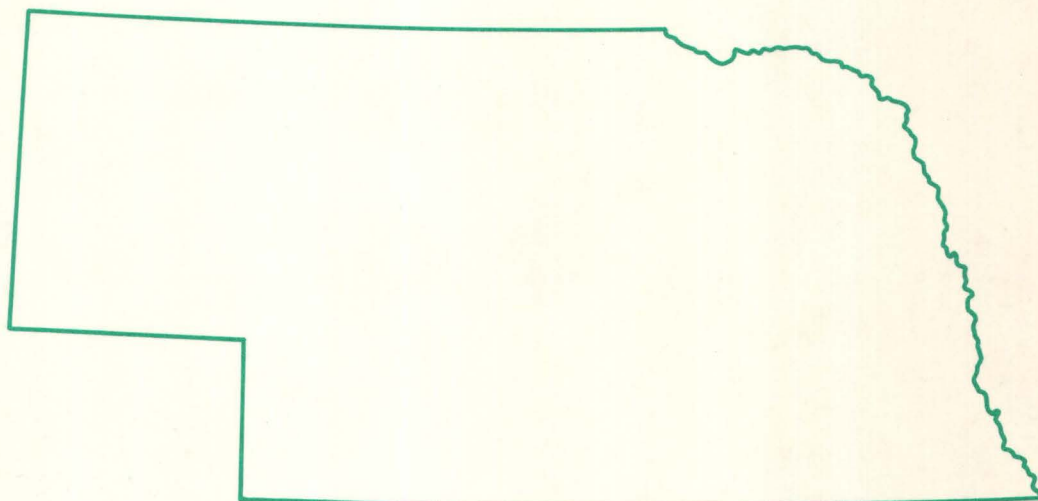
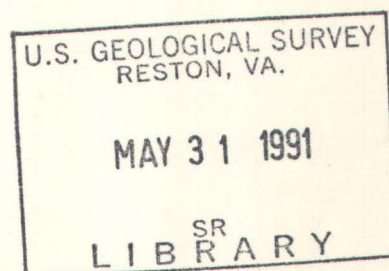


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Water Resources Data Nebraska Water Year 1990



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NE-90-1
Prepared in cooperation with the Nebraska Department of
Water Resources, the Conservation and Survey Division
of the University of Nebraska, and with other
State and Federal agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4						1	2
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
														31						

1990

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3					1	2	3
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14	15	16	17	18	19	20	11	12	13	14	15	16	17	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21	22	23	24
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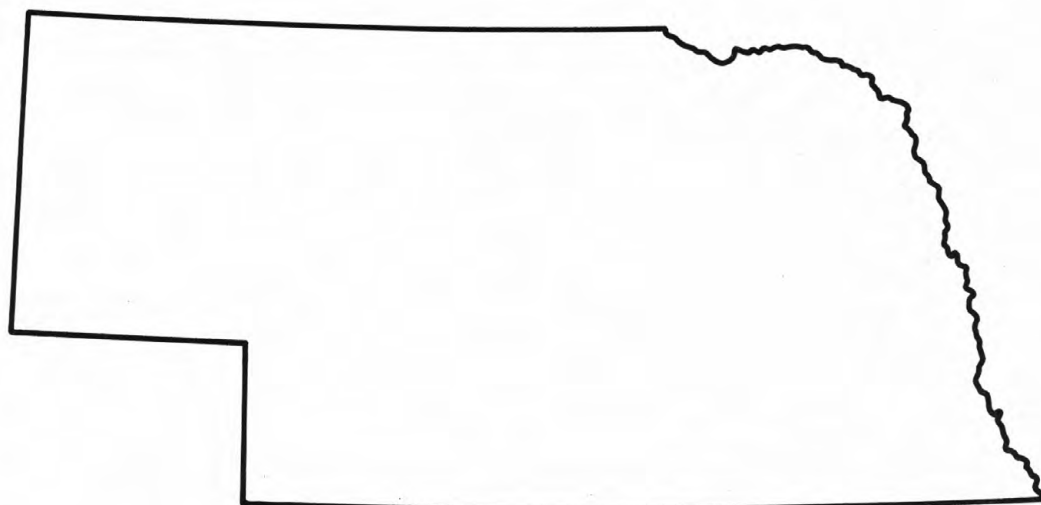
APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
29	30						27	28	29	30	31			24	25	26	27	28	29	30

JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4							1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	31					26	27	28	29	30	31		23	24	25	26	27	28	29
														30						



Water Resources Data Nebraska Water Year 1990

by J.A. Boochar, C.G. Hoy, and G.V. Steele



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NE-90-1
Prepared in cooperation with the Nebraska Department of Water
Resources, the Conservation and Survey Division of the
University of Nebraska, and with other
State and Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water programs in Nebraska, write to:

District Chief
U.S. Geological Survey
406 Federal Building
100 Centennial Mall, North
Lincoln, Nebraska 68508

PREFACE

This annual hydrologic data report of Nebraska is one of a series of annual reports that documents hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data- collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, quality of water, and ground-water levels provide the hydrologic information needed by Federal, State, and local agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

G.B. Engel, N.R. Harmon, L.C. Blackburn, D.E. Schild, M.J. Ellis, P.A. Bartz, R.A. Adams, J.C. Sybrandts, and J.E. McKinney of the District Office.

M. Kubicek, S.H. Hull, D.M. Schwartz, V.C. Walczyk, and T.G. Shudak of the Lincoln field office.

F.J. Jelinek, R.B. Swanson, R.A. Drudik, and V.A. John of the Ord field office.

This report was prepared in cooperation with the State of Nebraska and with other agencies under the general supervision of M.V. Shulters, District Chief, Nebraska.

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15. Supplementary Notes Prepared in cooperation with the State of Nebraska and other agencies			
16. Abstract (Limit: 200 words) Water resources data for the 1990 water year for Nebraska consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels and water quality in wells. This report contains discharge records for 161 streamflow gaging stations, 8 partial-record or miscellaneous streamflow stations, and 2 crest-stage, partial-record streamflow stations; stage and contents records for 11 lakes and reservoirs; water-quality records for 19 streamflow stations, 7 ungaged stream-sites, and 82 wells; and water-level records for 55 observation wells. These data represent that part of the National Water-Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Nebraska.			
17. Document Analysis. a. Descriptors *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses b. Identifiers/Open-Ended Terms *Nebraska c. COSATI Field/Group			
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WATER RESOURCES DATA - NEBRASKA, 1990

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Nebraska each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Nebraska."

This report includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 161 streamflow-gaging stations, for 8 partial-record or miscellaneous streamflow stations, and for 2 crest-stage, partial-record streamflow stations; (2) stage and contents for 11 lakes and reservoirs; (3) water-quality records for 19 streamflow-gaging stations, for 7 ungaged streamsites, and for 82 wells; and (4) water-level records for 55 observation wells. Records included for stream stages and for ground-water levels are only a small fraction of those obtained during the water year. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Nebraska.

This series of annual reports for Nebraska began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Nebraska were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 6A and 6B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report NE-90-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on the back of the title page or by telephone (402) 437-5082.

COOPERATION

The U.S. Geological Survey and agencies of the State of Nebraska have had cooperative agreements for the collection of water-resource records since 1930. Organizations that assisted in collecting the data in this report through cooperative agreement with the Survey are: Nebraska Department of Water Resources, J. Michael Jess, Director; Conservation and Survey Division, University of Nebraska-Lincoln, Perry B. Wigley, Director; Big Blue River Compact Administration; City of Lincoln; and many of the Natural Resources Districts.

Nebraska Department of Water Resources (NDWR) personnel in Bridgeport, Cambridge, Lincoln, Norfolk, and Ord contributed significantly in the collection and computation of records under a USGS-NDWR cooperative agreement.

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for 23 streamflow-gaging stations and 2 crest-stage gages, and by the U.S. Bureau of Reclamation in collecting records for 3 streamflow-gaging stations, 4 partial-record stations, 2 lake stations, in providing elevations or capacity tables for 8 reservoir stations, and providing funds for collecting water-quality samples at numerous sites.

The following organizations aided in collecting records: Central Nebraska Public Power and Irrigation District, Nebraska Public Power District, and Loup River Public Power District.

OVERVIEW OF WATER YEAR 1990

Streamflow, chemical quality of streamflow, and ground-water levels are directly related to precipitation. The relation of these hydrologic characteristics to precipitation during water year 1990 at selected locations is discussed in this overview section.

Precipitation

Precipitation data from published reports of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, for the eight National Weather Service Divisions in Nebraska (fig. 1) are listed in table 1. Precipitation and departures from normal are shown for each quarter in order to emphasize temporal as well as areal variation of precipitation during water year 1990.

In the first quarter of water year 1990, all divisions had less-than-normal precipitation. However, during the second quarter, heavy rains in March produced greater-than-normal precipitation in all divisions, with four of the divisions (Panhandle, Central, South Central, and Southeast) having more than an inch greater than normal. Except for the Northeast division, third quarter precipitation totals were all less than normal. Precipitation received in four divisions (North Central, Central, East Central, and Southeast) was within 10 percent of normal. Strong thunderstorms during mid-June accounted for the greater-than-normal precipitation (112 percent of normal) for the Northeast division. During the fourth quarter, the Southeast division received 3.52 inches less-than-normal precipitation (69 percent of normal); two divisions (Panhandle and South Central) received slightly greater-than-normal precipitation, and the rest of the divisions (North Central, Northeast, Central, East Central, and Southwest) all received less-than-normal precipitation, ranging from 0.35 to 1.87 inches below the normal (73 to 96 percent of normal).

A comparison of precipitation during water years 1990 and 1989 with normal precipitation in the eight divisions is shown in figure 2. Total precipitation in all eight divisions was less than normal during water year 1990, but greater than water year 1989 precipitation in six divisions (only 0.04 inch greater in one division), and slightly less in two divisions.

Table 1.--Precipitation and departures from normal, in inches
[Period of record for normal, 1951-80]

National Weather Service Division	Precipitation											
	First quarter (October-December)			Second quarter (January-March)			Third quarter (April-June)			Fourth quarter (July-September)		
	Normal	Water year 1990	Departure	Normal	Water year 1990	Departure	Normal	Water year 1990	Departure	Normal	Water year 1990	Departure
Panhandle	1.71	0.82	-0.89	1.71	2.74	1.03	7.91	6.45	-1.46	5.28	5.36	0.08
North Central	2.24	1.12	-1.12	2.17	2.36	.19	9.16	9.03	-.13	7.25	6.60	-.65
Northeast	3.08	1.35	-1.73	3.01	3.08	.07	10.53	11.82	1.29	8.69	7.06	-1.63
Central	2.54	.88	-1.66	2.57	3.69	1.12	9.89	9.75	-.14	8.08	6.21	-1.87
East Central	3.76	1.70	-2.06	3.43	3.86	.43	11.11	10.38	-.73	9.94	9.59	-.35
Southwest	1.95	.66	-1.29	1.95	2.74	.79	8.28	6.57	-1.71	6.69	4.88	-1.81
South Central	2.63	1.04	-1.59	2.60	4.04	1.44	9.85	8.33	-1.52	8.55	8.90	.35
Southeast	4.22	1.45	-2.77	3.75	4.78	1.03	11.15	10.79	-.36	11.18	7.66	-3.52

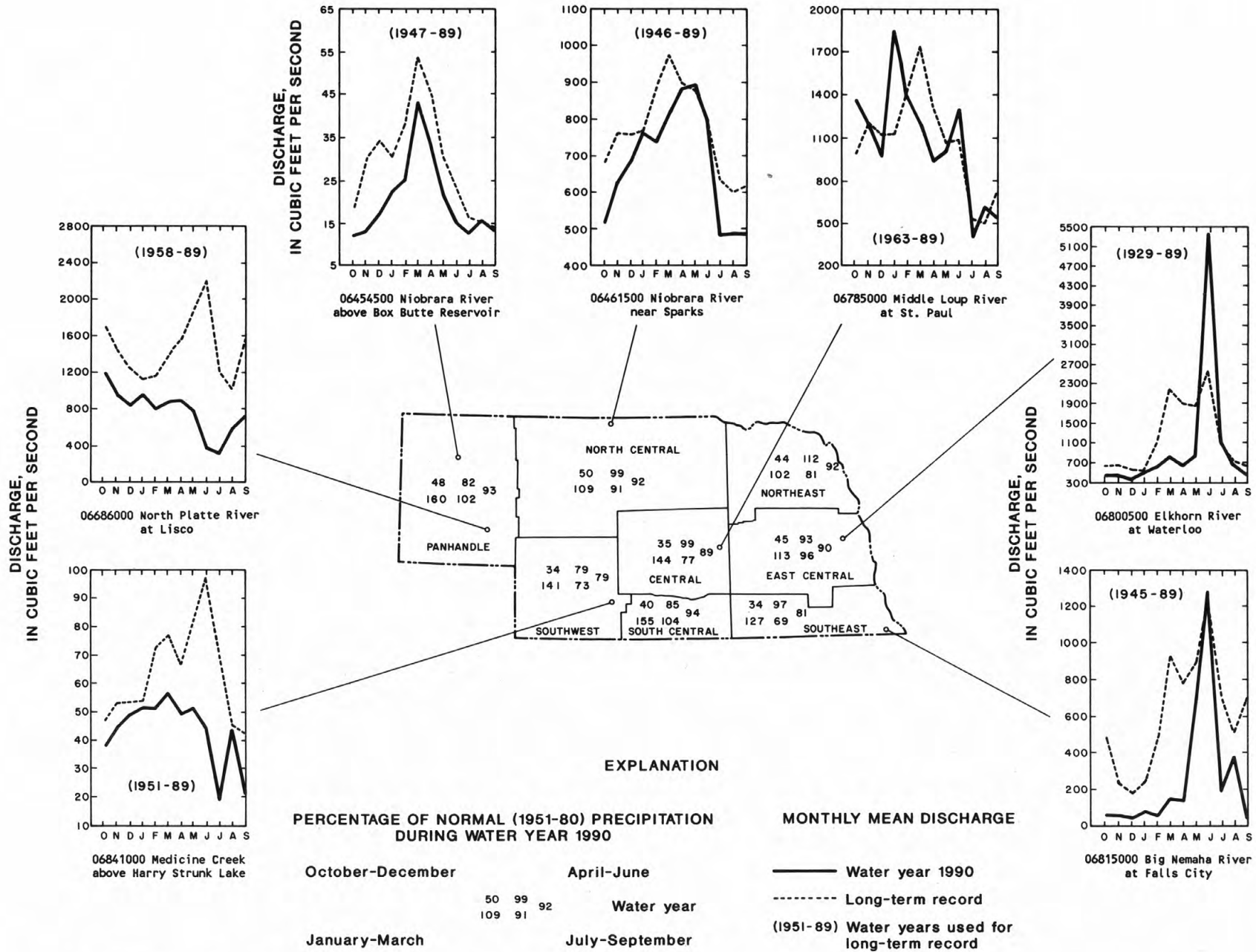


Figure 1.--Comparison of precipitation and streamflow during water year 1990 to long-term means.

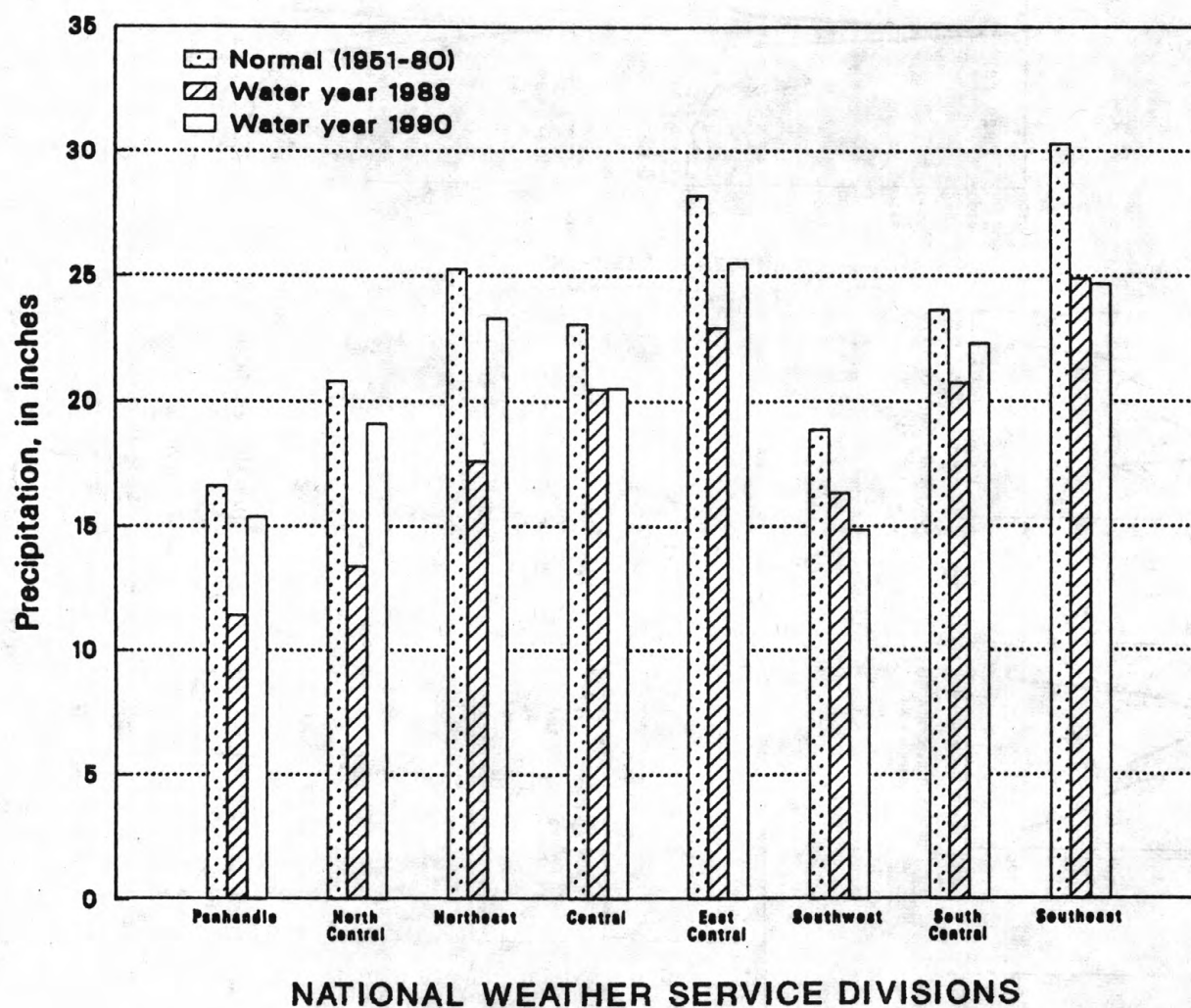


Figure 2.--Comparison of precipitation for water years 1990 and 1989 with normal precipitation for the eight Weather Service Divisions in Nebraska.

Streamflow

Monthly mean discharges during water year 1990 and long-term monthly mean discharges at representative stations are shown in figure 1. The period of record used for the long-term mean at some stations is from the completion of the last known storage structure or from the latest change in streamflow regulation upstream from the gage to water year 1989. The individual graphs demonstrate the varied conditions in the State during the year.

Two of the representative stations show smaller average monthly means compared with the long-term means for the entire water year. Four stations have monthly means that are less than long-term means for most of the water year, and one station, (06785000, Middle Loup River at St. Paul), shows average monthly means that do not differ much from long-term means. For station 06785000, Middle Loup River at St. Paul, the yearly mean for water year 1990 was exactly the same as the long-term mean. This station is located in the sandhills region of the State where the main part of the flow is derived from ground-water discharge.

Streamflow during water year 1990 at station 06686000, North Platte River at Lisco, did not differ much from flow during water year 1989, but was substantially less than the long-term average. Flow for April through June 1990 was 37 percent of the long-term mean. June normally is the month of largest flow; however, during June 1990, flow was only 18 percent of the long-term mean. This is largely due to the fact that snowpack in the North Platte River basin in the Rocky Mountains was much less than average; consequently, snowmelt runoff and releases from upstream reservoirs were very small. Flow during April through June 1990 was only 3 percent greater than the flow during the same period in 1989, and flow during June 1990 was only 1 percent greater than the flow during June 1989 (U.S. Geological Survey Water Data Report, 1989).

At station 06800500, Elkhorn River at Waterloo, mean discharge for the month of June was more than twice the long-term mean for the month. Although this station is located in the East Central division, which received precipitation during the third quarter that was 93 percent of normal, much of the drainage area of the Elkhorn River lies in the Northeast Division. The Northeast Division received precipitation that was 112 percent of normal, as a result of strong thunderstorms during mid-June. These storms produced rainfall totals of 8-9 inches over much of the area, with a small area in the Union Creek basin receiving over 12 inches. New maximum discharges for the period of record occurred at four gaging stations (table 2), all located in the Northeast Division. Floods at two stations had recurrence intervals at or greater than 100 years.

Table 2.--Maximum discharges during water year 1990 and period of record

Station number	Station name	Water year 1990		Previous		Number of years of record	Recur- rence of interval (years)
		maximum discharge		maximum discharge (period of record)			
		Discharge (cubic feet per second	Date	Discharge (cubic feet per second)	Date		
06795500	Shell Creek near Columbus	8,000	6/17/90	5,970	6/03/50	41	100
06799230	Union Creek at Madison	30,000	6/16/90	7,630	6/17/84	12	1.5x100
06799385	Pebble Creek at Scribner	23,000	6/17/90	29,300	6/16/84	12	50
06800000	Maple Creek at Nickerson	11,600	6/17/90	10,800	6/21/60	39	25

Due to the over-all dry conditions during water year 1990, new minimum daily discharges were recorded at eight stations, six in the Republican River basin. These stations are listed in table 3.

Table 3.--Minimum daily discharges during water year 1990 and period of record

Station number	Station name	Water year 1990 minimum discharge		Previous minimum discharge		Number of years of record
		Discharge (cubic feet per second)	Date	Discharge (cubic feet per second)	Date	
06770200	Platte River near Kearney	3.0	9/7	14	6/27,29/88	8
06796973	Elkhorn River near Atkinson	2.6	8/19	4.4	8/11/89	8
06834000	Frenchman Creek at Palisade	5.4	9/14	11	9/11,12,14/78	42
06837300	Red Willow Creek above Hugh Butler Lake	3.1	7/12	3.2	6/28/88	30
06838000	Red Willow Creek near Red Willow	.02	8/18	.26	9/2/89	28
06842500	Medicine Creek below Harry Strunk Lake	No flow	9/11-13	.06	9/24-26/88	41
06849500	Republican River below Harlan County Dam	.75	5/24	1.5	4/28,29/57	37
06852000	Elm Creek at Amboy	6.2	8/28	6.7	7/30/86	18

Although streamflow for station 06815000, Big Nemaha River at Falls City, during water year 1990 was again very low compared with the mean for the period of record (44 percent of the long-term mean), it still was higher than the mean for water year 1989 (40 percent of the long-term mean). From October through May, mean flow at this station averaged 30 percent of the long-term mean. During this time, snowfall was less than normal in the Southeast Division where the station is located, resulting in very little runoff in early spring. During June 1990, the mean flow increased and was greater than the long-term mean. Following June, flow again decreased so that the average mean flow was 35 percent of the long-term mean.

Chemical Quality of Streamflow

To determine whether significant changes are occurring in the chemical quality of streamflow leaving Nebraska, an analysis was made of specific-conductance records at sampling stations on five streams. Each station is located on a major stream in the State.

Specific conductance can be used to approximate the dissolved-solids concentration in water because it is related to the concentration and type of ions in water. Table 4 shows a comparison of the mean and median specific conductances for water year 1990 with those for the period of record. To determine whether there is any statistical difference between the median specific conductance for water year 1990 and the median for the period of record, the Mann-Whitney test was performed. This test may be used to accept or reject the hypothesis that the medians for water year 1990 and the period of record are equal. The procedure is based on ranked data. A P-value computed from the test indicates the probability that the medians of the two populations are equal. A 95-percent confidence level ($\alpha = 0.05$) was used with the test, which means that the P-value must be less than 0.05 to consider the two medians significantly different.

As shown by the computed P-values in table 4, the median specific conductances for water year 1990 for four of the five sampling stations do not differ significantly from the medians of their corresponding periods of record. However, two stations (06686000 Platte River at Lisco and 06774000 Platte River near Duncan) show computed P-values of 0.06 and 0.04, respectively. Since the breakpoint for whether the two medians can be considered statistically different is 0.05, one station is in the category that shows no significant difference, while the other is in the category that shows a difference, although small. Regression relations between specific conductance and water discharge given in U.S. Geological Survey Water-Supply Paper 2179, "A statistical analysis of the quality of surface water in Nebraska," by R. A. Engberg, indicate that specific conductance tends to increase with decreasing streamflow. All National Weather Service Divisions measured less-than-normal precipitation during water year 1990. Although precipitation and streamflow were less than normal during water year 1990, the analyses for only one station indicated a statistically significant difference between the median specific conductance and the median for the period of record. Since the number of samples tested for each station is very small (4 to 16), results from the test may not be as reliable had the number been greater.

Table 4.--Comparison of the mean and median specific conductance for water year 1990 with those for the period of record for streamflow at selected stations in Nebraska

[Specific conductance, in microsiemens per centimeter at 25 degrees Celsius; ND = no difference, D = difference]

Station identification	Specific conductance							P-value	Statistical comparison of medians
	Water year 1990			Period of record					
	Number of values	Mean	Median	Number of values	Mean	Median	Water years		
06465500 Niobrara River near Verdel	4	262	268	194	274	268	1973-89	.66	ND
06686000 North Platte River at Lisco	6	929	928	480	877	880	1970-89	.06	ND
06774000 Platte River near Duncan	6	934	926	386	841	854	1965-89	.04	D
06844500 Republican River near Orleans	8	671	640	352	624	625	1969-89	.26	ND
06884025 Little Blue River at Hollenberg, Kansas	16	576	568	220	479	538	1973-89	.21	ND

Ground-Water Levels

Water-level changes during water year 1990 were determined from a statewide network of observation wells measured by 38 Federal, State, and local agencies. The network consists of more than 3,700 wells measured annually, semiannually, or monthly and 117 wells equipped with continuous recorders. Because of the importance of ground water as a source for irrigation and municipal supplies, most observation wells in Nebraska are located in those areas where large quantities of ground water are pumped. Water-level fluctuations in representative observation wells located in various parts of the State are shown in figure 3.

Probably the most significant changes in ground-water levels during water year 1990 were the large water-level declines that occurred throughout most of the State. These water-level declines, which averaged about 2.0 feet, probably are the result of the continued drought conditions that occurred throughout most of the first half of the water year. The lack of precipitation resulted in less-than-normal amounts of recharge to some aquifers during the dormant season (October through March), especially in the east-central and northeastern regions. At the end of water year 1990, water levels measured in more than 80 percent of the observation wells were lower than they were at the end of water year 1989.

The hydrograph for an observation well in Seward County is representative of water-level fluctuations that have occurred in the east-central part of the State during water years 1989 and 1990. The water level of the well was 0.53 foot lower at the end of water year 1990 than at the end of water year 1989. These small declines, despite the dry conditions for much of the water year, seem to typify most water-level measurements in the east-central region of the State and can be attributed to substantially greater-than-normal precipitation during July. The abundant precipitation during July also reflects the smaller amounts of irrigation withdrawals, resulting in higher late season (July through September) water levels than those of water year 1989, as shown by the hydrograph.

Throughout much of the central and south-central parts of Nebraska, precipitation during the growing season (April through September) generally was less than normal, and water levels measured in observation wells in these parts of the State generally were slightly lower at the end of water year 1990 than they were at the end of water year 1989. As shown on the hydrograph for the Buffalo County well, water levels in the central and south-central areas generally rose more during the 1989-90 dormant season than they did during the 1988-89 dormant season; but declines during the 1990 growing season were much more than they were during the 1989 growing season. At the end of water year 1990, the water level in the Buffalo County well was 0.14 foot lower than at the end of water year 1989.

In the southwestern part of the State, precipitation during the water year was 21 percent less than normal. Most water levels measured in the 275 observation wells in this area ranged from 1.0 to 3.0 feet lower at the end of water year 1990 than they were at the end of water year 1989. Most of the water-level declines occurred in the areas where the large amounts of ground water used for irrigation usually exceed the amounts of water the aquifer receives from recharge. Water levels in the southwestern part of Nebraska generally did not rise as high as the previous year, and declines during the irrigation season generally are greater than those during the previous year. Water-level fluctuations shown for an observation well in Chase County are representative of those that occurred in irrigated areas during water years 1989 and 1990. The hydrograph shows that the water level at the end of water year 1990 was 1.60 feet lower than at the end of water year 1989.

Precipitation in north-central and northeastern Nebraska was near normal throughout most of water year 1990, although less than normal during the last quarter. Water levels measured in observation wells at the end of water year 1990 were between 1.0 foot above to 2.0 feet lower than they were at the end of water year 1989. The hydrograph for an observation well in Holt County is representative of water-level fluctuations that occurred in this part of Nebraska during water years 1989 and 1990. The water level in the well at the end of water year 1990 was 1.13 feet lower than at the end of water year 1989.

In those parts of Nebraska where ground water is used only for domestic and stock supplies, most water-level fluctuations are caused by variations in natural recharge to and discharge from the aquifers. Commonly, water levels rise during the fall and winter months when recharge from precipitation exceeds discharge by seepage to streams and by evapotranspiration; they decline during the spring and summer months when discharge by seepage to streams and by evapotranspiration is greater than recharge from precipitation. The hydrograph for the observation well in Blaine County shows these annual fluctuations. The steady water levels at the end of water year 1990 and the rising water levels at the end of water year 1989 can be attributed to 54 percent less precipitation during September 1990 than during September 1989.

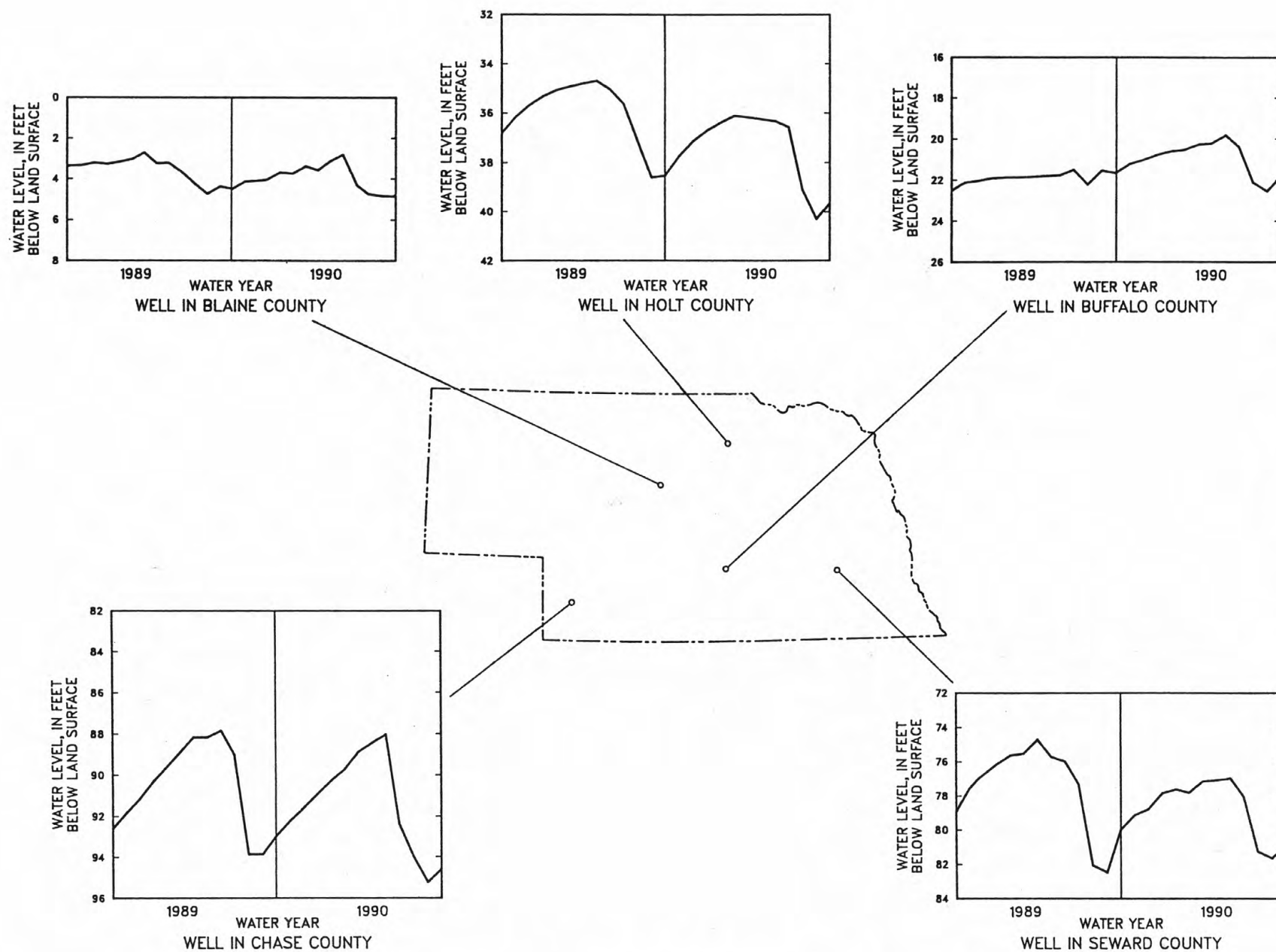


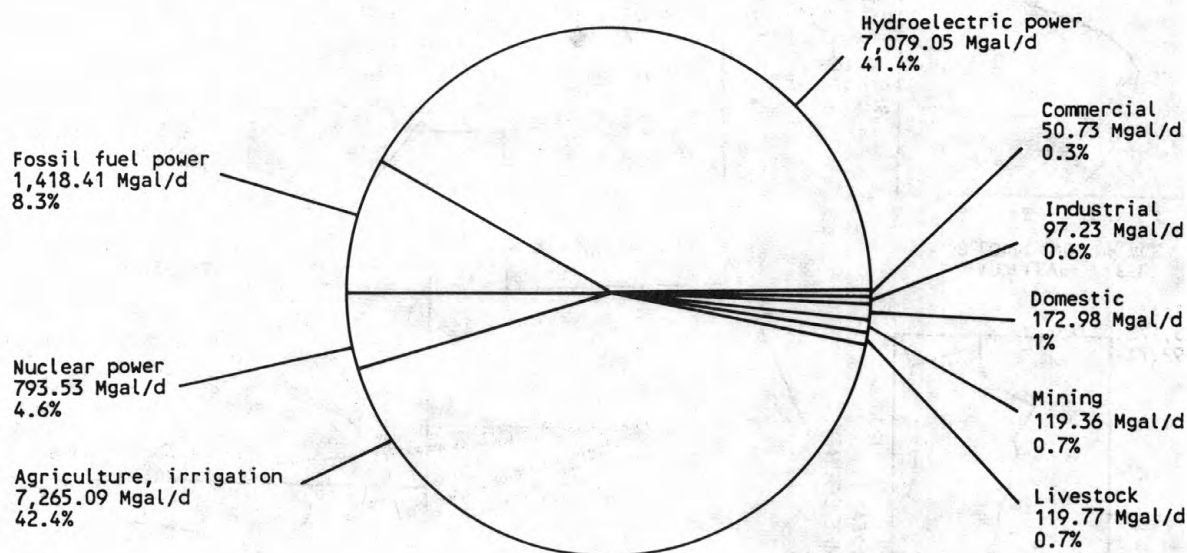
Figure 3.--Water levels in representative observation wells, water years 1989 and 1990.

WATER USE

General water-use facts for the State of Nebraska for the year 1985 are listed below. Water-use information is collected and published every 5 years.

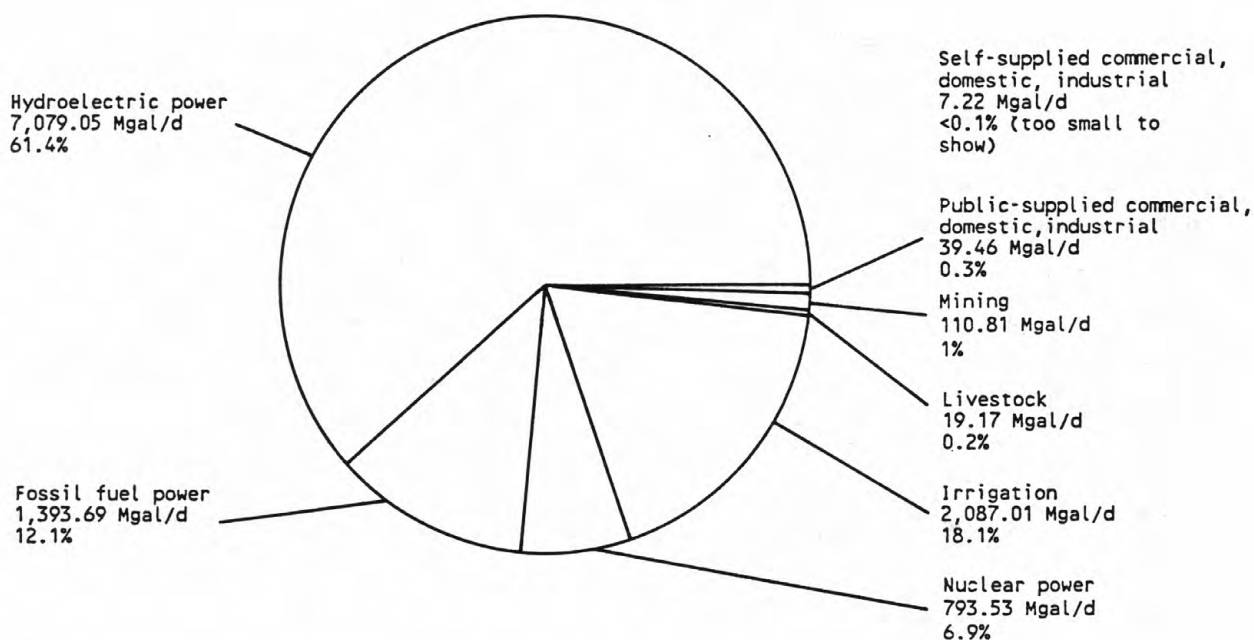
- Total water use in Nebraska was 17,116.15 million gallons per day (Mgal/d).
- Surface water use was 11,529.92 Mgal/d, or 67.4 percent of total water use.
- Ground-water use was 5,586.23 Mgal/d, or 32.6 percent of total water use, of which 5,178.08 Mgal/d or 92.7 percent was used for irrigation.
- Excluding power production, total water use was 7,825.16 Mgal/d, of which 5,561.51 Mgal/d or 71.1 percent was from ground water.
- The largest use of water in Nebraska was for power generation, with 9,290.99 Mgal/d or 54.3 percent of all water use, of which 99.7 percent was from surface water.
- Total population was 1.6 million, an increase of 1.9 percent from 1980.
- Total per capita use of all water was 10,662 GPD (gallons per day).
- Domestic water use was 172.98 Mgal/d, an average of 148.58 GPD per capita.
- Commercial water use was 50.73 Mgal/d, with 99.5 percent from public supply.
- Industrial water use was 97.23 Mgal/d, with 50.2 percent from public supply.
- Mining water use was 119.36 Mgal/d, with 92.8 percent supplied from surface water and used primarily for quarrying and gravel washing.
- Irrigation water use was 7,265.09 Mgal/d, or 42.4 percent of all water use. This is 92.8 percent of all offstream water use.
- Livestock water use was 119.77 Mgal/d, or 1.5 percent all offstream use.
- Power generation from surface-water use was 9,266.27 Mgal/d.

[From Steele, E.K., Jr., Estimated use of water in Nebraska, 1985: Lincoln, University of Nebraska Conservation and Survey Division, Nebraska Water Survey Paper 64.]



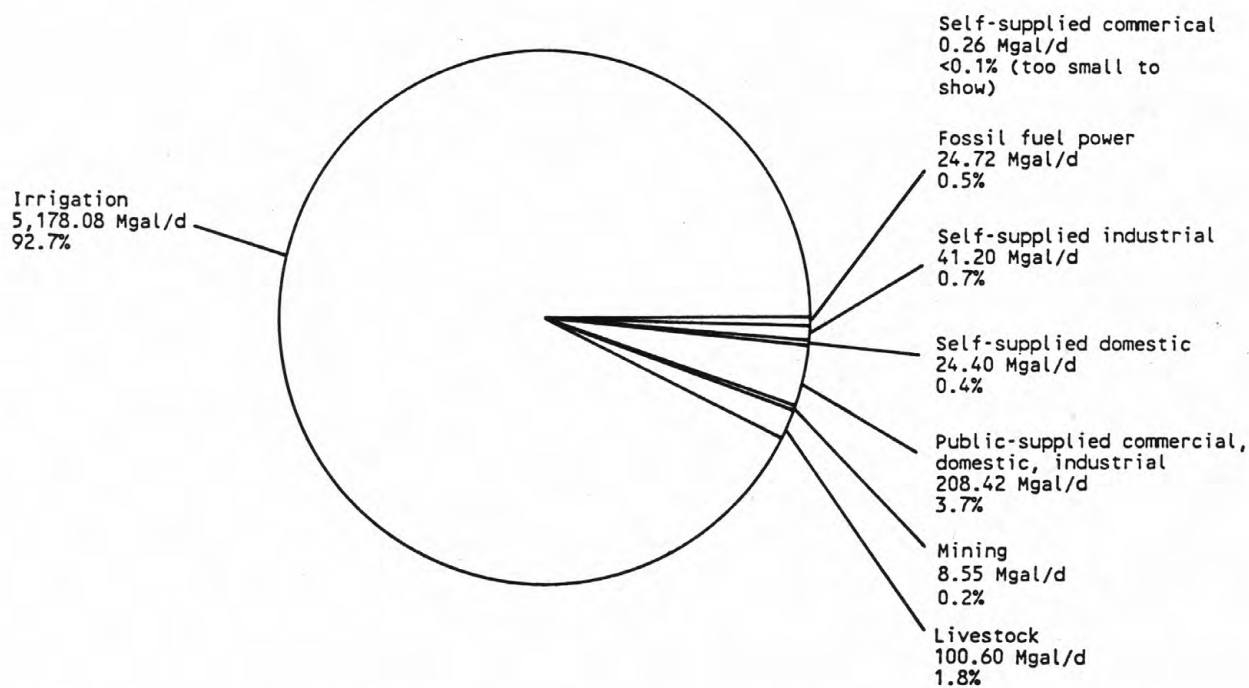
Total water use: 17,116.15 million gallons per day (Mgal/d)

Figure 4a.--Estimated total water use in Nebraska, 1985.



Total surface-water use: 11,529.92 million gallons per day (Mgal/d)

Figure 4b.--Estimated total surface-water use in Nebraska, 1985.



Total ground-water use: 5,586.23 million gallons per day (Mgal/d)

Figure 4c.--Estimated total ground-water use in Nebraska, 1985.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1989 water year that began October 1, 1988, and ended September 30, 1989. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 5, 6, and 7. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for surface-water stations and the "latitude-longitude" system is used for wells.

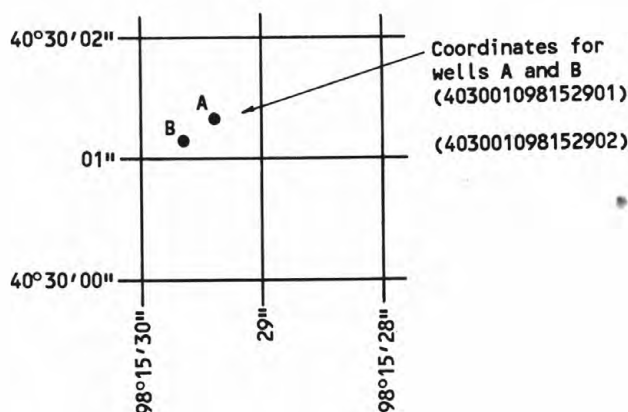
Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 06797000, which appears just to the left of the station name, includes the two-digit Part number "06" plus the six-digit downstream-order number "797000." The Part number designates the major river basin; for example, Part "06" is the Missouri River basin.

Latitude-Longitude System

The identification numbers for wells are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)



System for numbering wells (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device, and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Discharge measurements at miscellaneous sites." Records of discharge measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately if made during the year. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figure 3.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

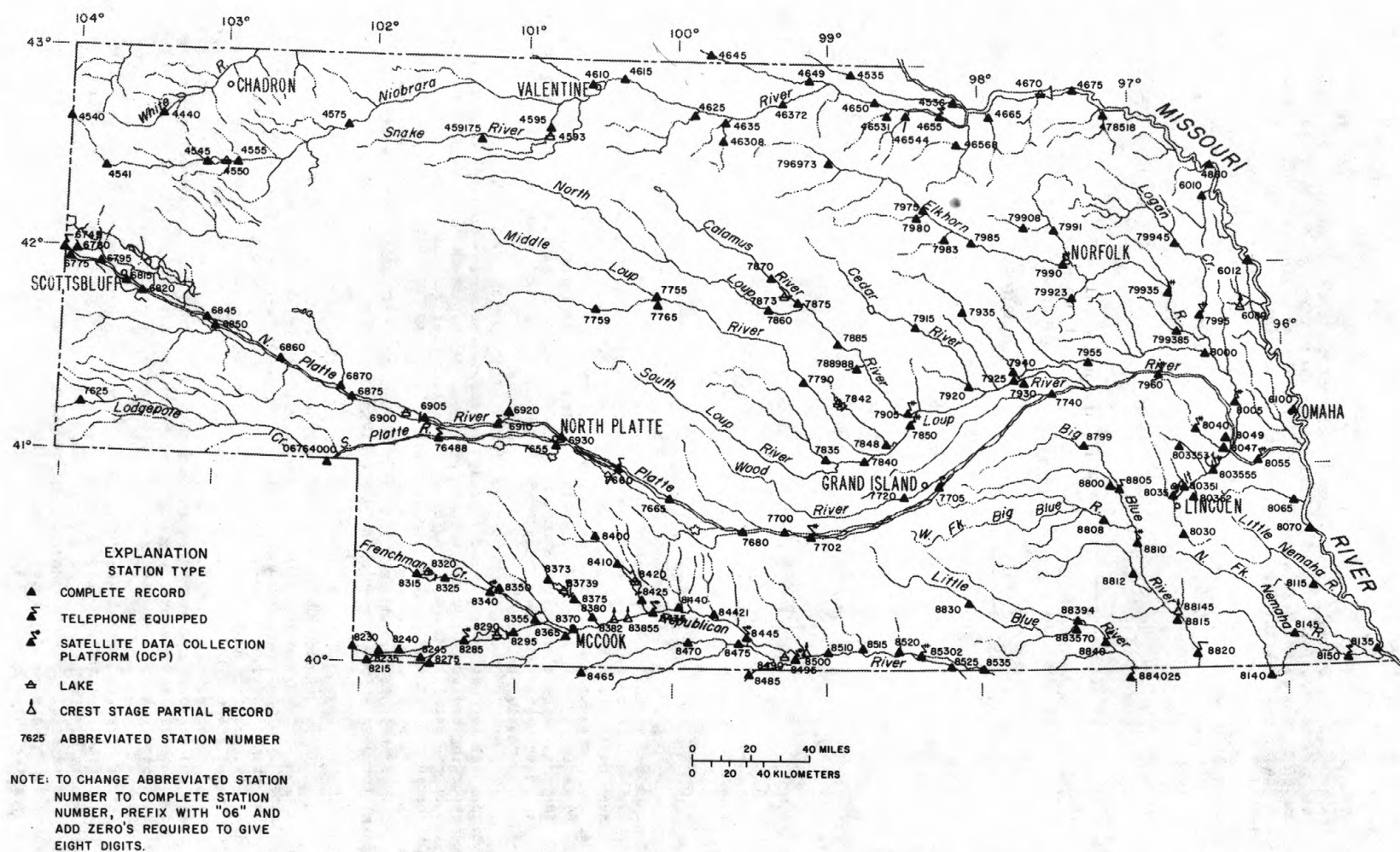


Figure 5.--Location of active surface-water gaging stations.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and equal to or greater than a selected base discharge are presented under this heading. The peaks equal to or greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in acre-feet (line headed "AC-FT"). In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at miscellaneous partial-record stations. The tables of partial-record stations may be followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. They also may be made in project areas to help define ground-water/surface-water relationships.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Nebraska District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of daily diversions of water from streams by canals are collected by and published in Hydrographic Reports of the Nebraska Department of Water Resources. Included are discharge records for streams and storage records for reservoirs not published in reports of the Geological Survey. Copies of the Hydrographic Reports may be obtained from the Nebraska Department of Water Resources, 301 Centennial Mall, South, P.O. Box 94676, Lincoln, NE 68509 (telephone number: 402-471-2363).

