<.034	<.02	<.010	<.002	<.009	41	12
MAY 17...	<.034	<.02	<.010	<.002	<.009	73	12
JUN 14...	<.034	<.02	<.010	<.002	E.004	265	--
JUL 19...	<.034	<.02	<.010	<.002	<.009	709	10
AUG 16...	<.034	<.02	<.010	<.002	<.009	33	11
SEP 13...	<.034	<.02	<.010	<.002	<.009	21	11

05494300 FOX RIVER AT BLOOMFIELD, IA

LOCATION.--Lat 40°46'10", long 92°25'07" (revised), in SW¼ SE¼ sec.13, T.69 N., R.14 W., Davis County, Hydrologic Unit 07110001, on left bank 15 ft. downstream from bridge on county road V20, 1.3 miles north of county courthouse at Bloomfield, and 8.6 miles downstream from North Fox Creek.

DRAINAGE AREA.-- 87.7 mi²

PERIOD OF RECORD.--October 1957 to September 1973; May 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 755.57 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1905 and June 18, 1946, exceeded all other known floods at this location, stage and discharge unknown. Also flood of May 6, 1960 reached a stage of 24.02 ft., gage datum; discharge 8,600 cfs (Slope-Area Measurement).

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	e2.0	e3.2	e0.97	e8.5	e4.6	23	32	13	100	2.3	5.5	15
2	e2.3	e3.4	e0.96	e6.0	e7.3	16	25	11	52	4.8	734	11
3	e2.5	e5.4	e0.96	e7.1	e4.8	11	e24	12	35	14	128	8.2
4	e2.5	e3.5	e0.96	e4.2	e4.7	638	e22	9.3	28	8.5	952	6.6
5	e2.4	e3.6	e1.1	e7.9	e6.5	1,530	e20	9.2	23	5.4	87	5.8
6	e2.6	e2.6	e1.1	e4.5	e7.8	e223	e18	8.4	20	3.9	24	9.0
7	e3.1	e2.6	e1.1	e2.7	e6.9	e99	15	7.4	18	3.6	9.9	7.1
8	e3.1	e3.7	e0.99	e2.1	e8.0	63	13	7.0	15	3.2	5.7	4.3
9	e3.5	e3.4	e41	e1.3	e9.1	45	11	6.7	14	3.4	4.1	3.9
10	e3.5	e2.6	e252	e1.8	e8.7	34	11	6.2	20	3.0	2.4	3.3
11	e4.1	e2.6	e30	e7.0	e7.6	28	10	6.1	60	456	1.8	2.9
12	e4.4	e2.9	e16	e9.6	e6.8	22	10	6.3	26	435	1.5	2.5
13	e4.7	e3.1	e11	e9.8	e5.8	23	9.9	11	82	58	1.4	2.3
14	e5.1	e2.3	e8.6	e7.1	e6.5	e40	9.5	11	98	24	1.2	2.1
15	e5.4	e2.3	e11	e6.3	e7.1	e37	10	8.2	99	14	1.1	3.0
16	e5.0	e2.4	e13	e39	e8.0	e41	e11	7.5	29	10	1.1	2.8
17	e4.9	e2.5	e8.6	e63	e8.9	156	e11	6.7	115	7.1	1.5	2.4
18	e4.7	e4.0	e5.3	e40	e14	294	e8.9	10	26	5.9	1.5	2.1
19	e4.5	e3.5	e3.0	e19	e83	107	8.3	13	16	5.2	1.7	1.9
20	e4.3	e3.0	e3.0	e21	e313	55	17	11	12	4.4	1.4	1.8
21	e4.1	e2.2	e6.7	e15	e124	33	25	8.4	10	4.2	1.3	1.8
22	e3.9	e2.1	e5.7	e11	e66	27	16	9.3	9.4	5.2	1.7	1.8
23	e3.9	e217	e4.9	e12	e47	25	13	11	7.1	4.5	2.5	2.0
24	e3.8	e19	e3.1	e12	e28	24	12	25	e6.3	3.5	41	1.9
25	e4.2	e3.1	e4.7	e11	e17	21	13	358	e4.9	3.2	277	1.5
26	e3.6	e1.6	e6.5	e8.1	e6.6	183	12	55	e4.4	3.0	65	1.5
27	e3.4	e1.3	e8.2	e6.3	19	103	9.4	27	e4.0	3.0	3,440	1.8
28	e3.8	e1.1	e91	e4.6	18	468	8.7	20	e3.1	3.4	478	1.9
29	e3.5	e1.1	e36	e3.0	18	e250	8.0	15	2.7	3.5	145	1.8
30	e3.5	e1.1	e18	e2.2	---	e99	9.3	2,380	2.4	4.3	50	2.2
31	e3.4	---	e9.0	e3.2	---	47	---	336	---	5.3	24	---
TOTAL	115.7	312.2	604.44	356.3	872.7	4,765	423.0	3,425.7	942.3	1,114.8	6,492.3	116.2
MEAN	3.73	10.4	19.5	11.5	30.1	154	14.1	111	31.4	36.0	209	3.87
MAX	5.4	217	252	63	313	1,530	32	2,380	115	456	3,440	15
MIN	2.0	1.1	0.96	1.3	4.6	11	8.0	6.1	2.4	2.3	1.1	1.5
AC-FT	229	619	1,200	707	1,730	9,450	839	6,790	1,870	2,210	12,880	230
CFSM	0.04	0.12	0.22	0.13	0.34	1.75	0.16	1.26	0.36	0.41	2.39	0.04
IN.	0.05	0.13	0.26	0.15	0.37	2.02	0.18	1.45	0.40	0.47	2.75	0.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2004, BY WATER YEAR (WY)