Records of discharge, not published by the Geological Survey, are collected in Nebraska at several sites by the U.S. Army Corps of Engineers. The National Water Data Exchange (NAWDEX), U.S. Geological Survey, Reston, VA 22092, maintains an index of these sites as well as sites where other agencies have collected water data.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. Detailed information on collecting, treating, and shipping samples may be obtained from the Nebraska District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

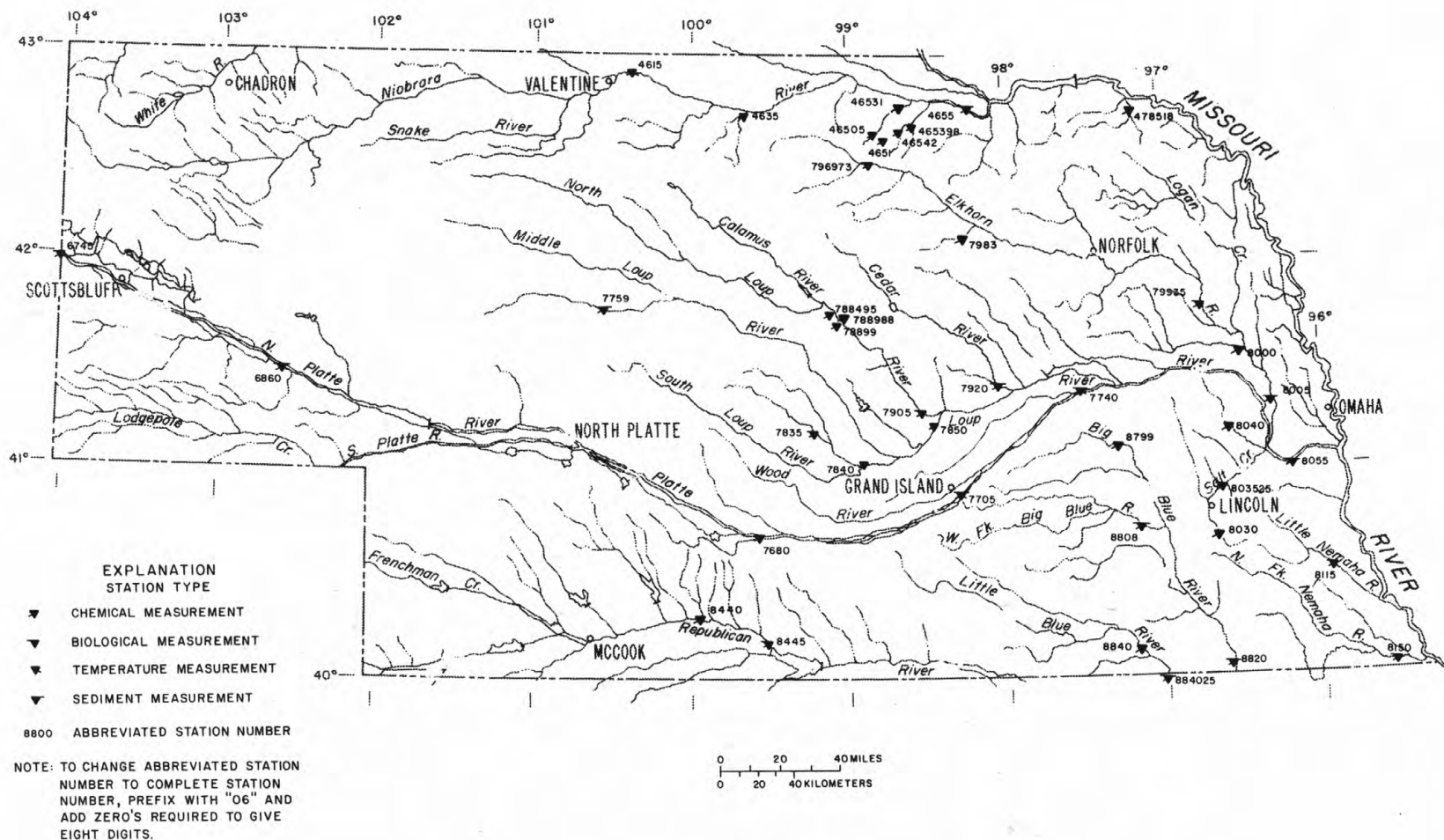


Figure 6.--Location of active surface-water-quality stations.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Nebraska District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Sediment samples are analyzed in Iowa City, Iowa; samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally; and all other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily, are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Only water-level data from a network of selected observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Nebraska are shown in figure 7.

Although, in this report, records of water levels are presented for only selected wells, records are obtained through cooperative efforts of many Federal, State, and local agencies for several thousand observation wells throughout Nebraska and are placed in computer storage. Each spring, the Nebraska District and the Conservation and Survey Division of the University of Nebraska publish a report for the previous calendar year entitled "Groundwater Levels in Nebraska, 19_." This report contains hydrographs of recorder wells, detailed maps showing changes in water levels from the previous year, and other useful items. Information about the availability of the data in the water-level file may be obtained from the District Chief, Nebraska District. (see address on back of front page.)

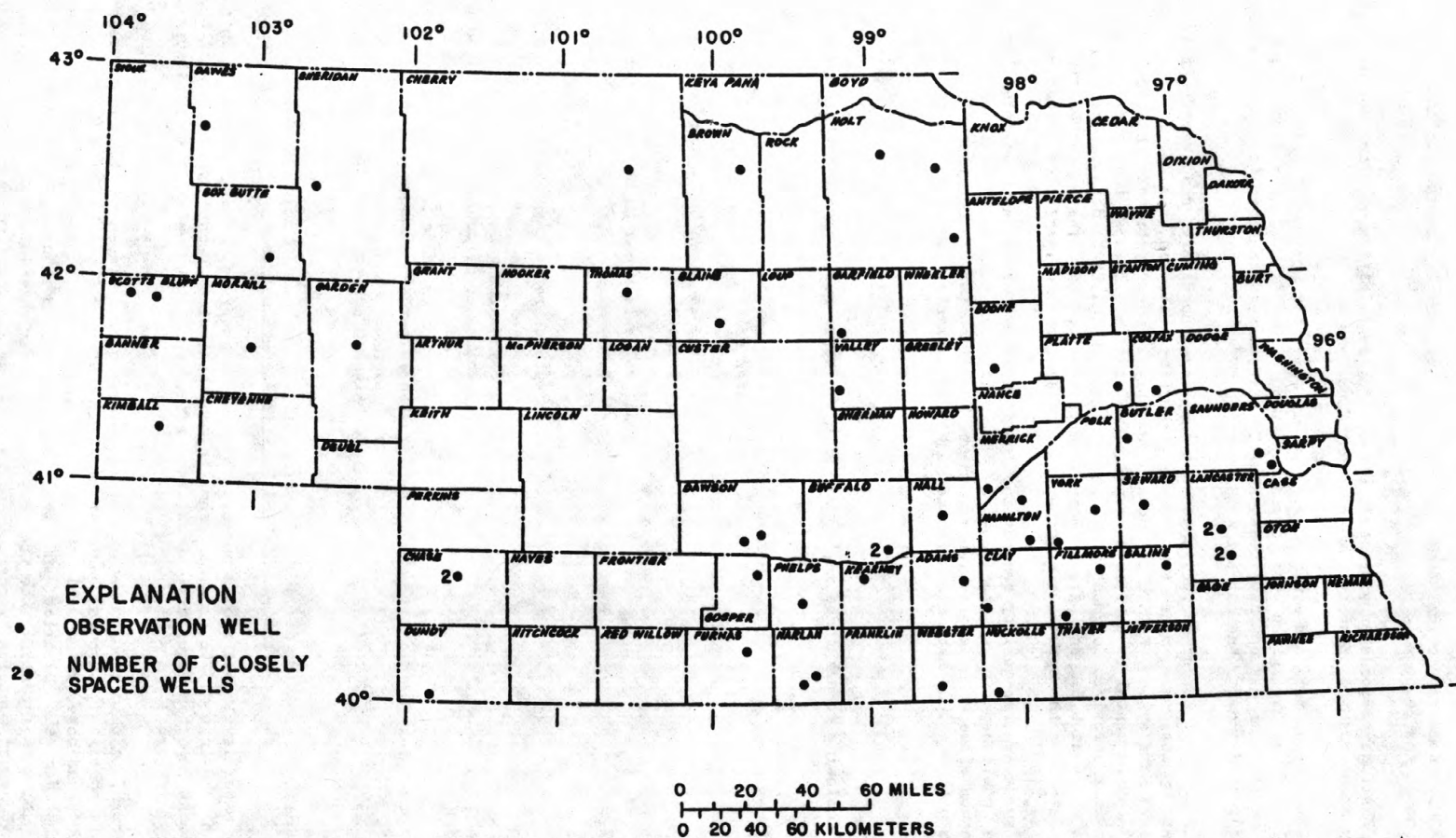


Figure 7.--Location of selected observation wells.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape or from water-stage recorders (graphical, digital punched tape, or electronic). The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. Hydrographs also are presented for some wells. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that, for most sampling sites, they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes, one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed at the end of the introductory text. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-level records. Data for quality of ground water are listed alphabetically by County and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

The National Water Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey. A variety of useful products ranging from data tables to complex statistical analyses such as Log Pearson Type III statistics can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia and consists of related files and data bases.

- . Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- . Daily Values Files - Contains over 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductance, sediment concentrations, sediment discharges, and ground-water levels.
- . Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage height values at surface-water sites.
- . Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radiochemical characteristics of both surface and ground water.
- . Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, the National Water Data Exchange (NAWDEX) services include data-search assistance, data dissemination, and data referrals. Data can be provided in various machine-readable formats on magnetic tape or 5-1/4 in floppy disk. The request for water-data should be forwarded to the local Geological Survey district office:

District Chief
U.S. Geological Survey
Rm 406, Federal Bldg
100 Centennial Mall, North
Lincoln, Nebraska 68508

If the district office does not have the facility to fulfill the request, it will be referred to the National Water Data Exchange (NAWDEX) office in Reston, Virginia.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic-foot-per-second day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 μ m membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO₃).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram ($\mu\text{g/g}$) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter ($\mu\text{g/L}$, $\mu\text{g/L}$) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (mg/L , mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft³/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow ($7 Q_{10}$) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. All areas shown are those for the stage when the planimeted map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45 μm filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 μm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 μm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
Genus.....	<u>Hexagenia</u>
Species.....	<u>Hexagenia limbata</u>

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1988, is called the "1988 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
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- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

DISCONTINUED GAGING STATIONS

The following continuous-record streamflow stations in Nebraska have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected and published for the period of record shown for each station.

Station number	Station name	Drainage area (mi ²)	Period of record (water years)
White River Basin			
06443500	White River near Crawford	163	*1897
4445	White River below Crawford	350	*1931
4450	White River below Cottonwood C near Whitney	676	1949-61
4455	White River near Chadron	750	1931-43
445590	Big Bordeaux Creek near Chadron	9.42	1968-79
Ponca Creek Basin			
4534	Ponca Creek near Naper	373	1961-74
453550	Ponca Creek at Lynch		1961-64
Niobrara River Basin			
4559	Niobrara River near Dunlap	1580	1931-42, 1962-71
4565	Niobrara River near Hay Springs	1790	1950-64
4570	Niobrara River near Colclessner	2220	1948
4580	Antelope Creek near Gordon	160	*1948
4585	Bear Creek near Eli	360	1948-53
4590	Niobrara River near Cody	5570	1948-57
4592	Snake River above Merritt Reservoir	440	1963-81
4600	Gordon Creek near Simeon		*1948
4605	Niobrara River near Valentine	6160	1901-06, 1928-32
4609	Minnehaduzza Creek near Kilgore	85	1958-74
4620	Niobrara River near Norden	8390	1953-83, 1986
4630	Niobrara River at Meadville		1951-52
4660	Niobrara River at Niobrara		1954-58
Blackbird Creek Basin			
6011	Blackbird Creek near Macy	102	1979-80
Tekamah Creek Basin			
6080	Tekamah Creek at Tekamah	23.0	1949-81
New York Creek Basin			
6090	New York Creek at Herman	25.4	1946-69
Platte River Basin			
6740	Mitchell Canal at WY-NE State Line		1938-41
6750	North Platte River at Henry		1912-18
6771	Horse Creek at WY-NE State Line		1969-70
6785	North Platte River at Morrill		1917-23
6788	Dutch Flats Drain near Mitchell		1961-65
6790	Dry Spotted Tail Creek at Mitchell	77.2	**1949-79
6800	Tub Springs near Scottsbluff		**1949-79
6805	North Platte River at Scottsbluff	24500	1887-1900, 1912, 1917-18
6807	Winter Creek at Tri-State Canal, near Scottsbluff		1961-65
6810	Winter Creek near Scottsbluff		**1932-79
6822	Alliance Drain near Minatare		1961-65
6823	Ninemile Drain near Minatare		1961-65
6825	Ninemile Drain near McGrew		**1932-79
6830	Bayard Sugar Factory Drain near Bayard		**1932-79
6835	Red Willow Creek near Bridgeport	83	*1931
6840	Red Willow Creek near Bayard	162	**1932-79
6855	North Platte River at Broadwater		1917-23

DISCONTINUED GAGING STATIONS--continued

Station number	Station name	Drainage area (mi ²)	Period of record (water years)
Platte River Basin--continued			
06686500	North Platte River at Oshkosh	31300	1916-17, 1928-60
6880	North Platte River at Belmar	29100	1917-26
6885	Otter Creek near Lemoyne	13.9	1932-37
6890	North Platte River at Lemoyne		1926-27
6895	North Platte River at Martin		1934-38
6915	Birdwood Creek near Sutherland	250	1913-15
6925	Lincoln County Drain No. 1 near North Platte		**1931, 1955-79
7620	Lodgepole Creek at Bushnell (upper station)	1090	1931-32
7630	Lodgepole Creek at Sidney	2190	1931-32
7635	Lodgepole Creek at Ralton	3307	1931, 1951-79
7645	South Platte River at Big Springs	23200	*1903
7650	South Platte River at Paxton	24000	1923-24, 1931-33, 1937-70
7670	Platte River near Lexington	61300	1902-06, 1916-24
7675	Plum Creek near Smithfield	229	1946-53, 1969-75
7685	Buffalo Creek near Darr	63	1947-69
7690	Buffalo Creek near Overton	175	1949-58
7695	Elm Creek near Overton	31	1947-58
770190	North Dry Creek near Kearney		1969-71
770478	Platte River near Grand Island (South Channel)		1984-87
7710	Wood River near Riverdale	379	1946-73
7715	Wood River near Gibbon	572	1949-76
7730	Dry Creek near Cairo	22.2	1949-53
7735	Prarie Creek near Silver Creek	406	1949-53
7745	Middle Loup River near Mullen	1120	1947-48
7750	Middle Loup River near Seneca	1140	1948-53
7760	Dismal River near Gem	1360	1947-53
7770	Middle Loup River near Milburn	3950	1952-56, 1958, 1960-64
7775	Middle Loup River at Walworth	4650	1941-60
7780	Middle Loup River at Sargent	4790	1937-38, 1953-70
7785	Middle Loup River near Comstock	4960	*1937
7795	Middle Loup River at Loup City	5170	1936-38, 1949-56
7800	Middle Loup River at Rockville	5310	1956-64, 1968-75
7805	Boelus Power Canal near Boelus		1952-63
7810	Middle Loup River at Boelus		1952-55
7815	Middle Loup River at Boelus (combined flow)		1937-38
7820	South Loup River near Cumro	1340	1946-53
7825	South Loup River at Ravenna	1570	1941-58, 1968-75
7830	Mud Creek near Broken Bow	126	1949-53
7843	Oak Creek near Loup City	41.9	1952-60, 1961-64
7845	Oak Creek near Dannebrog	122	1949-57
7855	North Loup River at Brewster	1890	1945-51
7865	North Loup River at Burwell	2510	1953-60
7880	North Loup River near Burwell		1937-38
7890	North Loup River at Scotia	3960	1937-70
7895	Davis Creek near Cotesfield	94.0	1949-58
7900	North Loup River near Cotesfield		1950-56
7910	Spring Creek at Cushing	164	1949-53
7917	Spalding Power Canal at Spalding		1960-64
791750	Cedar River at Primrose	870	1960-64
7918	Cedar River at Belgrade	1080	1960-65
7921	Fullerton Power Canal at Fullerton		1960-64
7945	Loup River at Columbus	15200	1895-1915, 1931, 1934-78
7950	Shell Creek at Newman Grove	122	1949-67
7965	Platte River near Fremont		1911-15
796978	Holt Creek near Emmet		1979-89
796985	Elkhorn River at Emmet		1980-82
7970	Elkhorn River at O'Neill	651	1931-32
7988	Elkhorn River at Meadow Grove	2500	1960-65
8013	Salt Creek subwatershed No. 3 near Sprague	4.14	1955-59
8014	Salt Creek subwatershed No. 1 near Roca	1.33	1955-61
8015	Salt Creek subwatershed No. 12 near Roca	1.11	1954-61
8025	Salt Creek subwatershed No. 34 near Roca	5.91	1954-61
8034	Antelope Creek at 17th St., at Lincoln	12.1	1958-62
803450	Oak Creek near Raymond	83.6	1963-67
803550	Dee Creek at Greenwood	14.3	*1960
8045	Silver Creek at Ithaca	80.0	1950-58
8050	Salt Creek near Ashland	1617	1948-69

WATER RESOURCES DATA - NEBRASKA, 1990

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DISCONTINUED GAGING STATIONS--continued

Station number	Station name	Drainage area (mi ²)	Period of record (water years)
Little Nemaha River Basin			
06810500	Little Nemaha River near Syracuse	212	1951-69
8109	Brownell Creek subwatershed No. 1A near Syracuse	.19	1955-69
8110	Brownell Creek subwatershed No. 1 near Syracuse	.77	1955-69
Big Nemaha River Basin			
8155	Muddy Creek at Verdon	186	1953-72
Kansas River Basin			
8225	Pioneer Canal at CO-NE State Line		***1950-51
8280	Republican River at Max	7880	1928-45
828490	Muddy Creek at Stratton	157	1978
8300	Republican River at Culbertson	8740	1931-50
8305	Frenchman Creek near Champion	480	1932-40
8310	Frenchman Creek below Champion	519	1935-56
8335	Frenchman Creek near Hamlet	1090	1929-56
8345	Stinking Water Creek near Wauneta	1330	1941-50
8360	Blackwood Creek near Culbertson	320	1946-86
8385	Dry Creek near Bartley	5.24	1955-57
8390	Medicine Creek at Maywood	231	1951-58
8395	Brushy Creek near Maywood	95.3	1951-58
8405	Dry Creek near Curtis	21.7	1951-58
8415	Mitchell Creek above Harry Strunk Lake	52.0	1950-74
8430	Medicine Creek at Cambridge	909	1936-57
8452	Sappa Creek near Beaver City	1510	1937-72
8500	Turkey Creek at Naponee	129	1948-53
8502	Cottonwood Creek near Bloomington	15.6	1948-56
8505	Republican River near Bloomington	21020	1929-57
8530	Republican River near Guide Rock	22040	1951-84
8531	Beaver Creek near Rosemont	.75	1968-70
8829	Little Blue River below Pawnee Creek, near Pauline	881	1963-68
8835	Little Blue River at Angus		1950-53

* Partial year only.

** Published by Nebraska Department of Water Resources after 1979.

*** Not published.

STATION RECORDS, SURFACE WATER

WHITE RIVER BASIN

06444000 WHITE RIVER AT CRAWFORD, NE

LOCATION.--Lat 42°41'33", long 103°25'03", in W1/2 sec.3, T.31 N., R.52 W., Dawes County, Hydrologic Unit 10140201, on right bank 15 ft downstream from bridge in city park at Crawford.

DRAINAGE AREA.--313 mi².

PERIOD OF RECORD.--February 1931 to September 1943, October 1947 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1942(M). WSP 1729: 1958-59(M). WSP 1917: 1958-59.

GAGE.--Water-stage recorder. Datum of gage is 3,659.85 ft above National Geodetic Vertical Datum of 1929. Feb. 25, 1931, to Oct. 2, 1933, nonrecording gage at old highway bridge 0.5 mi upstream at different datum and Oct. 3, 1933, to Sept. 30, 1943, 1 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 12, 14-16, 18-28, Jan. 28-29, and Feb. 2-4, 14-20. Records good except for periods of estimated record, which are fair. Some regulation at low flows by pumps for irrigation and diversion for water supply for town of Crawford.

AVERAGE DISCHARGE.--55 years, 20.1 ft³/s, 14,560 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,580 ft³/s Mar. 15, 1948, gage height, 6.88 ft; maximum gage height, 7.7 ft July 10, 1958, from floodmarks; minimum daily discharge, 2.7 ft³/s Aug. 13, 31, Sept. 1, 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	0400	(a)	*2.95	No peaks greater than base discharge.			
Aug. 22	1215	*77	2.36				

a Backwater from ice.

Minimum daily discharge, 11.0 ft³/s for short periods in June, July, and August.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	16	18	22	23	19	24	21	16	12	13	14
2	14	16	19	20	23	18	24	21	17	11	12	14
3	14	16	19	20	22	18	24	21	17	11	13	15
4	14	16	19	19	21	19	27	21	18	11	15	15
5	14	17	19	19	21	19	28	21	17	12	16	14
6	14	16	20	19	20	20	27	21	18	11	15	14
7	14	21	24	19	20	21	25	21	28	11	14	15
8	14	19	20	20	20	22	24	22	32	11	12	14
9	13	18	20	22	19	22	24	27	30	13	11	14
10	14	17	20	22	20	22	24	25	30	46	11	14
11	14	17	19	21	20	23	25	21	29	30	11	14
12	14	16	19	20	20	24	25	21	27	18	22	14
13	14	16	19	21	19	25	25	22	22	17	17	13
14	14	17	17	20	18	24	30	22	15	16	15	13
15	14	16	16	20	19	23	26	22	15	17	14	14
16	14	16	18	20	19	23	23	22	24	27	13	14
17	14	17	19	20	20	23	22	21	23	16	12	15
18	15	17	20	20	19	23	22	20	16	15	12	17
19	15	17	20	20	17	23	21	21	15	15	12	18
20	15	17	20	20	17	24	21	23	15	15	12	21
21	15	17	19	20	17	25	21	34	45	22	12	19
22	15	17	18	21	18	25	21	21	16	23	49	18
23	15	17	18	21	19	24	21	27	15	18	18	17
24	15	17	19	21	19	24	20	26	14	17	14	18
25	15	18	19	21	19	24	22	23	13	16	13	17
26	16	19	19	22	18	24	22	21	13	14	11	16
27	16	19	19	22	18	24	22	20	12	13	11	14
28	16	19	19	22	19	25	24	19	11	13	11	15
29	17	18	19	22	---	25	23	19	11	13	12	14
30	16	19	19	22	---	24	22	20	25	14	13	15
31	16	---	19	23	---	24	---	18	---	14	13	---
TOTAL	453	518	592	641	544	703	709	684	599	512	449	459
MEAN	14.6	17.3	19.1	20.7	19.4	22.7	23.6	22.1	20.0	16.5	14.5	15.3
MAX	17	21	24	23	23	25	30	34	45	46	49	21
MIN	13	16	16	19	17	18	20	18	11	11	11	13
AC-FT	899	1030	1170	1270	1080	1390	1410	1360	1190	1020	891	910

CAL YR 1989 TOTAL 6261.4 MEAN 17.2 MAX 88 MIN 6.5 AC-FT 12420
WTR YR 1990 TOTAL 6863 MEAN 18.8 MAX 49 MIN 11 AC-FT 13610

PONCA CREEK BASIN

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06453500 PONCA CREEK AT ANOKA, NE

LOCATION.--Lat 42°56'34", long 98°50'25", in NE1/4 sec.9, T.34 N., R.13 W., Boyd County, Hydrologic Unit 10150001, on left downstream bank near left abutment of bridge on State Highway 11, 0.5 mi southwest of Anoka and 0.5 mi upstream from Dry Creek.

DRAINAGE AREA.--505 mi².

PERIOD OF RECORD.--March 1949 to current year.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,630 above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 13, 1950, nonrecording gage and Sept. 13, 1950, to Oct. 8, 1984, water-stage recorder for stages above 0.4 ft and nonrecording gage read daily at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 14 to Mar. 7. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--41 years, 46.1 ft³/s, 33,400 acre-ft/yr; median of yearly mean discharge, 33 ft³/s, 23,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,810 ft³/s, Mar. 27, 1960, gage height, 16.86 ft; no flow at times in 1949-50, 1955-62, 1965-71, 1974-76, 1978-82, 1989-1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 3	1130	*423	*4.09	No peaks greater than base discharge.			
No flow for Oct. 2, Aug. 31 to Sept. 30.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	1.2	.22	1.5	5.4	13	4.7	49	29	1.7	.58	.00
2	.00	1.3	.30	2.5	5.6	13	6.3	33	38	1.5	2.8	.00
3	.08	1.7	.35	2.8	5.8	12	7.4	23	227	1.5	1.9	.00
4	.26	1.6	.50	3.0	6.2	11	7.1	16	237	1.6	1.3	.00
5	.38	1.6	.45	2.8	6.6	12	6.6	12	146	1.6	.75	.00
6	.41	2.0	.40	2.7	8.0	13	6.2	9.6	114	1.4	.52	.00
7	.44	1.8	.42	4.5	7.4	15	6.0	7.4	77	1.3	.39	.00
8	.46	1.7	.40	6.6	8.0	18	5.7	14	55	1.2	.35	.00
9	.46	1.7	.39	6.4	9.0	18	5.7	23	39	1.2	.30	.00
10	.44	1.8	.35	5.8	9.0	27	7.3	38	31	2.7	.29	.00
11	.44	1.8	.38	5.6	10	39	6.4	31	29	2.2	.30	.00
12	.45	1.8	.37	5.6	7.4	35	5.9	21	22	1.5	.30	.00
13	.49	1.7	.35	5.6	6.8	31	5.8	16	17	1.2	.29	.00
14	.52	.60	.32	6.0	7.0	26	5.3	22	13	1.1	.55	.00
15	.57	.13	.36	6.2	6.6	19	5.0	24	12	1.1	5.3	.00
16	.56	.07	.42	5.8	5.4	15	5.4	20	12	.98	4.5	.00
17	.60	.08	.40	5.6	7.4	13	6.6	15	13	.93	2.3	.00
18	.69	.08	.38	5.8	7.0	11	6.0	12	16	.92	1.2	.00
19	.87	.15	.40	5.6	8.2	8.6	3.5	18	9.9	1.6	1.1	.00
20	.83	.18	.38	5.8	9.0	7.9	3.0	24	11	1.5	.89	.00
21	.80	.16	.40	5.8	8.6	6.8	3.1	31	11	1.3	.60	.00
22	.83	.15	.40	6.0	8.8	7.3	2.9	40	10	1.4	1.1	.00
23	.88	.18	.45	6.0	8.0	6.4	3.3	33	7.4	1.1	3.1	.00
24	.87	.20	.54	5.0	8.0	6.2	3.4	25	6.6	1.0	1.9	.00
25	.90	.19	.50	5.4	8.6	5.9	4.2	26	5.2	.88	.96	.00
26	.83	.20	.54	5.6	9.0	5.8	5.5	31	4.5	1.0	.46	.00
27	.85	.10	.62	5.4	11	5.5	19	33	3.5	.90	.28	.00
28	.86	.11	.68	5.2	12	4.7	23	40	2.9	1.0	.16	.00
29	.97	.20	.66	5.4	---	4.8	41	62	2.4	.94	.07	.00
30	1.0	.25	.90	5.2	---	4.6	53	49	1.9	.74	.01	.00
31	1.0	---	.80	5.0	---	4.9	---	35	---	.66	.00	---
TOTAL	18.78	24.73	14.03	156.2	219.8	420.4	274.3	833.0	1203.3	39.65	34.55	0.00
MEAN	.61	.82	.45	5.04	7.85	13.6	9.14	26.9	40.1	1.28	1.11	.000
MAX	1.0	2.0	.90	6.6	12	39	53	62	237	2.7	5.3	.00
MIN	.00	.07	.22	1.5	5.4	4.6	2.9	7.4	1.9	.66	.00	.00
AC-FT	37	49	28	310	436	834	544	1650	2390	79	69	.00

CAL YR 1989 TOTAL 3906.14 MEAN 10.7 MAX 240 MIN .00 AC-FT 7750
WTR YR 1990 TOTAL 3238.74 MEAN 8.87 MAX 237 MIN .00 AC-FT 6420

PONCA CREEK BASIN

06453600 PONCA CREEK AT VERDEL, NE

LOCATION.--Lat 42°48'40", long 98°10'35", in NE1/4NE1/4 sec.30, T.33 N., R.7 W., Knox County, Hydrologic Unit 10150001, near left bank at left downstream end of bridge on State Highway 12, 0.6 mi east of Verdel and 3.1 mi upstream from mouth.

DRAINAGE AREA.--812 mi².

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder and nonrecording gage read once daily. Datum of gage 1,232.9 ft above National Geodetic Vertical Datum of 1929 (Nebraska Department of Roads reference marks). See WSP 1917 for history of changes prior to Nov. 15, 1962.

REMARKS.--Estimated daily discharges: Nov. 16 to Mar. 3. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--33 years, 77.5 ft³/s, 56,150 acre-ft/yr; median of yearly mean discharges, 59 ft³/s, 42,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,700 ft³/s Mar. 27, 1960, gage height, 15.10 ft, site and datum then in use; no flow for many days in 1957-60, 1965-72, 1974-77, 1979-81, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	0300	(a)	*5.31	No peaks greater than base discharge.			
June 4	2000	*381	5.08				

a Ice jam.

Minimum daily discharge, .56 ft³/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	4.9	5.4	9.0	11	25	13	31	50	12	.99	1.8
2	1.2	4.0	7.0	10	13	29	12	36	50	12	1.1	1.8
3	1.2	4.3	8.6	9.4	14	28	13	41	128	11	3.7	1.5
4	1.2	5.5	9.0	9.6	15	31	14	42	158	9.0	5.8	1.4
5	1.8	5.9	9.4	9.4	16	28	14	41	253	11	2.9	1.3
6	1.7	5.8	8.8	9.8	17	24	13	37	150	9.7	2.3	1.2
7	1.6	5.9	8.0	10	18	28	14	36	119	10	1.8	1.0
8	2.0	6.4	8.6	10	17	30	14	42	93	8.2	1.3	.95
9	2.1	6.5	8.6	11	16	29	15	53	72	7.5	1.9	.90
10	1.5	7.0	8.0	13	17	28	13	47	61	11	1.9	.93
11	1.2	7.8	7.4	12	18	35	12	44	57	11	1.9	1.8
12	1.6	7.3	6.8	11	19	38	12	52	53	11	2.6	1.1
13	3.2	7.3	6.8	10	18	39	14	48	51	7.9	3.8	.86
14	3.2	5.5	6.4	11	17	38	16	44	46	6.5	2.9	.70
15	2.9	4.5	6.2	10	15	35	16	40	47	5.7	2.4	.82
16	1.9	3.2	6.6	9.0	16	33	18	40	52	4.4	2.3	.71
17	1.3	2.5	6.4	10	15	29	16	39	134	4.1	2.2	.88
18	.91	3.0	7.0	9.8	14	25	15	35	116	2.8	1.6	1.5
19	.56	4.0	6.2	9.4	15	21	15	59	61	3.0	5.0	1.4
20	1.0	4.0	6.6	9.0	17	22	15	84	53	4.6	3.1	1.3
21	2.2	3.8	7.0	9.4	16	22	13	55	48	4.4	3.1	1.2
22	4.5	3.4	6.0	11	17	21	12	46	46	4.0	16	1.0
23	6.0	5.2	9.0	10	18	17	13	110	36	3.7	73	1.1
24	5.8	5.4	10	9.8	17	15	12	164	31	4.5	12	1.2
25	7.5	4.5	12	9.6	19	15	12	199	27	3.1	8.0	1.1
26	8.3	5.0	12	10	18	15	11	83	22	2.9	5.1	1.1
27	10	3.5	14	11	20	15	17	59	18	2.8	3.0	.85
28	9.3	3.9	15	10	24	15	19	57	16	2.4	2.6	.88
29	14	5.2	11	9.6	---	15	26	51	14	3.1	2.2	1.1
30	13	5.0	9.0	10	---	14	28	47	13	1.8	2.0	1.3
31	5.9	---	8.0	10	---	14	---	52	---	1.2	1.7	---
TOTAL	119.67	150.2	260.8	312.8	467	773	447	1814	2075	196.3	180.19	34.68
MEAN	3.86	5.01	8.41	10.1	16.7	24.9	14.9	58.5	69.2	6.33	5.81	1.16
MAX	14	7.8	15	13	24	39	28	199	253	12	73	1.8
MIN	.56	2.5	5.4	9.0	11	14	11	31	13	1.2	.99	.70
AC-FT	237	298	517	620	926	1530	887	3600	4120	389	357	69

CAL YR 1989 TOTAL 8421.89 MEAN 23.1 MAX 600 MIN .00 AC-FT 16700
WTR YR 1990 TOTAL 6830.64 MEAN 18.7 MAX 253 MIN .56 AC-FT 13550

NIOBRARA RIVER BASIN

41

06454000 NIOBRARA RIVER AT WYOMING-NEBRASKA STATE LINE

LOCATION.--Lat 42°39'33", long 104°03'54", in SE1/4SW1/4 sec.15, T.31 N., R.60 W., Niobrara County, Wyoming, Hydrologic Unit 10150002, on left bank 0.2 mi downstream from Van Tassel Creek, 0.3 mi upstream from Wyoming-Nebraska State line, and 3 mi east of Van Tassel, WY.

DRAINAGE AREA.--450 mi², approximately.

PERIOD OF RECORD.--October 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,687.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 21, 22, Feb. 15, 16, and Mar. 6-9. Records good. Diversions for irrigation of about 4,700 acres above station.

AVERAGE DISCHARGE.--35 years, 3.69 ft³/s, 2,670 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,120 ft³/s Aug. 16, 1977, gage height, 8.28 ft in gage well, from rating curve extended above 800 ft³/s on basis of computation of peak flow from slope-area measurement; minimum daily, 0.54 ft³/s Aug. 9, 10, 12, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 7	0300	(a)	*4.22	No peaks greater than base discharge.			
Mar. 15	0830	*9.8	1.95				

a Backwater from snow.

Minimum daily discharge, 0.99 ft³/s July 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.1	2.2	2.6	2.2	3.4	5.1	2.6	4.7	1.7	1.7	1.5
2	2.4	2.1	2.2	2.4	1.7	3.4	4.2	2.5	4.0	1.7	1.9	1.6
3	2.5	2.3	2.2	2.4	1.6	3.7	3.6	2.5	3.4	1.5	1.9	1.7
4	2.5	2.5	2.2	2.2	1.8	4.2	3.3	2.5	3.4	1.7	2.4	1.6
5	2.5	3.9	2.3	2.2	2.0	4.2	3.5	2.5	3.3	1.7	2.3	1.7
6	2.5	2.2	2.2	2.3	2.1	4.0	3.3	2.4	3.4	1.5	2.2	2.2
7	2.4	2.1	2.2	2.3	2.2	3.8	3.0	2.5	4.4	1.3	2.0	2.0
8	2.4	2.1	2.2	3.2	2.3	3.6	2.9	2.7	3.8	1.4	1.8	2.1
9	2.4	2.1	2.3	2.7	2.2	3.3	3.5	3.4	3.6	1.7	1.7	1.9
10	2.3	2.0	2.4	2.7	2.6	3.3	3.6	2.6	3.4	2.5	1.6	1.9
11	2.2	2.0	2.3	2.6	3.1	4.9	3.2	2.6	3.1	1.6	2.1	2.0
12	2.2	1.9	2.3	2.5	3.3	5.6	3.3	3.0	3.0	1.3	2.1	1.9
13	2.2	1.9	2.5	2.7	2.9	5.3	3.7	4.8	3.3	1.4	1.8	1.7
14	2.2	2.0	2.6	2.6	2.4	4.7	3.3	2.6	3.5	1.3	1.8	1.6
15	2.2	1.9	2.6	2.3	2.3	4.8	3.6	2.8	3.7	1.2	1.7	1.8
16	2.5	1.9	2.5	2.3	2.3	3.5	3.5	2.4	4.6	1.1	1.7	1.7
17	2.5	2.0	2.4	2.2	2.4	4.9	3.4	2.1	3.9	.99	1.7	1.6
18	2.4	1.9	2.4	2.2	2.4	4.7	3.3	2.1	3.5	1.0	1.6	1.9
19	2.3	2.0	2.4	2.2	2.4	4.3	3.4	2.2	3.2	1.3	1.6	2.1
20	2.3	2.0	2.4	2.2	2.4	4.8	3.3	2.2	3.3	2.0	1.5	2.6
21	2.2	2.1	2.4	2.3	2.5	5.0	3.1	2.1	4.2	3.7	2.0	1.9
22	2.2	2.1	2.4	2.3	2.6	4.6	3.2	2.0	3.5	2.6	2.3	1.7
23	2.2	2.1	2.5	2.4	2.9	3.8	3.0	2.5	2.7	2.1	2.0	1.6
24	2.2	2.2	2.4	2.5	2.8	3.8	3.0	2.9	2.3	2.0	1.9	1.6
25	2.0	2.2	2.4	2.4	2.9	3.6	4.0	2.3	2.1	1.9	1.8	1.6
26	2.2	2.3	2.5	2.5	3.4	4.1	4.4	2.2	1.8	1.8	1.7	1.5
27	2.5	2.4	2.5	2.4	4.3	4.8	4.0	2.4	2.2	1.6	1.6	1.6
28	2.2	2.3	2.5	2.4	3.9	6.9	4.2	2.6	1.8	1.6	1.4	1.8
29	2.2	2.2	2.6	2.5	---	7.0	3.9	3.5	2.3	1.7	1.3	2.0
30	2.2	2.2	2.7	2.7	---	6.7	3.0	3.8	1.8	1.7	1.3	1.8
31	2.2	---	2.7	2.6	---	5.9	---	3.7	---	1.8	1.4	---
TOTAL	71.5	65.0	74.4	75.8	71.9	140.6	105.8	83.0	97.2	52.39	55.8	54.2
MEAN	2.31	2.17	2.40	2.45	2.57	4.54	3.53	2.68	3.24	1.69	1.80	1.81
MAX	2.5	3.9	2.7	3.2	4.3	7.0	5.1	4.8	4.7	3.7	2.4	2.6
MIN	2.0	1.9	2.2	2.2	1.6	3.3	2.9	2.0	1.8	.99	1.3	1.5
AC-FT	142	129	148	150	143	279	210	165	193	104	111	108

CAL YR 1989 TOTAL 909.0 MEAN 2.49 MAX 8.0 MIN 1.2 AC-FT 1800
WTR YR 1990 TOTAL 947.59 MEAN 2.60 MAX 7.0 MIN .99 AC-FT 1880

NIOBRARA RIVER BASIN

06454100 NIOBRARA RIVER AT AGATE, NE

LOCATION.--Lat 42°25'22", long 103°47'28", in SW1/4 sec.6, T.28 N., R.55 W., Sioux County, Hydrologic Unit 10150002, on right bank 10 ft upstream from 54-in culvert, 300 ft upstream from bridge on State Highway 29, 0.2 mi northwest of Agate, and 14.5 mi upstream from Whistle Creek.

DRAINAGE AREA.--840 mi², approximately.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,405 ft, from topographic map. Prior to 1982 water year, elevation published as 4,440 ft. Prior to Nov. 3, 1960, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Diversions for irrigation of about 6,700 acres above station.

AVERAGE DISCHARGE.--33 years, 13.6 ft³/s, 9,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 181 ft³/s June 23, 1959, gage height, 5.00 ft, from floodmark; maximum gage height 5.55 ft Mar. 24, 1988; minimum daily discharge, 1.0 ft³/s Mar. 29, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 15	1530	*32	*4.28	No peaks greater than base discharge.			

Minimum daily discharge, 4.4 ft³/s July 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	8.7	11	12	13	17	17	13	7.1	5.3	7.4	5.9
2	8.1	8.6	13	12	12	17	17	13	8.5	5.2	7.1	6.8
3	8.2	8.9	13	12	12	17	17	12	8.0	4.4	6.5	6.7
4	8.4	9.0	13	12	12	18	17	12	7.2	4.5	7.6	6.6
5	8.4	9.0	13	12	13	18	17	12	7.2	5.0	9.9	6.5
6	8.4	8.9	13	12	13	15	17	12	7.3	4.9	9.8	7.1
7	8.4	8.5	13	12	13	11	17	12	8.1	5.4	9.3	9.1
8	8.4	8.0	12	12	14	23	17	11	7.9	5.5	8.6	8.5
9	8.4	8.0	13	13	13	20	17	12	6.9	6.0	7.6	6.8
10	8.5	8.0	13	14	14	20	18	12	6.5	6.6	7.4	6.7
11	8.5	7.9	9.1	14	15	21	17	11	6.8	7.4	7.6	6.7
12	8.4	7.9	11	13	15	21	17	11	6.6	7.3	8.5	6.6
13	8.4	7.9	11	13	12	20	17	11	6.4	6.9	8.2	6.5
14	8.4	7.8	11	14	9.6	23	17	11	6.7	7.1	7.7	6.4
15	8.5	7.5	12	15	11	31	17	11	6.8	7.6	8.1	6.6
16	8.8	7.1	10	15	13	26	17	9.5	7.7	6.8	8.1	6.7
17	9.0	9.1	10	15	8.4	22	17	7.4	7.7	6.6	7.9	6.9
18	9.0	8.6	11	15	9.7	22	16	7.1	6.9	5.8	7.7	7.3
19	9.1	8.5	10	14	14	24	16	7.2	6.3	7.1	7.1	6.3
20	9.2	8.5	10	14	13	23	13	7.6	6.2	7.4	6.7	6.8
21	9.4	8.4	9.8	14	14	22	12	8.6	6.5	8.6	6.8	6.8
22	9.4	8.4	9.4	14	17	21	13	7.3	6.6	9.5	7.2	6.2
23	9.4	8.3	9.4	14	18	21	13	7.1	5.5	9.5	6.5	6.2
24	9.2	8.4	9.6	14	19	20	11	7.7	4.8	8.6	6.2	6.2
25	8.6	8.6	9.8	12	20	20	12	7.5	6.1	8.4	6.3	6.2
26	7.9	8.7	10	13	18	20	12	7.0	6.8	8.2	6.2	6.2
27	8.7	8.6	10	13	17	20	12	6.9	6.3	7.8	6.8	6.2
28	8.0	8.3	11	11	17	19	14	6.9	6.4	7.4	6.3	6.4
29	7.8	8.3	12	12	---	19	14	8.1	5.8	7.2	6.4	6.7
30	9.8	8.7	12	13	---	19	13	7.7	5.6	7.4	6.0	7.0
31	9.3	---	12	13	---	18	---	7.2	---	7.6	5.6	---
TOTAL	268.1	251.1	347.1	408	389.7	628	461	296.8	203.2	213.0	229.1	201.6
MEAN	8.65	8.37	11.2	13.2	13.9	20.3	15.4	9.57	6.77	6.87	7.39	6.72
MAX	9.8	9.1	13	15	20	31	18	13	8.5	9.5	9.9	9.1
MIN	7.8	7.1	9.1	11	8.4	11	11	6.9	4.8	4.4	5.6	5.9
AC-FT	532	498	688	809	773	1250	914	589	403	422	454	400

CAL YR 1989 TOTAL 3603.9 MEAN 9.87 MAX 32 MIN 3.4 AC-FT 7150
WTR YR 1990 TOTAL 3896.7 MEAN 10.7 MAX 31 MIN 4.4 AC-FT 7730

NIOBRARA RIVER BASIN

43

06454500 NIOBRARA RIVER ABOVE BOX BUTTE RESERVOIR, NE

LOCATION.--Lat 42°27'35", long 103°10'15", in NE1/4 sec.27, T.29 N., R.50 W., Dawes County, Hydrologic Unit 10150002, on right bank 1 mi upstream from high-water line of Box Butte Reservoir and 6 mi east of Marsland.

DRAINAGE AREA.--1,400 mi², approximately.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1917: 1951, 1952(P), 1957(M).

GAGE.--Water-stage recorder. Concrete control since Oct. 12, 1953. Datum of gage is 4,012.47 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1949, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 12-19, 21-23, Jan. 1-4, 25-30, Feb. 2, 3, 14-21. Records good except for periods of estimated record, which are fair. Diversions for irrigation of about 12,800 acres above station.

AVERAGE DISCHARGE.--44 years, 28.9 ft³/s, 20,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,950 ft³/s July 28, 1951, gage height, 10.30 ft, from rating curve extended above 230 ft³/s on basis of step-backwater analysis and slope-area measurement at gage height 9.22 ft; minimum daily, 1.6 ft³/s Sept. 26, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*).

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr. 22	0305	*69	*3.88	No peaks greater than base discharge.			

Minimum daily discharge, 8.6 ft³/s July 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	15	19	22	31	42	22	19	9.7	14	14
2	12	13	15	19	21	32	41	15	19	8.6	13	14
3	11	14	17	20	22	34	38	13	17	8.9	13	14
4	11	14	17	20	22	35	38	15	16	10	13	13
5	11	14	17	20	22	33	38	15	17	11	14	13
6	11	14	18	20	24	40	38	16	18	10	16	12
7	10	14	18	22	25	35	37	20	18	9.8	18	11
8	10	14	18	22	26	35	35	24	16	9.5	16	11
9	9.9	14	18	22	25	38	34	26	16	11	17	11
10	10	13	19	24	27	34	35	24	15	13	17	11
11	11	13	18	23	27	36	35	25	15	12	17	10
12	11	13	18	22	29	42	37	27	15	11	18	10
13	12	12	15	26	25	49	37	25	15	11	18	10
14	12	12	17	24	25	53	37	23	14	10	17	9.8
15	13	11	17	23	25	55	37	23	14	10	17	10
16	13	11	17	24	24	52	35	21	15	10	15	10
17	13	11	17	22	23	51	35	18	16	10	15	11
18	13	11	16	23	22	50	33	20	15	9.9	14	12
19	13	12	16	23	22	46	36	24	16	10	14	13
20	13	13	16	23	22	45	25	26	15	14	14	15
21	13	13	16	23	22	47	30	26	14	23	13	15
22	13	13	15	25	23	46	40	22	15	22	13	16
23	13	13	16	24	25	44	35	21	17	19	12	16
24	13	13	16	26	26	44	28	21	17	17	11	17
25	13	14	17	22	27	45	23	29	15	15	13	16
26	13	15	17	22	29	47	25	25	13	14	17	16
27	13	15	17	22	32	46	26	23	12	14	23	16
28	13	14	17	22	33	45	24	23	13	14	26	16
29	13	14	18	22	---	45	25	22	11	14	18	17
30	13	15	19	22	---	46	26	21	10	14	15	17
31	13	---	19	22	---	44	---	20	---	14	14	---
TOTAL	374.9	395	526	693	697	1325	1005	675	458	389.4	485	396.8
MEAN	12.1	13.2	17.0	22.4	24.9	42.7	33.5	21.8	15.3	12.6	15.6	13.2
MAX	13	15	19	26	33	55	42	29	19	23	26	17
MIN	9.9	11	15	19	21	31	23	13	10	8.6	11	9.8
AC-FT	744	783	1040	1370	1380	2630	1990	1340	908	772	962	787

CAL YR 1989 TOTAL 6258.6 MEAN 17.1 MAX 57 MIN 4.7 AC-FT 12410
WTR YR 1990 TOTAL 7420.1 MEAN 20.3 MAX 55 MIN 8.6 AC-FT 14720

NIOBRARA RIVER BASIN

06455000 BOX BUTTE RESERVOIR NEAR HEMINGFORD, NE

LOCATION.--Lat 42°27'30", long 103°04'03", in sec.28, T.29 N., R.49 W., Dawes County, Hydrologic Unit 10150002, in control tower on dam near left bank on Niobrara River, 9 mi north of Hemingford.

DRAINAGE AREA.--1,460 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Electric tape gage read three or more times a month. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; outlet gate first closed Oct. 3, 1945. Usable capacity, 30,420 acre-ft between elevations 3,969.00 ft, sill of outlet gate, and 4,007.00 ft, crest of spillway. Dead storage, 640 acre-ft. Figures given herein represent total contents. Water is used for irrigation of Mirage Flats project of Bureau of Reclamation.

COOPERATION.--Records of elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,210 acre-ft Mar. 26, 1948, elevation, 4,007.70 ft; minimum observed since operation of reservoir began, 640 acre-ft Aug. 26, 1985, elevation, 3,969.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 12,550 acre-ft June 14, elevation, 3,992.47 ft; minimum observed, 2,950 acre-ft Oct. 31, elevation, 3,978.31 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet) ^{a/}	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,975.52	2,000	-
Oct. 31	3,978.31	2,950	+950
Nov. 30	3,980.14	3,780	+830
Dec. 31	3,982.00	4,750	+970
CAL YR 1989	-	-	-1,490
Jan. 31	3,984.60	6,240	+1,490
Feb. 28	3,986.80	7,710	+1,470
Mar. 31	3,989.60	9,920	+2,210
Apr. 30	3,991.55	11,680	+1,760
May 31	3,992.40	12,480	+800
June 30	3,992.43	12,510	+30
July 31	3,984.40	6,120	-6,390
Aug. 31	3,981.47	4,460	-1,660
Sept. 30	3,982.60	5,080	+620
WTR YR 1990	-	-	+3,080

^a Elevations read on or near last day of month.

NIOBRARA RIVER BASIN

45

06455500 NIOBRARA RIVER BELOW BOX BUTTE RESERVOIR, NE

LOCATION.--Lat 42°27'25", long 103°04'05", in SE1/4 sec.28, T.29 N., R.49 W., Dawes County, Hydrologic Unit 10150003, on left bank 0.2 mi downstream from Box Butte Reservoir and 9 mi north of Hemingford.

DRAINAGE AREA.--1,460 mi², approximately.

PERIOD OF RECORD.--October 1946 to current year.

GAGE.--Water-stage recorder. Concrete control since Apr. 11, 1953. Datum of gage is 3,950.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 16-20. Records good. Flow completely regulated by Box Butte Reservoir (station 06455000).

AVERAGE DISCHARGE.--44 years, 24.8 ft³/s, 17,970 acre-ft/yr. Unadjusted for storage or diversions since October 1947.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 616 ft³/s July 2, 1968, gage height, 5.04 ft; minimum daily, 0.10 ft³/s for many days in 1947, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 153 ft³/s July 11, gage height, 4.21 ft; minimum daily, 0.65 ft³/s Oct. 1, 7, 25, Jan. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	.66	.68	.66	.75	.86	.89	.83	.97	.90	88	.73
2	.66	.67	.68	.66	.70	.87	.88	.78	.96	.86	85	.74
3	.66	.67	.67	.66	.71	.86	.83	.76	.97	.81	80	.75
4	.66	.67	.67	.65	.75	.84	.87	.80	1.0	9.2	80	.72
5	.66	.67	.67	.65	.75	.85	.90	.81	.98	74	90	.74
6	.66	.67	.67	.66	.74	.85	.93	.81	.99	84	101	.73
7	.65	.67	.67	.66	.75	.79	.90	.85	.96	105	100	.67
8	.66	.67	.68	.70	.77	.77	.92	.82	.90	126	98	.67
9	.66	.66	.68	.67	.77	.72	.91	.83	.89	133	100	.67
10	.66	.67	.68	.67	.74	.74	.90	.81	.91	132	99	.68
11	.66	.67	.67	.73	.79	.80	.93	.81	.89	142	97	.71
12	.66	.67	.68	.71	.78	.86	.89	.80	.91	150	99	.69
13	.66	.68	.68	.73	.79	.88	.87	.79	.93	150	94	.68
14	.66	.67	.68	.70	.84	.87	.87	.84	.91	148	74	.66
15	.66	.66	.68	.68	.81	.81	.90	.84	.92	147	61	.66
16	.66	.67	.68	.70	.80	.77	.92	.80	.96	139	60	.66
17	.67	.67	.67	.68	.81	.82	.94	.81	.95	133	37	.71
18	.67	.67	.67	.68	.83	.79	.91	.87	.94	137	.97	.74
19	.67	.68	.66	.68	.84	.82	.88	.86	.91	117	.93	.78
20	.67	.70	.66	.68	.85	.85	.87	.99	.97	92	.90	.76
21	.66	.69	.66	.68	.86	.86	.87	.93	.97	88	.88	.71
22	.66	.68	.66	.72	.82	.86	.90	.92	.96	77	.86	.73
23	.66	.67	.66	.74	.81	.87	.90	.91	.96	65	.86	.74
24	.66	.71	.66	.75	.83	.90	.86	.89	.95	65	.86	.71
25	.65	.70	.66	.74	.84	.92	.85	.90	.92	89	.82	.69
26	.66	.71	.67	.74	.84	.90	.84	.93	.90	103	.84	.70
27	.66	.70	.67	.71	.84	.88	.83	.92	.89	102	.78	.70
28	.66	.68	.67	.74	.84	.89	.87	.92	.91	102	.76	.72
29	.67	.68	.67	.75	---	.90	.84	.97	.92	101	.76	.72
30	.67	.68	.67	.75	---	.90	.84	.96	.90	101	.74	.72
31	.67	---	.66	.75	---	.85	---	.93	---	96	.72	---
TOTAL	20.50	20.32	20.79	21.68	22.25	26.15	26.51	26.69	28.10	3009.77	1454.68	21.29
MEAN	.66	.68	.67	.70	.79	.84	.88	.86	.94	97.1	46.9	.71
MAX	.67	.71	.68	.75	.86	.92	.94	.99	1.0	150	101	.78
MIN	.65	.66	.66	.65	.70	.72	.83	.76	.89	.81	.72	.66
AC-FT	41	40	41	43	44	52	53	53	56	5970	2890	42

CAL YR 1989 TOTAL 5492.16 MEAN 15.0 MAX 184 MIN .62 AC-FT 10890
WTR YR 1990 TOTAL 4698.73 MEAN 12.9 MAX 150 MIN .65 AC-FT 9320

NIOBRARA RIVER BASIN

06457500 NIOBRARA RIVER NEAR GORDON, NE

LOCATION.--Lat 42°38'00", long 102°12'40", in NE1/4 sec.26, T.31 N., R.42 W., Sheridan County, Hydrologic Unit 10150003, on left bank 250 ft upstream from bridge on State Highway 27, 4 mi downstream from Rush Creek, and 11 mi south of Gordon.

DRAINAGE AREA.--4,290 mi², approximately.

PERIOD OF RECORD.--August 1928 to September 1932, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WDR NE-67: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,432.49 ft above National Geodetic Vertical Datum of 1929. Aug. 24, 1928, to June 30, 1932, nonrecording gage at bridge 4 mi downstream at different datum. Dec. 3, 1945, to Mar. 24, 1970, water-stage recorder at datum 2.0 ft higher, Mar. 25, 1970, to July 28, 1982, at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 4, Dec. 11 to Jan. 17, Jan. 26 to Feb. 7, Feb. 14-21, and Mar. 24-25. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by storage in Box Butte Reservoir (station 06455000) for irrigation of Mirage Flats project and return flow from irrigated land.

AVERAGE DISCHARGE.--44 years, (water years 1947-90) 115 ft³/s, 83,320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,130 ft³/s May 21, 1962, gage height, 5.25 ft; minimum daily, 16 ft³/s Dec. 20, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,950 ft³/s June 1, gage height, 3.31 ft; minimum daily, 35 ft³/s July 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	83	100	96	94	109	95	99	437	50	61	48
2	71	87	102	100	90	104	94	100	182	46	57	51
3	80	91	104	104	92	100	91	94	105	38	57	56
4	85	94	104	110	92	100	97	86	97	40	55	60
5	83	96	106	110	92	99	101	79	90	40	71	63
6	80	96	107	116	94	102	104	71	88	36	75	65
7	84	91	100	116	94	110	83	70	113	35	63	65
8	83	86	101	118	96	119	79	83	96	47	54	60
9	80	93	105	118	92	98	89	91	90	63	51	60
10	79	98	105	118	86	116	107	95	94	62	52	60
11	79	96	56	118	93	152	113	93	86	54	62	65
12	80	97	60	118	98	159	112	88	84	49	97	62
13	80	93	66	116	97	135	130	92	86	45	80	55
14	77	93	70	114	92	123	122	85	86	44	68	54
15	72	91	70	112	90	132	112	88	97	48	70	64
16	81	84	70	110	88	140	95	79	550	58	67	65
17	86	102	72	100	90	128	96	72	145	57	61	72
18	83	105	76	86	92	115	98	73	117	50	57	92
19	81	113	80	94	92	109	91	89	117	66	58	89
20	83	107	80	102	94	106	92	93	95	78	64	93
21	86	99	80	98	94	102	89	86	100	91	58	80
22	81	93	80	99	92	92	82	79	100	86	69	81
23	80	96	74	104	55	85	81	80	83	85	66	81
24	82	100	76	102	74	92	87	115	77	75	59	82
25	82	101	80	99	106	90	98	160	72	63	55	81
26	83	106	86	96	90	83	100	116	61	55	55	80
27	80	95	90	96	78	116	92	107	56	54	55	78
28	82	90	96	96	94	117	103	108	54	62	49	77
29	79	92	100	98	---	113	107	89	56	59	48	79
30	82	94	100	98	---	109	105	96	53	71	48	83
31	81	---	90	96	---	105	---	93	---	66	43	---
TOTAL	2496	2862	2686	3258	2531	3460	2945	2849	3567	1773	1885	2101
MEAN	80.5	95.4	86.6	105	90.4	112	98.2	91.9	119	57.2	60.8	70.0
MAX	86	113	107	118	106	159	130	160	550	91	97	93
MIN	71	83	56	86	55	83	79	70	53	35	43	48
AC-FT	4950	5680	5330	6460	5020	6860	5840	5650	7080	3520	3740	4170

CAL YR 1989 TOTAL 32352 MEAN 88.6 MAX 194 MIN 42 AC-FT 64170
WTR YR 1990 TOTAL 32413 MEAN 88.8 MAX 550 MIN 35 AC-FT 64290

47

LOCATION.--Lat 42°36'51", long 101°16'38", in NE1/4NW1/4, sec.2, T.30 N., R.34 W., Cherry County, Hydrologic Unit 10150005, on left bank 21 ft downstream from centerline of Doughboy bridge, 24 mi southwest of Nenzel.

PERIOD OF RECORD.--October 1981 to current year. Discharge measurements only, July 1963, April 1980, May-September 1981.

REMARKS.--Estimated daily discharges Dec. 15-26, Feb. 1, 2, 14, Apr. 10, 17, and Sept. 13-30. Records good, except for periods of estimated record, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358 ft³/s Aug. 18, 1982, gage height, 2.86 ft, present datum; maximum gage height, 3.92 ft, present datum, Jan. 7, 1982, backwater from ice; minimum daily discharge, 79 ft³/s Mar. 12, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 219 ft³/s Mar. 11, gage height, 1.53 ft; maximum gage height, 3.07 ft Dec. 15, backwater from ice; minimum daily discharge, 120 ft³/s Dec. 11.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162	141	142	150	170	171	161	152	167	141	151	142
2	154	150	139	156	175	169	160	152	191	139	172	140
3	152	154	144	151	185	165	162	146	182	133	155	138
4	155	157	152	137	189	169	161	147	196	133	149	137
5	156	160	157	134	188	166	155	150	195	137	151	136
6	149	163	159	137	185	164	153	148	174	138	157	134
7	151	161	152	142	185	170	155	143	170	144	154	135
8	152	157	145	149	183	174	157	162	163	167	153	136
9	146	157	149	150	183	184	162	153	156	159	151	134
10	141	160	149	158	186	188	165	151	153	168	145	128
11	145	163	120	153	189	197	167	155	147	166	145	134
12	139	160	135	154	189	206	168	154	142	165	163	137
13	138	157	143	160	180	191	168	150	142	157	159	137
14	143	152	131	163	170	182	168	157	139	155	170	138
15	142	143	140	176	151	176	167	162	145	155	164	138
16	138	135	145	171	153	182	163	162	160	156	157	138
17	140	139	145	168	168	184	159	156	159	155	154	140
18	143	141	145	165	187	182	157	161	151	153	153	140
19	140	146	145	161	186	176	159	179	149	161	154	140
20	145	146	140	170	186	180	163	172	144	166	154	142
21	148	143	135	165	186	175	162	167	144	172	151	142
22	153	140	135	172	182	163	159	160	149	181	147	143
23	155	141	145	178	177	151	159	157	147	172	148	143
24	157	145	155	172	177	158	152	171	146	161	147	143
25	155	152	155	176	177	164	150	199	144	158	146	144
26	158	147	160	181	178	169	166	189	143	153	142	144
27	151	138	166	178	171	170	153	183	141	153	141	144
28	150	131	161	175	172	171	148	174	139	152	139	146
29	150	140	164	176	---	169	160	165	137	149	146	146
30	140	144	162	184	---	165	151	172	141	151	150	147
31	147	---	157	179	---	166	---	169	---	153	143	---
TOTAL	4595	4463	4572	5041	5008	5397	4790	5018	4656	4803	4711	4186
MEAN	148	149	147	163	179	174	160	162	155	155	152	140
MAX	162	163	166	184	189	206	168	199	196	181	172	147
MIN	138	131	120	134	151	151	148	143	137	133	139	128
AC-FT	9110	8850	9070	10000	9930	10700	9500	9950	9240	9530	9340	8300

CAL	YR	1989	TOTAL	56945	MEAN	156	MAX	226	MIN	100	AC-FT	113000
WTR	YR	1990	TOTAL	57240	MEAN	157	MAX	206	MIN	120	AC-FT	113500

NIOBRARA RIVER BASIN

06459300 MERRITT RESERVOIR NEAR BURGE, NE

LOCATION.--Lat 42°38'06", long 100°52'18", in SW1/4NW1/4 sec.29, T.31 N., R.30 W., Cherry County, Hydrologic Unit 10150005, in control house of outlet works of Merritt Dam, 8.1 mi southwest of Burge and 23 mi southwest of Valentine.

DRAINAGE AREA.--640 mi², approximately, of which about 44 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--February 1964 to current year.

REVISED RECORDS.--WDR NE-67: Drainage area.

GAGE.--Direct reading, single vertical column, mercury-well type manometer read once daily. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; storage began Feb. 19, 1964. Usable capacity, 72,872 acre-ft between elevations 2,875.0 ft, sill of canal outlet works, and 2,946.0 ft, crest of spillway. Dead and inactive storage, 1,614 acre-ft below elevation 2,875.0 ft. Figures given herein represent total contents. Water is used for irrigation of Ainsworth Unit of Bureau of Reclamation.

COOPERATION.--Records of elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 78,040 acre-ft May 21, 1982, elevation 2,947.2 ft; minimum since appreciable storage was attained, 20,060 acre-ft Oct. 1, 1968, elevation, 2,916.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 75,370 acre-ft May 25, elevation, 2,946.3 ft; minimum observed, 44,830 acre-ft Sept. 14, elevation, 2,933.8 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,934.2	45,620	-
Oct. 31	2,941.0	60,910	+5,290
Nov. 30	2,944.1	69,110	+8,200
Dec. 31	2,944.0	68,830	-280
CAL YR 1989	-	-	0
Jan. 31	2,943.9	68,560	-270
Feb. 28	2,944.1	68,110	-450
Mar. 31	2,946.0	74,490	+6,380
Apr. 30	2,946.0	74,490	0
May 31	2,946.2	75,080	+590
June 30	2,945.9	74,200	-880
July 31	2,939.8	57,940	-16,260
Aug. 31	2,937.7	53,010	-4,930
Sept. 30	2,936.2	49,710	-3,300
WTR YR 1990	-	-	-4,090

NIOBRARA RIVER BASIN

49

06459500 SNAKE RIVER NEAR BURGE, NE

LOCATION.--Lat 42°39'15", long 100°51'28", in NE1/4 sec.20, T.31 N., R.30 W., Cherry County, Hydrologic Unit 10150005, on right bank 150 ft downstream from Nebraska National Forest boundary, 2.1 mi downstream from Merritt Dam, 6.5 mi southwest of Burge, and 22 mi southwest of Valentine.

DRAINAGE AREA.--660 mi², approximately, of which about 44 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WSP 1279: 1950(M), 1951(P). WDR NE-67,72: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,805.36 ft above National Geodetic Vertical Datum of 1929, (levels by Bureau of Reclamation).

REMARKS.--No estimated daily discharges. Records good. Natural flow affected since February 1964 by storage in Merritt Reservoir (station 06459300) 2.1 mi upstream.

AVERAGE DISCHARGE.--27 years (1963-90), 154 ft³/s, 111,600 acre-ft/yr, since storage and diversion began.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,170 ft³/s Feb. 7, 1963, gage height, 6.96 ft, release of storage behind temporary construction dike, from rating curve extended above 520 ft³/s on basis of slope-area measurement at gage height, 5.39 ft; minimum daily, 5.8 ft³/s May 24-27, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 333 ft³/s Feb. 22, gage height, 2.16 ft; minimum daily, 9.1 ft³/s Mar. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	254	258	189	317	227	220	250	32	29	41
2	13	13	237	258	176	312	227	219	255	29	30	41
3	13	12	227	259	196	264	254	219	288	29	30	40
4	13	12	227	249	209	240	259	220	301	29	30	40
5	13	13	223	227	233	216	257	217	292	28	30	40
6	13	13	237	227	249	218	254	219	284	28	30	41
7	13	13	248	279	250	210	232	218	275	28	29	42
8	13	13	248	285	226	84	223	219	256	28	29	42
9	13	13	249	258	213	84	220	229	226	28	29	42
10	13	13	250	258	213	84	221	235	222	29	29	42
11	13	13	247	259	192	83	205	230	192	29	30	42
12	13	12	226	258	181	82	201	231	164	30	30	42
13	14	13	215	239	191	185	203	234	114	29	29	42
14	13	63	216	227	213	280	208	229	93	29	29	43
15	15	100	216	227	193	303	261	230	98	30	29	43
16	15	100	216	227	182	302	287	242	116	30	29	43
17	15	100	216	244	182	302	260	228	149	32	29	43
18	15	100	216	254	182	271	258	220	163	30	29	43
19	17	100	200	254	225	250	247	220	160	31	30	43
20	16	186	192	254	237	251	245	217	157	31	29	43
21	12	224	192	254	237	105	250	214	159	31	29	43
22	12	186	212	254	279	10	246	214	142	31	31	41
23	12	186	223	254	328	9.7	117	208	135	31	30	41
24	12	187	224	254	320	9.7	138	228	137	31	30	41
25	12	189	224	254	319	9.1	149	266	126	30	30	41
26	12	207	241	254	320	32	204	275	111	30	30	41
27	13	243	285	254	319	205	220	269	93	30	30	41
28	13	236	314	254	318	218	221	263	42	31	30	41
29	13	242	312	236	---	206	224	258	38	31	28	41
30	13	254	281	226	---	228	223	256	34	31	28	41
31	13	---	258	220	---	227	---	257	---	30	32	---
TOTAL	412	3070	7326	7715	6572	5597.5	6741	7204	5072	926	916	1250
MEAN	13.3	102	236	249	235	181	225	232	169	29.9	29.5	41.7
MAX	17	254	314	285	328	317	287	275	301	32	32	43
MIN	12	12	192	220	176	9.1	117	208	34	28	28	40
AC-FT	817	6090	14530	15300	13040	11100	13370	14290	10060	1840	1820	2480

CAL YR 1989 TOTAL 46499 MEAN 127 MAX 314 MIN 10 AC-FT 92230
WTR YR 1990 TOTAL 52801.5 MEAN 145 MAX 328 MIN 9.1 AC-FT 104700

NIOBRARA RIVER BASIN

06461000 MINNECHADUZA CREEK AT VALENTINE, NE

LOCATION.--Lat 42°53'10", long 100°33'10", in SW1/4 sec.30, T.34 N., R.27 W., Cherry County, Hydrologic Unit 10150004, on right bank 500 ft downstream from powerplant in city park at north edge of Valentine and 4 mi upstream from mouth.

DRAINAGE AREA.--390 mi², approximately, of which about 200 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WDR NE-67: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,470 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharge. Records good. Flow regulated by powerplant 500 ft above station.

AVERAGE DISCHARGE.--42 years (1948-90), 34.1 ft³/s, 24,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,100 ft³/s Mar. 22, 1960, gage height, 8.0 ft; minimum daily, 2.3 ft³/s July 13, 14, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 789 ft³/s May 26, gage height, 6.18 ft; minimum daily, 5.3 ft³/s Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	27	33	25	22	41	34	45	64	15	28	8.5
2	35	28	31	31	21	39	33	41	85	33	29	18
3	28	29	27	35	25	38	33	41	78	23	21	20
4	21	29	32	29	31	37	38	40	79	9.3	23	33
5	20	29	32	30	32	36	30	29	72	29	26	25
6	22	29	32	31	31	35	29	30	56	27	36	19
7	8.9	41	31	32	31	38	30	43	61	8.4	29	16
8	23	28	31	32	30	36	28	30	51	13	21	6.7
9	39	24	31	33	29	39	30	30	61	34	21	9.5
10	28	14	32	34	30	42	30	34	44	30	6.2	28
11	25	29	22	34	32	50	34	33	49	32	12	23
12	26	29	20	27	32	57	26	32	30	30	19	24
13	28	41	28	27	33	61	30	34	45	10	33	16
14	10	33	28	37	24	64	30	40	31	20	23	15
15	33	31	26	36	26	66	31	32	32	25	24	5.3
16	32	31	25	35	28	64	37	37	34	38	25	7.6
17	11	8.9	25	34	27	63	30	43	39	30	23	31
18	33	27	25	32	32	60	25	38	35	19	8.9	24
19	32	30	24	32	30	55	27	44	35	19	20	24
20	29	40	23	32	34	51	29	38	33	23	36	24
21	10	35	23	29	39	49	12	56	36	11	28	23
22	24	32	23	31	38	49	27	50	32	23	28	22
23	39	15	23	32	38	46	41	53	34	35	28	22
24	31	28	23	31	38	42	32	64	33	30	29	22
25	30	30	24	29	39	40	30	102	31	27	11	22
26	29	30	29	31	39	38	32	558	28	27	22	22
27	30	44	34	32	39	37	45	296	25	18	35	22
28	9.4	28	36	27	40	36	18	189	20	8.7	29	21
29	30	26	36	29	---	35	40	154	23	23	25	21
30	39	34	33	30	---	35	55	109	9.3	38	22	21
31	16	---	31	26	---	34	---	104	---	31	19	---
TOTAL	788.3	879.9	873	965	890	1413	946	2469	1285.3	739.4	740.1	595.6
MEAN	25.4	29.3	28.2	31.1	31.8	45.6	31.5	79.6	42.8	23.9	23.9	19.9
MAX	39	44	36	37	40	66	55	558	85	38	36	33
MIN	8.9	8.9	20	25	21	34	12	29	9.3	8.4	6.2	5.3
AC-FT	1560	1750	1730	1910	1770	2800	1880	4900	2550	1470	1470	1180

CAL YR 1989 TOTAL 9406.9 MEAN 25.8 MAX 64 MIN 5.5 AC-FT 18660
WTR YR 1990 TOTAL 12584.6 MEAN 34.5 MAX 558 MIN 5.3 AC-FT 24960

NIOBRARA RIVER BASIN

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06461500 NIOBRARA RIVER NEAR SPARKS, NE

LOCATION.--Lat 42°54'10", long 100°21'40", in SE1/4 sec.22, T.34 N., R.26 W., Cherry County, Hydrologic Unit 10150004, on left bank 18 ft downstream from highway bridge, 2.2 mi downstream from Big Beaver Creek, 5.5 mi downstream from Minnehaduz Creek, and 6.5 mi southwest of Sparks.

DRAINAGE AREA.--8,090 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1209: 1947(M), 1948-50(P). WDR NE-67: Drainage area.

GAGE.--Water-stage recorder and peak-stage indicator gage. Datum of gage is 2,287.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 28-30, Dec. 11, 12, 14, 15, 18-23, 25, 27-31, Jan. 1, 2, 4, 6, 8. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by irrigation and power developments, storage in Box Butte Reservoir (station 06455000), and since May 1964 by storage in Merritt Reservoir (station 06459300).

AVERAGE DISCHARGE.--45 years, 770 ft³/s, 557,900 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft³/s Mar. 5, 1949, gage height, 6.73 ft, from rating curve extended above 3,800 ft³/s; maximum gage height recorded, 10.06 ft Feb. 7, 1973, ice jam; minimum daily discharge, 100 ft³/s Jan. 10, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,480 ft³/s May 25, gage height, 4.53 ft; minimum daily discharge, 404 ft³/s July 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	463	525	751	860	682	895	864	721	911	435	476	461
2	500	547	754	900	660	900	856	703	1080	458	564	467
3	493	537	758	870	650	889	886	723	1850	417	533	465
4	501	533	726	860	663	798	934	725	1070	439	499	475
5	502	561	766	854	664	799	918	756	1010	435	482	465
6	508	561	748	840	707	813	914	732	977	424	496	460
7	516	566	788	836	713	964	908	735	971	404	484	461
8	531	551	782	880	725	732	894	788	931	435	472	451
9	558	548	763	877	693	670	911	779	867	594	470	451
10	531	518	790	812	677	700	914	764	840	547	455	468
11	520	545	700	778	691	714	915	741	779	539	457	462
12	497	556	710	789	681	790	877	788	740	510	469	461
13	500	570	578	752	719	791	908	790	710	482	490	448
14	481	553	560	703	683	1000	903	884	633	464	485	448
15	518	618	540	713	596	1030	942	827	627	470	486	449
16	524	647	499	721	582	1030	1020	831	682	483	472	455
17	489	604	492	722	627	997	999	787	841	467	463	481
18	520	632	500	721	707	989	944	746	884	467	463	518
19	516	628	490	704	752	923	942	838	799	496	473	515
20	519	643	490	707	767	885	963	813	726	516	485	525
21	500	764	480	703	787	885	952	794	719	495	467	527
22	531	731	470	699	837	650	985	810	715	574	607	519
23	560	689	560	726	919	637	962	817	655	560	608	517
24	551	694	758	720	921	602	673	975	656	529	519	518
25	542	720	840	725	886	586	630	1580	630	506	485	534
26	543	724	856	707	881	584	749	1600	605	497	480	539
27	544	771	860	738	910	660	772	1340	580	482	484	544
28	513	740	820	713	892	873	718	1200	526	480	472	543
29	552	760	780	700	---	830	851	1130	476	474	471	545
30	554	770	780	677	---	847	782	1040	451	496	469	542
31	512	---	800	662	---	839	---	1020	---	479	467	---
TOTAL	16089	18806	21189	23669	20672	25302	26486	27777	23941	15054	15203	14714
MEAN	519	627	684	764	738	816	883	896	798	486	490	490
MAX	560	771	860	900	921	1030	1020	1600	1850	594	608	545
MIN	463	518	470	662	582	584	630	703	451	404	455	448
AC-FT	31910	37300	42030	46950	41000	50190	52530	55100	47490	29860	30160	29190

CAL YR 1989 TOTAL 234951 MEAN 644 MAX 1200 MIN 394 AC-FT 466000
WTR YR 1990 TOTAL 248902 MEAN 682 MAX 1850 MIN 404 AC-FT 493700

NIOBRARA RIVER BASIN
06461500 NIOBRARA RIVER NEAR SPARKS, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1982 to current year.

WATER TEMPERATURES: October 1982 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 354 microsiemens Dec. 3, 1983; minimum daily, 153 microsiemens Nov. 22, 26, 1988.

WATER TEMPERATURES: Maximum daily, 35.0°C July 1, 1990; minimum daily, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 272 microsiemens Dec. 16; minimum daily, 188 microsiemens Feb. 2.

WATER TEMPERATURES: Maximum daily, 35.0°C July 1; minimum daily, 1.0°C Dec. 15, 22, Feb. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT									
11...	1640	546	220	9.0	16.5	10	91	30	3.9
NOV									
08...	1620	588	233	8.9	6.5	3	97	32	4.2
DEC									
05...	1630	754	219	8.5	6.0	10	89	29	4.0
JAN									
03...	0900	864	223	8.4	0.5	10	86	28	3.8
FEB									
01...	0930	680	221	8.5	0.5	7	94	31	4.1
MAR									
01...	0905	943	217	8.5	3.0	12	83	27	3.8
APR									
24...	1730	699	223	9.0	22.0	14	88	29	3.9
MAY									
23...	0900	776	219	8.3	19.5	10	86	28	3.8
JUN									
20...	0910	698	220	8.5	21.0	55	87	28	4.2
JUL									
18...	0900	446	229	8.6	22.0	12	96	31	4.5
AUG									
15...	0850	475	231	8.6	19.5	8	91	30	3.9
SEP									
05...	1025	451	226	8.7	23.0	10	91	30	3.8

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
OCT									
11...	9.0	0.4	6.3	111	6.0	1.1	0.40	51	175
NOV									
08...	9.0	0.4	5.9	114	6.0	1.3	0.30	55	184
DEC									
05...	8.8	0.4	6.4	101	7.0	1.3	0.30	50	170
JAN									
03...	8.2	0.4	6.5	98	7.0	1.2	0.30	50	166
FEB									
01...	9.2	0.4	6.0	107	7.0	1.2	0.30	57	183
MAR									
01...	8.2	0.4	6.5	99	6.1	<0.50	0.20	51	--
APR									
24...	9.1	0.4	7.0	109	6.1	1.0	0.30	52	178
MAY									
23...	9.0	0.4	6.8	103	5.7	2.5	<0.10	51	169
JUN									
20...	8.6	0.4	5.7	104	5.2	0.70	0.30	50	167
JUL									
18...	8.4	0.4	6.8	111	4.8	2.4	0.30	59	184
AUG									
15...	8.7	0.4	6.0	110	7.8	2.0	<0.10	55	179
SEP									
05...	8.6	0.4	6.6	102	4.5	2.1	0.30	56	173

NIOBRARA RIVER BASIN

06461500 NIOBRARA RIVER NEAR SPARKS, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 11...	0.24	258	0.170	0.150	0.010	10	6	2
NOV 08...	0.25	292	0.470	0.080	0.030	50	10	2
DEC 05...	0.23	346	0.540	0.100	0.050	30	17	2
JAN 03...	0.23	388	0.540	0.110	0.080	30	16	4
FEB 01...	0.25	335	0.600	0.090	0.070	20	22	3
MAR 01...	--	--	0.400	0.030	--	20	27	3
APR 24...	0.24	336	1.00	0.060	0.040	30	6	<1
MAY 23...	0.23	355	0.200	0.160	0.070	30	14	2
JUN 20...	0.23	314	0.400	0.270	0.100	30	12	2
JUL 18...	0.25	221	<0.100	0.100	0.040	30	4	7
AUG 15...	0.24	230	<0.100	0.090	0.030	40	<3	1
SEP 05...	0.24	211	<0.100	0.080	0.030	30	6	1

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	238	210	216	204	212	220	200	217	222	230	217
2	259	234	216	213	188	218	227	200	203	231	214	224
3	248	231	217	208	202	213	219	200	226	234	219	221
4	244	236	216	206	216	221	216	196	211	234	226	230
5	231	231	213	210	214	215	217	200	197	229	221	219
6	233	232	213	215	212	216	214	197	210	228	229	213
7	245	230	214	215	214	203	214	198	201	232	225	218
8	233	232	214	210	211	214	213	196	209	221	224	214
9	233	228	214	207	212	217	214	196	203	241	222	214
10	232	233	213	205	220	220	216	196	209	210	222	221
11	239	241	194	212	214	224	214	199	202	213	225	218
12	236	242	202	208	216	224	216	201	203	222	224	217
13	231	242	194	214	209	234	216	200	201	222	225	219
14	229	240	201	209	214	227	215	199	206	216	223	218
15	232	241	213	211	209	225	214	196	211	227	224	216
16	246	228	272	214	211	226	210	198	209	225	223	---
17	241	228	264	212	207	229	211	200	207	226	222	215
18	241	232	244	210	219	231	211	195	209	220	220	214
19	234	232	230	211	212	233	220	193	204	221	228	227
20	235	236	243	211	216	234	219	202	197	222	228	219
21	235	246	244	212	221	228	209	197	198	220	220	218
22	234	240	248	211	216	242	209	205	204	220	214	223
23	235	228	248	210	213	250	215	200	205	218	222	225
24	236	232	237	212	209	246	223	203	204	218	215	228
25	237	231	229	206	210	244	223	219	207	218	216	222
26	235	225	215	210	211	244	212	207	208	222	223	223
27	240	229	214	210	212	241	214	214	204	222	228	225
28	235	227	212	214	213	225	215	226	202	226	228	221
29	237	230	209	213	---	226	215	232	203	220	224	221
30	240	232	212	210	---	227	219	240	199	227	229	---
31	235	---	215	214	---	221	---	225	---	227	225	---
MEAN	238	234	222	211	212	227	216	204	206	224	223	---

NIOBRARA RIVER BASIN

06461500 NIOBRARA RIVER NEAR SPARKS, NE--Continued

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	5.0	2.0	3.0	2.0	10.0	13.5	10.0	20.0	35.0	23.0	30.0
2	12.0	4.0	3.0	4.0	2.0	10.0	14.0	13.0	16.0	32.0	23.0	29.0
3	11.0	6.0	4.0	4.0	3.0	5.0	15.0	14.0	20.0	27.0	25.0	30.0
4	13.0	8.0	5.0	3.0	7.0	10.0	15.0	17.0	18.0	24.0	22.0	29.0
5	16.0	9.0	6.0	3.0	5.0	10.0	10.0	15.0	20.0	23.0	25.0	28.0
6	14.0	8.0	7.0	3.0	3.0	6.0	7.0	18.0	20.0	24.0	21.0	26.0
7	12.0	8.0	5.0	4.0	4.0	5.0	8.0	18.0	21.0	25.0	21.0	22.0
8	13.0	6.0	4.0	3.0	4.0	9.0	11.0	16.0	22.0	25.0	27.0	25.0
9	14.0	8.0	4.0	4.0	3.0	8.0	12.0	12.0	22.0	24.0	29.0	26.0
10	11.0	9.0	4.0	4.0	5.0	8.0	8.0	11.0	27.0	21.0	26.0	20.0
11	14.0	10.0	3.0	5.0	8.0	13.0	5.0	14.0	24.0	22.0	25.0	21.0
12	13.0	7.0	2.0	3.0	8.0	12.0	6.0	13.0	24.0	21.0	25.0	22.0
13	14.0	8.0	2.0	2.0	2.0	10.0	9.0	18.0	20.0	24.0	21.0	20.0
14	17.0	5.0	2.0	4.0	1.0	7.0	10.0	15.0	23.0	20.0	22.0	17.0
15	13.0	4.0	1.0	4.0	3.0	7.0	17.0	16.0	23.0	25.0	23.0	22.0
16	10.0	4.0	2.0	5.0	4.0	5.0	12.0	14.0	21.0	25.0	23.0	---
17	8.0	3.0	3.0	5.0	2.0	10.0	8.0	15.0	22.0	25.0	25.0	17.0
18	12.0	4.0	2.0	4.0	4.0	8.0	9.0	17.0	23.0	25.0	25.0	18.0
19	6.0	8.0	2.0	4.0	4.0	6.0	17.0	14.0	25.0	23.0	24.0	18.0
20	6.0	7.0	3.0	3.0	3.0	9.0	19.0	14.0	24.0	21.0	22.0	19.5
21	9.0	4.0	2.0	3.0	8.0	12.0	22.0	19.0	22.0	19.0	25.0	19.0
22	17.0	5.0	1.0	4.0	8.0	9.0	23.0	20.0	18.0	20.0	24.0	17.0
23	11.0	3.0	4.0	5.0	6.0	3.0	22.0	21.0	21.0	19.0	22.0	12.0
24	13.0	3.0	4.0	5.0	5.0	3.0	24.0	21.0	27.0	23.0	28.0	16.0
25	13.0	6.0	4.0	3.0	9.0	4.0	21.0	20.0	25.0	23.0	29.0	21.0
26	16.0	6.0	4.0	4.0	11.0	11.0	18.0	20.0	26.0	25.0	30.0	21.0
27	15.0	5.0	3.0	3.0	4.0	13.0	15.0	20.0	26.0	30.0	25.0	20.0
28	10.0	3.0	4.0	4.0	8.0	11.0	9.0	23.0	25.0	24.0	24.0	20.0
29	9.0	3.0	4.0	3.0	---	12.0	10.0	21.0	32.0	25.0	28.0	18.0
30	6.0	3.0	3.0	2.0	---	14.5	9.0	18.0	30.0	24.0	30.0	---
31	5.0	---	2.0	2.0	---	15.0	---	18.0	---	23.0	25.0	---
MEAN	11.8	5.7	3.3	3.6	4.9	8.9	13.3	16.6	22.9	24.1	24.7	---

06462500 PLUM CREEK AT MEADVILLE, NE

LOCATION.--Lat 42°45'05", long 99°52'05", in NE1/4NW1/4 sec.14, T.32 N., R.22 W., Brown County, Hydrologic Unit 10150004, on left bank 0.4 mi upstream from county road bridge, 1 mi upstream from mouth, 1 mi southwest of Meadville, and 17 mi north of Ainsworth.

DRAINAGE AREA.--600 mi², approximately, of which about 340 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--December 1947 to September 1975, October 1976 to current year. Prior to October 1962, published as "near Meadville."

REVISED RECORDS.--WSP 1729: 1953. WSP 1917: 1953.

GAGE.--Water-stage recorder. Elevation of gage is 2,032 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 25, 1962, at site 6.5 mi upstream at different datum. Nov. 25, 1962, to Nov. 14, 1966, at present site at datum 3.0 ft higher. Nov. 15, 1966 to Oct. 2, 1979, at present site at datum 2.0 ft higher. Oct. 3, 1979 to June 3, 1982, at present site at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Dec. 12-29 and Feb. 16-18. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--41 years (1948-75, 1976-90), 118 ft³/s, 85,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,070 ft³/s Sept. 18, 1967, gage height, 6.98 ft present datum; maximum gage height observed, 8.54 ft Dec. 6, 1964, backwater from ice, present datum; minimum daily discharge, 15 ft³/s Feb. 19, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 23	1300	(a)	*b3.88	June 3	1400	*417	2.03
May 28	1730	*417	2.03				

a Backwater from ice.

b Observer's reading.

Minimum daily discharge, 88 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	95	102	100	104	109	114	119	266	102	111	104
2	91	96	104	103	108	108	110	112	314	99	118	105
3	90	98	102	110	115	107	108	109	382	98	134	104
4	91	100	105	115	110	107	108	110	351	96	120	102
5	94	102	109	111	102	104	106	115	290	97	114	100
6	91	103	113	111	103	107	104	113	241	97	111	100
7	93	101	109	110	104	124	104	110	217	101	109	99
8	93	99	107	112	105	121	104	121	195	101	112	98
9	95	100	103	113	105	122	107	150	176	101	111	96
10	97	102	102	110	106	125	106	150	163	115	109	95
11	95	102	94	109	108	132	101	132	151	121	112	97
12	94	104	94	110	112	141	100	130	138	120	116	96
13	96	102	94	113	113	128	105	140	133	124	112	96
14	95	100	92	116	109	123	106	161	128	112	112	93
15	93	100	90	117	110	122	106	143	139	106	110	92
16	92	95	92	116	108	122	104	138	151	107	107	92
17	92	100	92	116	106	118	105	134	139	109	108	93
18	92	102	92	112	120	113	104	123	128	111	112	98
19	90	104	92	112	124	111	104	143	124	114	113	102
20	91	105	92	115	110	112	105	143	120	120	122	105
21	94	105	90	114	112	114	104	137	120	123	113	106
22	94	103	88	115	114	111	106	132	123	117	130	102
23	94	100	94	117	115	110	106	129	120	113	141	100
24	97	102	104	115	113	109	107	149	115	113	125	100
25	102	104	120	113	112	110	118	209	109	115	118	99
26	103	108	130	110	111	111	166	287	107	120	108	100
27	102	106	140	110	109	113	146	331	108	116	104	100
28	100	101	150	106	109	113	122	383	105	115	102	98
29	102	99	130	104	---	115	144	396	103	116	103	98
30	100	100	111	102	---	114	137	329	102	114	105	100
31	97	---	101	106	---	115	---	298	---	112	106	---
TOTAL	2946	3038	3238	3443	3077	3591	3367	5376	5058	3425	3528	2970
MEAN	95.0	101	104	111	110	116	112	173	169	110	114	99.0
MAX	103	108	150	117	124	141	166	396	382	124	141	106
MIN	90	95	88	100	102	104	100	109	102	96	102	92
AC-FT	5840	6030	6420	6830	6100	7120	6680	10660	10030	6790	7000	5890

CAL YR 1989 TOTAL 39214 MEAN 107 MAX 150 MIN 48 AC-FT 77780
WTR YR 1990 TOTAL 43057 MEAN 118 MAX 396 MIN 88 AC-FT 85400

NIOBRARA RIVER BASIN

06463080 LONG PINE CREEK NEAR LONG PINE, NE

LOCATION.--Lat 42°37'55", long 99°40'46", in SE1/4NE1/4 sec.29, T.31 N., R.20 W., Brown County, Hydrologic Unit 10150004, on right bank 4.9 mi upstream from Bone Creek and 7 mi north of Long Pine.

DRAINAGE AREA.--246 mi²

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

REVISED RECORDS.--WRD NE-81-1: 1980(M).

GAGE.--Water-stage recorder. Elevation of gage is 2,080 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--11 years, 101 ft³/s, 73,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 507 ft³/s July 16, 1983, gage height, 5.27 ft; minimum daily, 77 ft³/s Sept. 5, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 2	1730	*352	*3.10	Aug. 23	0145	329	2.92
June 16	0445	224	2.12				

Minimum daily discharge, 80 ft³/s June 8, 9 and July 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	87	89	92	93	99	101	103	124	98	91	96
2	94	88	89	95	90	99	101	104	251	94	94	97
3	94	91	89	99	93	100	101	103	262	92	84	99
4	93	92	92	100	95	99	101	102	135	90	83	96
5	95	91	93	100	93	99	99	102	98	86	85	95
6	93	91	94	100	95	100	98	102	85	82	87	94
7	93	93	93	99	97	103	99	103	81	82	89	93
8	94	94	91	99	96	102	99	113	80	80	87	94
9	94	93	93	98	95	104	99	145	80	80	84	93
10	94	94	93	98	96	112	98	128	81	91	85	94
11	95	94	90	96	98	124	98	119	86	89	87	93
12	94	93	90	95	98	114	97	110	86	88	88	93
13	94	93	92	96	96	108	98	107	84	87	92	92
14	93	89	91	97	96	106	97	104	83	85	92	92
15	92	94	89	96	95	105	96	101	86	87	89	92
16	91	91	89	95	97	107	98	102	125	89	90	92
17	91	94	90	96	98	104	97	99	108	91	90	92
18	91	92	90	95	98	102	98	96	100	92	96	95
19	91	93	89	95	98	100	99	100	103	98	96	93
20	92	92	89	95	98	101	95	100	107	95	97	93
21	91	93	90	96	100	101	94	101	106	92	96	93
22	92	93	94	97	99	98	98	97	106	92	132	92
23	92	91	95	96	100	96	100	99	107	94	217	92
24	92	92	98	96	99	98	99	129	110	93	128	93
25	91	92	98	97	98	99	134	160	109	90	103	93
26	91	92	98	97	99	99	145	145	110	90	103	92
27	88	90	96	97	98	100	121	147	108	93	105	92
28	88	87	95	97	100	103	108	139	103	91	102	92
29	90	89	94	97	---	102	111	135	101	91	100	92
30	88	90	93	94	---	101	108	133	101	89	101	93
31	88	---	92	94	---	102	---	125	---	91	100	---
TOTAL	2853	2748	2858	2994	2708	3187	3087	3553	3306	2782	3073	2802
MEAN	92.0	91.6	92.2	96.6	96.7	103	103	115	110	89.7	99.1	93.4
MAX	95	94	98	100	100	124	145	160	262	98	217	99
MIN	88	87	89	92	90	96	94	96	80	80	83	92
AC-FT	5660	5450	5670	5940	5370	6320	6120	7050	6560	5520	6100	5560

CAL YR 1989 TOTAL 35300 MEAN 96.7 MAX 120 MIN 81 AC-FT 70020
WTR YR 1990 TOTAL 35951 MEAN 98.5 MAX 262 MIN 80 AC-FT 71310

NIOBRARA RIVER BASIN

57

06463500 LONG PINE CREEK NEAR RIVERVIEW, NE

LOCATION.--Lat 42°41'21", long 99°40'43", in SE1/4NE1/4 sec.5, T.31 N., R.20 W., Brown County, Hydrologic Unit 10150004, on right bank 10 ft downstream from county road bridge, 1 mi downstream from Bone Creek, and 5.5 mi southwest of Riverview.

DRAINAGE AREA.--460 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1948 to January 1954, September 1954 to current year.

REVISED RECORDS.--WSP 1729: 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,983.34 ft above National Geodetic Vertical Datum of 1929, (levels by Bureau of Reclamation). Prior to Dec. 7, 1962, at site 100 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 11, 12, 14-23. Records good, except for periods of estimated record, which are fair. Flow includes return water from Ainsworth Irrigation District since 1965.

AVERAGE DISCHARGE.--41 years (1948-53, 1954-90), 147 ft³/s, 106,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,650 ft³/s July 1, 1962, gage height, 15.68 ft, backwater from fallen bridge, from rating curve extended above 3,600 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 44 ft³/s Jan. 10, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 25	1400	405	3.80	June 16	0100	408	3.84
May 28	0900	*674	*4.65	Aug. 23	0330	652	*4.65
June 2	2130	456	4.00				

Minimum daily discharge, 132 ft³/s Feb. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	151	156	152	144	144	156	207	199	178	176	166
2	148	149	157	160	145	144	155	184	350	179	225	167
3	151	153	157	155	150	144	158	175	408	186	197	172
4	152	156	163	149	152	144	156	169	293	194	180	171
5	153	158	165	153	153	142	154	167	249	196	174	173
6	148	156	170	153	151	146	153	167	215	192	175	167
7	150	154	165	155	150	159	153	165	203	197	168	160
8	153	153	160	157	146	158	155	189	187	202	167	174
9	150	153	163	161	146	166	153	240	176	206	153	169
10	149	152	162	160	145	185	151	260	172	204	159	163
11	152	153	150	161	146	201	151	232	170	168	179	179
12	150	152	155	151	147	220	154	206	164	172	172	165
13	151	152	156	157	145	199	156	196	163	183	168	165
14	150	152	145	157	136	182	155	182	161	177	173	159
15	150	159	145	154	141	171	153	172	176	167	164	165
16	149	149	150	156	137	172	156	173	267	168	159	165
17	150	160	150	156	132	168	155	159	200	170	160	169
18	149	155	150	152	143	163	156	161	179	170	171	178
19	150	157	150	151	140	159	157	188	172	194	194	185
20	154	156	150	151	142	160	155	180	164	193	170	187
21	155	157	145	147	145	160	155	189	166	193	162	173
22	154	154	140	156	143	157	160	188	170	181	263	164
23	153	154	155	163	143	152	164	179	171	176	557	167
24	153	158	180	163	145	153	167	222	169	182	391	172
25	153	161	177	159	143	155	237	347	168	181	230	181
26	155	159	174	160	143	157	255	349	167	173	190	172
27	155	156	177	157	142	159	244	285	170	172	176	162
28	151	150	174	156	142	157	212	514	167	170	158	154
29	152	153	200	156	---	157	222	324	171	178	152	149
30	152	157	174	152	---	157	227	237	175	173	142	154
31	153	---	166	152	---	158	---	212	---	174	146	---
TOTAL	4693	4639	4981	4822	4037	5049	5135	6818	5962	5649	6051	5047
MEAN	151	155	161	156	144	163	171	220	199	182	195	168
MAX	155	161	200	163	153	220	255	514	408	206	557	187
MIN	148	149	140	147	132	142	151	159	161	167	142	149
AC-FT	9310	9200	9880	9560	8010	10010	10190	13520	11830	11200	12000	10010
CAL YR 1989	TOTAL 60114	MEAN 165	MAX 248	MIN 138	AC-FT 119200							
WTR YR 1990	TOTAL 62883	MEAN 172	MAX 557	MIN 132	AC-FT 124700							

NIOBRARA RIVER BASIN
06463500 LONG PINE CREEK NEAR RIVERVIEW, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 12...	1050	148	184	8.6	11.0	2	72	23	3.5
NOV 09...	1310	153	193	8.8	10.0	2	74	24	3.3
DEC 06...	1125	162	202	8.6	8.0	3	75	24	3.6
JAN 04...	1210	149	199	8.3	4.5	5	74	24	3.5
FEB 01...	1410	143	182	8.4	3.0	15	71	23	3.4
MAR 01...	1330	148	194	8.5	9.5	5	74	24	3.5
APR 25...	1410	251	216	8.3	18.0	53	75	24	3.7
MAY 24...	1000	222	192	7.9	16.5	35	73	24	3.2
JUN 20...	1355	162	196	8.3	22.5	28	76	24	3.8
JUL 19...	0920	186	193	8.2	19.0	12	76	24	3.9
AUG 15...	1315	176	198	8.5	22.0	8	72	23	3.5
SEP 05...	1350	177	196	8.5	23.0	12	71	23	3.4

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)
OCT 12...	7.4	0.4	5.6	83	5.0	2.1	0.30	54	158
NOV 09...	7.8	0.4	5.2	83	5.0	2.2	0.20	55	161
DEC 06...	8.0	0.4	6.0	83	5.0	3.1	0.20	54	163
JAN 04...	7.6	0.4	6.0	82	5.0	2.2	0.20	57	165
FEB 01...	7.2	0.4	5.0	80	5.0	2.0	0.20	57	160
MAR 01...	7.5	0.4	5.8	81	4.2	1.9	0.20	55	160
APR 25...	9.6	0.5	7.7	94	5.8	6.1	0.20	48	169
MAY 24...	8.0	0.4	6.6	87	4.0	3.1	<0.10	48	155
JUN 20...	7.2	0.4	5.6	85	4.0	1.4	0.20	55	158
JUL 19...	6.9	0.3	6.0	84	3.6	3.1	<0.10	54	157
AUG 15...	7.5	0.4	5.9	86	4.0	2.5	0.20	51	155
SEP 05...	7.5	0.4	6.4	78	4.3	2.8	<0.10	53	153

NIOBRARA RIVER BASIN

06463500 LONG PINE CREEK NEAR RIVERVIEW, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 12...	0.22	63.2	1.70	0.060	0.100	<10	9	2
NOV 09...	0.22	66.5	1.90	0.150	0.120	40	9	3
DEC 06...	0.22	71.3	2.10	0.190	0.150	30	11	4
JAN 04...	0.22	66.3	2.30	0.200	0.150	20	10	3
FEB 01...	0.22	61.6	2.00	0.170	0.140	20	12	4
MAR 01...	0.22	63.8	2.00	0.060	--	20	12	3
APR 25...	0.23	114	1.60	0.330	0.230	30	78	8
MAY 24...	0.21	92.9	1.30	0.430	0.190	20	59	7
JUN 20...	0.21	69.1	1.30	0.260	0.150	30	18	5
JUL 19...	0.21	78.7	1.10	0.270	0.130	30	22	3
AUG 15...	0.21	73.4	1.20	0.210	0.130	40	6	2
SEP 05...	0.21	73.3	1.40	0.240	0.170	30	11	3

NIOBRARA RIVER BASIN

06463720 NIOBRARA RIVER AT MARIAVILLE, NE

LOCATION.--Lat 42°46'56", long 99°20'04", in NE1/4NW1/4 sec.5, T.32 N., R.17 W., Keya Paha County, Hydrologic Unit 10150004, on left bank 15 ft upstream from bridge on State Highway 137, 13 mi north of Newport and 20.5 mi upstream from mouth of Keya Paha River.