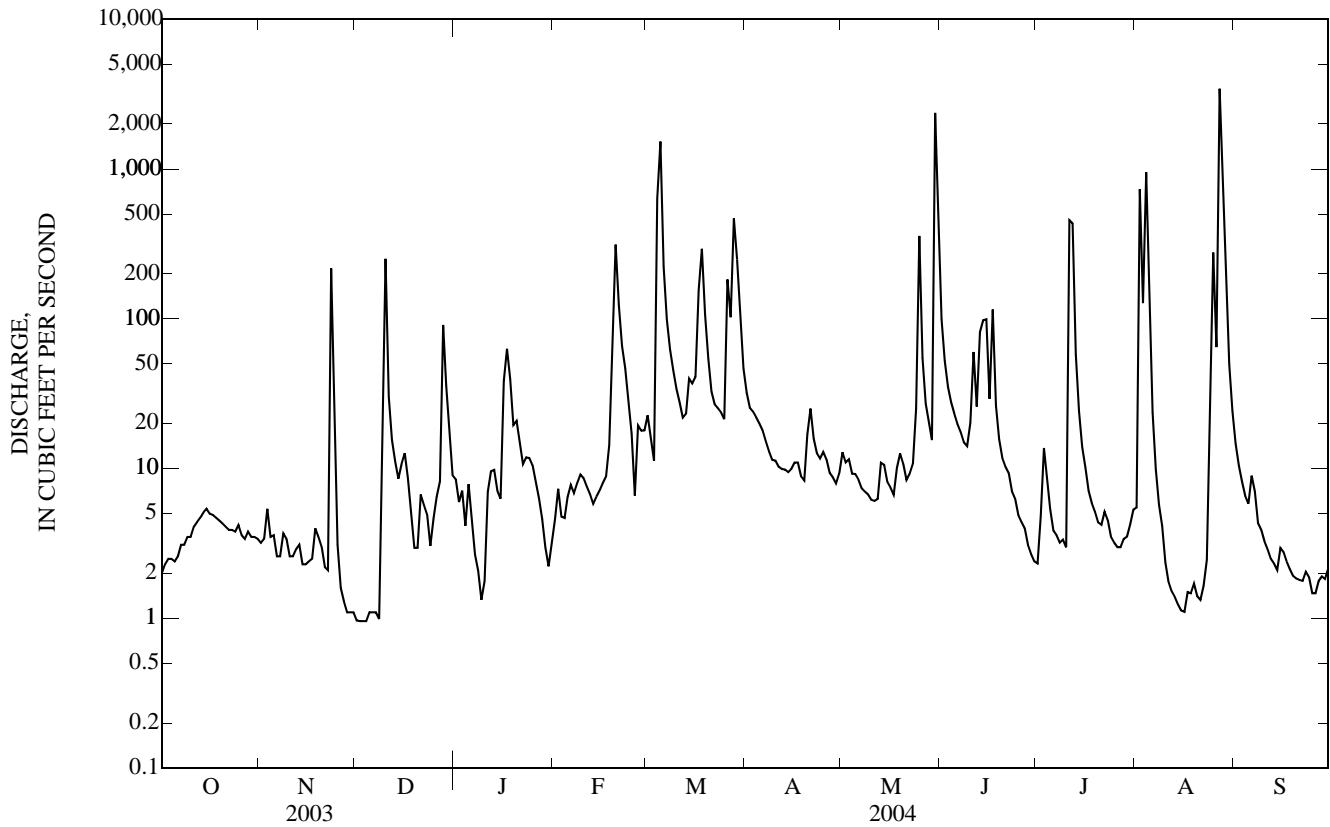
MEAN	31.1	22.7	19.8	27.6	56.5	103	94.4	87.4	43.2	26.4	36.4	37.0
MAX	178	222	115	127	158	291	370	325	257	163	254	377
(WY)	(1960)	(1962)	(1971)	(1973)	(1959)	(1960)	(1973)	(1973)	(2001)	(1969)	(1970)	(1970)
MIN	0.21	0.53	0.32	0.59	0.67	1.07	1.17	0.69	0.73	1.09	0.20	0.27
(WY)	(1964)	(1965)	(1964)	(1964)	(1964)	(1964)	(2000)	(2000)	(1963)	(1972)	(1961)	(1999)

05494300 FOX RIVER AT BLOOMFIELD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1958 - 2004	
ANNUAL TOTAL	4,934.30		19,540.64			
ANNUAL MEAN	13.5		53.4		49.2	
HIGHEST ANNUAL MEAN					117	1973
LOWEST ANNUAL MEAN					8.40	1964
HIGHEST DAILY MEAN	1,060	May 10	3,440	Aug 27	4,370	May 6, 1960
LOWEST DAILY MEAN	0.11	Jan 18	0.96	Dec 2 a	0.00	Oct 1, 1957
ANNUAL SEVEN-DAY MINIMUM	0.27	Jan 17	1.0	Nov 28	0.00	Oct 1, 1957
MAXIMUM PEAK FLOW			6,880	Aug 27	8,600	May 6, 1960
MAXIMUM PEAK STAGE			21.63	Aug 27	24.02	May 6, 1960
INSTANTANEOUS LOW FLOW					0.00	Oct 1, 1957
ANNUAL RUNOFF (AC-FT)	9,790		38,760		35,610	
ANNUAL RUNOFF (CFSM)	0.154		0.609		0.560	
ANNUAL RUNOFF (INCHES)	2.09		8.29		7.61	
10 PERCENT EXCEEDS	19		71		74	
50 PERCENT EXCEEDS	3.0		7.4		5.2	
90 PERCENT EXCEEDS	0.50		1.9		0.50	

a Also Dec. 3, 4; Estimated due to backwater from beaver dam.

e Estimated.



05494300 FOX RIVER AT BLOOMFIELD, IA—Continued