DRAINAGE AREA.--9,810 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year (water quality data only September 1985).

GAGE.--Water-stage recorder. Elevation of gage is 1,797 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 29 to Dec. 2, Dec. 12 to Feb. 11, and Feb. 14-26. Records fair except for periods of estimated record, which are poor. Flow of stream affected by regulation at power plants, diversion for irrigation and return flows, and storage in Box Butte (station 06455000) and Merritt (station 06459300) reservoirs.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,430 ft³/s June 3, gage height, 3.16 ft; maximum gage height, 5.61 ft, Dec. 26, backwater from ice; minimum daily discharge, 797 ft³/s Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	1080	1140	1600	1020	1360	1210	1200	1200	885	822	899
2	1060	1080	1200	1550	1040	1440	1360	1170	1470	868	1090	882
3	1060	1090	1440	1500	1080	1360	1330	1180	2040	847	1030	865
4	1070	1090	1230	1450	1140	1390	1370	1220	1830	852	1030	806
5	1020	1100	1100	1450	1200	1390	1300	1200	1660	800	985	797
6	1080	1100	1120	1450	1160	1460	1240	1180	1440	786	948	822
7	1010	1130	1110	1450	1120	1590	1190	1060	1270	802	902	812
8	1020	1230	1110	1500	1100	1530	1250	1190	1320	854	898	814
9	1080	1270	1100	1450	1160	1350	1270	1290	1240	805	911	823
10	1080	1230	1160	1400	1240	1340	1230	1370	1180	1140	923	812
11	1080	1280	1130	1350	1400	1520	1280	1390	1170	918	995	833
12	1080	1270	1020	1250	1280	1480	1180	1330	1250	855	907	845
13	1080	1220	1000	1200	1180	1500	1510	1270	1350	863	897	820
14	1090	1150	940	1240	1100	1460	1400	1380	1360	876	941	829
15	1080	1260	920	1220	1020	1560	1220	1370	1420	818	959	862
16	1090	1180	900	1160	1000	1510	1150	1240	1500	806	937	882
17	1050	1270	900	1140	1060	1480	1260	1300	1410	802	937	903
18	964	1160	880	1120	1180	1400	1250	1310	1320	817	967	1020
19	1020	1180	860	1100	1300	1430	1340	1450	1340	985	1070	1080
20	1090	1120	840	1140	1360	1330	1420	1420	1190	995	974	1090
21	1080	1100	840	1120	1360	1410	1350	1400	1160	973	923	1070
22	1080	1200	840	1100	1340	1380	1390	1400	1120	960	1130	1060
23	1080	1160	900	1100	1400	1280	1400	1470	949	964	1370	1000
24	1080	1100	1100	1100	1360	1260	1500	1620	910	947	1280	997
25	1070	1140	1300	1120	1400	1260	1580	1770	1010	910	1030	976
26	1080	1150	1350	1140	1450	1240	1590	1940	1020	850	895	998
27	1070	1190	1400	1160	1450	1220	1490	1850	1000	847	881	999
28	1080	1210	1350	1140	1420	1270	1380	1600	927	880	857	928
29	1080	1140	1300	1120	---	1290	1430	1530	943	940	874	901
30	1090	1120	1250	1060	---	1200	1220	1370	887	873	846	859
31	1090	---	1400	1040	---	1130	---	1210	---	842	836	---
TOTAL	33034	35000	34130	38920	34330	42820	40090	42680	37886	27360	30045	27284
MEAN	1066	1167	1101	1255	1226	1381	1336	1377	1263	883	969	909
MAX	1090	1280	1440	1600	1450	1590	1590	1940	2040	1140	1370	1090
MIN	964	1080	840	1040	1000	1130	1150	1060	887	786	822	797
AC-FT	65520	69420	67700	77200	68090	84930	79520	84660	75150	54270	59590	54120

CAL YR 1989 TOTAL 425265 MEAN 1165 MAX 1920 MIN 748 AC-FT 843500
WTR YR 1990 TOTAL 423579 MEAN 1160 MAX 2040 MIN 786 AC-FT 840200

NIOBRARA RIVER BASIN

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06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in SE1/4 sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,049.78 ft above National Geodetic Vertical Datum of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum. Prior to Aug. 23, 1984, recording gage on left bank 13 ft downstream from bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--45 years (water years 1939-40, 1948-90), 71.3 ft³/s, 51,660 acre-ft/yr; median of yearly mean discharges, 58 ft³/s, 42,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft³/s, Mar. 31, 1952, gage height, 13.08 ft; maximum gage height, 13.5 ft, Mar. 25, 1950, from floodmark, backwater from ice; no flow Jan. 10 to Feb. 15, 1949, Aug. 19 to Sept. 14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 25	1045	*486	*3.28	June 3	1415	412	3.02

Minimum daily discharge, 18 ft³/s, Sept. 7, 10, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	32	e32	e31	e42	63	58	82	125	35	32	21
2	24	32	e32	e33	e40	65	57	72	270	34	39	21
3	24	35	e32	e36	e43	65	57	66	364	32	39	21
4	25	35	e36	e36	e45	62	56	60	260	31	36	21
5	26	36	e40	e35	e46	58	54	56	195	31	35	20
6	26	36	e39	e35	e46	56	51	54	150	31	33	19
7	27	36	e38	e37	e45	63	51	52	129	31	32	18
8	28	36	e35	e43	e45	71	50	52	132	36	30	19
9	29	36	e36	e46	e45	83	51	53	122	35	28	19
10	28	36	e36	e46	e46	85	49	52	109	71	30	18
11	27	35	e34	e44	e46	105	48	54	95	90	39	19
12	27	34	e32	e44	e49	117	48	54	83	94	38	19
13	27	34	e32	e45	e47	112	49	56	74	75	36	19
14	27	34	e31	e45	e44	108	47	62	68	59	35	18
15	28	e34	e27	e44	e42	99	46	71	63	52	34	19
16	27	e32	e29	e45	e42	97	45	70	68	47	33	20
17	26	e32	e31	e45	e43	94	43	67	77	44	30	23
18	28	e33	e31	e44	e42	89	43	62	72	40	33	28
19	28	e35	e31	e44	e45	84	43	64	67	41	27	30
20	29	e36	e28	e43	e47	79	42	74	62	43	27	30
21	29	e38	e20	e43	e50	75	40	78	62	43	28	30
22	30	e37	e24	e46	e56	70	40	77	61	41	30	29
23	30	e36	e28	e47	e65	64	38	71	57	39	31	29
24	30	e35	e31	e46	e80	62	38	72	53	35	30	30
25	30	e35	e36	e46	e95	63	38	295	50	35	29	30
26	30	e35	e39	e46	e110	64	53	333	46	34	28	29
27	30	e36	e39	e46	100	62	67	314	42	33	26	28
28	30	e33	e40	e47	90	61	59	287	40	31	24	28
29	31	e32	e38	e47	---	59	72	245	38	32	24	29
30	32	e32	e37	e44	---	60	95	186	36	33	25	30
31	32	---	e34	e43	---	60	---	145	---	34	23	---
TOTAL	869	1038	1028	1322	1536	2355	1528	3336	3070	1342	964	714
MEAN	28.0	34.6	33.2	42.6	54.9	76.0	50.9	108	102	43.3	31.1	23.8
MAX	32	38	40	47	110	117	95	333	364	94	39	30
MIN	24	32	20	31	40	56	38	52	36	31	23	18
AC-FT	1720	2060	2040	2620	3050	4670	3030	6620	6090	2660	1910	1420

CAL YR 1989 TOTAL 15468 MEAN 42.4 MAX 220 MIN 14 AC-FT 30680
WTR YR 1990 TOTAL 19102 MEAN 52.3 MAX 364 MIN 18 AC-FT 37890

e Estimated

NIOBRARA RIVER BASIN

06464900 KEYA PAHA RIVER NEAR NAPER, NE

LOCATION.--Lat 42°55'00", long 99°05'50", in SE1/4SE1/4 sec.17, T.34 N., R.15 W., Boyd County, Hydrologic Unit 10150006, on left bank 70 ft upstream from highway bridge, 3.3 mi south of Naper, and 8.6 mi upstream from mouth.

DRAINAGE AREA.--1,630 mi², approximately.

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WSP 1709: 1959(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,680 ft, from topographic map. Prior to May 2, 1958, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 15 to Feb. 23. Records good, except for period of estimated record, which is poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--33 years, 138 ft³/s, 99,980 acre-ft/yr; median of yearly mean discharges, 119 ft³/s, 86,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,280 ft³/s July 1, 1962, gage height, 10.91 ft; maximum gage height, 13.34 ft Mar. 23, 1960, backwater from ice; no flow July 22-30, Aug. 10, 11, 1976, Aug. 3, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 3	1200	*1010	*7.24	No other peak greater than base discharge.			

Minimum daily discharge, 20 ft³/s Sept. 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	57	50	50	92	113	82	233	218	58	48	38
2	36	57	47	49	86	115	79	190	249	54	80	37
3	38	59	47	47	82	106	79	146	443	49	72	34
4	38	61	46	50	86	105	76	124	351	46	59	30
5	39	65	52	52	90	106	77	117	416	46	54	25
6	40	68	60	54	92	104	78	111	307	45	50	23
7	43	69	60	60	92	122	79	101	230	44	46	23
8	46	68	45	66	92	113	82	121	200	47	43	23
9	47	65	44	70	88	128	84	170	177	51	41	23
10	46	68	43	74	90	153	82	156	175	71	48	25
11	45	70	43	72	92	167	78	137	179	108	83	24
12	44	70	45	74	96	219	77	132	153	156	64	23
13	44	67	43	72	110	235	83	114	139	128	59	22
14	44	65	41	70	110	201	84	141	129	112	55	20
15	45	60	40	72	100	181	80	150	117	92	54	20
16	45	44	38	76	98	174	79	148	138	79	53	21
17	47	48	37	80	98	166	77	146	148	71	51	23
18	48	54	39	84	100	158	75	136	140	64	50	30
19	48	56	40	88	110	144	75	160	133	70	69	36
20	50	58	40	98	110	136	76	152	112	82	74	41
21	52	53	38	100	117	132	73	157	115	79	64	43
22	53	50	40	101	180	119	70	162	119	76	65	40
23	53	47	42	110	160	116	69	188	108	72	75	41
24	53	50	45	100	150	116	66	166	101	69	67	43
25	53	54	47	96	146	116	93	233	94	68	62	42
26	53	54	50	100	156	115	112	481	88	67	57	40
27	55	50	54	110	165	106	131	509	81	70	55	37
28	55	44	58	110	132	100	164	453	74	60	50	38
29	57	44	60	100	---	95	195	414	67	58	45	43
30	57	52	58	94	---	95	208	354	62	50	39	46
31	58	---	54	88	---	90	---	276	---	48	36	---
TOTAL	1468	1727	1446	2467	3120	4146	2763	6278	5063	2190	1768	954
MEAN	47.4	57.6	46.6	79.6	111	134	92.1	203	169	70.6	57.0	31.8
MAX	58	70	60	110	180	235	208	509	443	156	83	46
MIN	36	44	37	47	82	90	66	101	62	44	36	20
AC-FT	2910	3430	2870	4890	6190	8220	5480	12450	10040	4340	3510	1890

CAL YR 1989 TOTAL 25837 MEAN 70.8 MAX 350 MIN 14 AC-FT 51250
WTR YR 1990 TOTAL 33390 MEAN 91.5 MAX 509 MIN 20 AC-FT 66230

NIOBRARA RIVER BASIN

63

06465000 NIOBRARA RIVER NEAR SPENCER, NE

LOCATION.--Lat 42°48'33", long 98°39'22", in SE1/4NW1/4 sec.30, T.33 N., R.11 W., Boyd County, Hydrologic Unit 10150007, at Spencer powerplant dam 5 mi southeast of Spencer.

DRAINAGE AREA.--12,100 mi², approximately.

PERIOD OF RECORD.--May to December 1908 (gage heights only); August 1913 to September 1914; October to December 1914, April to September 1915 (gage heights only); August 1927 to September 1936, June 1940 to current year. Published as "near Lynch" 1913-15. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WDR NE-67: Drainage area.

GAGE.--Water-stage recorder and hourly log and powerplant operation. Datum of gage is 1,473.67 ft above National Geodetic Vertical Datum of 1929. Elevation of taintor gate sill, 1,491.12 ft above National Geodetic Vertical Datum of 1929. Prior to December 1908, nonrecording gage on former highway bridge 275 ft downstream and Aug. 1, 1913, to Sept. 30, 1915, nonrecording gage at highway bridge 10 mi downstream at different datums. Aug. 1, 1927, to Sept. 30, 1936, and June 14, 1940, to Sept. 30, 1944, discharge computed as flow through powerhouse and over dam. Oct. 1, 1944, to Nov. 10, 1954, water-stage recorder at site 275 ft downstream at datum 4.98 ft higher, and Nov. 11, 1954, to Sept. 30, 1957, at site 0.3 mi downstream at datum 9.78 ft lower. Oct. 1, 1957 to Oct. 21, 1958, discharge computed as flow through powerhouse and over dam. Oct. 28, 1958, to Aug. 13, 1963, water-stage recorder at site 225 ft downstream at present datum. Aug. 14, 1963, gage moved to present site with discharge computed as flow through powerhouse and over dam.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by irrigation and power developments. Daily discharge determined from flow through turbines and taintor gates, computed from relation between head, and gage openings.

COOPERATION.--Powerplant log furnished by Nebraska Public Power District.

AVERAGE DISCHARGE.--60 years (1913-14, 1927-36, 1940-90), 1,429 ft³/s, 1,035,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft³/s Mar. 12, 1955, gage height, 12.16 ft, site and datum then in use; minimum daily, 5 ft³/s Nov. 14, Dec. 18, 19, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,950 ft³/s Feb. 23, May 27; minimum daily, 358 ft³/s Dec. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	897	1160	1570	1580	1290	1560	1470	1790	1890	849	847	899
2	972	1140	1600	1700	1090	1580	1510	1670	2170	819	1150	873
3	971	1160	1320	1710	963	1660	1490	1550	2280	782	1210	872
4	977	1160	1540	1680	1120	1670	1460	1470	2720	738	1070	844
5	1020	1170	2190	1690	1440	1630	1770	1500	2110	838	1010	766
6	965	1190	2180	1680	1670	1620	1920	1450	1970	821	957	760
7	1020	1210	1550	1720	1870	1720	2000	1370	1860	848	889	778
8	1100	1180	777	1750	1830	1940	1900	1770	1790	812	830	769
9	1050	1180	1580	1940	1840	2050	2330	2330	1690	926	817	799
10	1040	1150	1460	2000	1960	1680	2490	2100	1510	1170	876	834
11	1040	1150	850	2110	2110	2170	2600	1750	1470	1990	1100	814
12	1020	1150	404	1890	2700	1730	1600	1830	1390	1250	1120	794
13	1030	1180	358	1730	1990	1850	1480	1710	1440	1170	1010	813
14	1020	1200	433	1700	632	1730	1370	1850	1330	1060	940	762
15	1040	1210	733	1780	561	2600	1450	1830	1400	977	927	775
16	1100	645	506	1790	502	1970	1440	1870	1520	905	912	786
17	1130	980	407	1750	813	1890	1480	1730	1790	847	884	833
18	1110	1220	378	1720	957	1840	1510	1570	1370	794	831	992
19	1080	1720	426	1730	1080	1920	1440	1910	1470	926	937	1030
20	1370	1670	666	1660	1630	1780	1370	1980	1380	1400	1160	1070
21	1420	1360	831	1510	2160	1710	1300	1890	1540	1140	1010	1070
22	1510	1280	838	1570	2470	1790	1310	1610	1590	1180	1030	1050
23	1040	1240	872	1800	2950	1750	1310	1840	1260	976	1880	1070
24	730	1380	950	1900	2100	1400	1310	1850	1190	1000	1800	997
25	742	1550	1000	1840	1820	1390	1510	2380	1080	967	1420	940
26	731	1460	1100	1800	1410	1430	1720	2770	1120	967	1120	931
27	1180	1150	1360	1890	1640	1350	2120	2950	1070	923	1020	956
28	1200	450	1910	1830	1650	1370	1990	2890	1000	944	959	1020
29	1310	657	2000	1740	---	1480	2070	2850	929	1010	934	1010
30	1200	1230	1610	1580	---	1570	1970	2210	939	980	874	1070
31	1170	---	1620	1460	---	1500	---	2100	---	864	829	---
TOTAL	33185	35582	35019	54230	44248	53330	50690	60370	46268	30873	32353	26977
MEAN	1070	1186	1130	1749	1580	1720	1690	1947	1542	996	1044	899
MAX	1510	1720	2190	2110	2950	2600	2600	2950	2720	1990	1880	1070
MIN	730	450	358	1460	502	1350	1300	1370	929	738	817	760
AC-FT	65820	70580	69460	107600	87770	105800	100500	119700	91770	61240	64170	53510

CAL YR 1989 TOTAL 454389 MEAN 1245 MAX 3780 MIN 224 AC-FT 901300
WTR YR 1990 TOTAL 503125 MEAN 1378 MAX 2950 MIN 358 AC-FT 997900

NIOBRARA RIVER BASIN

06/65310 EAGLE CREEK NEAR REDBIRD, NE

LOCATION.--Lat 42°45'51", long 98°34'13" in SE1/4NW1/4 sec.11, T.32 N., R.11 W., Holt County, Hydrologic Unit 10150007, on left bank 12 ft downstream from bridge on the county road, 7 mi west of Redbird.

DRAINAGE AREA.--206 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,463.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 11, and Feb. 15-19. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--12 years, 52.1 ft³/s, 37,750 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,330 ft³/s Aug. 5, 1981, gage height, 8.55 ft; maximum gage height, 9.22 ft Sept. 16, 1986; minimum daily, 1.9 ft³/s Aug. 7, 8, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 706 ft³/s Aug. 23, gage height, 5.84 ft; minimum daily, 13 ft³/s Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	43	44	40	30	41	45	42	46	26	17	29
2	30	41	31	46	32	41	43	41	55	27	21	32
3	33	41	33	44	38	39	44	41	49	26	23	32
4	33	41	46	50	46	38	44	41	44	26	22	30
5	35	41	43	54	48	39	42	40	43	28	22	29
6	34	41	45	60	46	40	41	38	41	26	22	29
7	33	41	42	64	46	54	41	37	42	27	21	27
8	35	40	36	64	46	56	41	56	42	28	22	26
9	36	41	44	58	45	59	43	81	41	25	19	25
10	35	42	39	56	45	59	41	64	40	42	19	28
11	35	41	25	54	47	53	40	53	39	49	40	28
12	34	40	40	47	48	49	39	54	38	37	30	26
13	36	40	35	49	44	46	41	52	37	31	29	27
14	36	39	30	57	36	45	41	55	37	28	28	25
15	36	39	34	47	35	43	41	51	77	26	24	26
16	36	38	25	43	35	44	42	49	133	24	22	28
17	36	42	24	42	36	43	40	46	182	20	20	30
18	36	40	25	41	38	41	39	44	74	20	15	33
19	36	44	23	39	43	41	40	66	52	24	13	34
20	37	42	20	38	50	43	40	59	43	32	17	34
21	38	40	20	33	50	44	38	52	44	33	18	33
22	38	39	22	37	48	43	39	49	44	31	23	31
23	37	36	26	34	49	41	42	60	39	26	410	31
24	38	42	30	34	47	40	43	52	36	21	230	32
25	38	41	35	31	44	43	44	71	36	18	80	31
26	37	40	40	34	43	45	42	64	34	17	53	29
27	37	39	45	34	42	45	52	54	32	17	41	29
28	49	30	50	32	40	46	46	51	31	18	36	30
29	53	35	54	34	---	46	51	49	30	18	34	31
30	47	46	54	32	---	45	46	46	27	18	32	33
31	45	---	50	31	---	46	---	46	---	16	30	---
TOTAL	1149	1205	1110	1359	1197	1398	1271	1604	1508	805	1433	888
MEAN	37.1	40.2	35.8	43.8	42.7	45.1	42.4	51.7	50.3	26.0	46.2	29.6
MAX	53	46	54	64	50	59	52	81	182	49	410	34
MIN	30	30	20	31	30	38	38	37	27	16	13	25
AC-FT	2280	2390	2200	2700	2370	2770	2520	3180	2990	1600	2840	1760

CAL YR 1989 TOTAL 13560.1 MEAN 37.2 MAX 136 MIN 7.8 AC-FT 26900
WTR YR 1990 TOTAL 14927 MEAN 40.9 MAX 410 MIN 13 AC-FT 29610

NIOBRARA RIVER BASIN

06465310 EAGLE CREEK NR REDBIRD, NE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1985 to September 1990 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 18...	1040	35	313	8.4	4.5	7	130	42	5.7
NOV 15...	1530	40	316	8.5	3.0	10	120	40	5.6
DEC 13...	1145	34	366	8.2	0.5	15	150	48	6.5
JAN 09...	1450	57	306	8.3	0.5	15	120	39	5.4
FEB 06...	1120	43	321	8.1	2.0	10	130	42	6.3
MAR 14...	1450	45	327	8.4	9.0	13	140	44	6.1
APR 10...	1515	41	317	8.5	8.0	12	130	43	6.0
MAY 02...	1020	40	322	8.4	10.0	25	140	44	6.1
JUN 27...	0950	33	335	8.3	23.5	22	150	48	7.2
JUL 25...	1310	19	318	8.3	25.0	15	130	43	5.8
AUG 15...	1035	23	310	8.4	24.5	14	130	44	5.8
SEP 04...	1235	30	319	8.3	28.5	17	130	44	5.6

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)
OCT 18...	9.2	0.4	5.4	115	18	3.7	0.20	40	211
NOV 15...	9.1	0.4	5.2	111	20	3.3	0.20	41	212
DEC 13...	9.7	0.3	5.6	120	26	4.1	0.20	46	246
JAN 09...	8.1	0.3	4.7	99	22	3.3	0.20	38	203
FEB 06...	8.7	0.3	5.1	106	21	3.6	0.20	41	217
MAR 14...	8.8	0.3	5.1	112	25	3.7	0.30	39	220
APR 10...	9.1	0.3	4.8	112	21	3.6	0.20	38	212
MAY 02...	9.1	0.3	4.9	117	16	5.0	<0.10	--	173
JUN 27...	9.6	0.3	5.7	125	33	9.5	0.30	45	245
JUL 25...	8.6	0.3	5.4	120	16	11	0.10	46	219
AUG 15...	8.7	0.3	5.9	122	30	4.0	<0.10	43	224
SEP 04...	8.8	0.3	7.1	127	21	4.8	0.30	48	227

NIOBRARA RIVER BASIN

06465310 EAGLE CREEK NR REDBIRD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 18...	0.29	19.9	4.00	0.080	0.020	30	20	8
NOV 15...	0.29	22.9	4.80	0.100	0.050	30	22	9
DEC 13...	0.33	22.6	6.30	0.130	0.090	30	21	19
JAN 09...	0.28	31.2	5.10	0.140	0.080	20	18	15
FEB 06...	0.29	25.2	5.70	0.190	0.080	30	19	8
MAR 14...	0.30	26.7	4.60	0.130	0.070	30	22	8
APR 10...	0.29	23.5	4.40	0.090	0.030	30	17	7
MAY 02...	0.24	18.7	4.00	0.080	0.070	30	17	8
JUN 27...	0.33	21.9	2.70	0.210	0.110	40	20	17
JUL 25...	0.30	11.2	2.50	0.190	0.080	60	11	11
AUG 15...	0.31	13.9	2.20	0.120	0.060	40	8	10
SEP 04...	0.31	18.4	2.60	0.150	0.130	40	20	13

NIOBRARA RIVER BASIN

06465440 REDBIRD CREEK AT REDBIRD, NE

LOCATION.--Lat 42°45'43", long 98°26'32", in NE1/4 sec.11, T.32 N., R.10 W., Holt County, Hydrologic Unit 10150007, on right bank 10 ft downstream from county road bridge at Redbird, 0.9 mi upstream from mouth and 4.6 mi south-southeast of Lynch.

DRAINAGE AREA.--157 mi².

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,411.75 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1982 at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 17, Nov. 29 to Dec. 2, Dec. 9 to Jan. 23, and Feb. 1-6, 15-22. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--10 years, 41.6 ft³/s, 30,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,120 ft³/s May 11, 1985 on basis of slope-area measurement of peak flow, gage height, 6.49 ft, from floodmark; minimum daily, 3.8 ft³/s July 14, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,140 ft³/s Aug. 23, gage height, 6.07 ft; minimum daily, 11 ft³/s Aug. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	32	36	29	31	41	32	39	36	22	13	36
2	20	31	33	31	30	40	31	37	41	22	14	36
3	21	32	36	29	31	39	32	35	39	21	17	34
4	21	32	41	35	22	40	31	35	34	19	20	33
5	22	32	39	37	28	37	29	34	32	22	15	32
6	21	31	41	38	32	36	28	34	30	20	13	30
7	21	31	40	37	39	45	29	35	30	21	12	29
8	22	31	36	40	38	51	29	44	30	19	11	28
9	22	30	35	39	37	58	30	64	28	20	12	26
10	22	30	32	35	37	60	29	55	28	26	14	24
11	22	31	29	34	39	56	27	44	28	31	23	26
12	22	30	26	32	40	50	26	46	26	28	37	25
13	23	30	25	31	35	44	28	45	26	24	27	24
14	22	28	20	32	33	43	28	45	26	23	24	22
15	22	28	18	30	32	42	28	42	39	21	20	21
16	22	27	20	31	31	40	28	42	53	20	18	20
17	22	26	25	32	30	39	26	39	89	18	17	20
18	22	32	21	30	32	37	26	36	39	16	13	22
19	23	34	18	32	36	35	26	53	33	16	12	23
20	24	32	17	30	38	38	26	57	28	19	16	23
21	25	32	16	33	42	38	26	47	28	16	13	22
22	26	30	16	36	50	36	27	42	28	19	19	20
23	26	31	20	40	58	32	34	50	27	19	897	21
24	27	35	22	40	41	32	200	46	26	17	300	21
25	28	35	26	42	41	33	123	65	25	17	102	21
26	27	34	31	38	42	34	55	54	24	19	58	22
27	26	32	35	37	42	34	50	46	24	16	48	22
28	31	28	37	35	40	33	51	43	23	16	43	23
29	41	35	35	39	---	32	47	40	22	15	40	24
30	35	39	32	34	---	32	42	36	22	13	38	26
31	33	---	31	25	---	33	---	36	---	13	36	---
TOTAL	762	941	889	1063	1027	1240	1224	1366	964	608	1942	756
MEAN	24.6	31.4	28.7	34.3	36.7	40.0	40.8	44.1	32.1	19.6	62.6	25.2
MAX	41	39	41	42	58	60	200	65	89	31	897	36
MIN	20	26	16	25	22	32	26	34	22	13	11	20
AC-FT	1510	1870	1760	2110	2040	2460	2430	2710	1910	1210	3850	1500
CAL YR 1989	TOTAL	10846.6	MEAN	29.7	MAX	134	MIN	7.9	AC-FT	21510		
WTR YR 1990	TOTAL	12782	MEAN	35.0	MAX	897	MIN	11	AC-FT	25350		

NIOBRARA RIVER BASIN

06465500 NIOBRARA RIVER NEAR VERDEL, NE
National stream-quality accounting network station

LOCATION.--Lat 42°44'23", long 98°13'26", in NW1/4NW1/4 sec.23, T.32 N., R.8 W., Knox County, Hydrologic Unit 10150007, on right bank at downstream side of county road bridge, 6.6 mi south of Verdel, and 7.5 mi upstream from Verdigre Creek.

DRAINAGE AREA.--12,600 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1938 to May 1940, June 1958 to current year.

REVISED RECORDS.--WDR NE-67: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,312.12 ft above National Geodetic Vertical Datum of 1929. Apr. 25, 1938, to June 16, 1939, nonrecording gage at site 2600 ft downstream; June 17, 1939, to June 13, 1940, nonrecording gage 2850 ft downstream; and June 14, 1940 to July 24, 1985, water-stage recorder at site 2600 ft downstream, all at datum 4.00 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Natural flow of stream affected by irrigation and power developments.

AVERAGE DISCHARGE.--33 years, 1,581 ft³/s, 1,145,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft³/s Mar. 27, 1960, gage height, 10.10 ft; maximum gage height, 10.62 ft Mar. 12, 1966, backwater from ice; minimum daily discharge, 104 ft³/s Nov. 30, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3,290 ft³/s Aug. 23; maximum gage height, 5.54 ft Jan. 2, backwater from ice; minimum daily discharge, 418 ft³/s Dec. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	944	1270	1550	1660	1450	1690	1590	1930	2080	926	891	976
2	1010	1250	1770	1780	1230	1680	1590	1860	2150	911	1030	965
3	1070	1240	1530	1810	1090	1740	1610	1670	2360	859	1320	966
4	1020	1270	1450	1800	1110	1800	1570	1590	2750	796	1180	940
5	1100	1280	2150	1830	1440	1760	1660	1580	2410	895	1080	879
6	1050	1270	2450	1820	1710	1670	2150	1570	2090	876	1020	839
7	1070	1300	1820	1840	1920	1840	2020	1530	2000	926	960	850
8	1170	1300	1120	1880	1980	1940	2010	1660	1950	881	894	851
9	1160	1260	1270	2000	1940	2300	2280	2440	1790	922	865	842
10	1120	1250	1800	2100	2010	1920	2480	2380	1670	1100	881	900
11	1110	1250	1090	2240	2130	2260	2700	1960	1620	2070	1120	902
12	1100	1260	590	2060	2630	1940	2070	1950	1480	1450	1220	868
13	1120	1290	463	1900	2570	1990	1590	1870	1490	1280	1130	884
14	1100	1270	418	1800	1070	1840	1490	1890	1470	1150	1020	840
15	1100	1310	756	1870	649	2330	1530	2020	1510	1070	996	835
16	1160	825	663	1910	597	2470	1540	2000	1680	985	979	835
17	1210	984	488	1850	767	1960	1560	1900	2240	917	942	885
18	1190	1220	442	1840	1030	1940	1600	1720	1600	864	887	1020
19	1180	1650	449	1830	1130	1990	1560	1930	1480	895	893	1100
20	1340	1960	636	1790	1510	1970	1490	2170	1550	1360	1200	1150
21	1410	1450	847	1610	2170	1820	1440	2040	1520	1260	1070	1150
22	1660	1440	885	1660	2530	1850	1410	1850	1770	1280	1050	1120
23	1360	1270	925	1800	2720	1920	1390	1910	1470	1090	3290	1150
24	880	1450	988	2010	2840	1590	1660	1940	1280	1020	2630	1100
25	826	1630	1060	1930	2070	1470	1620	2410	1170	1030	1870	1010
26	683	1620	1170	1910	1450	1540	1790	2710	1180	1050	1370	1000
27	1220	1510	1330	1980	1740	1500	2140	3060	1160	967	1160	1020
28	1310	519	1840	1920	1780	1470	2170	3190	1090	986	1090	1080
29	1400	675	2210	1870	---	1510	2160	2880	994	1070	1050	1070
30	1360	1150	1810	1740	---	1680	2160	2550	1030	1010	996	1170
31	1280	---	1740	1560	---	1630	---	2270	---	940	929	---
TOTAL	35713	38423	37710	57600	47263	57010	54030	64430	50034	32836	37013	29197
MEAN	1152	1281	1216	1858	1688	1839	1801	2078	1668	1059	1194	973
MAX	1660	1960	2450	2240	2840	2470	2700	3190	2750	2070	3290	1170
MIN	683	519	418	1560	597	1470	1390	1530	994	796	865	835
AC-FT	70840	76210	74800	114200	93750	113100	107200	127800	99240	65130	73420	57910

CAL YR 1989 TOTAL 487487 MEAN 1336 MAX 4090 MIN 293 AC-FT 966900
WTR YR 1990 TOTAL 541259 MEAN 1483 MAX 3290 MIN 418 AC-FT 1074000

NIOBRARA RIVER BASIN
06465500 NIOBRARA RIVER NEAR VERDEL, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958-65, 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1975 to September 1980.

WATER TEMPERATURES: June 1958 to September 1965, October 1966 to September 1984.

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1981.

INSTRUMENTATION.--Temperature recorder June 14, 1958 to September 30, 1984.

REMARKS.--Prior to July 1, 1971, sediment records were obtained by U.S. Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 470 microsiemens Dec. 22, 1976; minimum daily, 110 microsiemens Nov. 22, 1976.

WATER TEMPERATURES: Maximum, 38.0°C July 22, 1964, July 20, 1974; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATIONS: Maximum daily, 12,000 mg/L June 8, 1975; minimum daily, 50 mg/L Dec. 31, Jan. 1, 3, 5, 6, 1978.

SEDIMENT LOADS: Maximum daily, 423,000 tons Mar. 19, 1979; minimum daily, 60 tons Dec. 7, 1972.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL AS CACO3 (MG/L) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
NOV 14...	0935	1250	264	8.5	2.5	718	41	12.3	78	230	110	0
MAR 13...	0940	2480	277	8.5	8.0	715	12	11.4	K30	290	110	3
MAY 01...	1000	2140	272	8.5	12.0	726	90	10.8	K320	K430	120	2
AUG 14...	1040	1140	236	9.1	30.5	720	25	8.1	43	42	97	0

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD CACO3 (MG/L AS CACO3) (39086)	CAR- BONATE WATER DIS IT FIELD CO3 (MG/L AS CO3) (00452)	BICAR- BONATE WATER DIS IT FIELD HCO3 (MG/L AS HCO3) (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
NOV 14...	35	4.8	9.7	0.4	5.4	112	4	129	12	1.6	0.30	49
MAR 13...	36	5.2	9.6	0.4	6.6	109	0	133	18	2.1	0.30	46
MAY 01...	38	4.9	9.8	0.4	6.2	113	6	126	13	3.5	<0.10	45
AUG 14...	32	4.0	9.3	0.4	7.3	101	13	97	20	2.6	<0.10	50

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 14...	180	190	0.24	607	1.00	0.020	0.58	0.60	0.190	0.050	0.050
MAR 13...	198	194	0.27	1330	1.00	0.030	0.17	0.20	0.330	0.070	0.080
MAY 01...	153	192	0.21	884	0.700	<0.010	--	0.80	0.170	0.060	0.070
AUG 14...	174	186	0.24	536	<0.100	0.050	0.25	0.30	0.110	<0.010	<0.010

NIOBRARA RIVER BASIN

06465500 NIOBRARA RIVER NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 14...	0935	10	4	95	<0.5	<1.0	1	<3	1	12	<1
MAR 13...	0940	30	6	100	<0.5	<1.0	<5*	<3	<10*	20	<10*
MAY 01...	1000	<10	5	100	<0.5	1.0	<1	<3	4	18	<1
AUG 14...	1040	10	6	78	<0.5	<1.0	<1	<3	5	13	3

*Minimum reporting level differs due to methodology.

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 14...	13	6	<0.1	<10	<1	<1	<1.0	190	<6	<3
MAR 13...	13	3	<0.1	<10	<10*	1	<1.0	190	9	6
MAY 01...	13	8	0.1	<10	1	1	<1.0	190	8	11
AUG 14...	10	3	0.1	<10	3	<1	<1.0	180	11	4

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)
NOV 14...	0935	1250	2.5	567	1910	24	49
MAR 13...	0940	2480	8.0	1540	10300	31	51
MAY 01...	1000	2140	12.0	1160	6700	27	54
AUG 14...	1040	1140	30.5	288	886	28	41

DATE	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)
NOV 14...	99	100	9	11	--	16
MAR 13...	94	100	11	14	18	21
MAY 01...	97	100	8	10	--	14
AUG 14...	88	100	--	--	--	--

NIOBRARA RIVER BASIN

71

06465680 NORTH BRANCH VERDIGRE CREEK NEAR VERDIGRE, NE

LOCATION.--Lat 42°35'51", long 98°08'03", in SE1/4SE1/4 sec.4, T.30 N., R.7 W., Knox County, Hydrologic Unit 10150007, on right bank 15 ft downstream from bridge on paved county road 5 mi west of Verdigre.

DRAINAGE AREA.--137 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,466.06 ft above National Geodetic Vertical Datum of 1929 (levels by Nebraska Natural Resources Commission).

REMARKS.--Estimated daily discharges: Nov. 16-19, 23-24, Nov. 29 to Dec. 4, Dec. 12 to Jan. 9, Jan. 12-14, 20-22, Jan. 31 to Feb. 5, and Feb. 17-21. Records good except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--11 years, 25.2 ft³/s, 18,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 315 ft³/s July 10, 1987, gage height, 4.93 ft, maximum gage height, 5.54 ft, June 14, 1981, from floodmark; minimum daily discharge, 2.5 ft³/s Jan. 6, 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 177 ft³/s June 16, gage height, 3.46 ft, from floodmark; minimum daily, 6.8 ft³/s Aug. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	22	20	25	21	21	22	19	23	12	11	12
2	22	22	19	24	22	21	21	19	26	13	13	14
3	22	23	24	24	27	21	22	19	24	9.1	12	18
4	23	23	29	26	25	20	21	19	22	9.4	13	18
5	23	23	24	27	28	20	21	19	22	12	15	17
6	22	23	24	27	25	20	21	19	21	12	15	16
7	22	23	23	26	24	25	21	19	21	13	15	12
8	23	23	26	25	23	25	21	20	21	9.7	14	11
9	23	22	26	24	23	25	21	28	21	8.1	6.8	13
10	23	23	22	28	22	25	21	23	20	15	8.0	15
11	23	22	19	24	23	25	20	22	20	18	12	17
12	22	22	14	25	23	24	20	23	19	17	14	18
13	22	22	11	30	21	23	21	22	18	16	15	18
14	22	22	11	30	22	23	21	22	17	14	15	17
15	22	22	12	25	22	23	21	23	27	11	14	17
16	22	20	11	23	22	24	21	24	39	7.1	9.5	17
17	22	19	10	23	19	23	20	22	55	7.7	8.9	18
18	22	21	9.8	24	19	23	19	22	30	10	11	20
19	22	25	10	24	22	22	20	33	26	12	11	20
20	22	22	9.6	23	27	23	20	27	24	14	14	20
21	22	22	8.8	24	23	23	18	25	24	10	16	18
22	23	22	10	27	22	22	19	24	24	9.3	15	18
23	23	20	20	24	22	22	20	30	22	11	75	19
24	23	25	24	23	21	22	26	26	21	14	36	19
25	23	23	29	23	21	22	20	28	20	13	27	18
26	23	22	31	23	22	22	19	25	18	11	25	17
27	24	21	35	23	21	23	20	25	16	14	23	17
28	23	20	30	23	20	22	19	25	15	14	23	18
29	25	19	27	24	---	22	21	24	12	11	22	18
30	23	20	24	22	---	22	20	23	10	7.7	21	19
31	23	---	21	20	---	22	---	23	---	7.7	16	---
TOTAL	702	658	614.2	763	632	700	617	722	678	362.8	546.2	509
MEAN	22.6	21.9	19.8	24.6	22.6	22.6	20.6	23.3	22.6	11.7	17.6	17.0
MAX	25	25	35	30	28	25	26	33	55	18	75	20
MIN	22	19	8.8	20	19	20	18	19	10	7.1	6.8	11
AC-FT	1390	1310	1220	1510	1250	1390	1220	1430	1340	720	1080	1010

CAL YR 1989 TOTAL 7659.7 MEAN 21.0 MAX 45 MIN 2.9 AC-FT 15190
WTR YR 1990 TOTAL 7504.2 MEAN 20.6 MAX 75 MIN 6.8 AC-FT 14880

BAZILE CREEK BASIN

06466500 BAZILE CREEK NEAR NIOBRARA, NE

LOCATION.--Lat 42°45'26", long 97°56'50", in SW1/4 sec.7, T.32 N., R.5 W., Knox County, Hydrologic Unit 10170101, on left bank 60 ft shoreward and 20 ft downstream from centerline of bridge on State Highway 12, 2.5 mi upstream from mouth and 4.5 mi east of Niobrara.

DRAINAGE AREA.--440 mi², approximately.

PERIOD OF RECORD.--May 1952 to current year. Records for October 1931 to September 1932, published in WSP 731, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1279: 1952. WSP 1729: 1958(M). WDR NE-81-1: 1977,1979-80. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,210.81 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 16, 1952, nonrecording gage only, and Dec. 16, 1952, to June 16, 1957, water-stage recorder at downstream end of right pier, above 4.2 ft, at present site at datum 4 ft higher. June 17, 1957, to Sept. 14, 1958, water-stage recorder above 8.2 ft at present datum. Sept. 15, 1958, to Oct. 17, 1978, water-stage recorder at downstream end of left pier, above 4.3 ft, at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 16 to Mar. 1. Records good except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--38 years, 82.0 ft³/s, 59,410 acre-ft/yr; median of yearly mean discharges, 70 ft³/s, 50,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,600 ft³/s June 16, 1957, gage height, 19.96 ft, present datum, from high point on surge, from rating curve extended above 6,500 ft³/s on basis of contracted-opening measurements at gage heights 15.36 ft and 19.96 ft, present datum; maximum gage height, 20.25 ft Feb. 19, 1971, backwater from ice; no flow July 24, 25, Aug. 30, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1951, reached a stage of 15.36 ft, present datum, from floodmarks, discharge, 24,400 ft³/s on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 17	0330	*6500	*17.11	No other peak greater than base discharge.			

Minimum daily discharge, 9.0 ft³/s Dec. 21, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	29	24	40	41	100	40	38	50	26	31	33
2	18	31	25	39	42	65	37	38	112	26	25	32
3	21	34	31	41	50	46	37	37	109	23	24	28
4	24	36	28	41	52	43	37	36	80	21	26	24
5	24	36	26	39	54	43	36	35	66	23	23	22
6	22	36	25	42	54	42	36	34	53	22	20	20
7	23	39	22	44	56	63	38	34	50	22	16	21
8	23	40	20	46	52	68	40	37	48	21	14	21
9	23	36	21	46	56	68	39	58	44	20	12	19
10	24	35	20	44	70	63	39	52	41	29	13	19
11	23	33	20	40	80	62	38	47	38	36	16	18
12	22	33	20	50	60	73	38	55	36	34	16	17
13	22	32	18	52	45	66	40	51	37	27	16	15
14	22	31	16	50	48	67	40	51	35	25	14	15
15	23	29	17	43	50	61	40	52	98	22	13	15
16	23	13	18	45	48	55	40	67	190	18	14	14
17	24	15	18	40	52	50	37	60	1670	17	12	15
18	24	14	16	41	50	44	34	65	93	17	10	18
19	26	21	13	42	60	40	33	230	54	18	12	20
20	26	18	10	35	70	38	34	243	39	19	15	20
21	27	16	9.0	45	66	41	36	98	64	15	15	19
22	25	17	9.0	45	70	45	35	69	74	15	16	17
23	24	16	14	43	80	41	39	326	54	15	114	18
24	25	17	35	40	70	37	48	309	46	15	424	17
25	25	19	40	37	90	41	47	164	42	14	160	16
26	25	20	42	41	80	42	42	115	38	15	96	17
27	25	19	45	45	100	43	41	87	34	15	66	16
28	26	18	43	43	110	42	40	82	33	17	48	17
29	33	23	41	45	---	41	43	62	32	35	37	19
30	37	22	40	42	---	40	41	57	29	74	32	21
31	30	---	35	40	---	41	---	54	---	46	30	---
TOTAL	755	778	761.0	1326	1756	1611	1165	2743	3389	742	1380	583
MEAN	24.4	25.9	24.5	42.8	62.7	52.0	38.8	88.5	113	23.9	44.5	19.4
MAX	37	40	45	52	110	100	48	326	1670	74	424	33
MIN	16	13	9.0	35	41	37	33	34	29	14	10	14
AC-FT	1500	1540	1510	2630	3480	3200	2310	5440	6720	1470	2740	1160

CAL YR 1989 TOTAL 12672.6 MEAN 34.7 MAX 500 MIN 5.2 AC-FT 25140
WTR YR 1990 TOTAL 16989.0 MEAN 46.5 MAX 1670 MIN 9.0 AC-FT 33700

MISSOURI RIVER MAIN STEM

73

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW1/4 sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 mi², approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 442,600 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). From capacity table put into use Nov. 1, 1986; maximum capacity, 491,700 acre-ft. Normal maximum, 432,000 acre-ft. Inactive storage, 149,400 acre-ft. Dead storage, 17,700 acre-ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft³/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft³/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft, Apr. 1, 1960, affected by wind; minimum since initial filling, 61,950 acre-ft, Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 442,000 acre-ft, Jan. 5; minimum contents, 344,000 acre-ft, May 12.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,207.66	423,000	-
Oct. 31	1,207.78	420,000	-3,000
Nov. 30	1,208.19	436,000	+16,000
Dec. 31	1,208.09	434,000	-2,000
CAL YR 1989	-	-	+20,000
Jan. 31	1,208.02	432,000	-2,000
Feb. 28	1,205.34	361,000	-71,000
Mar. 31	1,205.27	359,000	-2,000
Apr. 30	1,204.97	351,000	-8,000
May 31	1,204.88	349,000	-2,000
June 30	1,205.30	358,000	+9,000
July 31	1,204.92	351,000	-7,000
Aug. 31	1,207.44	416,000	+65,000
Sept. 30	1,208.02	431,000	+15,000
WTR YR 1990	-	-	+8,000

NOTE.--Lake frozen over Dec. 11 to Mar. 15.

MISSOURI RIVER MAIN STEM

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW1/4SW1/4 sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, near left bank in downstream end of left pier of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi downstream from Gavins Point Dam, 6.0 mi upstream from James River, and at mile 805.8.

DRAINAGE AREA.--279,500 mi², approximately.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to September 1950 (except winter months prior to 1932), are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges and July 8 to Aug. 7, Sept. 5-30, which are fair. Flow completely regulated by Gavins Point Dam 5.2 mi upstream since July 1955. Many diversions for irrigation and water supply above station. U.S. Army Corps of Engineers gage-height telemeter and satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1976-90, since main-stem reservoirs initially reached maximum pool elevation), 28,800 ft³/s, 20,866,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s, Apr. 13, 1952; maximum gage height, 35.5 ft, Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft³/s, Nov. 15, 16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft, Apr. 5, 1881, ice jam, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,800 ft³/s at 0700 hours, Sept. 18, gage height, 16.10 ft; maximum gage height, 16.36 ft, Dec. 22, backwater from ice; minimum daily discharge, 8,290 ft³/s, Mar. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29200	12300	11300	e12000	14200	9710	22900	27300	23300	28300	25800	29100
2	29400	12400	11300	e12000	14100	9780	23400	27100	28200	23400	25600	29900
3	29300	12500	11600	e12000	13400	9760	24100	26900	23500	22800	25200	30400
4	29900	10500	10600	e12000	11900	9770	24400	e26500	23200	28200	25500	30600
5	30100	9990	10400	e12000	11200	9660	24200	e26500	28400	24200	26100	31000
6	30300	9940	12000	e12000	10700	9760	24200	e26000	23700	24200	27100	31700
7	30400	9510	12600	e12000	10600	9510	24300	e26000	23100	28200	27800	31700
8	30300	9930	12000	11500	10600	9650	24400	e26000	28400	25600	27800	32200
9	30100	9410	13100	10900	10600	9930	24500	24600	23600	25700	28200	32500
10	30200	9550	15300	11000	10600	9880	24500	22600	23200	28500	28100	32800
11	30300	9550	16400	10700	11900	9610	24500	22700	28400	27100	28300	33000
12	30300	9550	16500	10900	13800	9150	25100	29200	23600	27000	27700	33100
13	30500	9610	16300	10900	15200	9110	25800	24500	23000	28600	27500	33100
14	30500	9880	16900	11000	15300	8870	26300	24100	28300	27100	27500	33200
15	30600	10100	17100	11000	15100	8820	26600	29100	23400	27000	27300	33300
16	30600	11600	17200	11000	15000	8570	26500	24400	22100	29000	27000	33400
17	30900	9990	17100	10900	15100	8290	26500	23700	22200	27300	26900	33300
18	30800	9730	17400	11000	15100	8510	26200	29500	22000	27600	26600	33300
19	30700	9700	17500	11100	14100	9030	26200	23100	27500	29200	26700	33000
20	30600	9720	e17500	11100	11600	9020	26200	20900	21800	28200	26600	32100
21	30600	9810	e17500	11000	10700	8930	26700	28600	21500	27600	26800	31700
22	30800	9740	e17500	10800	10700	8970	27000	24100	27200	29200	27100	31800
23	30700	9760	e16000	e10300	12400	9440	27000	23400	21800	27600	27500	31600
24	30600	9730	e16000	e10300	14300	11800	27300	e28500	21300	27700	27400	31500
25	28200	9720	e15000	e10300	14200	14600	27200	e23500	27600	29200	27700	31400
26	25400	9730	e15000	e10800	12800	17500	27400	e23500	22700	24700	27400	31000
27	22200	10500	e13500	e12500	10800	19900	27500	e30000	22000	25000	27500	31200
28	19800	11800	e12000	12500	9880	22600	27500	e23500	27900	25500	27500	31200
29	16700	11400	e12000	13300	---	22900	27400	e23500	23100	24900	27900	30400
30	13900	9870	e12000	14000	---	22800	27400	28500	22500	24800	28000	30200
31	12700	---	e12000	14100	---	22900	---	23900	---	25300	28500	---
TOTAL	866600	307520	448600	356900	355880	368730	773200	791700	728500	828700	842600	954700
MEAN	27950	10250	14470	11510	12710	11890	25770	25540	24280	26730	27180	31820
MAX	30900	12500	17500	14100	15300	22900	27500	30000	28400	29200	28500	33400
MIN	12700	9410	10400	10300	9880	8290	22900	20900	21300	22800	25200	29100
AC-FT	1719000	610000	889800	707900	705900	731400	1534000	1570000	1445000	1644000	1671000	1894000

CAL YR 1989 TOTAL 8376160 MEAN 22950 MAX 32700 MIN 8040 AC-FT 16610000
WTR YR 1990 TOTAL 7623630 MEAN 20890 MAX 33400 MIN 8290 AC-FT 15120000

e Estimated

BOW CREEK BASIN

75

06478518 BOW CREEK NEAR ST. JAMES, NE

LOCATION.--Lat 42°43'48", long 97°08'53", in SE1/4SW1/4 sec.24, T.32 N., R.2 E., Cedar County, Hydrologic Unit 10170101, on right downstream end of bridge on State Highway 12, 0.25 mi west of intersection of St. James road and State Highway 12, 0.7 mi south of St. James.

DRAINAGE AREA.--304 mi².

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,180.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 14 to Mar. 5. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--12 years, 73.7 ft³/s, 53,400 acre-ft/yr; median of yearly mean discharges, 59.1 ft³/s 42,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s June 21, 1984, gage height, 13.23 ft, from high-water mark; minimum daily, 6.1 ft³/s Aug. 18, 19, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,490 ft³/s May 19, gage height, 5.39 ft; minimum daily, 9.3 ft³/s Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	27	27	22	27	64	37	38	48	34	18	13
2	14	25	26	21	28	66	35	41	49	33	16	18
3	16	25	25	22	31	68	33	35	45	28	15	17
4	19	24	30	23	33	70	32	36	44	26	15	14
5	21	23	35	23	34	76	31	35	44	29	14	13
6	19	26	34	24	35	78	30	35	40	25	13	13
7	20	29	31	23	35	92	28	34	41	27	12	13
8	21	34	29	23	38	101	29	30	44	23	11	12
9	23	32	31	22	39	106	30	48	42	25	11	12
10	19	32	27	22	40	94	34	50	43	30	13	12
11	19	33	21	21	41	84	37	42	42	33	13	11
12	19	36	24	20	42	81	36	44	44	30	13	9.3
13	19	35	18	22	43	74	40	45	44	26	12	10
14	19	35	16	23	44	216	42	41	40	25	12	11
15	20	34	15	24	40	77	38	39	377	26	12	12
16	19	32	14	25	35	63	37	45	189	24	11	14
17	22	31	15	24	30	55	38	41	248	18	11	14
18	23	29	15	23	37	50	38	54	62	15	13	23
19	27	31	12	21	52	38	40	1160	45	18	12	22
20	28	34	14	20	60	26	41	233	44	16	13	20
21	27	32	12	18	72	27	38	104	44	14	12	19
22	27	31	10	23	72	35	38	53	57	14	13	18
23	27	30	12	25	70	33	38	838	46	14	25	19
24	25	31	17	27	68	41	47	390	44	17	124	19
25	21	32	23	28	66	40	47	278	43	16	55	17
26	18	30	23	29	65	39	44	141	41	15	32	15
27	19	27	24	30	64	35	39	79	35	16	20	14
28	20	25	24	31	66	35	35	65	38	27	16	16
29	22	27	23	31	---	39	40	56	37	39	15	18
30	24	28	23	30	---	40	38	53	35	30	14	20
31	26	---	23	29	---	35	---	50	---	21	13	---
TOTAL	657	900	673	749	1307	1978	1110	4233	1995	734	599	458.3
MEAN	21.2	30.0	21.7	24.2	46.7	63.8	37.0	137	66.5	23.7	19.3	15.3
MAX	28	36	35	31	72	216	47	1160	377	39	124	23
MIN	14	23	10	18	27	26	28	30	35	14	11	9.3
AC-FT	1300	1790	1330	1490	2590	3920	2200	8400	3960	1460	1190	909

CAL YR 1989 TOTAL 13262.9 MEAN 36.3 MAX 640 MIN 6.1 AC-FT 26310
WTR YR 1990 TOTAL 15393.3 MEAN 42.2 MAX 1160 MIN 9.3 AC-FT 30530

MISSOURI RIVER MAIN STEM

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat 42°29'09", long 96°24'49", in NW1/4SE1/4 sec.16 T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to current year in reports of the U.S. Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890, monthly discharges only, in House Document 238, 73rd Congress, 2d session, Missouri River. Gage height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft above NGVD. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906 to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935 to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft higher. Oct. 1, 1970 to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 11-14, Dec. 22 to Feb. 8, Feb. 13-16, 18, 19, 24-27, and July 11, 12. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U.S. Army Corps of Engineers rain-gage and satellite data collection platform at station.

AVERAGE DISCHARGE.--93 years, 31,850 ft³/s, 23,075,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Apr. 14, 1952, gage height, 24.28 ft, datum then in use; minimum, 2,500 ft³/s Dec. 29, 1941; minimum gage height, 7.83 ft Jan. 9, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,400 ft³/s, May 19; maximum gage height, 20.77 ft, Dec. 24; minimum daily discharge, 9,200 ft³/s, Nov. 19; minimum gage height, 9.74 ft, Nov. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29300	13100	11700	12100	12300	10900	22600	27100	27800	27100	25500	28700
2	29200	12500	11600	12200	12600	10500	22500	27200	25500	29400	25800	29600
3	29200	12400	11400	12700	11500	10500	23100	26800	29000	28100	26400	30500
4	29200	12800	12600	13000	13000	10500	24000	26700	27000	25100	26700	30600
5	29600	11800	12600	12600	14000	10500	24600	26200	24900	28300	25900	30700
6	29700	11200	11000	12400	13700	10300	24500	26300	28200	27300	26000	31100
7	29800	11100	12000	12300	12600	10600	24200	25700	27000	25500	26200	31200
8	30000	10600	12400	12400	11800	10600	24300	25700	25000	28200	26700	31100
9	29800	10900	13100	12500	12000	10600	24400	26500	28300	27700	27500	31200
10	29800	10500	13200	12700	11600	10700	24500	26100	27000	26700	27800	31300
11	29800	10600	13500	12400	11500	10900	24500	23200	24800	29000	28100	31300
12	29700	10500	14000	12000	11900	10800	24500	23400	28100	28000	27900	31300
13	29800	10600	14500	11600	12000	10500	24900	27300	27000	27400	27900	31300
14	29700	10600	17500	11400	13600	10900	25400	26700	24500	28400	27600	31200
15	29700	10300	16600	12500	14000	10200	25800	24800	28000	27900	27200	31100
16	29800	9720	10500	13000	14500	10100	26300	28600	28700	27000	27100	31100
17	29800	10400	14200	12600	15200	9910	26300	26800	29700	28100	26900	31000
18	29800	9790	16000	12500	14700	9570	26100	24600	30700	27800	26300	31200
19	29800	9200	16900	12400	15500	9550	25600	36700	27800	28500	26700	31400
20	29800	9530	16400	11800	15300	9950	25800	30000	29600	29700	26800	31000
21	29700	9700	15900	11300	13000	10000	25900	23100	28300	28700	26700	30600
22	29700	10100	17000	11200	11600	9880	26200	27200	26900	28700	26700	30100
23	30100	10200	17500	11300	11400	9460	26600	32900	29400	28900	27500	30000
24	30300	10500	16300	11200	11500	9380	26900	28400	27700	28300	28400	29900
25	30500	10700	16200	10900	12200	10400	27200	31200	25000	27600	27900	29900
26	28800	10500	15100	10800	13200	13100	27100	28300	28600	28700	27900	29700
27	26000	10600	15200	10900	13500	15800	27200	25800	28000	26200	27600	29400
28	23200	10200	13600	11300	12300	18500	27600	29300	25800	25600	27700	29600
29	20400	11900	12200	11800	---	21100	27300	27600	31200	27100	27900	30000
30	17700	13300	12200	12500	---	22200	27400	25300	31100	26500	28000	29600
31	14700	---	12200	13000	---	22300	---	28900	---	26000	28200	---
TOTAL	874400	325840	435100	373300	362000	370200	763300	844400	830600	857500	841500	916700
MEAN	28210	10860	14040	12040	12930	11940	25440	27240	27690	27660	27150	30560
MAX	30500	13300	17500	13000	15500	22300	27600	36700	31200	29700	28400	31400
MIN	14700	9200	10500	10800	11400	9380	22500	23100	24500	25100	25500	28700
AC-FT	1734000	646300	863000	740400	718000	734300	1514000	1675000	1647000	1701000	1669000	1818000

CAL YR 1989 TOTAL 8627000 MEAN 23640 MAX 33500 MIN 5060 AC-FT 17110000
WTR YR 1990 TOTAL 7794840 MEAN 21360 MAX 36700 MIN 9200 AC-FT 15460000

06601000 OMAHA CREEK AT HOMER, NE

LOCATION.--Lat 42°19'29", long 96°29'43", in SW1/4SE1/4 sec.11, T.27 N., R.8 E., Dakota County, Hydrologic Unit 10230001, on left bank 80 ft downstream from bridge on main street of Homer.

DRAINAGE AREA.--168 mi².

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-72: Drainage area. WDR NE-75-1: 1971-73.

GAGE (REVISED).--Water-stage recorder. Datum of gage is 1,080.45 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 4, 1952, at bridge 0.5 mi downstream at datum 6.03 ft lower. Aug. 4, 1952, to Nov. 3, 1966, at site 80 ft upstream at datum 2.0 ft higher. Nov. 4, 1966 to Sept. 30, 1989, at present site at datum 2.0 ft higher. June 27, 1984 to Aug. 28, 1984, at temporary site 700 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 16-18, Nov. 23 to Feb. 24, and June 24 to July 19. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--45 years, 37.6 ft³/s, 27,240 acre-ft/yr; median of yearly mean discharges, 31.8 ft³/s, 23,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s Feb. 19, 1971, gage height, 28.47 ft, from floodmark, from rating curve extended above 3,700 ft³/s on basis of slope-area measurements at gage heights 18.38 ft and 25.62 ft at present datum; minimum daily, 0.1 ft³/s Sept. 16, 18, 19, 1948, Sept. 9, 13, 14, 1955, Oct. 7, 8, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Greatest flood known occurred June 4, 1940, stage, about 34.5 ft, present site and datum, discharge estimated as 51,000 ft³/s at site 2.5 mi upstream from present site.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	----	*3660	*a16.67	June 17	----	1080	8.60

a From floodmark.

Minimum daily discharge, 4.1 ft³/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	11	11	12	8.4	16	13	11	24	32	27	12
2	4.1	11	11	12	8.2	21	11	11	25	33	25	52
3	5.0	11	10	11	8.0	19	9.6	11	27	34	70	26
4	7.0	13	10	11	9.4	18	10	10	20	32	28	16
5	10	13	10	11	10	18	10	10	20	32	23	13
6	10	13	9.6	10	10	16	9.4	9.7	18	33	20	12
7	10	12	9.6	10	11	20	8.4	9.1	17	34	20	11
8	12	13	9.8	9.6	11	37	9.5	8.7	25	33	20	11
9	14	12	9.6	10	11	45	13	59	21	33	19	12
10	17	12	9.4	11	12	32	27	44	17	32	22	12
11	16	13	9.0	9.4	12	31	15	18	16	33	22	11
12	19	12	8.8	9.2	12	35	10	36	14	33	21	11
13	20	12	8.6	9.0	13	36	13	28	119	34	19	9.7
14	21	12	8.0	9.2	12	76	14	19	51	33	19	10
15	18	12	7.6	9.4	10	32	13	50	414	31	18	8.8
16	18	9.0	6.8	9.8	9.6	24	15	95	1550	31	18	8.2
17	18	8.8	6.4	10	8.6	22	14	26	359	29	19	8.1
18	24	9.0	5.8	9.8	9.0	19	11	18	58	28	17	14
19	22	11	5.6	9.6	10	17	10	161	65	122	15	17
20	17	15	5.4	9.2	11	17	11	50	63	236	18	13
21	20	11	5.2	8.0	12	17	10	32	75	44	19	12
22	24	9.4	5.0	8.4	13	19	10	26	202	37	18	10
23	24	9.2	6.0	9.0	13	17	11	369	171	33	19	9.6
24	21	9.0	9.0	9.6	14	14	19	110	156	61	57	11
25	24	10	11	10	17	14	15	82	97	40	35	10
26	26	11	12	10	18	14	13	49	44	34	19	9.3
27	19	11	12	9.6	18	13	12	37	34	29	16	8.9
28	10	11	13	9.4	15	13	11	33	32	75	15	8.5
29	10	10	13	9.0	---	15	11	30	33	205	14	8.8
30	12	10	13	8.8	---	16	11	26	33	38	13	8.8
31	10	---	12	8.6	---	14	---	24	---	30	13	---
TOTAL	487.3	336.4	283.2	302.6	326.2	717	369.9	1502.5	3800	1564	698	384.7
MEAN	15.7	11.2	9.14	9.76	11.6	23.1	12.3	48.5	127	50.5	22.5	12.8
MAX	26	15	13	12	18	76	27	369	1550	236	70	52
MIN	4.1	8.8	5.0	8.0	8.0	13	8.4	8.7	14	28	13	8.1
AC-FT	967	667	562	600	647	1420	734	2980	7540	3100	1380	763

CAL YR 1989 TOTAL 7909.9 MEAN 21.7 MAX 800 MIN 3.3 AC-FT 15690
WTR YR 1990 TOTAL 10771.8 MEAN 29.5 MAX 1550 MIN 4.1 AC-FT 21370

06601200 MISSOURI RIVER AT DECATUR. NE

DRAINAGE AREA.--316,200 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage encoder. Datum of gage is 1,010.00 ft above NGVD, supplementary adjustment of 1954.

REMARKS.--Estimated daily discharges: Dec. 14 to Jan. 12. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain-gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,900 ft³/s May 19, 1990; maximum gage height 25.59 ft Sept. 16, 1988; minimum daily discharge, 8,290 ft³/s Jan. 9, 1989; minimum gage height, 13.78 ft, Jan. 9, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,900 ft³/s May 19, gage height, 25.17 ft; minimum daily discharge, 9,920 ft³/s Mar. 19; minimum gage height, 15.36 ft, Mar. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30200	14800	13000	12300	13000	11600	22800	27300	30300	28700	25500	28500
2	30300	13900	11700	12500	13400	11000	22900	27100	26600	27900	25500	29300
3	30200	13500	11900	12900	12000	10800	22800	27000	27100	30600	26200	30400
4	30200	13500	11800	13300	13700	11000	23300	26900	30100	26300	26500	30700
5	30200	13300	13200	13100	14700	11000	24100	26700	26000	26400	26400	30900
6	30600	12100	12200	12800	14300	10900	24500	26500	26500	29300	26000	31000
7	30600	11800	11800	12700	13300	10800	24400	26200	29700	26100	26300	31200
8	30900	11600	12400	12700	12500	11000	24500	26000	26000	26700	26500	31300
9	30800	11400	12800	12900	12800	10900	24800	26600	26200	29000	27300	31000
10	30700	11500	13200	13200	11900	10800	25100	27100	29100	27100	27900	31100
11	30700	11100	13300	12900	11800	11000	25100	25100	25200	28300	28400	31100
12	30600	11000	14000	12500	11800	11000	25300	23700	25500	29300	28400	31100
13	30500	11000	14800	12000	12700	11000	25300	24700	29200	28000	28200	31200
14	30500	10900	18300	11700	14200	11000	25800	28700	25200	27900	28300	31400
15	30500	10900	17000	13000	14500	11100	26200	25600	26700	28900	27800	31500
16	30500	11000	11500	13400	15100	10500	26500	26300	34700	27700	27500	31500
17	30500	11300	15000	12900	16000	10500	26800	29400	31500	27800	27400	31600
18	30600	12100	16500	12700	15200	10200	26600	25500	31200	29100	27300	32100
19	30800	11200	17500	12500	15900	9920	26200	33000	29800	27900	27000	32700
20	30900	11100	17000	12100	16000	9940	26100	36500	27600	32000	27100	32300
21	31000	11100	16600	11400	14900	10200	26100	26000	29800	29600	27000	31900
22	31000	11100	17200	11300	13000	10200	26200	24500	27300	29300	27000	31200
23	31200	11100	17500	11600	12200	10100	26600	33600	27400	29000	27300	31000
24	31000	11100	16500	11400	11900	10000	26900	32600	29900	29400	28600	31000
25	30700	11100	16400	11100	12800	10200	27300	30400	25600	28000	28600	30800
26	29800	11200	15500	11000	13900	11700	27200	31900	25900	28100	28200	30700
27	27200	11200	15500	11100	14000	14000	27100	26900	29500	28200	28000	30500
28	24700	11100	14000	11500	12900	16700	27400	27000	26000	25600	27800	30000
29	21800	11000	12500	12500	---	19500	27500	30100	28300	26600	27700	30200
30	19400	12500	12500	12800	---	22100	27500	26000	33500	26700	27800	29800
31	16900	---	12500	13400	---	22700	---	26600	---	26000	28100	

LOCATION.--Lat 41°15'32", long 95°55'20", in SE1/4NW1/4 sec.23, T.15 N., R.13 E., Douglas County, Hydrologic Unit 10230006, on right bank on left side of concrete floodwall, at foot of Douglas Street, 275 ft downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9.

WATER-DISCHARGE RECORDS

REVISD RECORDS.--WSP 761: Drainage area.

REMARKS.--Estimated daily discharges: Dec. 12-20. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U.S. Army Corps of Engineers rain-gage and satellite data collection platform and U.S. National Weather Service gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 396,000 ft³/s Apr. 18, 1952, gage height, 40.20 ft, present datum; minimum, about 2,200 ft³/s Jan. 6, 1937; minimum gage height, 6.85 ft, present datum, Feb. 5, 1989, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31600	19700	13100	15300	15000	15500	25600	28300	29200	41800	30400	29300
2	31500	17800	14000	14800	14600	13900	25700	28300	32200	35100	29800	29500
3	31500	16600	13000	14500	14900	13000	25800	28400	29400	34000	30300	30100
4	31500	16100	12900	14900	13700	12500	25600	28300	30300	35600	30500	31000
5	31800	15900	12900	15300	14600	12300	26000	28100	32000	31200	30400	31300
6	32100	15600	13900	15200	15900	12300	26400	27900	28100	31700	30000	31400
7	32200	14400	13600	15000	15700	12500	26800	27600	28900	33600	29400	31700
8	31900	13900	12800	14900	14800	12600	26700	27300	31500	30200	29400	32100
9	32300	13600	13400	15000	13900	13200	26600	27500	28400	31000	29500	32500
10	32400	13300	13800	15200	14000	13600	26700	27700	28800	34000	30200	32700
11	32100	13300	14100	15300	13200	13600	26900	28400	31200	32400	30800	33100
12	32100	13000	13500	15000	13100	13500	26800	26500	27700	32300	31200	33400
13	32300	12900	12500	14400	13100	14000	26800	24600	34700	33200	30900	33500
14	32300	12800	11000	13600	13400	16000	26800	25700	43500	31900	30800	33500
15	32300	12800	9500	13400	14800	14900	27400	29500	44600	32000	30800	33500
16	32200	12900	9000	14700	15500	14400	28000	27000	43500	32700	30300	33500
17	31400	12700	8500	15700	15800	13500	28200	27500	71700	31500	30100	33600
18	31100	12600	8000	15400	16700	13100	28300	30400	69300	31600	30100	33600
19	31200	13000	10000	14900	16000	12700	28000	35700	53100	32700	30100	33800
20	31200	12300	13000	14600	16400	12300	27400	50600	45400	31900	29800	34300
21	31200	12100	15100	14200	16600	12200	27100	46000	41700	36700	29900	33900
22	31200	12200	14700	13600	15800	12400	27100	30900	43800	33000	30200	33500
23	31300	12200	13300	13700	14300	12400	27100	29300	41700	32000	29900	32900
24	31600	12300	12600	13900	13500	12400	27600	45200	39200	31300	30200	32700
25	31800	12300	13000	14100	13400	12300	27700	51200	39000	33600	34100	32900
26	31800	12500	16000	13700	14200	12400	28100	42600	33600	42200	33600	32700
27	31100	12500	17800	13400	15800	13500	28000	38100	34200	35100	31700	32500
28	28900	12300	18000	13400	16200	15800	27900	32000	36900	33500	30100	32300
29	26600	12200	17800	13700	---	18500	28100	31600	33000	31200	29600	32300
30	23900	12000	17300	14400	---	21600	28200	33300	38800	34500	29400	32500
31	21900	---	16200	14700	---	24700	---	28800	---	32000	29300	---

PLATTE RIVER BASIN

06674500 NORTH PLATTE RIVER AT WYOMING-NEBRASKA STATE LINE

LOCATION.--Lat 41°59'25", long 104°02'57", in SW1/4NE1/4SE1/4 sec.4, T.23 N., R.58 W., Scotts Bluff County, Hydrologic Unit 10180009, on right bank 650 ft upstream from bridge on NE State Highway 86, 700 ft downstream from Wyoming-Nebraska State line, and 0.5 mi south of Henry.

DRAINAGE AREA.--22,218 mi², of which 1,929 mi² is probably non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WDR WY-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,021.35 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 6, 1929, non-recording gage and Nov. 6, 1929, to Sept. 30, 1959, water-stage recorder at site 0.5 mi upstream at datum 4.42 ft higher. Oct. 7, 1959 to Feb. 22, 1972, water-stage recorder at site 0.5 mi upstream at datum 3.42 ft higher.

REMARKS.--Estimated daily discharges: Dec. 16-18, 20, 21, 23-25, and Feb. 13-16. Records fair except those for estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, transbasin diversions, power development, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Gering-Mitchell Canal diverts from right bank 0.8 mi upstream. U.S. Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 17,900 ft³/s, June 2, 1929, gage height, 7.04 ft, site and datum then in use; minimum daily, 12 ft³/s, June 21, 22, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,690 ft³/s, July 10, gage height, 3.37 ft; minimum daily, 12 ft³/s, June 21, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	298	294	223	193	176	172	184	187	17	1310	1190	712
2	274	287	224	195	173	172	182	183	17	1360	1140	724
3	257	280	226	192	172	172	183	169	16	1320	1130	793
4	240	278	226	188	171	177	183	94	16	1370	1140	827
5	229	278	224	187	172	176	187	47	15	1330	1260	789
6	222	275	222	183	172	185	188	43	15	1440	1100	749
7	218	267	221	183	171	192	186	40	15	1510	1080	754
8	214	268	218	186	171	188	184	38	15	1550	1050	663
9	334	265	221	189	170	187	187	44	15	1630	1010	661
10	368	263	221	192	168	190	187	51	14	1650	1020	630
11	350	262	214	193	172	194	184	35	14	1550	1060	616
12	333	259	212	188	172	201	183	34	13	1440	1130	615
13	330	256	208	190	169	204	184	31	13	1430	1120	621
14	329	252	214	190	164	205	185	30	14	1450	1150	640
15	329	251	215	190	167	201	193	28	14	1500	1180	690
16	334	246	210	193	169	198	190	26	14	1500	1070	666
17	323	246	200	191	169	199	190	23	26	1520	1030	650
18	320	247	198	190	169	202	208	22	13	1430	1010	657
19	315	243	201	191	167	199	220	22	13	1400	1000	668
20	313	239	200	192	166	197	215	24	13	1380	1010	564
21	311	236	189	188	167	196	214	21	12	1460	971	419
22	310	236	162	188	169	194	206	19	12	1360	918	362
23	310	233	187	188	170	193	203	17	13	1280	916	325
24	306	233	207	188	172	191	198	16	74	1180	950	298
25	307	234	213	188	172	193	200	16	263	1180	947	360
26	307	233	211	185	175	194	202	15	507	1170	953	485
27	308	229	205	184	175	194	198	16	745	1200	972	517
28	306	227	204	184	173	195	196	16	912	1230	928	504
29	301	227	201	176	---	191	195	16	1110	1230	855	539
30	296	226	198	175	---	188	193	18	1190	1280	781	493
31	296	---	195	177	---	187	---	19	---	1230	732	---
TOTAL	9288	7570	6470	5817	4773	5927	5808	1360	5140	42870	31803	17991
MEAN	300	252	209	188	170	191	194	43.9	171	1383	1026	600
MAX	368	294	226	195	176	205	220	187	1190	1650	1260	827
MIN	214	226	162	175	164	172	182	15	12	1170	732	298
AC-FT	18420	15020	12830	11540	9470	11760	11520	2700	10200	85030	63080	35690

CAL YR 1989 TOTAL 165568 MEAN 454 MAX 1500 MIN 77 AC-FT 328400
WTR YR 1990 TOTAL 144817 MEAN 397 MAX 1650 MIN 12 AC-FT 287200

PLATTE RIVER BASIN

06674500 NORTH PLATTE RIVER AT WYOMING-NEBRASKA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)
OCT				
04...	1445	242	905	11.0
NOV				
02...	1500	248	975	9.0
DEC				
12...	1415	210	995	2.5
JAN				
17...	0850	193	960	3.5
MAR				
12...	1345	202	1060	13.0
APR				
19...	1100	220	910	13.5
MAY				
09...	1515	39	990	12.0
JUN				
13...	0910	12	920	14.5
JUL				
11...	1215	1560	770	21.0
AUG				
16...	1100	1090	780	22.5
SEP				
18...	1020	654	770	16.0

PLATTE RIVER BASIN

06677500 HORSE CREEK NEAR LYMAN, NE

LOCATION.--Lat 41°56'21", long 103°59'13", in SE1/4NE1/4 sec.25, T.23 N., R.58 W., Scotts Bluff County, Hydrologic Unit 10180012, on right bank 10 ft upstream from county highway bridge, 1.8 mi upstream from mouth, 2.2 mi downstream from Owl Creek, and 3.2 mi northeast of Lyman.

DRAINAGE AREA.--1,570 mi², approximately, of which about 40 mi² is noncontributing.

PERIOD OF RECORD.--February 1931 to current year.

REVISED RECORDS.--WSP 926: 1940(M). WDR NE-67: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,992.84 ft above National Geodetic Vertical Datum of 1929 (levels by private engineering firm). See WSP 2118 for history of changes prior to Apr. 17, 1967.

REMARKS.--Estimated daily discharges: Nov. 11 to Jan. 2, Mar. 13 to Apr. 9, and Apr. 29 to May 1. Records good Oct. 1 to Nov. 9 and May 1 to Sept. 30, and fair Nov. 10 to Apr. 30 except for periods of estimated record, which are poor. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--59 years, 74.8 ft³/s, 54,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft³/s June 6, 1967, gage height, 10.82 ft, from rating curve extended above 1,900 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.4 ft³/s Feb. 1, 2, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 301 ft³/s June 16, gage height, 4.28 ft; minimum daily, 6.6 ft³/s Apr. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	41	30	24	19	27	20	14	19	140	71	87
2	60	41	26	26	23	27	20	13	18	81	70	93
3	59	41	26	26	19	25	19	13	16	51	80	110
4	58	39	27	29	19	19	19	27	15	35	87	105
5	58	39	29	26	17	14	19	20	15	29	107	100
6	56	37	30	23	16	16	19	16	14	18	125	131
7	54	35	28	23	16	14	19	20	22	18	129	181
8	54	36	25	25	16	19	19	24	21	28	110	185
9	53	35	25	27	17	22	19	34	18	58	94	147
10	52	34	22	28	19	16	22	32	16	37	96	134
11	50	32	21	27	20	24	22	26	14	36	89	80
12	49	32	20	24	21	33	23	25	14	33	94	80
13	49	31	20	22	17	30	22	24	15	35	83	89
14	49	31	20	22	19	30	20	23	15	32	74	86
15	49	31	18	21	30	30	20	22	27	36	74	80
16	51	30	15	21	34	25	18	20	74	36	79	70
17	50	30	15	21	36	25	18	20	29	30	81	72
18	49	30	15	20	36	22	16	20	24	30	74	76
19	49	29	15	20	22	22	15	20	22	32	73	100
20	48	29	15	21	21	22	14	56	21	39	84	156
21	47	29	15	25	21	22	12	27	19	61	80	149
22	45	29	14	23	21	22	11	21	19	90	76	127
23	44	29	12	22	24	25	11	21	18	89	76	115
24	44	29	14	22	27	20	8.6	22	16	95	70	99
25	44	29	20	22	29	20	6.6	20	14	102	65	79
26	46	30	25	22	28	30	9.4	19	13	106	62	69
27	48	30	30	19	27	35	11	19	12	96	65	67
28	44	30	29	21	25	40	12	18	10	86	66	65
29	43	30	28	23	---	30	14	19	31	77	74	68
30	43	30	27	21	---	25	14	21	117	72	81	66
31	43	---	23	20	---	22	---	22	---	89	96	---
TOTAL	1548	978	679	716	639	753	492.6	698	698	1797	2585	3066
MEAN	49.9	32.6	21.9	23.1	22.8	24.3	16.4	22.5	23.3	58.0	83.4	102
MAX	60	41	30	29	36	40	23	56	117	140	129	185
MIN	43	29	12	19	16	14	6.6	13	10	18	62	65
AC-FT	3070	1940	1350	1420	1270	1490	977	1380	1380	3560	5130	6080

CAL YR 1989 TOTAL 17532 MEAN 48.0 MAX 273 MIN 11 AC-FT 34770
WTR YR 1990 TOTAL 14649.6 MEAN 40.1 MAX 185 MIN 6.6 AC-FT 29060

PLATTE RIVER BASIN

83

06678000 SHEEP CREEK NEAR MORRILL, NE

LOCATION.--Lat 41°57'50", long 103°56'20", in NW1/4SW1/4 sec.16, T.23 N., R.57 W., Scotts Bluff County, Hydrologic Unit 10180009, on right bank 40 ft upstream from Burlington Northern Inc. bridge, 50 ft downstream from bridge on U.S. Highway 26 1 mi west of Morrill, and 1.5 mi upstream from mouth.

RAINAGE AREA.--362 mi², of which about 25 mi² is noncontributing.

PERIOD OF RECORD.--October 1931 to current year.

REVISED RECORDS.--WDR NE-67: Drainage area. WSP 2118: 1936(M), 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 3,995.04 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 14, 1940, nonrecording gage at site 20 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 23-27. Record good. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--59 years, 55.2 ft³/s, 39,990 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 516 ft³/s July 21, 1978, gage height, 6.62 ft; maximum gage height, 6.75 ft Aug. 2, 1932, from floodmark, due to break in Interstate Canal (discharge not determined); minimum daily discharge, 0.1 ft³/s Dec. 16, 23, 1956, Jan. 18, Mar. 12, 1957, result of diversion for construction upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 128 ft³/s Sept. 20, gage height, 2.50 ft; minimum daily, 5.0 ft³/s July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	83	76	71	68	62	61	55	51	5.6	6.5	8.2
2	90	82	76	71	68	61	61	55	51	5.8	7.3	7.9
3	89	82	77	71	68	61	61	55	51	5.8	8.1	8.0
4	90	82	77	71	68	63	61	56	50	5.6	7.7	7.9
5	89	81	75	71	68	62	63	56	49	5.6	8.1	7.4
6	87	81	74	71	68	69	61	56	48	5.8	7.6	7.2
7	87	79	73	70	68	66	60	57	48	5.9	7.4	7.1
8	87	76	73	71	67	65	60	57	46	5.5	7.2	6.7
9	85	74	72	71	67	65	61	57	46	5.6	7.2	6.6
10	84	75	72	72	66	65	60	56	46	5.3	7.1	6.9
11	82	74	71	72	66	68	60	56	46	5.0	7.3	6.5
12	81	75	72	71	67	67	60	56	45	5.0	7.7	6.2
13	82	75	71	72	67	68	60	57	44	5.4	7.8	6.0
14	84	76	71	71	66	67	60	57	43	5.5	7.8	6.1
15	85	76	71	71	66	67	61	57	44	5.7	7.1	6.2
16	86	76	72	71	65	66	59	55	46	6.1	7.1	6.3
17	86	77	71	70	64	65	58	55	46	5.3	7.3	6.4
18	86	77	72	70	64	66	57	55	46	5.3	7.4	6.4
19	85	77	71	70	63	65	59	55	46	6.0	7.4	6.8
20	85	76	71	71	63	64	58	61	44	6.4	8.0	54
21	85	75	71	70	63	64	56	56	45	6.6	8.1	77
22	85	75	71	70	63	63	55	54	46	6.7	8.0	76
23	84	76	72	70	63	64	55	53	45	6.8	8.1	75
24	84	76	73	70	64	64	56	53	45	7.0	8.2	76
25	84	76	74	69	64	64	56	52	25	6.9	8.0	76
26	85	76	74	69	63	64	54	52	11	6.7	7.8	75
27	85	76	73	69	62	64	55	52	9.2	6.6	7.9	74
28	85	75	73	69	62	64	56	52	5.2	6.5	7.8	73
29	84	76	73	69	---	63	55	52	5.5	6.8	7.6	81
30	84	76	72	69	---	62	56	52	5.6	6.6	8.0	77
31	83	---	72	69	---	61	---	52	---	6.4	8.2	---
TOTAL	2648	2311	2256	2182	1831	1999	1755	1704	1178.5	185.8	236.8	944.8
MEAN	85.4	77.0	72.8	70.4	65.4	64.5	58.5	55.0	39.3	5.99	7.64	31.5
MAX	90	83	77	72	68	69	63	61	51	7.0	8.2	81
MIN	81	74	71	69	62	61	54	52	5.2	5.0	6.5	6.0
AC-FT	5250	4580	4470	4330	3630	3970	3480	3380	2340	369	470	1870

CAL YR 1989 TOTAL 17386.9 MEAN 47.6 MAX 98 MIN 5.7 AC-FT 34490
WTR YR 1990 TOTAL 19231.9 MEAN 52.7 MAX 90 MIN 5.0 AC-FT 38150

PLATTE RIVER BASIN

06679500 NORTH PLATTE RIVER AT MITCHELL, NE

LOCATION.--Lat 41°55'38", long 103°48'48", in NE1/4NE1/4 sec.33, T.23 N., R.56 W., Scotts Bluff County, Hydrologic Unit 10180009, on right bank of main channel 10 ft downstream from bridge on State Highway 29, 0.5 mi south of Mitchell.

DRAINAGE AREA.--24,300 mi², approximately, of which about 22,300 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--June 1901 to September 1910, May to December 1911, February 1912 to July 1913 (gage heights only), May 1916 to October 1918 (irrigation seasons only), May 1920 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,929.3 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to May 27, 1960. May 27, 1960, to Aug. 24, 1971, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Dec. 22-24: Records good except for period of estimated record, which is fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE (since Glendo project).--33 years (water years 1958-90), 848 ft³/s, 614,400 acre-ft/yr; median of yearly mean discharges, 540 ft³/s, 391,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s June 3, 1909, gage height, 6.45 ft, datum then in use, from graph based on gage readings, from rating curve extended above 17,000 ft³/s; maximum gage height, 7.80 ft May 29, 1984; minimum daily discharge observed, 25 ft³/s Sept. 25-29, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 915 ft³/s Sept. 29, gage height, 2.47 ft; maximum gage height, 2.99 ft Dec. 23, backwater from ice; minimum daily, 72 ft³/s June 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	718	527	505	474	406	402	363	360	153	202	285	265
2	675	523	501	480	395	396	358	361	150	220	257	254
3	653	524	507	476	397	395	359	354	143	190	249	272
4	642	521	515	464	396	397	354	349	148	135	263	265
5	622	516	515	459	397	385	357	382	145	112	326	263
6	599	514	510	456	391	420	358	362	142	104	355	257
7	590	514	506	461	393	417	356	348	153	165	321	297
8	586	504	507	468	392	407	355	281	157	237	316	325
9	603	515	508	467	389	407	351	291	165	315	299	294
10	689	513	500	472	395	405	347	302	172	322	298	274
11	678	513	484	465	399	416	350	279	163	319	295	253
12	667	514	484	458	402	424	350	273	142	269	326	215
13	670	510	492	462	402	425	347	272	139	237	337	206
14	660	507	494	462	398	422	343	262	141	226	337	199
15	643	504	456	458	388	414	355	260	140	270	382	194
16	648	502	476	457	357	409	350	251	184	285	340	243
17	637	512	469	452	370	403	340	243	146	305	318	245
18	625	512	462	444	390	400	350	219	138	293	294	266
19	624	510	425	443	381	396	372	186	134	286	269	323
20	628	506	448	447	384	395	384	259	124	260	279	381
21	624	504	428	439	390	389	381	230	106	312	275	468
22	612	504	450	441	393	393	379	180	90	342	258	628
23	604	504	470	437	401	397	375	186	97	319	254	628
24	598	512	510	429	408	388	371	176	103	303	246	597
25	591	510	519	422	412	392	370	147	106	284	237	571
26	592	514	514	428	410	391	367	146	94	271	235	672
27	600	505	494	418	407	391	366	144	96	270	231	727
28	577	503	490	404	403	388	377	142	104	282	228	800
29	559	502	485	413	---	380	367	142	72	278	232	839
30	550	502	482	407	---	376	367	149	113	305	241	861
31	538	---	472	415	---	372	---	162	---	315	251	---
TOTAL	19302	15321	15078	13878	11046	12392	10819	7698	3960	8033	8834	12082
MEAN	623	511	486	448	394	400	361	248	132	259	285	403
MAX	718	527	519	480	412	425	384	382	184	342	382	861
MIN	538	502	425	404	357	372	340	142	72	104	228	194
AC-FT	38290	30390	29910	27530	21910	24580	21460	15270	7850	15930	17520	23960

CAL YR 1989 TOTAL 146951 MEAN 403 MAX 887 MIN 86 AC-FT 291500
WTR YR 1990 TOTAL 138443 MEAN 379 MAX 861 MIN 72 AC-FT 274600

PLATTE RIVER BASIN

85

06681500 GERING DRAIN NEAR GERING, NE

LOCATION.--Lat 41°49'22", long 103°37'02", in SE1/4NE1/4 sec.6, T.21 N., R.54 W., Scotts Bluff County, Hydrologic Unit 10180009, on right bank 200 ft downstream from county road bridge, 0.2 mi downstream from bridge on State Highway 92, 1 mi upstream from mouth, and 2 mi east of Gering.

PERIOD OF RECORD.--February 1931 to September 1945, October 1948 to current year.

REVISED RECORDS.--WSP 896: 1935(M). WDR NE-79-1: 1977, 1978 (M).

GAGE.--Water-stage recorder. Datum of gage is 3,850.62 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). See WSP 1918 for history of changes prior to June 27, 1958. June 27, 1958, to Oct. 27, 1970, at datum 6.0 ft higher, Oct. 28, 1970, to Dec. 8, 1975, at datum 4.0 ft higher, Dec. 9, 1975, to Sept. 30, 1980, at datum 3.0 ft higher, all at site 200 ft upstream. Oct. 1, 1980 to Sept. 30, 1986, at datum 2.0 ft higher.

REMARKS.--Estimated daily discharges: Oct. 26-30, Feb. 16-21, June 28, and July 13-22. Records good except for periods of estimated record, which are fair. Base flow is mainly return water from land irrigated by Fort Laramie Canal.

AVERAGE DISCHARGE.--56 years, 49.8 ft³/s, 36,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 ft³/s June 8, 1958, gage height, 18.3 ft, present datum, from floodmarks, from rating curve extended above 2,200 ft³/s on basis of slope-area measurements at gage heights 16.67 ft and 18.3 ft present datum; minimum daily, 5 ft³/s Aug. 13, 16, 19, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 322 ft³/s June 15, gage height, 4.02 ft; minimum daily, 18 ft³/s Mar. 30, May 16, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	27	25	23	22	21	19	21	47	90	84	90
2	104	27	25	23	22	20	19	22	47	70	88	93
3	103	27	25	24	22	21	20	22	29	74	92	99
4	98	27	25	23	22	21	20	21	25	66	98	94
5	90	27	26	23	22	21	21	21	28	68	100	72
6	77	27	25	23	21	21	21	21	27	68	100	47
7	45	28	24	23	22	21	20	20	21	75	98	47
8	43	27	25	24	21	21	21	23	23	86	93	39
9	38	27	25	25	21	21	22	32	32	101	91	30
10	34	27	25	25	21	21	21	22	26	75	90	30
11	32	27	24	24	21	21	20	20	27	87	89	32
12	33	27	24	24	22	22	20	19	27	62	90	32
13	32	27	25	24	21	21	20	19	27	64	87	32
14	30	26	25	23	21	21	20	19	27	76	88	28
15	33	27	24	23	20	21	23	19	54	76	90	29
16	33	27	22	23	20	22	22	18	63	72	89	30
17	33	27	23	22	20	21	22	18	57	64	86	31
18	34	27	23	22	20	21	22	19	53	66	86	33
19	32	27	22	23	20	21	22	19	49	68	85	34
20	28	27	23	23	20	20	23	26	43	74	86	38
21	27	27	23	23	21	21	23	20	43	74	85	39
22	27	26	23	23	21	21	23	27	39	72	84	40
23	27	26	23	23	22	21	23	73	39	83	84	45
24	27	27	23	21	21	20	23	60	39	82	85	50
25	26	27	23	21	22	20	22	49	38	80	87	49
26	26	27	23	21	21	19	22	49	40	79	88	49
27	26	26	23	21	21	19	22	46	40	80	84	57
28	27	26	23	21	21	19	22	43	55	82	85	65
29	27	26	23	21	---	19	22	44	45	81	86	65
30	28	25	22	21	---	18	22	49	58	83	90	53
31	28	---	23	21	---	19	---	58	---	83	88	---
TOTAL	1354	803	737	704	591	636	642	939	1168	2361	2756	1472
MEAN	43.7	26.8	23.8	22.7	21.1	20.5	21.4	30.3	38.9	76.2	88.9	49.1
MAX	106	28	26	25	22	22	23	73	63	101	100	99
MIN	26	25	22	21	20	18	19	18	21	62	84	28
AC-FT	2690	1590	1460	1400	1170	1260	1270	1860	2320	4680	5470	2920

CAL YR 1989 TOTAL 18758 MEAN 51.4 MAX 370 MIN 19 AC-FT 37210
WTR YR 1990 TOTAL 14163 MEAN 38.8 MAX 106 MIN 18 AC-FT 28090

PLATTE RIVER BASIN

06682000 NORTH PLATTE RIVER NEAR MINATARE, NE

LOCATION (REVISED).--Main channel gage: Lat 41°47'24", long 103°31'8", in SW1/4SW1/4 sec.18, T.21 N., R.53 W., Scotts Bluff County, Hydrologic Unit 10180009, on right bank 15 ft downstream from bridge on State Highway 326 and 1.8 mi southwest of Minatare. Nine Mile channel gage: Lat 41°47'32", long 103°31'08", in NE1/4SE1/4 sec.13, T.21 N., R.54 W., Scotts Bluff County, Hydrologic Unit 10180009, on left bank 50 ft upstream from bridge on State Highway 326 and 750 ft north of main channel bridge.

DRAINAGE AREA.--24,700 mi², approximately, of which about 22,700 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--May to August 1916, May 1917 to September 1918, May to October 1919, April to September 1922, June 1923 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1710, WDR NE-76-1: Drainage area.

GAGE.--Main channel (Revised): Water-stage recorder. Datum of gage is 3,807.0 ft above National Geodetic Vertical Datum of 1929. Nov. 2, 1966, to July 13, 1976, water-stage recorder 220 ft upstream from bridge at datum 4.00 ft higher; July 14, 1976, to Apr. 29, 1982, water-stage recorder 220 ft upstream from bridge at datum 3.00 ft higher; Apr. 30, 1982, to Apr. 2, 1990, water-stage recorder on left bank 200 ft upstream from bridge at datum 1.00 ft higher. See WDR NE-72 for history of changes prior to Nov. 2, 1966.
Nine Mile channel: Water-stage recorder. Datum of gage is 3,812.3 ft above National Geodetic Vertical Datum of 1929. See WDR NE-72 for history of changes prior to Aug. 25, 1971.

REMARKS.--Main channel: Estimated daily discharges: Dec. 19-28, and Feb. 17. Nine Mile channel: Estimated daily discharges: Dec. 12, 15-26, Feb. 15-18, and Sept. 22-26. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. River flows in two channels for which separate records are computed; figures given herein represent combined discharge.

AVERAGE DISCHARGE (since Glendo project).--33 years (water years 1958-90), 1,083 ft³/s, 784,600 acre-ft/yr; median of yearly mean discharges, 795 ft³/s, 576,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft³/s July 2, 1917, from graph based on mean daily discharge and discharge measurement published by State engineer of Nebraska; minimum daily, 11 ft³/s Aug. 16-18, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 18, 1921, may have been greater than flood of July 2, 1917.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft³/s Sept. 29; minimum daily, 70 ft³/s June 30.

REVISIONS.--Revised figures for datum of gage for water years 1972-89, are given below.

WY 1972 to July 13, 1976	3811.0 ft above NGVD
July 14, 1976 to Apr. 29, 1982	3810.0 ft above NGVD
Apr. 30, 1982 to Apr. 2, 1990	3808.0 ft above NGVD

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	960	820	689	655	569	591	535	511	332	144	353	369
2	951	813	690	653	573	589	528	530	342	166	331	396
3	940	811	700	644	565	588	526	507	316	174	320	416
4	937	810	704	633	572	594	534	482	307	167	372	404
5	922	797	703	625	569	587	540	462	293	146	446	396
6	921	800	701	621	573	630	514	466	290	123	539	360
7	901	794	701	620	577	649	510	486	293	112	493	349
8	890	775	695	618	577	632	516	519	278	139	414	376
9	888	772	695	611	570	628	531	589	273	222	370	377
10	900	774	690	612	571	630	529	542	263	271	342	351
11	889	773	684	602	576	640	513	500	257	455	336	346
12	864	767	680	588	582	651	517	505	240	363	365	328
13	863	756	677	593	583	657	519	499	231	300	419	291
14	872	752	683	599	564	664	514	472	232	287	413	282
15	885	749	678	594	568	650	545	459	255	297	414	282
16	897	744	669	593	578	636	535	442	383	314	453	284
17	899	748	666	591	560	627	514	432	358	288	416	313
18	894	745	653	591	602	622	514	421	327	284	373	341
19	883	742	650	593	592	620	537	397	312	270	352	374
20	885	736	635	608	589	619	568	470	287	307	354	472
21	888	736	630	598	591	610	567	468	254	405	349	539
22	867	726	590	592	594	596	566	426	228	503	341	668
23	860	719	570	594	601	591	564	408	216	486	328	721
24	859	721	570	592	597	583	578	398	198	405	328	784
25	858	723	650	585	598	577	579	379	166	335	329	821
26	860	717	720	591	599	577	544	358	130	304	322	843
27	880	714	710	584	594	579	542	331	98	292	315	928
28	866	704	694	572	592	579	569	318	87	281	304	995
29	842	701	682	573	---	568	530	317	80	300	291	1040
30	832	692	669	566	---	555	501	337	70	374	309	1020
31	833	---	656	569	---	547	---	354	---	365	329	---
TOTAL	27486	22631	20784	18660	16276	18866	16079	13785	7396	8879	11420	15466
MEAN	887	754	670	602	581	609	536	445	247	286	368	516
MAX	960	820	720	655	602	664	579	589	383	503	539	1040
MIN	832	692	570	566	560	547	501	317	70	112	291	282
AC-FT	54520	44890	41230	37010	32280	37420	31890	27340	14670	17610	22650	30680

CAL YR 1989	TOTAL 208827	MEAN 572	MAX 1190	MIN 117	AC-FT 414200
WTR YR 1990	TOTAL 197728	MEAN 542	MAX 1040	MIN 70	AC-FT 392200

PLATTE RIVER BASIN

87

06684500 NORTH PLATTE RIVER AT BRIDGEPORT, NE

LOCATION.--Main channel gage: Lat 41°40'54", long 103°05'52", in NW1/4NW1/4 sec.28, T.20 N., R.50 W., Morrill County, Hydrologic Unit 10180009, on left bank 0.3 mi upstream from bridge on U.S. Highway 26, 0.8 mi north of Bridgeport. Browns Creek channel gage: Lat 41°40'55", long 103°05'53", in NW1/4NW1/4 sec.28, T.20 N., R.50 W., Morrill County, on right bank 0.2 mi upstream from culvert on U.S. Highway 26 and 0.8 mi north of Bridgeport.

DRAINAGE AREA.--25,300 mi², approximately, of which about 23,300 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--June 1896 to October 1900 (no winter records most years), May 1902 to November 1906, June to August 1915, May 1916 to current year. Monthly discharge only for some years, published in WSP 1310. Published as "near Camp Clark" 1896-1900.

REVISED RECORDS.--WSP 1390: 1897, 1915. WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Main channel: Water-stage recorder. Datum of gage is 3,656.14 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to Oct. 7, 1927. Oct. 7, 1927 to July 16, 1978 at downstream side of bridge on U.S. Highway 26, 0.3 mi downstream at same datum. Browns Creek channel: Water-stage recorder. Datum of gage is 3,663.51 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to June 1, 1943. June 1, 1943 to Nov. 17, 1983 on left bank at same location and datum.

REMARKS.--Main channel: Estimated daily discharge Dec. 19 to Jan. 2, Feb. 15-19, and June 25 to July 11. Browns Creek channel: Estimated daily discharges, May 7-11, 13-14, June 18-20, July 8, and July 29 to Aug. 11. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. River flows in two independently rated channels for which separate records are computed; figures herein represent combined discharge.

AVERAGE DISCHARGE (since Glendo project).--33 years (water years 1958-90), 1,360 ft³/s, 985,300 acre-ft/yr; median of yearly mean of discharges, 1,055 ft³/s, 764,300 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s June 26, 1899, gage height, 5.39 ft, site and datum then in use, from graph based on gage readings; minimum daily, 55 ft³/s May 28, 1934, Aug. 15, 1940, but may have been less during periods of no record for Browns Creek channel.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,350 ft³/s Oct. 4; minimum daily, 138 ft³/s July 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1170	1080	991	832	691	665	718	709	529	194	641	550
2	1210	1030	969	844	678	667	714	690	613	150	622	610
3	1300	995	889	852	757	721	707	681	467	138	594	649
4	1330	976	902	830	751	725	727	656	420	156	612	646
5	1280	964	895	805	743	850	744	614	402	180	798	623
6	1230	1010	870	788	721	883	780	652	392	208	955	640
7	1240	1010	867	787	690	842	777	666	403	162	959	559
8	1250	1030	871	789	729	846	782	705	371	162	858	551
9	1260	997	876	780	723	903	801	808	347	200	712	548
10	1270	997	952	804	773	888	824	770	335	242	600	516
11	1290	1010	980	802	757	901	802	670	313	296	556	547
12	1270	1010	924	783	736	863	789	675	305	387	611	551
13	1270	1040	891	798	752	811	750	660	310	360	689	511
14	1280	1040	871	815	714	789	715	628	312	322	719	459
15	1260	998	822	806	700	828	732	627	429	320	675	465
16	1240	964	792	802	720	829	724	622	890	318	705	480
17	1240	971	826	797	740	834	692	622	492	322	746	525
18	1280	976	834	801	740	830	645	597	413	295	727	555
19	1240	1030	818	818	760	792	651	603	344	314	673	588
20	1120	1020	823	835	780	743	656	618	333	373	638	646
21	1090	1000	818	810	750	738	668	664	312	513	582	720
22	1150	960	822	809	760	767	703	610	285	655	565	815
23	1170	909	821	823	763	802	703	584	272	682	558	1020
24	1170	969	811	812	730	797	691	540	253	609	576	992
25	1180	994	796	814	731	790	682	463	209	542	634	979
26	1210	962	813	848	741	793	686	436	244	463	673	940
27	1210	930	806	865	689	786	668	419	215	390	626	973
28	1130	886	820	844	672	740	687	409	231	347	556	1020
29	1080	964	805	805	---	715	688	433	323	343	517	1110
30	1080	1000	812	721	---	703	698	437	274	735	484	1180
31	1110	---	822	706	---	708	---	434	---	700	468	---
TOTAL	37610	29722	26609	25025	20491	24549	21604	18702	11038	11078	20329	20968
MEAN	1213	991	858	807	732	792	720	603	368	357	656	699
MAX	1330	1080	991	865	780	903	824	808	890	735	959	1180
MIN	1080	886	792	706	672	665	645	409	209	138	468	459
AC-FT	74600	58950	52780	49640	40640	48690	42850	37100	21890	21970	40320	41590

CAL YR 1989 TOTAL 269588 MEAN 739 MAX 1330 MIN 132 AC-FT 534700
WTR YR 1990 TOTAL 267725 MEAN 733 MAX 1330 MIN 138 AC-FT 531000

PLATTE RIVER BASIN

89

06686000 NORTH PLATTE RIVER AT LISCO, NE
(National stream-quality accounting network station)

LOCATION (REVISED).--Lat 41°29'24", long 102°37'24", in SW1/4NE1/4 sec.33, T.18 N., R.46 W., Garden County, Hydrologic Unit 10180009, on left bank 40 ft downstream of highway bridge, 0.5 mi south of Lisco.

DRAINAGE AREA.--26,700 mi², approximately, of which about 24,700 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to September 1916, June to October 1917, September 1931 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,474.5 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 8, 1931, nonrecording gage at different datum, Sept. 8, 1931 to May 3, 1932, nonrecording gage at datum 1.0 ft higher, May 4, 1932, to May 28, 1974, water-stage recorder at datum 1.0 ft higher, and May 29, 1974 to Oct. 31, 1988, water-stage recorder at present datum; all at downstream side of right bridge pier 40 ft upstream and 600 ft south of present site.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 13, Feb. 14-23. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water and return flow from irrigated areas.

AVERAGE DISCHARGE (since Glendo project).--33 years (water years 1958-90), 1,439 ft³/s, 1,043,000 acre-ft/yr; median of yearly mean discharges, 1,160 ft³/s, 840,400 acre-ft/yr. Figures are unadjusted for storage and diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,100 ft³/s June 27, 29, 1917, from graph based on daily gage readings, from rating curve extended above 15,000 ft³/s; minimum daily, 8 ft³/s Aug. 4, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s Sept. 30, gage height, 1.74 ft; maximum gage height, 3.17 Dec. 26, backwater from ice; minimum daily discharge, 78 ft³/s July 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	1080	858	1000	822	821	791	832	535	194	668	427
2	1130	1060	855	1050	826	831	796	848	720	172	637	514
3	1220	1060	898	1100	855	841	805	848	656	130	618	533
4	1270	1010	914	1150	900	839	824	826	562	133	598	562
5	1310	997	940	1150	826	831	862	808	507	112	602	569
6	1320	985	936	1150	847	910	899	760	488	103	690	580
7	1320	993	912	1150	866	1050	926	767	479	95	762	562
8	1290	959	899	1130	868	1000	915	848	434	90	781	516
9	1300	927	909	1130	863	964	903	1020	354	78	717	497
10	1280	970	908	1100	829	962	901	1040	359	96	641	507
11	1270	999	900	1100	822	949	905	949	350	211	589	493
12	1220	984	920	980	821	904	907	918	330	253	590	502
13	1160	1010	880	960	792	875	953	921	323	351	605	509
14	1150	1000	860	959	760	908	948	937	284	363	630	513
15	1140	984	760	913	700	922	964	886	302	344	633	478
16	1210	956	740	911	720	858	958	870	479	305	595	478
17	1250	909	720	930	740	826	934	846	706	289	590	561
18	1230	907	700	914	760	828	912	821	527	278	605	684
19	1190	896	680	902	780	851	902	764	448	261	570	703
20	1180	897	680	921	800	860	921	745	403	298	565	741
21	1210	913	680	900	820	856	936	757	377	404	559	775
22	1210	897	660	896	820	839	901	806	356	529	537	837
23	1190	900	640	922	820	868	841	734	321	618	505	925
24	1190	933	760	897	829	886	870	677	284	661	509	1080
25	1150	978	800	875	824	850	1150	624	246	626	518	1120
26	1130	960	900	865	793	857	1010	589	200	588	512	1170
27	1150	929	960	858	788	872	908	587	165	501	512	1170
28	1150	895	1000	817	788	909	879	544	138	425	482	1210
29	1080	861	1000	823	---	913	852	558	137	351	454	1270
30	1060	860	980	802	---	888	828	617	170	420	434	1340
31	1080	---	1000	793	---	845	---	567	---	680	425	---
TOTAL	37190	28709	26249	30048	22679	27413	27101	24314	11640	9959	18133	21826
MEAN	1200	957	847	969	810	884	903	784	388	321	585	728
MAX	1320	1080	1000	1150	900	1050	1150	1040	720	680	781	1340
MIN	1060	860	640	793	700	821	791	544	137	78	425	427
AC-FT	73770	56940	52060	59600	44980	54370	53750	48230	23090	19750	35970	43290

CAL YR 1989 TOTAL 288669 MEAN 791 MAX 1430 MIN 46 AC-FT 572600
WTR YR 1990 TOTAL 285261 MEAN 782 MAX 1340 MIN 78 AC-FT 565800

PLATTE RIVER BASIN

06686000 NORTH PLATTE RIVER AT LISCO, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to September 1981.

WATER TEMPERATURES: October 1970 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,280 microsiemens Feb. 11, 1981; minimum daily, 275 microsiemens Mar. 1, 1978.

WATER TEMPERATURES: Maximum, 31.0°C July 19, 1972; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L) (00904)
NOV 13...	0930	1020	852	8.6	7.0	0	17	10.5	K5	70	280	75
JAN 09...	1115	1130	938	8.4	2.0	668	4.5	12.8	24	470	290	55
MAR 20...	1100	863	1000	8.5	12.5	669	23	10.4	K3	210	300	65
MAY 14...	0930	957	954	8.4	11.0	668	35	9.7	930	1600	230	25
JUL 30...	0900	414	917	8.5	21.0	675	85	8.7	460	250	270	52
SEP 04...	0950	563	912	8.6	21.0	673	76	8.3	1500	120	270	52

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03) (39086)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 13...	79	21	97	3	10	210	11	234	220	24	0.50	39
JAN 09...	82	20	91	2	11	233	14	255	210	23	0.40	38
MAR 20...	84	21	100	3	11	232	11	261	220	23	0.40	39
MAY 14...	64	18	83	2	10	210	14	227	220	17	0.30	30
JUL 30...	75	21	91	2	10	223	14	243	220	25	0.20	35
SEP 04...	72	21	92	2	11	215	14	233	210	23	0.20	37

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
NOV 13...	633	633	0.86	1740	3.40	0.020	0.88	0.90	0.060	<0.010	0.020
JAN 09...	650	632	0.88	1980	3.80	0.110	0.69	0.80	0.140	0.050	0.050
MAR 20...	696	639	0.95	1620	3.40	0.030	--	0.40	0.080	0.050	0.040
MAY 14...	644	583	0.88	1660	3.20	0.010	1.3	1.3	0.130	0.020	0.020
JUL 30...	632	631	0.86	706	4.40	0.040	1.1	1.1	0.140	0.020	0.020
SEP 04...	623	605	0.85	947	2.20	<0.010	--	0.40	0.040	0.020	<0.010

PLATTE RIVER BASIN

06686000 NORTH PLATTE RIVER AT LISCO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 13...	0930	30	6	95	<0.5	<1.0	20	<3	1	11	1
MAR 20...	1100	20	6	91	<0.5	<1.0	<5*	<3	<10*	10	10*
MAY 14...	0930	10	5	69	<0.5	<1.0	<1	<3	5	9	1
JUL 30...	0900	30	5	94	<0.5	<1.0	1	<3	2	16	<1

*Minimum reporting level differs due to methodology.

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 13...	38	3	<0.1	<10	1	3	<1.0	910	9	4
MAR 20...	41	3	<0.1	<10	<10*	4	2.0	890	10	6
MAY 14...	33	5	2.4	10	1	3	<1.0	730	8	6
JUL 30...	41	2	0.2	<10	2	10	<1.0	850	10	5

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 13...	0930	1020	7.0	167	460	62
JAN 09...	1115	1130	2.0	246	751	52
MAR 20...	1100	863	12.5	193	450	55
MAY 14...	0930	957	11.0	218	563	61
JUL 30...	0900	414	21.0	355	397	78
SEP 04...	0950	563	21.0	272	413	80

PLATTE RIVER BASIN

06687000 BLUE CREEK NEAR LEWELLEN, NE

LOCATION.--Lat 41°20'08", long 102°10'21", in NE1/4 sec.30, T.16 N., R.42 W., Garden County, Hydrologic Unit 10180009, on left bank 5 ft downstream from county highway bridge, 0.5 mi downstream from bridge on U.S. Highway 26, 0.8 mi upstream from mouth, and 1.5 mi west of Lewellen.

DRAINAGE AREA.--1,190 mi², approximately, of which about 80 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1930 to current year.

REVISED RECORDS.--WSP 1310: 1941(M). WDR NE-67: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,310.04 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to Apr. 10, 1958. Apr. 10, 1958 to Sept. 17, 1983, recording gage at site 125 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 3, Feb. 14-19, and June 20. Records good above 10 ft³/s and fair below, except for periods of estimated record, which are poor. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--60 years, 69.0 ft³/s, 49,990 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 720 ft³/s May 20, 1938, gage height, 6.46 ft, present datum, from rating curve extended above 500 ft³/s; maximum gage height observed, 7.28 ft, Dec. 17, 1985, backwater from ice; no flow for short periods in 1940, 1947, 1957, 1960-61, 1963, 1971, 1981, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 173 ft³/s July 27, gage height, 4.13 ft; maximum gage height, 4.87 ft Dec. 27, backwater from ice; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	87	89	90	91	85	93	81	96	5.1	.06	1.0
2	29	88	85	90	94	85	91	79	107	15	.89	66
3	18	89	85	92	91	86	91	79	101	60	.67	67
4	22	90	85	82	91	87	93	78	94	77	.00	52
5	30	91	85	83	93	88	95	79	88	76	.00	19
6	44	92	89	84	94	94	94	80	72	67	.00	19
7	60	91	85	87	95	108	93	80	88	59	.01	27
8	61	92	83	94	94	101	92	106	82	59	.05	20
9	63	92	84	99	91	102	91	111	77	48	.08	15
10	67	93	85	99	92	105	91	99	75	17	.05	11
11	66	93	76	96	94	105	90	91	69	17	.01	8.2
12	68	94	80	90	95	99	90	87	57	15	22	6.9
13	69	91	80	88	91	93	90	88	48	15	28	7.4
14	68	91	80	93	88	90	88	93	46	17	20	11
15	76	90	58	96	80	92	90	94	48	18	13	19
16	89	90	64	96	82	89	88	90	49	11	11	20
17	89	90	68	94	86	87	87	87	53	5.1	17	17
18	90	91	72	92	88	88	84	85	60	4.5	12	15
19	89	90	72	92	88	87	85	85	33	2.1	13	9.9
20	90	91	70	97	89	89	86	87	15	.00	13	6.8
21	90	92	70	96	88	89	85	86	8.9	1.7	12	4.5
22	88	89	68	94	89	89	84	85	2.8	3.5	11	4.2
23	87	86	70	95	88	93	82	86	.00	.00	10	4.4
24	86	83	70	95	88	93	82	87	.00	.00	10	5.1
25	86	88	72	93	88	96	84	88	.00	.00	7.5	7.4
26	86	90	76	93	86	97	87	87	.02	6.1	6.3	8.1
27	86	90	78	95	86	105	86	88	.00	103	5.1	8.7
28	86	84	80	93	86	104	84	92	.00	24	.31	12
29	86	83	82	91	---	99	84	90	2.4	32	.24	14
30	85	88	86	93	---	96	82	101	5.1	25	.32	15
31	89	---	90	91	---	94	---	101	---	5.2	1.2	---
TOTAL	2187	2689	2417	2863	2506	2915	2642	2750	1377.22	788.30	214.79	501.6
MEAN	70.5	89.6	78.0	92.4	89.5	94.0	88.1	88.7	45.9	25.4	6.93	16.7
MAX	90	94	90	99	95	108	95	111	107	103	28	67
MIN	18	83	58	82	80	85	82	78	.00	.00	.00	1.0
AC-FT	4340	5330	4790	5680	4970	5780	5240	5450	2730	1560	426	995

CAL YR 1989 TOTAL 22686.95 MEAN 62.2 MAX 109 MIN .11 AC-FT 45000
WTR YR 1990 TOTAL 23850.91 MEAN 65.3 MAX 111 MIN .00 AC-FT 47310

PLATTE RIVER BASIN

93

06687500 NORTH PLATTE RIVER AT LEWELLEN, NE

LOCATION.--Lat 41°19'01", long 102°07'32", in SE1/4NW1/4 sec.34, T.16 N., R.42 W., Garden County, Hydrologic Unit 10180009, on left bank 19 ft downstream from bridge on State Highway 26, 1 mi southeast of Lewellen, and approximately 0.5 mi upstream from high-water line of Lake McConaughy.

DRAINAGE AREA.--28,600 mi², approximately, of which about 25,400 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July to September 1931, December 1940 to current year.

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,285.88 ft above National Geodetic Vertical Datum of 1929. July to September 1931, nonrecording gage at site 0.9 mi upstream at different datum. December 1940 to Sept. 19, 1973, water-stage recorders on two channels at present site at datum 1.28 ft lower. Sept. 21, 1973 to July 13, 1984, water-stage recorder at site 0.9 mi upstream at datum 4.28 ft higher.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 12, Feb. 3-7, 15-23. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE (since Glendo project).--33 years (water years 1958-90), 1,538 ft³/s, 1,114,000 acre-ft/yr; median of yearly mean discharges, 1,270 ft³/s, 920,100 acre-ft/yr. Figures are unadjusted for storage and diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft³/s June 4, 1971, at different datum; minimum daily, 44 ft³/s July 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s Oct. 8, 9, 18, 19, gage height, 5.34 ft; maximum gage height, 6.97 ft, Dec 15, backwater from ice; minimum daily discharge, 107 ft³/s July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	1320	1130	1200	945	909	1020	965	653	137	530	453
2	1290	1320	1120	1300	695	871	973	964	719	140	559	560
3	1270	1320	1090	1350	720	842	1000	932	786	141	585	583
4	1330	1320	1100	1300	960	862	971	907	726	149	568	571
5	1340	1320	1110	1300	1200	838	992	925	653	157	551	564
6	1340	1340	1110	1250	1100	964	998	922	598	152	570	553
7	1350	1340	1090	1250	1000	1200	1010	898	600	141	624	568
8	1360	1340	1080	1250	1130	1120	995	983	600	144	701	585
9	1350	1320	1070	1250	1080	1110	987	1130	538	173	706	555
10	1340	1300	1060	1250	1090	1120	1000	1170	497	132	660	555
11	1350	1280	1000	1250	1030	1080	1030	1130	473	107	592	559
12	1340	1260	720	1200	1010	1070	1030	1090	424	141	645	514
13	1330	1240	760	1250	982	1050	998	1040	405	174	612	470
14	1320	1240	800	1250	773	1070	970	1040	379	225	560	448
15	1310	1240	860	1250	800	1070	969	1070	375	251	594	471
16	1320	1170	840	1220	840	1030	1010	973	401	238	613	457
17	1330	1160	800	1210	860	966	1020	836	558	210	605	446
18	1360	1190	780	1150	900	948	1000	781	712	201	632	535
19	1370	1190	800	1130	940	925	1000	773	554	187	641	625
20	1350	1180	840	1030	960	951	1040	746	456	183	614	649
21	1350	1180	820	897	980	939	1030	749	391	208	585	673
22	1350	1190	800	1010	1000	927	1030	760	362	273	562	710
23	1340	1190	760	1220	1000	984	1020	790	326	348	565	778
24	1340	1190	700	1140	892	1030	1010	752	287	445	510	865
25	1340	1200	740	880	856	1040	1080	697	260	513	484	967
26	1340	1210	800	1100	882	1050	1250	667	230	561	511	984
27	1320	1200	840	1190	886	1110	1080	675	187	670	531	1010
28	1340	1150	900	883	907	1100	1010	657	131	483	533	1040
29	1340	1130	960	893	---	1070	1000	625	112	407	531	1080
30	1320	1130	1000	1050	---	1040	987	772	108	382	509	1150
31	1320	---	1100	1050	---	1060	---	758	---	353	467	---
TOTAL	41360	37160	28580	35953	26418	31346	30510	27177	13501	8026	17950	19978
MEAN	1334	1239	922	1160	943	1011	1017	877	450	259	579	666
MAX	1370	1340	1130	1350	1200	1200	1250	1170	786	670	706	1150
MIN	1270	1130	700	880	695	838	969	625	108	107	467	446
AC-FT	82040	73710	56690	71310	52400	62170	60520	53910	26780	15920	35600	39630

CAL YR 1989 TOTAL 326265 MEAN 894 MAX 1600 MIN 80 AC-FT 647100
WTR YR 1990 TOTAL 317959 MEAN 871 MAX 1370 MIN 107 AC-FT 630700

PLATTE RIVER BASIN

06690000 LAKE MCCONAUGHY NEAR KEYSTONE, NE

LOCATION.--Lat 41°12'45", long 101°40'03", in NW1/4SW1/4 sec.3, T.14 N., R.38 W., Keith County, Hydrologic Unit 10180014, near right bank at outlet tower of Kingsley Dam on North Platte River, 4.5 mi west of Keystone.

DRAINAGE AREA.--29,300 mi², approximately, of which about 25,800 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--February 1941 to current year.

GAGE.--Electric tape gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; storage began Feb. 9, 1941. Capacity, 1,948,000 acre-ft between elevations 3,130.0 ft, sill of outlet gates, and 3,270.0 ft, top of morning-glory spillway gates. Elevation of crest of morning-glory spillway is 3,254.0 ft. Dead storage negligible. Figures given herein represent total contents. Water is used for power development and irrigation in South-Central Nebraska by the Central Nebraska Public Power and Irrigation District.

COOPERATION.--Records of elevations and capacity table furnished by the Central Nebraska Public Power and Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 1,920,000 acre-ft July 12-16, 1971, elevation, 3,269.1 ft; minimum observed since operation of reservoir began, 32,860 acre-ft Sept. 29, 1941, elevation, 3,153.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 1,398,000 acre-ft Apr. 13-20, elevation, 3,252.9 ft; minimum observed, 888,100 acre-ft Sept. 16-20, elevation, 3,230.6 ft.

MONTHEND ELEVATION AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,241.7	1,125,000	-
Oct. 31	3,243.7	1,171,000	+46,000
Nov. 30	3,245.4	1,211,000	+40,000
Dec. 31	3,246.5	1,237,000	+26,000
CAL YR 1989	-	-	-175,000
Jan. 31	3,248.8	1,294,000	+57,000
Feb. 28	3,250.3	1,331,000	+37,000
Mar. 31	3,252.3	1,383,000	+52,000
Apr. 30	3,252.0	1,375,000	-8,000
May 31	3,251.6	1,364,000	-11,000
June 30	3,248.2	1,279,000	-85,000
July 31	3,238.2	1,047,000	-232,000
Aug. 31	3,232.7	930,800	-116,000
Sept. 30	3,231.0	896,100	-35,000
WTR YR 1990	-	-	-229,000

PLATTE RIVER BASIN

95

06690500 NORTH PLATTE RIVER NEAR KEYSTONE, NE

LOCATION.--Lat 41°12'30", long 101°37'50", in SW1/4 sec.1, T.14 N., R.38 W., Keith County, Hydrologic Unit 10180014, on right bank 0.2 mi downstream from diversion dam of Sutherland Reservoir supply canal and 2.5 mi southwest of Keystone.

DRAINAGE AREA.--29,300 mi², approximately, of which about 25,800 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--June to August 1917, July to September 1939, May to September 1940, January to April 1941, March 1942 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1942, 1946-47. WSP 1630: 1958. WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,105.59 ft above National Geodetic Vertical Datum of 1929 (Nebraska Public Power District bench mark). See WSP 1918 for history of changes prior to May 1, 1964.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Flow completely regulated by Lake McConaughy (station 06690000) since Feb. 9, 1941. Supply canal for Nebraska Public Power District diverts 0.2 mi upstream from station.

AVERAGE DISCHARGE.--48 years (water years 1943-90), 528 ft³/s, 382,500 acre-ft/yr; median of yearly mean discharges, 370 ft³/s, 268,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s June 30, 1917, from graph based on daily gage readings; no flow for many days in 1975-90.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft³/s July 2, gage height, 5.35 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	15	.00	.00	.00	.00	.00	1300	101	2560	1710	1540
2	42	15	.00	.00	.00	.00	.00	1270	99	2720	1690	1500
3	74	12	.00	.00	.00	.00	.00	509	98	2820	1690	1290
4	6.4	11	.00	.00	.00	.00	.00	163	99	2810	1590	1160
5	13	11	.00	.00	.00	.00	.00	158	100	2800	1530	941
6	8.0	13	.00	.00	.00	.00	.00	158	97	2740	1430	635
7	29	11	.00	.00	.00	.00	.00	164	97	2660	1260	361
8	29	11	.00	.00	.00	.00	.00	133	99	2700	1260	258
9	29	36	.00	.00	.00	.00	.00	102	146	2730	1430	256
10	36	14	.00	.00	.00	.00	.00	102	186	2660	1480	255
11	28	10	.00	.00	.00	.00	.00	106	205	2630	1510	256
12	28	9.4	.00	.00	.00	.00	.00	110	252	2700	531	250
13	25	6.1	.00	.00	.00	.00	.00	113	321	2670	176	185
14	23	4.8	.00	.00	.00	.00	.00	122	345	2690	248	175
15	28	3.4	.00	.00	.00	.00	.00	111	345	2570	317	121
16	30	10	.00	.00	.00	.00	.00	110	350	2510	383	84
17	36	4.1	.00	.00	.00	.00	.00	114	346	2520	447	88
18	27	6.5	.00	.00	.00	.00	.00	116	348	2570	447	88
19	30	3.5	.00	.00	.00	.00	46	112	345	2350	436	82
20	25	8.2	.00	.00	.00	.00	167	111	350	1850	410	79
21	9.9	6.4	.00	.00	.00	.00	421	110	354	1430	491	75
22	8.2	5.9	.00	.00	.00	.00	495	105	362	1200	593	72
23	9.0	13	.00	.00	.00	.00	658	104	469	1460	611	56
24	7.8	8.5	.00	.00	.00	.00	1110	100	599	1740	814	23
25	.00	5.3	.00	.00	.00	.00	1230	102	1060	1740	1190	13
26	4.5	6.2	.00	.00	.00	.00	1240	104	1700	1730	1420	11
27	12	4.3	.00	.00	.00	.00	1260	105	2240	1540	1480	11
28	14	.00	.00	.00	.00	.00	1300	105	2520	1620	1400	11
29	13	.00	.00	.00	---	.00	1280	102	2550	1710	1530	12
30	13	.00	.00	.00	---	.00	1290	101	2570	1710	1700	17
31	17	---	.00	.00	---	.00	---	100	---	1720	1600	---
TOTAL	676.80	264.60	0.00	0.00	0.00	0.00	10497.00	6322	18753	69860	32804	9905
MEAN	21.8	8.82	.000	.000	.000	.000	350	204	625	2254	1058	330
MAX	74	36	.00	.00	.00	.00	1300	1300	2570	2820	1710	1540
MIN	.00	.00	.00	.00	.00	.00	.00	100	97	1200	176	11
AC-FT	1340	525	.00	.00	.00	.00	20820	12540	37200	138600	65070	19650

CAL YR 1989 TOTAL 118069.29 MEAN 323 MAX 2330 MIN .00 AC-FT 234200
WTR YR 1990 TOTAL 149082.40 MEAN 408 MAX 2820 MIN .00 AC-FT 295700

PLATTE RIVER BASIN

06691000 NORTH PLATTE RIVER NEAR SUTHERLAND, NE

LOCATION.--Lat 41°12'37", long 101°06'53", in sec.4, T.14 N., R.33 W., Lincoln County, Hydrologic Unit 10180014, on left bank 80 ft downstream from bridge on county road, 2.5 mi upstream from Birdwood Creek, and 3.5 mi north of Sutherland.

DRAINAGE AREA.--29,800 mi², approximately, of which about 26,120 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--June to October 1917, July 1931 to August 1933 (irrigation seasons only), May to September 1935, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 976: 1942. WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,920 ft, from topographic map. Prior to Apr. 29, 1936, nonrecording gage near present site at different datums. Apr. 29, 1936 to Oct. 6, 1971, water-stage recorder at site 80 ft upstream and Oct. 7, 1971 to Sept. 30, 1984 at present site, all at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 10, Jan. 20 to Feb. 7, and Feb. 14-21. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--48 years (water years 1943-90), 532 ft³/s, 385,400 acre-ft/yr; median of yearly mean discharges, 362 ft³/s, 262,000 acre-ft/yr. Figures unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s June 29, 1917, from discharge graph based on daily gage readings, from rating curve extended above 16,000 ft³/s; no flow July 24-28, 30, 31, 1931, Aug. 7, 1934, July 20-28, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,590 ft³/s July 19, gage height, 4.21 ft; minimum daily discharge, 54 ft³/s June 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	132	124	124	106	116	119	1240	95	1740	1190	1110
2	97	133	124	124	106	114	117	1180	166	1790	1180	1070
3	97	133	123	124	108	112	118	1090	149	1890	1190	982
4	116	132	123	124	110	111	119	536	108	1990	1230	774
5	122	132	125	124	120	111	122	308	70	2040	1210	650
6	110	131	128	124	122	130	124	249	61	2130	1200	486
7	111	128	128	130	124	181	122	241	57	2070	1040	307
8	116	124	127	130	124	163	120	221	57	1970	894	170
9	113	122	125	130	126	166	118	241	54	2030	884	127
10	114	127	127	130	125	168	122	180	58	2130	961	110
11	119	136	120	136	127	160	126	150	65	2200	995	99
12	121	133	114	134	130	181	128	146	66	2250	1120	116
13	122	134	110	134	128	163	126	134	86	2320	435	143
14	120	130	114	121	125	148	121	129	148	2340	167	184
15	123	128	116	116	130	139	118	166	202	2320	144	207
16	126	127	116	113	125	134	119	163	215	2120	148	172
17	129	127	116	114	125	128	123	139	200	2100	157	150
18	129	125	114	117	125	122	124	136	199	2140	189	162
19	132	124	114	114	130	121	117	159	184	2330	201	151
20	134	126	112	114	135	124	127	147	170	2300	173	156
21	133	124	112	112	140	124	194	129	127	1890	141	159
22	129	125	112	114	126	126	485	118	108	1390	151	165
23	138	125	112	114	119	131	573	112	97	1090	186	158
24	135	124	114	112	116	130	741	105	139	1220	220	155
25	136	125	114	112	116	131	1010	103	193	1310	415	151
26	131	123	116	108	114	129	1190	98	534	1290	702	152
27	126	126	116	106	116	124	1190	99	1010	1310	900	146
28	125	128	118	106	116	124	1190	105	1390	1070	946	137
29	127	127	120	110	---	122	1280	99	1590	1160	941	133
30	129	126	122	110	---	120	1220	113	1660	1240	1090	136
31	130	---	122	108	---	121	---	108	---	1230	1180	---
TOTAL	3792	3837	3678	3689	3414	4174	11503	8144	9258	56400	21580	8818
MEAN	122	128	119	119	122	135	383	263	309	1819	696	294
MAX	138	136	128	136	140	181	1280	1240	1660	2340	1230	1110
MIN	97	122	110	106	106	111	117	98	54	1070	141	99
AC-FT	7520	7610	7300	7320	6770	8280	22820	16150	18360	111900	42800	17490

CAL YR 1989 TOTAL 111780 MEAN 306 MAX 1990 MIN 80 AC-FT 221700
WTR YR 1990 TOTAL 138287 MEAN 379 MAX 2340 MIN 54 AC-FT 274300

PLATTE RIVER BASIN

06692000 BIRDWOOD CREEK NEAR HERSHEY, NE

LOCATION.--Lat 41°13'20", long 101°04'12", in NE1/4NW1/4 sec.2, T.14 N., R.33 W., Lincoln County, Hydrologic Unit 10180014, on left bank 60 ft downstream from bridge on county road, 1 mi upstream from mouth, and 5 mi northwest of Hershey.

DRAINAGE AREA.--940 mi², approximately, of which about 80 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--May 1931 to current year.

REVISED RECORDS.--WSP 1390: 1948(M), 1949, 1951-52(M). WDR NE-67, WDR NE 76-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,920 ft above National Geodetic Vertical Datum of 1929, from topographic map. Jan. 1, 1931, to Dec. 16, 1934, nonrecording gage and Dec. 17, 1934 to Nov. 4, 1953, water-stage recorder, at site 50 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 12, 14-28, and Feb. 11-15. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--59 years, 151 ft³/s, 109,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,770 ft³/s Apr. 1, 1949, gage height, 4.35 ft, from rating curve extended above 680 ft³/s; maximum gage height, 5.12 ft Dec. 15, 1940, backwater from ice; minimum daily discharge, 61 ft³/s Jan. 19, 1935, Apr. 7, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 243 ft³/s May 19, gage height, 2.04 ft; maximum gage height, 4.50 ft, Dec. 24, backwater from ice; minimum daily discharge, 93 ft³/s July 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	136	173	165	156	163	161	165	163	106	109	122
2	133	132	173	163	155	163	155	165	189	105	113	126
3	133	133	176	163	156	164	158	164	159	99	108	125
4	135	147	180	156	159	167	162	159	152	96	104	119
5	137	154	183	160	163	165	163	165	150	96	103	120
6	135	156	183	156	163	176	152	161	149	98	109	122
7	140	153	178	157	161	165	155	162	151	103	107	123
8	141	151	177	162	161	156	156	167	150	103	105	121
9	142	159	180	162	163	181	159	179	149	106	102	119
10	141	169	177	162	162	181	152	161	148	108	104	115
11	142	169	164	161	160	179	152	161	150	107	107	113
12	139	167	160	150	160	190	158	164	148	103	141	121
13	141	160	161	158	160	168	163	161	147	103	122	122
14	139	157	160	161	150	162	162	163	148	100	116	116
15	144	158	155	163	155	165	163	175	152	98	117	119
16	143	152	125	163	153	160	167	171	151	95	118	117
17	147	157	140	160	156	155	157	157	142	93	117	127
18	153	161	145	157	162	164	159	160	137	106	120	146
19	148	167	150	161	159	159	166	203	141	115	118	135
20	135	168	155	166	161	162	169	171	135	119	118	134
21	140	168	155	156	162	166	168	164	163	117	117	132
22	152	169	150	160	161	165	169	160	138	115	120	131
23	151	169	150	161	159	156	177	161	124	112	125	129
24	145	168	160	160	162	157	173	161	123	112	123	134
25	150	173	160	155	160	167	176	159	120	111	123	134
26	148	173	165	161	159	165	202	155	115	111	121	137
27	146	175	175	166	157	163	184	159	110	111	117	139
28	142	160	170	158	160	162	176	164	110	111	113	136
29	141	165	156	157	---	159	189	159	110	113	117	134
30	136	171	146	156	---	159	167	169	107	113	118	138
31	134	---	160	160	---	161	---	165	---	113	118	---
TOTAL	4386	4797	5042	4956	4455	5125	4970	5110	4231	3298	3570	3806
MEAN	141	160	163	160	159	165	166	165	141	106	115	127
MAX	153	175	183	166	163	190	202	203	189	119	141	146
MIN	133	132	125	150	150	155	152	155	107	93	102	113
AC-FT	8700	9510	10000	9830	8840	10170	9860	10140	8390	6540	7080	7550

CAL YR 1989 TOTAL 51532 MEAN 141 MAX 223 MIN 97 AC-FT 102200
WTR YR 1990 TOTAL 53746 MEAN 147 MAX 203 MIN 93 AC-FT 106600

LOCATION.--Lat 41°09'13", long 100°45'16", in sec.28, T.14 N., R.30 W., Lincoln County, Hydrologic Unit 10180014, on right bank 150 ft downstream from bridge on U.S. Highway 83, 0.5 mi north of city of North Platte, and 4.5 mi upstream from confluence with South Platte River.

PERIOD OF RECORD.--February 1895 to current year. Monthly discharge only for some periods, published in WSP 1310.

GAGE.--Water-stage recorder. Datum of gage is 2,792.14 ft above National Geodetic Vertical Datum of 1929 (Nebraska Department of Roads bench mark). See WSP 2118 for history of changes prior to June 3, 1968.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 14, Jan. 20 to Feb. 6, and Feb. 14-21. Records good except for period of estimated record, which is fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 29,600 ft³/s June 11, 1909, discharge measurement; minimum daily, 20 ft³/s Sept. 20, 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,730 ft³/s July 20, gage height, 4.95 ft; minimum daily, 227 ft³/s June 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	339	340	380	320	328	349	1260	327	1780	1310	1240
2	314	348	350	380	330	313	333	1270	364	1820	1320	1240
3	301	349	359	380	330	322	313	1280	404	1830	1360	1260
4	300	348	357	380	320	321	322	1030	336	2020	1390	1090
5	321	358	357	380	330	324	336	634	301	2110	1420	922
6	315	357	363	390	340	360	339	535	258	2170	1440	795
7	307	359	361	390	353	458	326	479	254	2240	1370	674
8	300	351	354	380	350	448	326	454	239	2090	1200	479
9	297	355	360	390	342	455	321	541	227	2060	1090	404
10	295	354	365	370	350	472	332	500	229	2100	1180	363
11	290	368	320	370	362	471	329	429	246	2120	1260	350
12	293	355	300	370	358	479	333	417	237	2130	1480	344
13	295	356	300	370	363	459	340	383	242	2200	1190	369
14	288	354	320	370	360	411	337	367	249	2300	668	362
15	294	352	310	371	360	382	333	393	308	2360	508	354
16	305	359	300	371	350	369	339	414	317	2390	462	352
17	314	348	300	370	350	360	338	371	297	2260	436	337
18	317	349	290	379	340	368	330	352	292	2230	448	359
19	317	346	290	382	350	352	326	407	268	2400	469	358
20	312	350	280	370	350	360	321	417	254	2640	436	344
21	314	355	280	370	350	360	316	385	268	2310	371	336
22	322	365	280	360	359	358	400	348	259	1890	323	364
23	328	363	270	360	349	343	554	328	242	1450	384	364
24	328	372	260	350	339	347	651	317	227	1310	417	364
25	335	371	270	350	333	353	884	318	262	1440	468	353
26	334	373	300	350	340	361	1120	310	281	1420	691	343
27	341	376	310	350	343	350	1240	308	683	1390	939	342
28	345	366	350	340	346	358	1190	322	1170	1330	1080	336
29	348	340	360	340	---	353	1350	315	1560	1190	1030	315
30	339	351	370	320	---	345	1290	357	1700	1330	1080	319
31	339	---	380	320	---	346	---	357	---	1340	1250	---
TOTAL	9768	10687	10006	11353	9667	11686	15618	15598	12301	59650	28450	15432
MEAN	315	356	323	366	345	377	521	503	410	1924	918	514
MAX	348	376	380	390	363	479	1350	1280	1700	2640	1480	1260
MIN	288	339	260	320	320	313	313	308	227	1190	323	315
AC-FT	19370	21200	19850	22520	19170	23180	30980	30940	24400	118300	56430	30610
CAL YR 1989	TOTAL 187839											
WTR YR 1990	TOTAL 210216											
MEAN 515	MEAN 576											
MAX 2250	MAX 2640											
MIN 212	MIN 227											
AC-FT 372600	AC-FT 417000											

PLATTE RIVER BASIN

99

06762500 LODGEPOLE CREEK AT BUSHNELL, NE

LOCATION.--Lat 41°13'50", long 103°53'28", in sec.32, T.15 N., R.57 W., Kimball County, Hydrologic Unit 10190016, on right bank 0.1 mi south of Bushnell at south end of highway bridge on State Highway 53c.

DRAINAGE AREA.--1,350 mi².

PERIOD OF RECORD.--October 1931 to current year. Records for March to September 1931 at site 1.5 mi upstream not equivalent owing to diversions. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1933, 1935, 1937-38, 1941, 1948-49. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,845.31 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 26, 1938, nonrecording gage, Mar. 26, 1938 to July 2, 1981 water stage recorder, July 3, 1981 to Sept. 30, 1981 a nonrecording gage at previous site 1.7 mi downstream from present site at datum 33.01 ft lower.

REMARKS.--Estimated daily discharges: Dec. 14-24, Jan. 23-31, Feb. 14-17, Mar. 23-26, and Aug. 23 to Sept. 10. Records good except for periods of estimated record, which are poor. Natural flow or stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas. Diversions for irrigation of about 12,600 acres above station.

AVERAGE DISCHARGE.--59 years, 10.3 ft³/s, 7,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft³/s Sept. 15, 1950, gage height, 9.98 ft, from rating curve extended above 2,700 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 10.06 ft July 2, 1981, from highwater mark, site and datum then in use; minimum daily discharge, 0.09 ft³/s July 20, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 715 ft³/s Aug. 21, gage height, 3.31 ft; minimum daily discharge, 1.5 ft³/s June 27-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	2.4	2.9	3.6	3.7	3.5	3.7	3.2	2.4	1.7	13	3.7
2	1.9	2.5	3.0	3.7	3.7	3.4	3.8	3.2	2.7	1.7	6.7	3.6
3	2.0	2.5	3.1	3.6	3.7	3.4	3.8	3.2	2.6	1.8	4.5	3.5
4	2.1	2.5	3.2	3.5	3.8	3.4	3.6	3.0	2.4	2.1	3.7	3.4
5	1.9	2.4	3.1	3.6	3.7	3.4	4.0	3.1	2.3	5.1	3.5	3.2
6	1.9	2.4	3.1	3.5	3.7	4.4	3.8	3.1	2.2	3.5	3.3	3.1
7	2.0	2.4	3.2	3.6	3.7	3.6	4.0	3.1	1.9	2.4	3.2	3.1
8	2.0	2.5	3.2	3.7	3.7	3.6	3.8	3.1	2.0	2.3	3.1	3.1
9	2.1	2.5	3.3	3.5	3.6	3.4	3.9	3.3	1.8	2.7	2.8	3.0
10	2.1	2.6	3.2	3.6	3.8	3.5	5.6	3.1	1.8	2.7	2.7	3.0
11	2.0	2.5	3.1	3.5	3.8	3.7	3.4	3.1	1.6	2.4	3.0	2.9
12	2.1	2.7	3.3	3.4	3.8	3.6	3.6	3.3	1.6	2.4	3.1	2.8
13	2.2	2.7	3.3	3.6	3.8	3.4	4.0	3.3	1.8	2.3	2.9	2.7
14	2.3	2.7	3.4	3.6	3.6	3.2	3.8	3.2	1.6	2.3	2.8	2.7
15	2.3	2.6	3.3	3.6	3.4	3.2	3.9	3.2	2.1	2.5	2.8	2.8
16	2.4	2.6	3.2	3.6	3.6	3.2	4.0	3.2	2.1	2.5	2.7	2.7
17	2.4	2.8	3.3	3.6	3.7	3.2	3.8	3.0	1.8	2.6	2.6	3.0
18	2.4	2.7	3.4	3.5	3.8	3.2	3.7	2.9	1.6	2.6	2.8	3.3
19	2.4	2.8	3.4	3.6	3.7	3.1	3.7	2.6	1.6	2.6	2.8	3.0
20	2.3	2.8	3.4	3.6	3.8	3.0	3.7	2.7	1.7	11	2.8	2.9
21	2.3	2.8	3.1	3.5	3.8	2.8	3.8	2.7	1.6	3.6	47	2.8
22	2.3	2.7	3.0	3.6	3.7	2.8	3.7	2.6	1.7	3.0	134	2.8
23	2.3	2.8	3.3	3.4	3.7	2.9	3.8	2.7	1.8	2.8	70	2.8
24	2.3	3.0	3.4	3.4	3.6	3.2	3.8	2.6	1.7	2.6	30	2.8
25	2.3	3.0	3.6	3.4	3.6	3.5	3.9	2.6	1.6	2.5	15	2.8
26	2.4	2.9	3.6	3.5	3.4	4.0	3.6	2.5	1.6	2.4	7.0	2.7
27	2.3	2.8	3.7	3.4	3.4	4.0	3.6	2.4	1.5	2.4	5.0	2.7
28	2.3	2.9	3.6	3.5	3.4	3.8	3.5	2.3	1.5	2.4	4.5	2.6
29	2.2	2.9	3.7	3.5	---	3.6	3.3	2.5	1.5	17	4.0	2.5
30	2.3	2.9	3.6	3.4	---	3.6	3.3	2.9	1.7	40	3.9	2.6
31	2.4	---	3.5	3.6	---	3.6	---	2.6	---	22	3.8	---
TOTAL	67.8	80.3	102.5	109.7	102.7	106.2	113.9	90.3	55.8	159.9	399.0	88.6
MEAN	2.19	2.68	3.31	3.54	3.67	3.43	3.80	2.91	1.86	5.16	12.9	2.95
MAX	2.4	3.0	3.7	3.7	3.8	4.4	5.6	3.3	2.7	40	134	3.7
MIN	1.6	2.4	2.9	3.4	3.4	2.8	3.3	2.3	1.5	1.7	2.6	2.5
AC-FT	134	159	203	218	204	211	226	179	111	317	791	176

CAL YR 1989 TOTAL 1151.4 MEAN 3.15 MAX 5.3 MIN 1.4 AC-FT 2280
WTR YR 1990 TOTAL 1476.7 MEAN 4.05 MAX 134 MIN 1.5 AC-FT 2930

PLATTE RIVER BASIN

06764000 SOUTH PLATTE RIVER AT JULESBURG, CO

LOCATION.--Lat 40°58'46", long 102°15'15", in NW1/4NE1/4 and NE1/4SE1/4 (two channels) sec.33, T.12 N., R.44 W., Sedgwick County, Hydrologic Unit 10190018, on left bank of channel 4 (left channel) 215 ft downstream from bridge, and on right bank of channel 2, 5 ft downstream from bridge on U.S. Highway 385, 0.9 mi southeast of Julesburg, 3.0 mi upstream from Colorado-Nebraska State line, and 8 mi downstream from Lodgepole Creek.

DRAINAGE AREA.--23,193 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1902 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as "near Julesburg" 1903-8, 1915-16, and as "at Ovid" 1922-24.

REVISED RECORDS.--WSP 1310: 1902, 1906-7, 1948(P). WSP 1440: 1903-4. WDR CO-86-1: Drainage area.

GAGE.--Two water-stage recorders with satellite telemetry. Datum of gages is 3,446.76 ft above National Geodetic Vertical Datum of 1929. See WSP 1710 or 1730 for history of changes prior to Oct. 1, 1956. Since Oct. 1, 1956, water-stage recorders on channels nos. 2 and 4. Channel no. 2: Oct. 1, 1956, to Sept. 22, 1965, at site 300 ft downstream at present datum. Channel no. 4: Oct. 1, 1956, to Dec. 10, 1958, at site 135 ft downstream at present datum. Since May 11, 1973, supplementary water-stage recorder on channel no. 2 at bridge 800 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 9 to Jan. 11, and Feb. 14-24. Records fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of 1,200,000 acres upstream from station, and return flow from irrigated areas.

COOPERATION.--Records collected and computed by Colorado Division of Water Resources and reviewed by Geological Survey.

AVERAGE DISCHARGE.--88 years, 544 ft³/s; 394,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,600 ft³/s, June 20, 1965, gage height, 10.44 ft, from floodmarks in gage well; no flow, Aug. 18-20, 1902, July 25 to Aug. 7, 1903.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined; minimum daily, 19 ft³/s, July 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	68	76	944	550	643	1210	363	52	27	116	26
2	198	65	73	1130	507	705	1430	359	64	29	108	29
3	184	72	74	1130	524	676	1530	319	145	30	82	25
4	177	71	77	1120	532	703	1500	282	299	28	71	22
5	172	71	78	1110	543	645	1420	247	272	22	76	27
6	168	73	77	1110	542	615	1420	230	234	23	91	32
7	162	72	77	1120	555	619	1400	196	224	22	80	40
8	155	72	80	1160	560	630	1390	175	202	23	69	47
9	158	73	70	1170	613	740	1360	178	160	26	125	53
10	139	76	66	1160	680	1160	1340	163	113	27	186	63
11	134	79	56	1180	747	1400	1330	164	91	25	178	68
12	134	77	51	1170	794	1390	1360	142	70	25	152	67
13	135	76	56	1080	779	1220	1220	130	65	21	99	78
14	124	74	61	1000	689	955	1120	109	105	20	80	75
15	98	71	56	903	494	918	1030	106	107	19	72	65
16	88	74	61	859	500	927	930	107	94	20	59	62
17	86	76	66	776	495	908	892	94	101	20	53	64
18	86	76	71	660	795	921	853	80	95	21	54	70
19	82	78	76	608	1020	844	938	76	63	23	53	86
20	88	76	81	700	1110	901	996	83	49	25	57	127
21	97	74	86	656	1230	1020	1100	73	43	28	63	198
22	114	74	96	660	1060	1030	939	59	37	22	92	273
23	104	74	111	751	1030	1050	780	51	35	23	81	309
24	118	78	121	789	1000	1120	708	50	32	24	68	371
25	121	77	126	813	824	1160	668	50	31	23	55	411
26	103	80	141	781	746	1170	574	50	29	25	47	393
27	86	77	283	722	719	1180	510	50	27	28	43	366
28	82	77	405	722	702	1140	486	46	28	26	38	339
29	81	77	427	618	---	1100	426	44	28	23	36	313
30	73	74	509	606	---	1110	378	45	28	84	33	301
31	72	---	715	597	---	1180	---	45	---	136	30	---
TOTAL	3855	2232	4403	27805	20340	29780	31238	4166	2923	918	2447	4400
MEAN	124	74.4	142	897	726	961	1041	134	97.4	29.6	78.9	147
MAX	236	80	715	1180	1230	1400	1530	363	299	136	186	411
MIN	72	65	51	597	494	615	378	44	27	19	30	22
AC-FT	7650	4430	8730	55150	40340	59070	61960	8260	5800	1820	4850	8730

CAL YR 1989 TOTAL 95234 MEAN 261 MAX 1300 MIN 14 AC-FT 188900
WTR YR 1990 TOTAL 134507 MEAN 369 MAX 1530 MIN 19 AC-FT 266800

PLATTE RIVER BASIN

101

06764880 SOUTH PLATTE RIVER AT ROSCOE, NE

LOCATION.--Lat 41°07'33" long 101°34'35", in NW1/4SW1/4 sec.4, T.13 N., R.37 W., Keith County, Hydrologic Unit 10190018, on left bank 20 ft downstream from bridge on Highway L-51B connecting Interstate 80 and U.S. Highway 30, 0.5 mi southeast of Roscoe.

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,150 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 15, Jan. 21 to Feb. 28, and July 1-11. Records fair except for periods of estimated record, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--8 years, 1,151 ft³/s, 833,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft³/s July 2, 1983, gage height, 9.31 ft; maximum gage height, 10.23 ft Dec. 16, 1984, backwater from ice; minimum daily discharge, 0.5 ft³/s July 28, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,460 ft³/s Apr. 4-6, gage height, 5.75 ft; maximum gage height, 7.96 ft Jan. 21, backwater from ice; minimum daily discharge, 1.3 ft³/s Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	206	86	77	400	640	913	1050	385	97	25	24	3.7
2	194	87	75	450	640	760	1160	355	114	23	14	3.5
3	187	83	80	560	580	658	1340	331	90	22	13	2.7
4	183	79	85	680	600	659	1420	299	101	20	12	3.2
5	182	79	85	800	600	644	1450	278	206	19	12	2.7
6	170	80	85	960	580	656	1440	246	237	17	13	2.0
7	174	84	85	1100	640	699	1400	227	211	16	19	1.9
8	179	82	88	1120	700	694	1340	221	198	14	16	1.6
9	176	81	88	1140	740	690	1310	220	176	13	9.4	1.5
10	175	81	87	1160	760	739	1280	192	154	10	8.1	1.3
11	166	81	50	1190	880	1010	1250	146	126	8.2	19	1.8
12	138	81	40	1180	920	1310	1260	156	104	5.9	90	8.9
13	130	83	50	1180	820	1320	1300	158	83	6.2	71	6.0
14	115	83	60	1140	540	1250	1260	163	58	6.5	111	4.4
15	118	83	45	1100	330	1030	1180	167	67	7.2	103	11
16	126	84	55	877	360	937	1090	145	79	7.6	77	13
17	126	85	65	764	390	899	963	135	81	7.9	50	18
18	126	82	65	666	430	899	916	122	83	8.6	87	20
19	116	84	70	644	600	917	901	110	83	9.1	47	25
20	114	85	75	650	920	920	902	104	51	9.5	40	32
21	109	85	80	600	980	942	927	122	37	10	36	41
22	99	78	85	640	1100	993	994	103	31	12	25	46
23	97	77	90	620	1300	989	940	95	28	16	28	52
24	94	81	100	660	1400	999	788	79	26	13	23	66
25	97	83	110	680	1250	1040	726	71	24	12	18	101
26	101	85	120	680	1100	1060	730	67	24	14	15	175
27	98	82	140	720	1000	1080	666	109	25	19	11	262
28	100	76	160	680	940	1090	554	74	25	14	7.7	273
29	99	79	210	660	---	1070	465	66	25	12	6.8	256
30	93	79	250	660	---	1040	425	91	26	14	5.6	261
31	92	---	300	640	---	1030	---	95	---	15	4.5	---
TOTAL	4180	2458	3055	25001	21740	28937	31427	5132	2670	406.7	1016.1	1697.2
MEAN	135	81.9	98.5	806	776	933	1048	166	89.0	13.1	32.8	56.6
MAX	206	87	300	1190	1400	1320	1450	385	237	25	111	273
MIN	92	76	40	400	330	644	425	66	24	5.9	4.5	1.3
AC-FT	8290	4880	6060	49590	43120	57400	62340	10180	5300	807	2020	3370

CAL YR 1989 TOTAL 100225.60 MEAN 275 MAX 1400 MIN .50 AC-FT 198800
WTR YR 1990 TOTAL 127720.0 MEAN 350 MAX 1450 MIN 1.3 AC-FT 253300

PLATTE RIVER BASIN

06765500 SOUTH PLATTE RIVER AT NORTH PLATTE, NE

LOCATION.--Lat 41°07'08", long 100°45'45", in NE1/4NW1/4 sec.9, T.13 N., R.30 W., Lincoln County, Hydrologic Unit 10190018, on left bank 50 ft downstream from bridge on U.S. Highway 83, 0.5 mi north of intersection of U.S. Highway 83 and Interstate 80 south of North Platte, and 4.5 mi upstream from confluence with North Platte River.

DRAINAGE AREA.--24,300 mi², approximately.

PERIOD OF RECORD.--June to November 1897, June to August 1914, May to September 1915, and May 1917 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1932-33, 1935.

GAGE.--Water-stage recorder. Datum of gage is 2,787.73 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to Dec. 11, 1956. Dec. 11, 1956, to Mar. 29, 1973, at site 50 ft upstream at same datum. Mar. 30, 1973, to Aug. 12, 1981, at site 0.5 mi upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 6, and Feb. 13, 14. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. South Platte canal diverts around station; diversion began Nov. 13, 1946.

AVERAGE DISCHARGE.--44 years (water years 1947-90, since Sutherland Canal diversion), 446 ft³/s, 323,100 acre-ft/yr; median of yearly mean discharges, 268 ft³/s, 194,200 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 37,100 ft³/s June 3, 1935, gage height, 14.02 ft, present datum; no flow at times in summers of most years prior to 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 592 ft³/s Feb. 25, gage height, 2.99 ft; minimum daily, 50 ft³/s Dec. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	120	132	160	149	173	160	211	191	110	104	127
2	115	121	128	170	126	172	158	210	252	104	98	133
3	115	124	128	170	122	158	180	199	220	102	96	119
4	116	124	140	170	130	165	195	180	187	98	112	132
5	118	124	145	170	124	165	225	179	173	102	117	125
6	111	129	141	180	128	178	238	185	168	117	128	118
7	116	132	120	215	134	182	239	179	186	125	115	115
8	112	125	121	213	131	181	225	203	188	104	101	139
9	116	124	127	206	136	178	196	218	187	115	102	150
10	113	127	128	209	148	157	168	212	168	135	113	151
11	116	124	120	200	157	159	181	188	153	133	132	171
12	116	125	116	283	159	186	173	199	138	121	179	166
13	114	125	106	299	155	201	156	217	136	130	145	152
14	113	118	90	250	130	252	164	233	138	118	112	140
15	110	113	50	331	134	280	163	252	147	117	135	143
16	107	104	60	363	136	226	164	225	158	110	159	135
17	112	105	100	265	152	187	167	210	159	107	190	140
18	108	108	110	237	163	186	163	210	149	110	168	149
19	118	117	100	210	164	176	160	232	152	166	158	148
20	120	116	110	187	171	177	147	245	146	159	162	143
21	128	119	110	179	186	176	152	222	176	131	145	127
22	133	128	112	161	186	166	171	215	166	122	143	83
23	134	126	114	157	267	196	182	233	140	119	153	76
24	137	130	120	156	483	209	193	224	124	117	150	74
25	141	121	130	161	540	212	203	211	128	127	154	68
26	134	126	135	155	358	198	214	192	121	115	162	71
27	129	132	135	138	242	206	238	195	124	120	172	74
28	127	123	140	139	197	193	204	187	125	117	136	91
29	125	141	140	150	---	155	238	183	123	114	153	141
30	123	134	160	141	---	147	231	203	120	119	149	190
31	122	---	160	137	---	170	---	191	---	113	135	---
TOTAL	3714	3685	3728	6162	5308	5767	5648	6443	4743	3697	4278	3791
MEAN	120	123	120	199	190	186	188	208	158	119	138	126
MAX	141	141	160	363	540	280	239	252	252	166	190	190
MIN	107	104	50	137	122	147	147	179	120	98	96	68
AC-FT	7370	7310	7390	12220	10530	11440	11200	12780	9410	7330	8490	7520

CAL YR 1989 TOTAL 72024 MEAN 197 MAX 1440 MIN 50 AC-FT 142900
WTR YR 1990 TOTAL 56964 MEAN 156 MAX 540 MIN 50 AC-FT 113000

PLATTE RIVER BASIN

06766000 PLATTE RIVER AT BRADY, NE

LOCATION.--Lat 41°01'10", long 100°22'16" (north channel only), on two channels in secs.11 and 23, T.12 N., R.27 W., Lincoln County, Hydrologic Unit 10200101, on downstream side of highway bridges 0.5 mi and 2.5 mi, respectively, south of Brady and 18 mi downstream from confluence of North Platte and South Platte Rivers.

DRAINAGE AREA.--56,200 mi², approximately, of which about 51,400 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--May to September 1937, May 1938 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1941(M). WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Two water-stage recorders. Datum of gage on north channel is 2,639.19 ft and on south channel, 2,640.66 ft above National Geodetic Vertical Datum of 1929. No information available on gages operated by State engineer prior to Nov. 18, 1938. Nov. 18, 1938, to Sept. 30, 1942, gage on north channel at datum 1 ft higher. Nov. 18, 1938, to Oct. 1, 1983, gage on south channel at datum 1 ft higher.

REMARKS.--Channel No. 1: Estimated daily discharge: Dec. 17 to Feb. 8, and Feb. 16-20. Channel No. 4: Estimated daily discharge, Dec. 12, 15-27, Jan. 1, 20, 21 and Feb. 14-19. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Tri-County main supply canal, capacity, about 2,000 ft³/s, diverts 18 mi above station; diversion started Nov. 26, 1940. River flows in two canals for which separate records are computed; figures given herein represent combined discharge.

AVERAGE DISCHARGE.--49 years (water years 1942-90, since storage in Lake McConaughy), 781 ft³/s, 565,800 acre-ft/yr; median of yearly mean discharges, 374 ft³/s, 271,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft³/s June 29, 1983; no flow Aug. 22-24, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,260 ft³/s July 21; minimum daily, 72 ft³/s Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	127	156	139	117	174	164	1460	161	1050	956	1000
2	138	131	152	142	126	169	162	1440	208	1310	939	1010
3	136	142	147	142	137	166	162	1390	218	1410	947	1000
4	144	154	146	143	150	172	157	1220	190	1590	1020	912
5	156	155	138	145	158	168	158	816	156	1740	1080	526
6	158	157	140	147	169	194	163	506	134	1940	1140	317
7	155	160	137	147	171	276	167	387	119	1950	1170	183
8	154	155	134	150	181	307	165	303	112	1940	1030	110
9	155	153	142	148	193	301	166	376	107	1800	855	81
10	155	154	143	149	196	261	165	352	107	1940	820	78
11	153	152	122	149	206	241	161	248	103	2030	967	77
12	149	153	117	142	209	244	165	226	96	2030	1230	78
13	152	148	123	138	193	233	163	222	89	1910	1220	77
14	147	144	125	137	159	212	157	197	86	2000	644	72
15	142	148	120	133	160	198	163	207	101	2020	313	74
16	135	139	126	129	160	183	167	211	174	2010	252	74
17	130	149	126	129	171	171	170	199	145	1920	244	76
18	115	158	123	123	190	168	193	182	112	1820	228	91
19	121	162	121	120	200	160	218	174	111	2060	210	89
20	129	160	119	112	199	160	257	179	118	2160	198	97
21	135	154	117	113	199	158	259	201	129	2230	188	99
22	134	147	115	115	185	158	279	193	140	1890	179	97
23	133	139	115	113	174	152	364	188	151	1420	186	95
24	129	143	118	109	179	157	555	172	163	1150	262	88
25	124	150	122	105	178	171	726	167	169	1150	368	80
26	126	150	128	107	177	176	1110	155	174	1260	514	81
27	128	148	131	99	170	173	1430	144	207	1180	506	82
28	130	137	132	110	177	172	1400	138	471	1200	894	83
29	129	146	132	113	---	167	1450	135	642	988	928	87
30	130	154	134	112	---	163	1510	155	837	967	977	91
31	124	---	136	114	---	168	---	162	---	947	1050	---
TOTAL	4290	4469	4037	3974	4884	5973	12526	12105	5730	51012	21515	6905
MEAN	138	149	130	128	174	193	418	390	191	1646	694	230
MAX	158	162	156	150	209	307	1510	1460	837	2230	1230	1010
MIN	115	127	115	99	117	152	157	135	86	947	179	72
AC-FT	8510	8860	8010	7880	9690	11850	24850	24010	11370	101200	42670	13700

CAL YR 1989 TOTAL 112486 MEAN 308 MAX 1820 MIN 94 AC-FT 223100
WTR YR 1990 TOTAL 137420 MEAN 376 MAX 2230 MIN 72 AC-FT 272600

CAL YR 1989	TOTAL 79952	MEAN 219	MAX 1180	MIN 12	AC-FT 158600
WTR YR 1990	TOTAL 87028	MEAN 238	MAX 1640	MIN 16	AC-FT 172600

LOCATION.--Lat 40°40'57", long 99°32'27", in NE1/4NW1/4 sec.12, T.8 N., R.20 W., Dawson County, Hydrologic Unit 10200101, on left bank 25 ft upstream from county highway bridge, 4 mi south of Overton and 4 mi downstream from Plum Creek.

WATER-DISCHARGE RECORDS

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area.

REMARKS.--Estimated daily discharge: Dec. 11 to Jan. 11. Records good except for period of estimated record, which is fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,600 ft³/s June 5, 1935, gage height, 6.25 ft, datum then in use, south channel; maximum gage height, 7.44 ft, present datum, June 22, 1983; no flow at times in 1919. 1922. 1925. 1927-28. 1930-41.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft³/s Aug. 15, gage height, 3.78 ft; maximum gage height, 4.16 ft Dec. 12, backwater from ice; minimum daily discharge, 144 ft³/s Aug. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	772	669	891	800	1260	1230	1810	2610	537	284	193	183
2	722	646	886	640	1410	1280	1720	2650	533	235	194	183
3	761	669	914	620	1270	1230	1870	2490	570	215	194	172
4	856	723	913	700	1280	1330	1820	2520	560	255	194	176
5	986	737	969	760	1280	1260	1670	2140	574	222	183	166
6	976	726	930	840	1330	1300	1650	2040	512	271	169	170
7	915	815	896	840	1360	1430	1760	1830	491	276	155	281
8	1040	725	995	860	1420	1590	1820	1440	484	250	144	748
9	1030	793	1020	1100	1510	1690	1940	1280	413	210	149	731
10	921	806	1030	1200	1720	1620	1780	912	391	189	157	1100
11	877	805	850	1250	1870	1750	1690	1510	392	175	292	992
12	750	769	800	1640	1220	1700	1610	1570	386	207	1120	843
13	753	784	800	1710	1050	1520	1790	1260	358	258	2350	690
14	710	647	780	1800	1200	1360	1860	1200	333	265	2700	588
15	690	589	800	1770	1250	1260	2020	914	366	267	2850	612
16	624	631	860	1770	1200	1190	1920	804	328	292	2600	588
17	512	650	880	1640	1410	1320	1820	605	466	268	1850	564
18	522	744	800	1480	1210	1350	1720	562	465	260	1490	588
19	586	752	800	1220	1290	1350	1800	1330	475	218	1430	600
20	748	809	800	1320	1310	1780	2000	904	437	243	1160	576
21	748	803	880	1250	1330	1960	2000	1060	423	354	1030	598
22	772	800	880	1340	1360	1930	1920	927	387	429	416	566
23	731	755	880	1530	1480	1820	1890	825	351	465	262	553
24	676	780	880	1560	1730	1980	1960	778	322	340	226	557
25	740	830	880	1500	1740	2010	2050	745	300	243	211	534
26	609	805	860	1540	1870	2020	2160	633	302	224	186	507
27	574	832	880	1620	1560	1920	2150	510	290	225	190	498
28	633	794	900	1680	1400	1880	2570	499	318	208	190	461
29	653	859	880	1330	---	1650	2500	470	304	205	179	401
30	562	799	880	1400	---	1760	2600	406	261	204	190	373
31	643	---	840	1320	---	1760	---	279	---	216	190	---
TOTAL	23092	22546	27254	40030	39320	49230	57870	37703	12329	7973	22844	15599
MEAN	745	752	879	1291	1404	1588	1929	1216	411	257	737	520
MAX	1040	859	1030	1800	1870	2020	2600	2650	574	465	2850	1100
MIN	512	589	780	620	1050	1190	1610	279	261	175	144	166
AC-FT	45800	44720	54060	79400	77990	97650	114800	74780	24450	15810	45310	30940
CAL YR 1989	TOTAL 357658		MEAN 980	MAX 3740	MIN 137	AC-FT 709400						
WTR YR 1990	TOTAL 355790		MEAN 975	MAX 2850	MIN 144	AC-FT 705700						

PLATTE RIVER BASIN

06768000 PLATTE RIVER NEAR OVERTON, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952, 1958 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1958 to current year.

WATER TEMPERATURES: January 1958 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,480 microsiemens May 15, 1966 (south chan.); minimum daily, 176 microsiemens June 25, 1989 (south chan.).

WATER TEMPERATURES: Maximum, 37.0°C June 13, 1959 (south chan.), July 9, 1960 (north chan.); minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,180 microsiemens Apr. 26, 28 (south channel); minimum daily, 645 microsiemens Aug. 12 (south chan.).

WATER TEMPERATURES: Maximum daily, 35.0°C June 28 (north and south chan.); minimum daily, 1.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT							
17...	1200	460	869	8.6	9.0	713	11.5
DEC							
06...	1100	710	870	8.2	5.0	705	11.9
JAN							
03...	1215	1000	916	8.2	0.5	695	14.3
MAR							
28...	1015	1680	929	8.4	7.0	700	10.7
APR							
25...	1200	2080	1010	8.5	15.5	695	10.7
JUN							
19...	1000	340	946	8.8	24.0	--	8.6
JUL							
18...	1430	130	868	8.8	32.5	702	10.6
SEP							
04...	0930	130	952	8.4	20.5	705	8.8

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT						
17...	76	13	0.50	28	1.00	0.030
DEC						
06...	75	12	0.50	30	1.20	0.030
JAN						
03...	72	13	0.50	33	1.60	0.050
MAR						
28...	86	12	0.40	25	1.30	0.020
APR						
25...	110	8.5	0.20	19	0.900	<0.010
JUN						
19...	85	14	0.70	26	1.10	0.070
JUL						
18...	84	14	0.50	27	0.500	0.020
SEP						
04...	88	16	0.50	30	0.900	<0.010

PLATTE RIVER BASIN

06768000 PLATTE RIVER NEAR OVERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT				
17...	1200	130	7	12
DEC				
06...	1100	130	8	2
JAN				
03...	1215	130	6	14
MAR				
28...	1015	150	<3	1
APR				
25...	1200	170	<3	<1
JUN				
19...	1000	150	<3	10
JUL				
18...	1430	140	<3	5
SEP				
04...	0930	150	7	27

PLATTE RIVER BASIN

06767998 PLATTE RIVER NEAR OVERTON, NE (NORTH CHANNEL)

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	828	820	819	828	911	820	915	749	969	896	939	898
2	832	793	792	832	925	822	915	753	890	939	983	956
3	834	785	811	825	912	821	951	769	902	951	900	906
4	820	796	817	830	915	791	955	747	930	941	913	914
5	805	794	793	822	878	825	943	758	936	971	920	935
6	803	801	797	823	866	736	960	770	938	908	942	920
7	807	800	787	799	867	742	949	807	969	942	935	913
8	808	799	784	815	868	782	963	823	972	909	993	871
9	814	794	789	781	888	796	972	860	970	970	980	874
10	832	793	790	796	889	767	985	869	974	986	987	910
11	825	791	736	815	899	788	990	910	965	956	977	888
12	838	794	753	813	870	781	985	861	973	960	772	900
13	841	795	770	825	874	780	963	963	960	892	773	887
14	792	803	848	829	894	773	982	986	968	1070	853	890
15	802	817	873	824	941	777	979	923	951	933	784	890
16	823	822	875	811	918	786	998	918	863	883	900	963
17	837	812	904	822	918	798	1000	940	864	938	903	891
18	827	814	876	821	921	800	1020	942	935	878	927	891
19	835	813	870	821	904	814	1040	801	935	894	914	894
20	833	809	---	808	878	817	1020	794	988	894	936	904
21	813	817	---	840	865	824	1040	854	903	872	943	904
22	833	792	---	824	856	816	1040	964	928	882	946	900
23	830	812	---	819	891	825	1020	970	929	886	957	911
24	830	812	---	821	888	833	1040	988	919	924	971	891
25	822	812	---	838	906	826	1000	985	944	967	981	886
26	824	809	826	858	907	834	1000	959	923	930	958	897
27	825	819	818	848	894	839	835	965	942	932	978	884
28	828	822	812	846	882	847	845	964	904	953	975	889
29	820	832	806	854	---	826	793	998	903	883	948	883
30	852	827	806	874	---	822	793	924	883	942	964	890
31	836	---	818	863	---	830	---	928	---	1050	957	---
MEAN	824	807	---	827	894	804	963	885	934	933	929	901

06767999 PLATTE RIVER NEAR OVERTON, NE (SOUTH CHANNEL)

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	797	791	798	838	845	870	997	1100	1050	901	937	904
2	797	774	815	840	874	877	1000	1110	969	953	977	953
3	789	775	819	844	869	885	1040	1100	982	990	902	900
4	786	785	815	828	884	852	1040	1100	980	967	916	923
5	779	768	814	825	880	869	1050	1090	985	987	925	954
6	774	784	815	836	880	836	1060	1100	984	931	944	900
7	781	782	815	833	884	826	1050	1120	1020	947	939	915
8	774	784	786	828	871	880	1060	920	1030	923	981	853
9	781	782	788	825	883	881	1070	1120	1020	937	973	850
10	810	781	795	815	893	847	1070	1050	1020	966	976	883
11	789	773	817	820	873	879	1100	1140	995	943	971	867
12	807	774	816	806	894	883	1090	1090	1000	944	645	882
13	782	773	816	810	878	887	1080	1140	990	898	766	861
14	783	774	823	815	881	864	1090	1130	1000	891	859	869
15	782	771	818	816	895	846	1090	1070	998	942	852	869
16	794	787	819	825	913	896	1090	993	935	879	872	875
17	820	778	850	825	886	915	1140	1000	936	893	870	859
18	793	777	---	823	876	902	1150	985	969	893	886	860
19	818	788	---	826	887	900	1140	893	965	918	862	859
20	793	792	---	803	874	902	1160	896	963	904	910	859
21	785	802	---	828	882	900	1160	925	907	888	908	875
22	809	802	---	839	872	903	1140	1040	964	879	930	876
23	788	792	---	816	901	893	1150	1040	966	883	963	866
24	790	792	---	818	904	917	1170	1070	957	928	972	861
25	793	791	---	833	909	915	1170	1070	964	969	982	866
26	814	781	---	850	914	907	1180	998	954	947	956	866
27	787	783	---	868	905	924	1170	999	961	931	967	860
28	779	791	---	860	888	915	1180	1000	938	964	961	879
29	805	801	---	875	---	921	1170	1050	934	899	948	877
30	824	804	---	880	---	926	1170	973	914	945	945	866
31	811	---	817	868	---	930	---	954	---	950	957	---
MEAN	794	784	---	833	886	889	1110	1040	975	929	918	880

PLATTE RIVER BASIN

06769998 PLATTE RIVER NEAR OVERTON, NE (NORTH CHANNEL)

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	5.0	3.0	2.0	1.0	8.0	7.0	17.0	23.0	34.0	30.0	30.0
2	15.0	10.0	2.0	1.0	1.0	11.0	7.0	17.0	14.0	23.0	20.0	23.0
3	15.0	10.0	3.0	1.0	1.0	8.0	15.0	12.0	19.0	30.0	28.0	29.0
4	16.0	10.0	5.0	1.0	1.0	8.0	10.0	18.0	24.0	29.0	28.0	29.0
5	17.0	11.0	8.0	1.0	5.0	9.0	7.0	14.0	24.0	23.0	26.0	23.0
6	15.0	9.0	6.0	1.0	6.0	4.0	14.0	14.0	22.0	28.0	25.0	29.0
7	13.0	9.0	3.0	1.0	6.0	4.0	7.0	25.0	24.0	28.0	23.0	27.0
8	18.0	9.0	2.0	2.0	1.0	9.0	14.0	15.0	27.0	28.0	18.0	29.0
9	18.0	12.0	6.0	1.0	5.0	9.0	11.0	16.0	27.0	22.0	20.0	29.0
10	13.0	13.0	2.0	5.0	7.0	9.0	10.0	12.0	25.0	23.0	18.0	23.0
11	21.0	14.0	2.0	2.0	11.0	13.0	11.0	13.0	21.0	31.0	20.0	27.0
12	14.0	11.0	2.0	1.0	12.0	15.0	6.0	13.0	21.0	18.0	27.0	24.0
13	21.0	11.0	2.0	1.0	3.0	9.0	12.0	20.0	21.0	29.0	27.0	27.0
14	21.0	8.0	2.0	5.0	1.0	8.0	15.0	21.0	18.0	31.0	26.0	27.0
15	14.0	5.0	2.0	4.0	1.0	6.0	17.0	22.0	28.0	18.0	27.0	27.0
16	8.0	3.0	2.0	4.0	1.0	10.0	13.0	13.0	26.0	31.0	29.0	19.0
17	8.0	5.0	2.0	5.0	1.0	12.0	10.0	25.0	26.0	31.0	30.0	20.0
18	6.0	5.0	2.0	3.0	6.0	10.0	10.0	14.0	21.0	33.0	29.0	22.0
19	13.0	8.0	2.0	1.0	8.0	13.0	13.0	22.0	22.0	25.0	26.0	18.0
20	13.0	8.0	---	1.0	5.0	8.0	20.0	11.0	30.0	24.0	27.0	19.0
21	15.0	2.0	---	1.0	4.0	15.0	13.0	26.0	19.0	25.0	27.0	21.0
22	11.0	4.0	---	3.0	4.0	13.0	19.0	22.0	28.0	21.0	31.0	21.0
23	18.0	4.0	---	3.0	6.0	4.0	22.0	26.0	31.0	28.0	32.0	16.0
24	16.0	6.0	---	3.0	8.0	8.0	20.0	18.0	33.0	20.0	32.0	25.0
25	14.0	7.0	---	3.0	6.0	12.0	15.0	28.0	24.0	23.0	27.0	19.0
26	---	6.0	2.0	2.0	1.0	12.0	15.0	19.0	33.0	32.0	32.0	19.0
27	9.0	2.0	2.0	2.0	3.0	7.0	13.0	21.0	27.0	34.0	24.0	24.0
28	8.0	2.0	2.0	1.0	3.0	7.0	12.0	21.0	35.0	22.0	22.0	19.0
29	12.0	4.0	2.0	3.0	---	7.0	13.0	18.0	34.0	25.0	32.0	19.0
30	11.0	2.0	2.0	1.0	---	6.0	17.0	16.0	34.0	28.0	30.0	19.0
31	8.0	---	2.0	1.0	---	6.0	---	15.0	---	25.0	32.0	---
MEAN	---	7.2	---	2.1	4.2	9.0	12.9	18.2	25.4	26.5	26.6	23.4

06767999 PLATTE RIVER NEAR OVERTON, NE (SOUTH CHANNEL)

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	6.0	2.0	1.0	1.0	6.0	7.0	18.0	22.0	34.0	30.0	29.0
2	15.0	11.0	2.0	3.0	1.0	8.0	7.0	17.0	14.0	23.0	20.0	23.0
3	15.0	10.0	3.0	3.0	1.0	6.0	12.0	12.0	19.0	30.0	27.0	28.0
4	16.0	10.0	5.0	3.0	1.0	6.0	8.0	16.0	23.0	28.0	27.0	30.0
5	16.0	11.0	6.0	3.0	5.0	7.0	6.0	14.0	23.0	22.0	25.0	23.0
6	12.0	9.0	4.0	3.0	5.0	4.0	13.0	14.0	22.0	28.0	25.0	29.0
7	14.0	10.0	2.0	5.0	5.0	4.0	7.0	22.0	23.0	28.0	23.0	27.0
8	17.0	9.0	2.0	4.0	1.0	7.0	13.0	15.0	26.0	28.0	18.0	29.0
9	17.0	12.0	6.0	4.0	4.0	7.0	10.0	16.0	26.0	21.0	20.0	28.0
10	12.0	12.0	2.0	5.0	5.0	8.0	10.0	13.0	25.0	23.0	18.0	24.0
11	19.0	13.0	2.0	3.0	13.0	10.0	11.0	14.0	21.0	30.0	20.0	28.0
12	13.0	11.0	2.0	1.0	9.0	11.0	7.0	13.0	21.0	18.0	24.0	25.0
13	19.0	10.0	2.0	2.0	3.0	7.0	11.0	19.0	20.0	28.0	26.0	28.0
14	20.0	7.0	2.0	4.0	1.0	8.0	13.0	19.0	18.0	30.0	25.0	27.0
15	13.0	6.0	2.0	4.0	1.0	6.0	14.0	20.0	27.0	17.0	25.0	27.0
16	9.0	5.0	2.0	3.0	1.0	9.0	12.0	14.0	25.0	31.0	28.0	19.0
17	9.0	6.0	2.0	4.0	1.0	10.0	10.0	23.0	25.0	31.0	29.0	21.0
18	8.0	6.0	---	3.0	5.0	9.0	10.0	14.0	22.0	33.0	26.0	22.0
19	13.0	8.0	---	1.0	8.0	11.0	12.0	20.0	23.0	24.0	25.0	19.0
20	14.0	8.0	---	1.0	5.0	8.0	17.0	12.0	30.0	23.0	23.0	20.0
21	15.0	3.0	---	1.0	5.0	12.0	12.0	23.0	19.0	25.0	23.0	21.0
22	11.0	4.0	---	3.0	6.0	13.0	17.0	21.0	27.0	21.0	31.0	20.0
23	17.0	5.0	---	3.0	4.0	5.0	19.0	24.0	30.0	28.0	31.0	16.0
24	16.0	6.0	---	3.0	5.0	8.0	19.0	18.0	32.0	20.0	30.0	25.0
25	14.0	6.0	---	3.0	5.0	10.0	15.0	26.0	24.0	24.0	27.0	19.0
26	---	6.0	---	3.0	1.0	11.0	15.0	18.0	32.0	32.0	32.0	19.0
27	8.0	2.0	---	2.0	2.0	7.0	14.0	21.0	27.0	34.0	25.0	23.0
28	7.0	2.0	---	1.0	3.0	7.0	13.0	21.0	35.0	22.0	22.0	19.0
29	12.0	4.0	---	5.0	---	7.0	13.0	18.0	33.0	24.0	33.0	19.0
30	11.0	2.0	---	1.0	---	6.0	17.0	16.0	34.0	28.0	30.0	19.0
31	9.0	---	2.0	1.0	---	6.0	---	15.0	---	25.0	32.0	---
MEAN	---	7.3	---	2.8	3.8	7.9	12.1	17.6	24.9	26.2	25.8	23.5

PLATTE RIVER BASIN

06770000 PLATTE RIVER NEAR ODESSA, NE

LOCATION.--Lat 40°39'53", long 99°15'20", in SW1/4NW1/4 sec.16, T.8 N., R.17 W., Phelps County, Hydrologic Unit 10200101, on right bank 15 ft downstream from county bridge, 2.5 mi south of Odessa and 5 mi downstream from Elm Creek.

DRAINAGE AREA.--58,100 mi², approximately, of which about 53,300 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--March 1937 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,195.07 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 7, 1938, nonrecording gage and Oct. 7, 1938 to Sept. 30, 1942, water-stage recorder, both at datum 3.00 ft higher and Oct. 1, 1942 to July 23, 1984, water-stage recorder at datum 2.00 ft higher, all at present site. July 24, 1984 to Apr. 5, 1988, water-stage recorder at site 1,500 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 10 to Jan. 14 and Feb. 15-18. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated irrigated areas.

AVERAGE DISCHARGE.--49 years (water years 1942-90, since storage in Lake McConaughy), 1,553 ft³/s, 1,125,000 acre-ft per year; median of yearly mean discharges, 1,220 ft³/s, 884,000 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,900 ft³/s June 29, 1983, gage height, 5.82 ft, datum then is use; maximum gage height, 5.90 ft June 22, 1983, datum and site then in use; no flow for periods in each year prior to 1947 and in 1953-57, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,970 ft³/s May 4, gage height, 4.74 ft; maximum gage height, 4.79 ft Feb. 16, backwater from ice; minimum daily, 43 ft³/s Aug. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	545	666	720	1000	1060	1390	1760	2650	329	69	62	52
2	438	627	746	980	1090	1360	1660	2740	444	67	62	52
3	404	618	791	840	1370	1340	1830	2760	447	62	63	50
4	459	697	853	900	1440	1400	1900	2860	447	55	57	49
5	556	704	903	1000	1300	1390	1790	2640	450	47	53	47
6	536	690	890	1000	1270	1560	1700	2360	392	101	50	46
7	519	743	812	1000	1310	1730	1790	2160	351	79	45	45
8	548	671	851	1060	1410	1780	1870	1690	347	68	44	64
9	590	757	905	1160	1460	1720	1900	1510	346	59	43	130
10	583	803	860	1250	1630	1670	1890	1130	276	56	44	233
11	502	802	800	1350	1770	1730	1630	1110	298	55	59	431
12	436	734	900	1500	1720	1750	1520	1590	316	51	326	447
13	442	734	920	1600	953	1710	1580	1370	231	51	1450	359
14	483	696	940	1800	1030	1550	1640	1220	179	60	2070	270
15	515	583	900	1780	1250	1450	1890	1170	189	63	2260	201
16	554	504	880	1540	1300	1450	1900	877	224	64	2160	184
17	582	585	860	1510	1400	1500	1850	865	260	61	1600	162
18	524	604	880	1430	1550	1590	1830	729	320	56	1070	267
19	534	684	880	1320	1600	1550	1880	1550	253	54	988	267
20	684	733	880	1260	1390	1770	1920	1640	235	51	730	315
21	762	721	860	1370	1130	2010	1940	1440	234	62	455	274
22	804	745	900	1390	1100	1860	1990	1190	161	106	309	252
23	771	708	900	1340	1020	1900	2090	982	144	165	78	215
24	787	717	920	1400	1350	1990	1980	809	142	155	65	259
25	793	743	920	1300	1500	2080	1980	755	121	88	64	301
26	758	673	940	1230	1770	2140	1910	669	97	64	62	309
27	626	667	980	1250	1740	2170	2010	458	93	66	61	293
28	770	618	1000	1280	1450	2110	2220	412	86	62	58	245
29	784	679	960	1330	---	1830	2350	372	88	57	57	238
30	663	686	980	1050	---	1870	2470	471	76	56	55	200
31	537	---	1000	1150	---	1850	---	247	---	61	53	---
TOTAL	18489	20592	27531	39370	38363	53200	56670	42426	7576	2171	14553	6257
MEAN	596	686	888	1270	1370	1716	1889	1369	253	70.0	469	209
MAX	804	803	1000	1800	1770	2170	2470	2860	450	165	2260	447
MIN	404	504	720	840	953	1340	1520	247	76	47	43	45
AC-FT	36670	40840	54610	78090	76090	105500	112400	84150	15030	4310	28870	12410

CAL YR 1989 TOTAL 343339 MEAN 941 MAX 5560 MIN 35 AC-FT 681000
WTR YR 1990 TOTAL 327198 MEAN 896 MAX 2860 MIN 43 AC-FT 649000

PLATTE RIVER BASIN

06770200 PLATTE RIVER NEAR KEARNEY, NE

LOCATION.--Lat 40°39'32", long 99°05'08", in SE1/4SE1/4 sec.14, T.8 N., R.16 W., Kearney county, Hydrologic Unit 10200101, on right bank near downstream side of bridge on State Highway 44, 2 mi south of Kearney.

DRAINAGE AREA.--58,200 mi², approximately, of which about 53,400 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--January 1982 to current year.

GAGE.--Water stage recorder. Datum of gage is 2134.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 10 and Feb. 3-5, 14-22. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--8 years (water years 1983-90), 2,760 ft³/s, 2,000,000 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s June 29, 1983, gage height, 7.42 ft; minimum daily discharge, 3.0 ft³/s Sept. 7, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,400 ft³/s Jan. 10, gage height, 4.85 ft, from highwater mark, backwater from ice; maximum gage height, 5.50 ft Feb. 17, backwater from ice; minimum daily discharge, 3.0 ft³/s Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	657	709	817	1300	1430	1370	1960	2970	338	168	56	35
2	616	682	832	1200	1200	1290	1860	2910	523	165	54	26
3	592	710	742	1150	1300	1250	1850	2840	544	133	69	17
4	612	768	823	1150	1400	1320	1980	2910	595	86	66	9.6
5	714	784	884	1300	1500	1310	2070	2710	613	64	61	5.1
6	735	797	955	1500	1540	1450	2160	2330	579	143	47	3.9
7	714	848	888	1600	1420	1780	2230	2130	530	181	35	3.0
8	752	817	886	1800	1510	1920	2150	1810	516	147	32	26
9	761	864	944	2100	1630	1890	2060	1720	474	120	41	326
10	736	900	937	3000	1790	1820	2210	1290	391	113	51	349
11	695	868	606	2630	1940	1830	2030	954	361	120	61	529
12	652	797	520	2300	2060	1800	2010	1830	307	113	251	502
13	611	842	450	2730	1300	1760	2130	1620	272	109	1060	418
14	600	846	340	2650	1100	1630	2160	1200	229	110	2020	338
15	626	756	350	2340	370	1500	2290	1100	257	121	2410	287
16	622	737	360	2080	500	1480	2240	812	299	108	2490	223
17	625	761	370	1970	1100	1560	2120	765	324	95	2110	171
18	635	712	390	1850	1700	1730	2090	636	439	74	1610	260
19	623	746	410	1760	1950	1670	2060	1590	411	65	1510	277
20	684	790	440	1650	2100	1770	2120	1840	398	78	1290	328
21	752	830	480	1650	2100	2070	2170	1520	409	83	1010	310
22	764	913	540	1750	2000	1920	2150	1270	345	142	865	295
23	781	850	600	1800	1060	1890	2190	1030	270	221	477	272
24	797	814	660	1880	1220	1990	2110	847	222	257	326	289
25	790	802	700	1750	1420	2160	2260	735	215	182	291	302
26	826	794	780	1660	1600	2130	2220	665	189	143	232	293
27	769	846	900	1610	1750	2110	2340	482	185	133	166	291
28	798	658	1100	1560	1430	2190	2430	444	189	102	135	271
29	812	697	1300	1660	---	2000	2720	409	186	96	97	239
30	767	816	1400	1230	---	2030	2780	573	186	79	76	198
31	656	---	1350	1440	---	2110	---	379	---	65	49	---
TOTAL	21774	23754	22754	56050	41420	54730	65150	44321	10796	3816	19048	6893.6
MEAN	702	792	734	1808	1479	1765	2172	1430	360	123	614	230
MAX	826	913	1400	3000	2100	2190	2780	2970	613	257	2490	529
MIN	592	658	340	1150	370	1250	1850	379	185	64	32	3.0
AC-FT	43190	47120	45130	111200	82160	108600	129200	87910	21410	7570	37780	13670

CAL YR 1989 TOTAL 345118 MEAN 946 MAX 5860 MIN 32 AC-FT 684500
WTR YR 1990 TOTAL 370506.6 MEAN 1015 MAX 3000 MIN 3.0 AC-FT 734900

PLATTE RIVER BASIN

06770500 PLATTE RIVER NEAR GRAND ISLAND, NE

LOCATION.--Lat 40°52'28", long 98°16'54", in SW1/4SW1/4 sec.31, T.11 N., R.8 W., Merrick County, Hydrologic Unit 10200101, on left bank 20 ft downstream from bridge on U.S. Highway 34, 2 mi upstream from Burlington Northern Inc. bridge, and 5 mi southeast of Grand Island.

DRAINAGE AREA.--58,800 mi², approximately, of which about 54,000 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1933 to current year.

REVISED RECORDS.--WSP 956: 1935. WSP 1390: 1942. WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,831.90 ft above National Geodetic Vertical Datum of 1929 (Nebraska Department of Highways bench mark). Prior to Oct. 23, 1933, nonrecording gage at bridge 68 ft downstream and Oct. 23, 1933, to Aug. 19, 1980, water-stage recorder at site 98 ft downstream, all at same datum.

REMARKS.--Estimated daily discharges: Nov. 16, 17, 28-30, Dec. 1-4, 9-31, Jan. 1-31, and Feb. 1, 3-11, 15-22. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--49 years (water years 1942-90, since storage in Lake McConaughy), 1,588 ft³/s, 1,151,000 acre-ft per year; median of yearly mean discharges, 1,180 ft³/s, 855,000 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s June 6, 1935, gage height, 5.99 ft, from rating curve extended above 18,000 ft³/s; maximum gage height, 6.16 ft Mar. 27, 1960, backwater from ice; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,890 ft³/s May 5, gage height, 2.79 ft, maximum gage height, 3.76 ft Jan. 1, backwater from ice; minimum daily discharge, 38 ft³/s Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	835	870	1050	1450	1600	1560	2200	2210	1100	239	73	161
2	755	816	1100	1400	1140	1490	2040	2380	962	210	73	153
3	775	835	1100	1350	1300	1450	2070	2380	1010	164	79	126
4	807	842	1400	1250	1500	1520	1960	2600	1000	134	82	107
5	885	832	1300	1250	1700	1560	2010	2690	959	112	77	93
6	952	821	981	1350	1700	1750	1980	2620	937	470	64	83
7	986	847	910	1550	1700	2540	2010	2210	872	332	54	77
8	1040	857	896	1700	1700	2680	2010	1890	868	247	48	74
9	1070	928	850	1900	1850	2450	1900	2090	849	186	40	74
10	1090	930	800	2100	1950	2220	1900	1870	869	159	38	82
11	1040	998	400	2200	2000	2090	1870	1550	740	146	73	189
12	994	998	350	2150	1720	2040	1860	1550	622	119	144	341
13	920	962	280	2400	1710	2110	1840	2160	604	97	220	488
14	878	948	250	2700	440	2170	1790	1980	575	85	307	498
15	867	932	250	2800	195	2030	1770	1560	1070	80	985	434
16	778	590	270	2700	1500	1830	1790	1400	675	76	1860	383
17	778	800	300	2600	1750	1690	1750	1110	540	65	2030	361
18	719	1170	330	2400	1950	1540	1770	931	549	56	1810	438
19	704	1050	350	2200	2200	1680	1740	1260	595	71	1550	394
20	730	1040	400	2000	2300	1730	1730	1820	543	120	1470	396
21	780	989	450	1800	2200	1770	1820	2380	580	94	1290	427
22	894	941	480	1900	2200	2090	1850	2110	613	78	1100	360
23	915	991	550	2000	1890	2130	1880	1890	604	78	977	326
24	943	1010	600	2000	1820	2030	1870	1520	548	82	839	321
25	902	1000	640	1950	1530	2140	1780	1300	508	125	610	311
26	885	1040	700	1900	1630	2420	1800	1150	480	189	476	318
27	1020	932	800	1900	1690	2340	1720	1090	389	184	405	301
28	1000	800	950	1900	1850	2410	1830	936	334	142	338	305
29	1110	840	1100	1950	---	2530	1880	764	315	136	286	299
30	1030	940	1250	1900	---	2360	2140	904	270	118	244	315
31	991	---	1400	1900	---	2340	---	1100	---	94	193	---
TOTAL	28073	27549	22487	60550	46715	62690	56560	53405	20580	4488	17835	8235
MEAN	906	918	725	1953	1668	2022	1885	1723	686	145	575	274
MAX	1110	1170	1400	2800	2300	2680	2200	2690	1100	470	2030	498
MIN	704	590	250	1250	195	1450	1720	764	270	56	38	74
AC-FT	55680	54640	44600	120100	92660	124300	112200	105900	40820	8900	35380	16330

CAL YR 1989 TOTAL 402408 MEAN 1102 MAX 5950 MIN 111 AC-FT 798200
WTR YR 1990 TOTAL 409167 MEAN 1121 MAX 2800 MIN 38 AC-FT 811600

PLATTE RIVER BASIN

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06772000 WOOD RIVER NEAR ALDA, NE

LOCATION.--Lat 40°51'10", long 98°28'20", in NE1/4SE1/4 sec.7, T.10 N., R.10 W., Hall County, Hydrologic Unit 10200102, on right bank 1.2 mi south of Alda, 2.2 mi upstream from old north channel of the Platte River, and 19 mi upstream from present mouth.

DRAINAGE AREA.--628 mi².

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,897.66 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Estimated daily discharges; Nov. 15-17, 20, 21, 28-30, Dec. 8, 9, 11, Jan. 7-15, 25-31, Feb. 1-5, 13, 14, 25-28, and Mar. 1-4. Records good, except for periods of estimated record, which are poor. Numerous small pump diversions for irrigation above station.

AVERAGE DISCHARGE.--37 years, 10.5 ft³/s, 7,610 acre-ft/yr; median of yearly mean discharges, 7.9 ft³/s, 5,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft³/s June 16, 1967, gage height, 12.22 ft; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 15	0930	*261	*8.39	No peaks greater than base discharge.			
No flow for many days.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.53	.00	.50	2.2	1.3	.00	4.3	4.6	1.1	4.1
2	.00	.00	.39	.00	.30	2.5	.86	.00	3.2	7.7	1.1	4.8
3	.00	.00	1.3	.00	.10	2.4	.79	.00	1.7	4.8	.37	5.2
4	.00	.00	1.9	.00	.30	2.1	.40	.00	1.9	4.1	.18	3.9
5	.00	.00	2.5	.00	3.0	2.0	.04	.47	8.2	4.6	.83	3.4
6	.00	.00	2.6	.00	1.1	1.7	.00	1.3	5.4	25	1.8	3.0
7	.00	.00	2.1	.00	.34	3.9	.00	.74	3.5	39	.72	3.0
8	.00	.00	1.9	.50	.17	13	.00	.62	2.0	31	.80	2.3
9	.00	.00	1.9	2.0	.04	6.7	.00	1.7	.96	46	.35	1.9
10	.00	.61	1.5	3.0	.00	5.4	.00	3.6	.97	31	2.0	1.7
11	.00	1.1	1.4	2.0	.00	4.8	.00	3.7	1.2	14	5.1	1.6
12	.00	.98	.02	.30	.00	3.4	.00	2.5	.91	12	19	1.2
13	.00	1.1	.00	.20	.30	3.9	.00	2.6	.51	15	26	1.0
14	.00	.80	.00	.10	.20	4.3	.00	2.7	.02	16	110	.85
15	.00	.30	.00	.00	.01	29	.00	2.1	.38	19	231	.73
16	.00	.50	.00	.00	.00	13	.00	4.3	.10	17	81	.67
17	.00	.80	.00	.00	.00	5.9	.00	2.9	.00	12	32	.76
18	.00	1.2	.00	.00	.00	3.8	.00	2.2	.00	14	17	1.1
19	.00	1.7	.00	.00	.00	2.4	.00	4.3	.00	14	12	.87
20	.00	1.1	.00	.00	.00	2.1	.00	12	.00	13	7.0	1.0
21	.00	1.2	.00	.00	.00	1.6	.00	25	.00	9.3	23	.95
22	.00	1.1	.00	.00	9.7	1.2	.00	34	.00	9.1	35	.97
23	.00	1.2	.00	.00	5.3	4.5	.00	35	.00	6.0	14	.87
24	.00	1.1	.00	.00	3.7	1.2	.00	34	.00	6.2	6.3	.73
25	.00	1.1	.00	1.0	3.0	1.6	.00	26	.00	7.5	4.0	.43
26	.00	1.3	.25	4.0	2.0	1.0	.00	17	.00	13	3.5	.38
27	.00	1.2	.01	5.0	1.7	2.1	.00	12	2.2	22	2.7	.22
28	.00	.30	.29	4.0	2.0	.70	.00	12	4.4	15	2.6	.00
29	1.7	.70	.02	3.0	---	.93	.00	8.7	3.9	5.5	3.2	.00
30	.73	.90	.00	2.0	---	1.8	.00	5.2	3.9	2.2	2.5	.00
31	.05	---	.00	1.2	---	2.1	---	3.9	---	.86	3.6	---
TOTAL	2.48	20.29	18.61	28.30	33.76	129.18	3.39	260.53	49.65	440.46	649.75	47.63
MEAN	.080	.68	.60	.91	1.21	4.17	.11	8.40	1.65	14.2	21.0	1.59
MAX	1.7	1.7	2.6	5.0	9.7	29	1.3	35	8.2	46	231	5.2
MIN	.00	.00	.00	.00	.00	.45	.00	.00	.00	.86	.18	.00
AC-FT	4.9	40	37	56	67	256	6.7	517	98	874	1290	94

CAL YR 1989 TOTAL 5942.99 MEAN 16.3 MAX 467 MIN .00 AC-FT 11790
WTR YR 1990 TOTAL 1684.03 MEAN 4.61 MAX 231 MIN .00 AC-FT 3340

PLATTE RIVER BASIN

06774000 PLATTE RIVER NEAR DUNCAN, NE
(National stream-quality accounting network station)

LOCATION.--Lat 41°22'04", long 97°29'40", in SE1/4SW1/4 sec.12, T.16 N., R.2 W., Platte County, Hydrologic Unit 10200103, on left bank near northwest corner of county bridge, 1.5 mi south of Duncan, and 12 mi upstream from Loup River.

DRAINAGE AREA.--60,900 mi², approximately, of which about 56,100 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1895 to December 1909 (irrigation seasons only 1895-1900), July 1910 to December 1911 (gage heights and discharge measurements only), April 1912 to September 1915, June 1928 to current year. Published as "near Columbus" 1895-1915.

REVISED RECORDS.--WSP 956: 1935. WSP 1390: 1897, 1899-1901, 1903-5, 1929-32, 1935(M), 1936. WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,476.82 ft above National Geodetic Vertical Datum of 1929. June 1895 to December 1909, April 1912 to September 1915, and June to October 1928, nonrecording gage at site 7 mi downstream at different datums. Oct. 25, 1928, to Feb. 20, 1935, nonrecording gage and Feb. 20, 1935 to Mar. 21, 1984 recording gage both at present site at 2.00 ft higher datum. Mar. 22, 1984, to Mar. 4, 1987, at site 300 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 17-20, Nov. 29 to Dec. 3, Dec. 10 to Feb. 5, and Feb. 16-21. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--49 years (water years 1942-90, since storage in Lake McConaughy), 1,776 ft³/s, 1,287,000 acre-ft/yr; median of yearly mean discharges, 1,370 ft³/s, 978,000 acre-ft/yr. Figures unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 44,100 ft³/s June 23, 1905, gage height, 6.50 ft, site and datum then in use; maximum gage height, 6.78 ft Mar. 24, 1987, present site and datum. No flow at times in 1896, 1902, 1904-5, 1910-11, 1913-14, 1928, all at site downstream, 1931, 1933-42, 1944, 1952-57, 1959, 1963, 1974, 1976, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,300 ft³/s Feb. 23, gage height, 4.87 ft; maximum gage height 5.32 ft Nov. 19, backwater from ice; minimum daily, 1.2 ft³/s Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	708	813	700	1300	1400	1710	2660	2390	1410	421	381	151
2	647	855	800	1600	1100	1670	2610	2550	1560	353	324	151
3	635	832	900	1750	1000	1470	2520	2740	1400	275	322	132
4	623	961	1030	1750	955	1440	2420	3130	1270	205	302	81
5	775	953	1310	1700	1390	1390	2220	3290	1280	166	268	39
6	722	973	1400	1800	1830	1500	2290	3230	1230	150	214	19
7	677	976	1320	1800	2330	2010	2360	3230	1250	172	180	13
8	780	858	1160	1850	2500	2600	2350	2830	1230	342	158	12
9	820	846	1150	1900	2300	2900	2340	3090	1060	282	145	10
10	827	917	600	2000	1900	2660	2430	3040	967	267	122	8.3
11	880	951	300	2000	2210	2590	2360	2680	956	285	148	5.1
12	806	968	180	1950	2420	2420	2300	2260	810	258	123	2.8
13	798	1000	170	1900	1920	2340	2350	2000	885	229	133	1.2
14	732	955	150	1940	1290	2350	2360	2250	672	201	167	3.2
15	642	887	170	2000	855	2330	2270	2680	988	152	209	141
16	486	1220	200	2100	1210	2330	2230	2210	1920	96	278	204
17	435	1200	230	2300	1180	2060	2250	1750	1920	82	1020	218
18	437	780	250	2300	1350	1870	2530	1670	1530	78	2110	256
19	438	900	280	2300	1590	1650	2580	1700	1390	79	2210	267
20	479	1200	320	2250	2460	1550	2590	1800	1220	96	2140	286
21	496	1140	380	2100	2940	1580	2550	2090	1320	82	1880	277
22	482	1050	470	2200	3610	1550	2530	2820	1640	95	1730	243
23	565	1040	560	2250	3840	1750	2450	2790	1430	90	1500	234
24	621	1090	580	2300	2020	2070	2370	2800	1170	78	1240	231
25	668	1130	600	2200	1740	2100	2340	2480	917	183	1060	203
26	709	1140	620	2100	1380	2220	2350	2030	776	963	840	211
27	712	1080	640	2200	1440	2460	2250	1760	792	1120	577	206
28	794	535	640	2200	1530	2530	2280	1600	672	762	400	206
29	859	460	680	2150	---	2700	2220	1480	554	1230	295	192
30	764	500	780	2100	---	2880	2240	1330	490	692	213	206
31	902	---	1000	1700	---	2980	---	1240	---	486	173	---
TOTAL	20919	28210	19570	61990	51690	65660	71600	72940	34709	9970	20862	4209.6
MEAN	675	940	631	2000	1846	2118	2387	2353	1157	322	673	140
MAX	902	1220	1400	2300	3840	2980	2660	3290	1920	1230	2210	286
MIN	435	460	150	1300	855	1390	2220	1240	490	78	122	1.2
AC-FT	41490	55950	38820	123000	102500	130200	142000	144700	68850	19780	41380	8350

CAL YR 1989 TOTAL 444672 MEAN 1218 MAX 6400 MIN 73 AC-FT 882000
WTR YR 1990 TOTAL 462329.6 MEAN 1267 MAX 3840 MIN 1.2 AC-FT 917000

PLATTE RIVER BASIN

06774000 PLATTE RIVER NEAR DUNCAN, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1977 to September 1981.

WATER TEMPERATURES: November 1977 to September 1980.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,100 microsiemens Feb. 12, 1981; minimum daily, 290 microsiemens

Mar. 21, 1978.

WATER TEMPERATURES: Maximum, 33.0°C July 10, 11, 1980; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL AS CACO3 (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
NOV 15...	1600	909	916	8.2	1.0	729	9.4	14.3	K86	230	280	80
JAN 10...	1130	2000	840	8.3	1.5	717	5.5	18.7	K10	92	270	90
MAR 15...	1245	2240	950	8.6	9.5	729	13	12.4	K29	120	320	100
MAY 18...	1400	1670	1080	8.9	22.0	718	10	11.6	K540	1200	300	120
JUL 24...	1500	78	936	8.6	32.5	721	2.3	7.5	K200	1400	260	110
SEP 04...	1330	100	885	8.8	31.0	727	2.6	7.6	--	--	250	86

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD CACO3 (39086)	CAR-BONATE WATER DIS IT FIELD CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD HCO3 (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 15...	73	24	85	2	13	202	0	246	230	35	0.50	20
JAN 10...	72	22	76	2	10	180	0	220	210	31	0.50	24
MAR 15...	84	26	84	2	14	214	24	212	250	35	0.40	24
MAY 18...	76	27	90	2	12	181	16	189	270	37	0.40	13
JUL 24...	62	25	97	3	14	147	11	157	260	48	0.40	19
SEP 04...	61	23	90	2	22	161	24	148	250	41	0.20	22

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
NOV 15...	614	607	0.84	1510	0.960	0.030	0.77	0.80	0.140	0.070	0.070
JAN 10...	563	561	0.77	3040	1.50	0.240	0.56	0.80	0.150	0.100	0.120
MAR 15...	681	655	0.93	4120	1.80	0.020	0.48	0.50	0.150	0.060	0.080
MAY 18...	636	639	0.86	2870	0.800	<0.010	--	0.70	0.150	0.030	0.020
JUL 24...	618	615	0.84	130	<0.100	0.020	0.88	0.90	0.090	0.030	0.020
SEP 04...	584	606	0.79	158	<0.100	0.040	0.46	0.50	0.070	0.030	0.050

PLATTE RIVER BASIN
06774000 PLATTE RIVER NEAR DUNCAN, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 15...	1600	20	4	71	<0.5	<1.0	<1	<3	2	7	<1
MAR 15...	1245	10	4	76	<0.5	<1.0	<5*	<3	<10*	11	<10*
MAY 18...	1400	<10	4	86	<0.5	<1.0	<1	<3	2	5	<1
JUL 24...	1500	10	1	74	<0.5	<1.0	2	<3	4	21	1

*Minimum reporting level differs due to methodology.

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 15...	34	9	<0.1	<10	2	2	<1.0	690	<6	7
MAR 15...	31	<1	<0.1	<10	<10*	2	<1.0	740	6	5
MAY 18...	36	4	<0.1	<10	2	2	<1.0	760	6	9
JUL 24...	37	19	<0.1	<10	3	<1	<1.0	680	<6	8

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 15...	1600	909	1.0	262	643	14
JAN 10...	1130	2000	1.5	158	853	18
MAR 15...	1245	2240	9.5	111	671	44
MAY 18...	1400	1670	22.0	91	410	89
JUL 24...	1500	78	32.5	7	1.5	64
SEP 04...	1330	100	31.0	14	3.8	89

PLATTE RIVER BASIN

06775500 MIDDLE LOUP RIVER AT DUNNING, NE

LOCATION (REVISED).--Lat 41°49'50", long 100°06'20", in NW1/4SE1/4 sec.33, T.22 N., R.24 W., Blaine County, Hydrologic Unit 10210001, on left bank near upstream end of bridge on State Highway 2 at north edge of Dunning, 1.0 mi upstream from Dismal River.

DRAINAGE AREA.--1,850 mi², approximately, of which about 80 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--September 1945 to current year.

REVISED RECORDS.--WDR NE-72: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,604.14 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1946, nonrecording gage, and Sept. 12, 1946 to Sept. 30, 1962, water-stage recorder at site 0.2 mi upstream at datum 3.03 ft higher. Oct. 1, 1962 to May 15, 1989 at present site and May 15, 1989 to Mar. 20, 1990 at site 0.2 mi upstream, both at datum 3.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 16-28, Dec. 17-31 and Jan. 1, 2. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--45 years, 409 ft³/s, 296,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,160 ft³/s Mar. 8, 1989, gage height, 3.55 ft, result of a bridge collapsing and releasing ice jam 0.2 mi upstream; maximum gage height, 7.02 ft Mar. 31, 1949, backwater from ice, site and datum then in use; minimum daily discharge, 100 ft³/s Dec. 5, 6, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 642 ft³/s Mar. 13, gage height, 2.19 ft, at site 0.2 mi upstream; maximum gage height 5.94 ft, Dec. 19, backwater from ice, at site 0.2 mi upstream; minimum daily discharge, 320 ft³/s Dec. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456	402	373	470	405	437	490	446	505	409	397	431
2	431	380	389	420	406	456	478	457	574	403	455	433
3	420	387	399	376	387	465	488	465	537	396	460	421
4	410	416	354	375	388	472	498	468	512	394	430	410
5	429	424	387	356	408	482	490	476	518	392	422	408
6	433	443	407	361	420	502	484	480	526	400	411	413
7	447	492	406	370	437	512	495	486	512	410	408	413
8	438	450	386	375	450	482	501	527	506	406	406	407
9	444	406	381	372	450	498	504	506	491	436	404	415
10	427	409	424	401	470	535	498	482	482	454	411	413
11	431	410	409	409	502	568	495	506	475	450	435	415
12	417	408	377	394	531	599	502	507	462	428	445	416
13	426	428	418	422	481	604	501	495	458	421	431	421
14	422	415	434	423	452	557	510	509	450	415	427	407
15	460	414	391	447	418	540	511	534	452	417	425	418
16	426	400	353	426	386	519	508	527	475	414	424	412
17	395	370	330	433	401	471	504	494	462	404	422	416
18	402	420	320	393	439	490	502	504	443	403	420	437
19	401	440	330	366	474	451	508	575	444	422	419	437
20	422	450	350	394	501	465	514	545	437	432	419	446
21	442	440	350	386	497	472	515	526	467	420	419	438
22	449	420	360	378	474	457	516	519	447	407	426	433
23	435	410	370	409	450	431	521	505	431	414	514	409
24	423	420	400	406	426	428	537	504	430	408	467	417
25	429	450	430	395	429	443	527	524	428	408	448	428
26	443	460	450	398	442	452	545	565	418	403	438	430
27	433	450	490	426	436	462	489	564	415	403	431	439
28	429	440	510	438	442	473	460	536	413	405	427	421
29	437	450	500	404	---	478	491	513	414	399	423	423
30	407	357	480	403	---	471	443	519	416	411	415	443
31	425	---	480	412	---	480	---	505	---	415	415	---
TOTAL	13289	12661	12438	12438	12402	15152	15025	15769	14000	12799	13294	12670
MEAN	429	422	401	401	443	489	501	509	467	413	429	422
MAX	460	492	510	470	531	604	545	575	574	454	514	446
MIN	395	357	320	356	386	428	443	446	413	392	397	407
AC-FT	26360	25110	24670	24670	24600	30050	29800	31280	27770	25390	26370	25130

CAL YR 1989 TOTAL 148954 MEAN 408 MAX 586 MIN 250 AC-FT 295500
WTR YR 1990 TOTAL 161937 MEAN 444 MAX 604 MIN 320 AC-FT 321200

PLATTE RIVER BASIN
06775900 DISMAL RIVER NEAR THEDFORD, NE--Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
NOV 01...	0915	207	175	8.2	5.5	697	12	10.6	66	59	69	0
FEB 14...	1330	202	179	7.9	2.5	685	15	11.6	K3	K10	61	0
MAY 08...	1145	241	172	8.1	15.5	680	20	8.5	140	280	70	0
AUG 01...	0900	194	170	8.2	18.0	688	6.5	8.5	160	78	71	0

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
NOV 01...	22	3.4	6.9	0.4	4.7	74	0	91	6.0	0.80	0.30	59
FEB 14...	19	3.3	6.8	0.4	4.3	76	0	93	7.0	0.50	0.30	57
MAY 08...	22	3.7	7.0	0.4	5.4	79	0	96	5.6	2.1	0.20	54
AUG 01...	23	3.2	6.8	0.4	4.9	81	0	99	6.0	1.6	0.30	57

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 01...	150	151	0.20	83.8	0.490	<0.010	--	0.20	0.170	0.130	0.120
FEB 14...	156	147	0.21	85.1	0.600	0.030	0.27	0.30	0.190	0.130	0.140
MAY 08...	124	149	0.17	80.7	0.300	<0.010	--	0.50	0.210	0.120	0.130
AUG 01...	156	154	0.21	81.7	0.400	0.020	0.38	0.40	0.190	0.130	0.120

PLATTE RIVER BASIN

06775900 DISMAL RIVER NEAR THEDFORD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 01...	0915	20	6	49	<0.5	<1.0	<1	<3	<1	20	1
FEB 14...	1330	<10	6	47	<0.5	<1.0	<5*	<3	<10*	14	<10*
MAY 08...	1145	<10	4	50	<0.5	1.0	<1	<3	<1	20	1
AUG 01...	0900	<10	6	47	<0.5	<1.0	1	<3	1	11	2

*Minimum reporting level differs due to methodology.

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 01...	11	3	<0.1	<10	<1	<1	<1.0	120	10	5
FEB 14...	11	2	0.1	<10	<10*	<1	<1.0	120	<6	<3
MAY 08...	10	3	<0.1	<10	1	<1	<1.0	120	12	22
AUG 01...	11	2	<0.1	<10	<1	<1	<1.0	120	8	3

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
NOV 01...	0915	1.0	7.7	8.9	6.6	7.1	5.8	0.12	0.29
MAY 08...	1145	0.9	6.5	5.9	3.7	4.9	3.4	0.08	0.33

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 01...	0915	207	5.5	392	219	19
FEB 14...	1330	202	2.5	1150	627	8
MAY 08...	1145	241	15.5	392	255	22
AUG 01...	0900	194	18.0	270	141	19

LOCATION.--Lat 41°49'23", long 100°06'05", in sec.4, T.21 N., R.24 W., Blaine County, Hydrologic Unit 10210002, on right bank 100 ft downstream from bridge on State Highway 2 at southeast corner of Dunning and 1 mi upstream from mouth.

PERIOD OF RECORD.--March to June 1932, September 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,606.3 ft above National Geodetic Vertical Datum of 1929. Mar. 1 to June 30, 1932, nonrecording gage at site 0.2 mi upstream at datum 0.5 ft lower. Sept. 13, 1945 to Apr. 19, 1956, nonrecording gage on bridge 100 ft upstream at present datum.

AVERAGE DISCHARGE.--45 years (1945-90), 327 ft³/s, 236,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,290 ft³/s June 13, 1983, gage height, 2.40 ft; maximum gage height observed, 5.21 ft Jan. 19, 1947, backwater from ice; minimum daily discharge, 100 ft³/s Jan. 25, 1950, Jan. 9, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 690 ft³/s Apr. 25, gage height, 1.48 ft; maximum gage height, 3.65 ft Dec. 19, backwater from ice; minimum daily discharge, 270 ft³/s Dec. 21, 22.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	333	332	383	327	362	399	339	392	332	332	357
2	324	334	315	359	331	365	386	350	434	329	393	376
3	317	348	331	348	322	363	400	344	389	320	363	340
4	323	362	346	333	311	366	412	342	378	317	335	333
5	329	357	371	318	321	366	396	341	377	316	325	334
6	332	354	370	321	332	383	384	347	371	321	326	335
7	330	364	352	353	336	387	396	356	383	327	331	329
8	336	352	346	355	341	376	406	398	370	323	333	330
9	337	356	361	352	337	387	418	389	361	353	332	332
10	336	366	353	367	339	394	390	354	352	357	338	327
11	339	368	318	351	351	411	393	349	352	331	358	325
12	333	365	329	332	360	416	403	352	350	324	364	324
13	333	364	324	336	337	407	406	345	348	323	380	319
14	339	356	348	343	330	388	416	350	338	330	344	310
15	335	342	352	360	310	393	416	366	345	330	336	318
16	315	328	333	355	300	377	410	370	364	327	342	313
17	302	333	330	351	306	364	395	358	346	322	344	313
18	318	345	310	348	294	371	392	369	330	322	341	322
19	316	351	300	355	297	360	403	405	333	356	344	322
20	320	356	300	357	335	378	418	404	331	348	339	325
21	330	350	270	343	333	397	414	364	358	354	339	318
22	336	339	270	354	343	385	410	380	326	333	345	313
23	337	339	300	360	357	359	410	377	328	339	364	306
24	339	345	320	358	358	345	407	381	331	333	353	318
25	341	362	340	347	351	352	434	381	338	336	341	322
26	353	363	370	358	350	368	412	417	335	334	335	324
27	342	344	430	354	355	386	389	435	331	335	334	334
28	350	323	450	329	344	388	358	383	331	341	333	316
29	347	324	440	328	---	394	377	380	333	329	330	320
30	338	331	430	333	---	387	344	387	333	341	330	317
31	347	---	427	328	---	394	---	389	---	337	329	---
TOTAL	10312	10454	10768	10769	9308	11769	11994	11502	10588	10320	10633	9772
MEAN	333	348	347	347	332	380	400	371	353	333	343	326
MAX	353	368	450	383	360	416	434	435	434	357	393	376
MIN	302	323	270	318	294	345	344	339	326	316	325	306
AC-FT	20450	20740	21360	21360	18460	23340	23790	22810	21000	20470	21090	19380
CAL YR 1989	TOTAL 120561 MEAN 330 MAX 450 MIN 205 AC-FT 239200											

PLATTE RIVER BASIN

06779000 MIDDLE LOUP RIVER AT ARCADIA, NE

LOCATION.--Lat 41°25'20", long 99°08'10", in sec.26, T.17 N., R.16 W., Valley County, Hydrologic Unit 10210003, on left bank 80 ft downstream from bridge on State Highway 70 at southwest edge of Arcadia.

DRAINAGE AREA.--5,040 mi², approximately, of which about 820 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July 1937 to current year.

REVISED RECORDS.--WDR NE-72: Drainage area. WDR NE-82-1: 1981(M).

GAGE.--Water-stage recorder. Datum of gage is 2,146.30 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Apr. 23, 1938, nonrecording gage at bridge just upstream at datum 1.23 ft lower.

REMARKS.--Estimated daily discharges: Dec. 9 to Feb. 14 and Feb. 17-23. Records fair except for periods of estimated record, which are poor. Middle Loup Public Power and Irrigation District began diversion above station Mar. 30, 1938. Farwell Irrigation District canal began diversion from river in November 1962 at point 8 mi above station.

AVERAGE DISCHARGE.--28 years (1962-90), 698 ft³/s, 505,700 acre-ft/yr since diversion to Farwell Irrigation District canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, about 18,500 ft³/s June 22, 1947, gage height, 6.24 ft; maximum discharge computed, 9,700 ft³/s May 27, 1945, gage height, 5.12 ft; maximum gage height, 6.41 ft Mar. 27, 1960, backwater from ice; minimum daily discharge, 6.0 ft³/s July 23, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,940 ft³/s June 16, gage height 2.93 ft; maximum gage height, 4.07 ft, Dec. 27, backwater from ice; minimum daily, 85 ft³/s July 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	932	1690	1050	1000	1210	754	551	694	130	89	101
2	1010	761	1500	1100	860	1380	703	502	774	121	149	162
3	927	834	1470	1200	900	1410	537	563	858	107	219	229
4	902	915	1460	1240	1000	1380	526	638	632	112	277	137
5	957	1070	1230	1300	1050	1300	996	581	573	127	148	108
6	924	1110	1320	1350	1150	1340	1020	589	575	144	125	95
7	919	1060	1230	1400	1200	1460	1140	615	621	137	117	97
8	967	897	1150	1480	1250	1280	1110	770	609	118	109	115
9	959	840	980	1460	1300	1040	1300	1350	460	110	103	116
10	981	838	840	1400	1350	1120	1100	813	444	116	112	119
11	933	791	740	1300	1300	1020	834	504	469	132	139	158
12	880	933	660	1200	1150	1110	1070	656	466	130	198	180
13	929	789	520	1200	840	1240	965	657	449	122	215	197
14	986	1000	450	1300	540	1440	590	633	436	104	184	211
15	1030	762	380	1400	369	1330	688	592	592	92	175	210
16	1030	1150	310	1350	467	1100	719	850	1560	97	147	217
17	898	940	270	1300	580	843	712	735	848	103	129	220
18	759	993	250	1250	640	744	756	401	763	98	124	413
19	726	891	270	1200	700	564	598	884	620	107	126	500
20	895	850	330	1100	900	668	504	853	489	111	136	737
21	671	991	400	1020	1050	831	607	1010	847	103	112	685
22	835	1100	450	1000	1200	999	585	698	980	94	98	563
23	1100	1110	550	1000	1450	1020	610	818	530	90	122	511
24	1240	944	640	1000	1290	803	871	804	557	91	160	505
25	1350	1020	700	1150	1030	925	590	837	488	90	121	527
26	1480	998	780	1200	1050	996	836	823	410	88	99	514
27	1620	1080	860	1200	1210	931	748	1040	331	85	89	576
28	1520	1220	940	1150	1310	958	631	1090	248	98	88	554
29	1440	1150	980	1100	---	1080	618	825	165	107	96	497
30	1310	1730	1000	1050	---	855	713	907	143	98	91	469
31	1060	---	1000	1050	---	980	---	1050	---	92	90	---
TOTAL	32298	29699	25350	37500	28136	33357	23431	23639	17631	3354	4187	9723
MEAN	1042	990	818	1210	1005	1076	781	763	588	108	135	324
MAX	1620	1730	1690	1480	1450	1460	1300	1350	1560	144	277	737
MIN	671	761	250	1000	369	564	504	401	143	85	88	95
AC-FT	64060	58910	50280	74380	55810	66160	46480	46890	34970	6650	8300	19290

CAL YR 1989 TOTAL 257501 MEAN 705 MAX 3700 MIN 44 AC-FT 510800
WTR YR 1990 TOTAL 268305 MEAN 735 MAX 1730 MIN 85 AC-FT 532200

PLATTE RIVER BASIN

06783500 MUD CREEK NEAR SWEETWATER, NE

LOCATION.--Lat 41°02'15", long 98°59'35", in NE1/4SE1/4 sec.3, T.12 N., R.15 W., Buffalo County, Hydrologic Unit 10210005, on right bank 12 ft downstream from bridge on State Highway 2, 0.9 mi southeast of Sweetwater, and 11.6 mi upstream from mouth.

DRAINAGE AREA.--707 mi², of which 655 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July 1946 to current year.

REVISED RECORDS.--WDR NE-72: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,013.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 3 to Mar. 2. Records good except for period of estimated discharge, which is poor. Minor irrigation developments above station.

AVERAGE DISCHARGE.--44 years, 38.0 ft³/s, 27,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, about 27,000 ft³/s June 22, 1947, gage height, 23.20 ft; maximum discharge computed, 5,600 ft³/s June 24, 1968, gage height, 20.07 ft; no flow at times in 1955-56.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1929, that of June 22, 1947, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 550 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 18	1200	*1080	*15.80	No other peak greater than base discharge.			

Minimum daily discharge, 6.3 ft³/s Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	16	21	20	25	23	23	22	23	25	14	6.5
2	13	15	20	19	21	23	23	22	23	24	13	7.5
3	13	15	19	19	20	24	22	22	24	23	13	8.2
4	13	16	20	19	21	25	22	23	24	21	15	8.8
5	13	16	21	19	22	25	22	23	31	18	14	8.2
6	14	16	21	20	24	26	22	22	27	16	16	7.8
7	14	16	20	22	25	31	22	21	22	16	13	9.1
8	14	17	19	25	25	36	21	21	21	17	11	8.0
9	13	17	22	25	25	38	22	24	21	15	10	6.8
10	14	17	21	27	28	40	22	25	21	14	10	6.9
11	13	17	19	27	28	40	22	24	20	16	15	7.8
12	14	17	18	20	26	35	22	28	20	16	41	10
13	13	19	19	23	24	31	24	25	68	13	36	9.4
14	14	19	17	25	21	30	25	23	42	12	26	9.0
15	14	19	16	26	19	28	23	65	20	11	17	9.4
16	14	18	16	25	20	27	23	30	357	11	15	10
17	15	18	18	24	21	26	22	25	769	10	13	9.8
18	14	19	19	24	22	25	21	25	987	9.9	12	9.4
19	14	22	19	23	25	24	23	46	508	10	13	10
20	15	21	18	23	25	24	22	30	102	11	12	10
21	15	20	18	21	24	23	22	28	93	9.6	12	10
22	14	20	16	21	25	23	22	26	105	9.9	12	10
23	15	20	15	22	26	23	22	26	66	12	11	12
24	14	22	17	24	25	23	22	24	44	14	11	11
25	15	23	20	25	24	24	22	24	36	13	9.7	11
26	15	21	23	24	23	24	24	23	30	22	8.3	8.7
27	15	19	24	23	24	23	23	23	29	12	8.0	8.9
28	15	20	25	24	22	24	22	22	28	14	8.2	10
29	16	21	25	25	---	24	23	22	27	41	6.3	11
30	17	18	23	26	---	24	22	22	27	66	8.0	10
31	17	---	21	25	---	24	---	23	---	20	6.6	---
TOTAL	442	554	610	715	660	840	672	809	3615	542.4	430.1	275.2
MEAN	14.3	18.5	19.7	23.1	23.6	27.1	22.4	26.1	120	17.5	13.9	9.17
MAX	17	23	25	27	28	40	25	65	987	66	41	12
MIN	13	15	15	19	19	23	21	21	20	9.6	6.3	6.5
AC-FT	877	1100	1210	1420	1310	1670	1330	1600	7170	1080	853	546

CAL YR 1989 TOTAL 8382.3 MEAN 23.0 MAX 229 MIN 4.1 AC-FT 16630
WTR YR 1990 TOTAL 10164.7 MEAN 27.8 MAX 987 MIN 6.3 AC-FT 20160

PLATTE RIVER BASIN

06784000 SOUTH LOUP RIVER AT ST. MICHAEL, NE

LOCATION.--Lat 41°01'53", long 98°44'25", in NW1/4NW1/4 sec.12, T.12 N., R.13 W., Buffalo County, Hydrologic Unit 10210004, 5 ft downstream and 30 ft shoreward from right downstream corner of county highway bridge, 0.6 mi northeast of St. Michael, and 3.4 mi upstream from Sweet Creek.

DRAINAGE AREA.--2,350 mi², approximately, of which about 1,610 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WDR NE-74: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,921.26 ft above National Geodetic Vertical Datum of 1929.

Prior to June 22, 1947, water-stage recorder, and June 25 to Sept. 30, 1947, nonrecording gage, at present site at datum 2.00 ft higher. Oct. 1, 1947 to July 3, 1958, nonrecording gage at present site and datum. July 4, 1958 to Sept. 7, 1960, water-stage recorder at site 600 ft upstream at present datum. Sept. 8, 1960 to June 24, 1968, water-stage recorder at site 100 ft upstream at present datum. June 25 to Nov. 21, 1968, nonrecording gage at present site and datum. Nov. 22, 1968 to May 19, 1981, water-stage recorder at site 40 ft upstream at present datum. May 20 to July 16, 1981, water-stage recorder at site 70 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan 20, Jan. 23-29, Feb. 5-8, 16-23, and Mar. 6,7. Records good except for periods of estimated record, which are poor. Minor irrigation developments above station.

AVERAGE DISCHARGE.--47 years, 236 ft³/s, 171,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, about 50,000 ft³/s June 22, 1947, gage height, 12.0 ft, present datum, from graph based on gage readings; maximum discharge computed, 27,500 ft³/s June 24, 1968, gage height, 11.00 ft; no flow Aug. 5-8, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,020 ft³/s June 17, gage height, 5.46 ft; minimum daily, 53 ft³/s July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	169	193	190	164	215	219	190	229	136	118	73
2	130	164	231	195	134	206	210	197	245	121	112	74
3	132	160	209	200	139	197	201	202	226	109	112	70
4	139	162	212	195	170	197	198	213	253	100	123	72
5	147	161	238	195	190	197	210	209	266	94	126	73
6	143	158	229	195	210	239	207	205	230	94	126	64
7	146	157	197	200	220	281	206	196	196	92	114	63
8	148	157	171	210	230	320	204	193	184	88	101	67
9	148	153	197	215	240	325	200	241	189	79	96	69
10	149	151	224	210	241	291	201	240	174	83	93	65
11	149	152	200	220	251	305	212	240	171	90	118	67
12	147	145	180	210	236	310	205	246	158	90	326	70
13	147	145	190	200	213	307	209	260	165	77	472	73
14	147	149	185	215	152	298	222	242	246	68	406	68
15	147	154	160	215	80	281	218	286	174	63	438	69
16	146	147	140	215	120	257	212	359	625	61	295	69
17	147	152	145	205	140	235	204	278	1660	60	261	75
18	147	176	145	205	160	226	193	218	1410	55	222	94
19	148	206	118	202	170	208	202	269	1180	53	222	103
20	149	206	125	190	185	199	204	301	556	60	201	118
21	151	182	125	153	190	194	207	271	507	67	181	118
22	152	174	120	174	200	191	209	248	633	71	171	121
23	154	173	115	200	205	204	213	244	407	75	162	106
24	156	179	140	195	217	201	212	219	295	66	152	105
25	158	187	160	190	204	204	214	221	246	70	144	101
26	165	212	190	190	202	211	214	198	212	95	127	94
27	164	183	200	200	202	208	215	183	189	91	103	85
28	168	168	210	190	209	202	209	168	173	75	88	81
29	173	166	200	190	---	215	199	161	158	80	84	81
30	174	172	190	190	---	216	194	282	145	184	80	82
31	169	---	195	181	---	222	---	226	---	186	78	---
TOTAL	4675	5020	5534	6135	5274	7362	6223	7206	11502	2733	5452	2470
MEAN	151	167	179	198	188	237	207	232	383	88.2	176	82.3
MAX	174	212	238	220	251	325	222	359	1660	186	472	121
MIN	130	145	115	153	80	191	193	161	145	53	78	63
AC-FT	9270	9960	10980	12170	10460	14600	12340	14290	22810	5420	10810	4900

CAL YR 1989 TOTAL 71692 MEAN 196 MAX 1910 MIN 73 AC-FT 142200
WTR YR 1990 TOTAL 69586 MEAN 191 MAX 1660 MIN 53 AC-FT 138000

PLATTE RIVER BASIN

06784000 SOUTH LOUP RIVER AT ST. MICHAEL, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1974 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: June 1946 to June 1953.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 19,300 mg/L June 19, 1946; minimum daily, 13 mg/L Dec. 30, 31, 1951.

SEDIMENT LOADS: Maximum daily, 672,000 tons June 22, 1947; minimum daily, 6.1 tons Dec. 30, 31, 1951.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT						
25...	1040	156	394	8.3	14.0	9.9
NOV						
21...	1120	176	450	8.5	3.5	12.8
DEC						
19...	1135	118	495	7.9	0.5	8.9
JAN						
19...	1115	202	430	8.5	0.5	13.0
FEB						
12...	1055	236	430	8.5	5.0	11.9
MAR						
12...	1100	310	442	8.4	12.0	9.9
APR						
09...	1120	196	433	8.5	13.0	10.8
MAY						
11...	1100	241	412	8.6	14.5	10.6
JUN						
07...	1345	194	415	8.5	22.5	8.4
JUL						
02...	1110	124	414	8.7	29.0	8.9
27...	1050	92	334	8.7	26.5	9.7
AUG						
29...	1100	90	387	8.7	26.5	8.6
SEP						
26...	1100	96	399	8.7	18.5	10.1

DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINIT LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
MAR											
12...	1100	25	200	64	10	14	0.4	11	199	20	5.9
JUL											
27...	1050	47	140	43	7.6	10	0.4	10	158	15	5.7

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
MAR										
12...	0.20	46	294	0.40	246	0.900	0.210	40	26	10
JUL										
27...	0.40	42	228	0.31	56.8	<0.100	0.140	50	10	1

PLATTE RIVER BASIN

06784200 SHERMAN RESERVOIR NEAR LOUP CITY, NE

LOCATION.--Lat 41°18'10", long 98°52'45", in SW1/4NW1/4 sec.1, T.15 N., R.14 W., Sherman County, Hydrologic Unit 10210003, in control house of outlet works of Sherman Dam, 5 mi northeast of Loup City.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Mercury-column pressure gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure date of dam, August 1960. First diversions from Middle Loup River, Nov. 8, 1962. Usable capacity, 65,237 acre-ft between elevations 2,118.5 ft, sill of canal outlet works, and 2,162.3 ft, crest of spillway. Dead and inactive storage, 3,839 acre-ft below elevation 2,118.5 ft. Figures given herein represent total contents. Water is used for irrigation of Farwell Unit of Bureau of Reclamation.

COOPERATION.--Records of elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 70,810 acre-ft June 25, 1989, elevation, 2,162.9 ft; minimum observed since appreciable storage was attained, 9,450 acre-ft Aug. 2, 1980, elevation, 2,127.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 69,940 acre-ft June 17, elevation, 2,162.6 ft; minimum observed, 37,160 acre-ft Sept. 7, elevation, 2148.9 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,158.1	57,690	-
Oct. 31	2,157.3	55,670	-2,020
Nov. 30	2,156.6	53,940	-1,730
Dec. 31	2,156.1	52,720	-1,220
CAL YR 1989	-	-	+950
Jan. 31	2,155.7	51,770	-950
Feb. 28	2,155.3	50,820	-950
Mar. 31	2,155.2	50,580	-240
Apr. 30	2,157.9	57,180	+6,600
May 31	2,162.3	69,080	+11,900
June 30	2,162.4	69,360	+280
July 31	2,153.7	47,140	-22,220
Aug. 31	2,150.0	39,310	-7,830
Sept. 30	2,154.6	49,190	+9,880
WTR YR 1990	-	-	-8,500

PLATTE RIVER BASIN

06784800 TURKEY CREEK NEAR DANNEBROG, NE

LOCATION.--Lat 41°09'24", long 98°33'22", in SW1/4NW1/4 sec.26, T.14 N., R.11 W., Howard County, Hydrologic Unit 10210003, on left bank 25 ft downstream from bridge on State Highway 11, 2.8 mi north of Dannebrog, and 10 mi upstream from mouth.

DRAINAGE AREA.--66.2 mi².

PERIOD OF RECORD.--May 1966 to September 1970, October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,870.35 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Estimated daily discharges: Nov. 24-26, Dec. 2, 10-12, 16-20, 23-26, Jan. 1, 9, 10, 12, 21, 24, 26, 27, 30, and Feb. 1, 6-9. Records good except for periods of estimated record, which are poor. Low flow includes return water from Farwell Irrigation District.

AVERAGE DISCHARGE.--12 years (1979-90), 21.2 ft³/s, 15,360 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,680 ft³/s June 14, 1967, gage height, 19.21 ft; maximum gage height, 19.26 ft June 12, 1983; no flow May 17-20, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,310 ft³/s June 15, gage height, 17.07 ft; minimum daily, 6.7 ft³/s Dec. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	10	7.9	7.2	8.2	8.0	11	7.4	13	17	29	31
2	7.8	9.8	7.8	7.3	8.2	8.5	10	7.4	43	17	33	29
3	7.7	9.7	7.6	7.5	7.7	8.6	9.8	7.7	26	16	30	28
4	7.9	11	8.4	7.5	7.5	8.4	9.8	9.1	13	17	39	26
5	8.4	11	9.2	7.1	8.1	8.6	9.7	8.4	12	28	29	27
6	8.6	11	10	7.5	8.1	11	9.1	7.9	11	33	28	24
7	8.1	9.5	8.9	7.7	8.2	40	9.1	7.8	11	32	24	24
8	8.0	9.5	7.1	8.2	8.2	76	9.4	7.5	18	30	25	18
9	8.3	9.5	7.3	8.4	8.3	36	9.7	18	13	31	24	14
10	8.1	9.5	7.3	8.4	8.4	21	11	15	10	38	30	15
11	8.6	8.9	7.3	8.4	9.2	21	9.5	11	9.5	43	39	14
12	8.5	9.1	7.4	8.2	9.6	20	9.2	11	9.6	39	58	9.4
13	8.4	8.3	7.4	7.6	9.3	20	11	10	66	37	51	8.2
14	8.4	8.3	7.0	8.1	8.8	25	11	9.8	39	41	33	7.8
15	8.7	8.3	6.9	8.4	8.5	17	11	193	895	37	28	7.4
16	8.8	7.8	7.2	8.8	8.3	15	10	47	831	31	21	7.3
17	7.2	8.4	7.4	8.9	8.0	13	9.4	19	304	27	18	7.2
18	7.2	8.4	7.6	8.4	8.1	12	9.1	17	51	33	17	7.7
19	7.4	8.5	7.9	7.9	7.9	11	9.6	45	38	54	18	8.0
20	7.8	8.4	8.1	8.1	8.0	11	9.7	25	34	73	18	8.7
21	8.5	7.8	7.9	8.5	8.4	11	9.4	21	37	59	14	8.5
22	8.5	7.7	7.8	8.8	9.1	11	9.0	17	124	48	21	7.6
23	8.1	7.6	7.8	8.5	8.9	11	8.9	16	36	42	27	7.4
24	7.7	7.6	7.8	8.4	8.9	10	8.8	18	29	33	32	7.6
25	7.8	8.0	7.8	8.2	8.1	11	8.5	17	27	26	34	7.5
26	8.9	8.0	7.8	8.0	7.7	11	8.3	15	95	40	33	7.3
27	14	8.0	7.7	7.9	8.2	11	8.1	14	30	38	35	7.2
28	12	7.9	7.2	7.8	8.2	11	7.8	13	22	64	34	6.9
29	11	7.8	7.2	8.0	---	12	7.7	13	20	254	34	6.9
30	11	7.7	6.7	8.2	---	12	7.8	13	18	65	32	6.9
31	10	---	7.0	8.2	---	12	---	13	---	38	32	---
TOTAL	269.0	263.0	238.4	250.1	234.1	514.1	282.4	654.0	2885.1	1381	920	395.5
MEAN	8.68	8.77	7.69	8.07	8.36	16.6	9.41	21.1	96.2	44.5	29.7	13.2
MAX	14	11	10	8.9	9.6	76	11	193	895	254	58	31
MIN	7.2	7.6	6.7	7.1	7.5	8.0	7.7	7.4	9.5	16	14	6.9
AC-FT	534	522	473	496	464	1020	560	1300	5720	2740	1820	784

CAL YR 1989 TOTAL 5664.7 MEAN 15.5 MAX 377 MIN 5.4 AC-FT 11240

WTR YR 1990 TOTAL 8286.7 MEAN 22.7 MAX 895 MIN 6.7 AC-FT 16440

PLATTE RIVER BASIN

06785000 MIDDLE LOUP RIVER AT ST. PAUL, NE

LOCATION.--Lat 41°12'13", long 98°26'46", in SE1/4NW1/4NE1/4 sec.10, T.14 N., R.10 W., Howard County, Hydrologic Unit 10210003, on left bank at St. Paul, 20 ft upstream from bridge on U.S. Highway 281 and 6 mi upstream from confluence with North Loup River.

DRAINAGE AREA.--8,090 mi², approximately, of which about 3,130 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1894 to September 1915, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1036: 1943. WSP 1390: 1896, 1903, 1928(M), 1944. WDR NE-72: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,776.61 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to June 5, 1957. June 5, 1957, to Mar. 16, 1978, water-stage recorder on left bank 430 ft upstream at same datum. Mar. 17 to May 31, 1978, nonrecording gage on railroad bridge 30 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 11 to Feb. 15 and Feb. 18-23. Records fair except for periods of estimated record, which are poor. Diversions above station for irrigation.

AVERAGE DISCHARGE.--83 years, 1,192 ft³/s, 863,600 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft³/s June 23, 1947, gage height, 12.69 ft, site then in use, present datum, from rating curve extended above 55,000 ft³/s; minimum daily since 1929, 23 ft³/s Aug. 9, 10, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,420 ft³/s June 16, gage height, 4.61, ft; maximum gage height, 6.00 ft Jan. 21, ice jam; minimum daily discharge, 233 ft³/s July 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1330	1330	1500	1500	1450	1540	653	700	1150	453	555	286
2	1400	1230	1520	1550	1400	1440	628	619	1230	406	519	299
3	1310	1180	1490	1650	1300	1610	819	643	1410	335	627	318
4	858	1180	1510	1700	1400	1660	1080	753	1240	261	797	385
5	1030	1300	1550	1800	1450	1730	1080	771	962	233	875	431
6	1050	1260	1560	1900	1550	1650	1200	696	978	293	812	332
7	1100	1240	1400	2000	1600	1840	1260	644	937	327	654	290
8	1150	1240	1320	2100	1600	1640	1220	670	1030	267	547	272
9	1170	1320	1400	2200	1600	1280	1000	1090	966	253	519	256
10	1150	1350	1430	2200	1500	996	994	1210	843	268	500	269
11	1220	1270	1100	2200	1400	1440	1110	834	648	301	515	285
12	1250	1280	950	2100	1200	1320	1080	790	729	353	808	280
13	1310	1320	800	1900	1000	1280	975	818	922	403	1670	328
14	1280	1570	650	1900	920	1250	821	754	1020	395	790	330
15	1330	1390	380	2000	780	1070	834	1120	2570	343	1040	364
16	1390	1200	440	2050	580	897	1030	1200	4360	358	748	383
17	1800	1050	560	2100	649	723	832	976	4890	304	818	366
18	1320	922	460	2050	780	623	905	989	3180	276	623	447
19	1220	855	500	1950	1050	721	893	1090	2300	308	512	564
20	1290	965	430	1800	1500	974	825	1250	1190	427	482	863
21	1270	852	330	1700	1700	1050	824	1000	789	394	453	902
22	1520	777	270	1600	1900	970	710	1000	1060	356	538	984
23	1620	859	350	1600	2100	922	778	994	746	346	441	917
24	1530	875	540	1700	2200	1100	797	1300	536	342	428	867
25	1560	890	740	1750	1640	1120	1100	1260	465	359	546	867
26	1550	1060	900	1800	1480	1280	788	1280	603	729	523	848
27	1750	1360	1000	1800	1550	1400	1010	1300	519	526	501	847
28	1720	1450	1100	1750	1490	1350	1070	1390	570	482	433	833
29	1610	1520	1200	1650	---	975	992	1460	666	691	302	821
30	1640	1630	1300	1650	---	755	856	1380	584	856	292	842
31	1390	---	1400	1500	---	626	---	1340	---	828	286	---
TOTAL	42118	35725	30080	57150	38769	37232	28164	31321	39093	12473	19154	16076
MEAN	1359	1191	970	1844	1385	1201	939	1010	1303	402	618	536
MAX	1800	1630	1560	2200	2200	1840	1260	1460	4890	856	1670	984
MIN	858	777	270	1500	580	623	628	619	465	233	286	256
AC-FT	83540	70860	59660	113400	76900	73850	55860	62130	77540	24740	37990	31890

CAL YR 1989 TOTAL 398543 MEAN 1092 MAX 5000 MIN 250 AC-FT 790500
WTR YR 1990 TOTAL 387355 MEAN 1061 MAX 4890 MIN 233 AC-FT 768300

PLATTE RIVER BASIN
06785000 MIDDLE LOUP RIVER AT ST. PAUL, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT 19...	1030	1230	275	8.3	4.0	13.1
NOV 13...	1415	1380	272	8.3	8.5	11.0
DEC 05...	1115	1560	269	8.1	2.0	13.5
JAN 02...	1115	1550	287	7.8	0.5	11.9
MAR 30...	1100	1630	261	8.2	0.0	14.8
APR 27...	1015	1420	300	8.2	4.0	11.3
MAY 24...	1100	816	310	8.4	18.0	9.1
JUN 23...	1100	902	333	8.3	23.0	9.1
JUL 19...	1445	2600	293	7.9	27.0	6.0
AUG 17...	1145	292	367	8.7	24.0	8.4
SEP 14...	1045	735	309	8.4	22.5	7.4
SEP 11...	1045	302	358	8.5	22.0	--

DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
MAR 27...	1015	8	130	41	6.8	11	0.4	7.5	136	13	2.4
JUL 17...	1145	25	160	50	9.5	12	0.4	11	173	13	5.3

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
MAR 27...	0.30	52	219	0.30	838	0.700	0.210	30	19	6
JUL 17...	0.30	50	256	0.35	202	0.200	0.170	50	<3	5

PLATTE RIVER BASIN

06786000 NORTH LOUP RIVER AT TAYLOR, NE

LOCATION.--Lat 41°46'37", long 99°22'45", in NE1/4SE1/4 sec.22, T.21 N., R.18 W., Loup County, Hydrologic Unit 10210006, on left bank 64 ft downstream from bridge on U.S. Highway 183 and 0.4 mi north of Taylor.

DRAINAGE AREA.--2,280 mi², approximately, of which about 180 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--November 1936 to current year.

REVISED RECORDS.--WSP 856: 1937. WSP 1310: 1939(M). WSP 1730: 1956-57(M). WSP 1918: 1952. WDR NE-72: Drainage area. WDR NE-75: 1974.

GAGE.--Water-stage recorder. Datum of gage is 2,248.21 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 28, 1938, nonrecording gage at same site and datum. Sept. 28, 1938, to July 16, 1958, water-stage recorder at site 450 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 15 to Jan. 25 and Feb. 3-5. Records good except for periods of estimated record, which are fair. North Loup Public Power and Irrigation District canal began diversion from river in April 1939 at point 5 mi above station. Several smaller diversions above station for irrigation.

AVERAGE DISCHARGE.--53 years (1937-90), 471 ft³/s, 341,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,210 ft³/s June 27, 1983, gage height, 5.94 ft; maximum gage height, 9.5 ft Feb. 25, 1957, ice jam, from floodmarks; minimum daily discharge, 45 ft³/s July 26, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft³/s May 28, gage height, 4.67 ft; maximum gage height, Feb. 3, 6.87 ft, backwater from ice; minimum daily, 155 ft³/s July 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	483	470	484	640	554	552	500	496	602	228	247	217
2	459	485	477	630	516	577	500	490	677	216	367	342
3	463	479	471	630	500	569	512	493	862	167	349	250
4	469	511	501	630	500	532	517	513	742	155	334	199
5	467	516	550	630	530	535	511	483	665	170	331	192
6	461	503	560	630	594	549	491	494	646	184	305	213
7	471	513	507	630	554	670	471	482	628	196	293	229
8	478	491	489	630	535	688	471	606	602	196	262	248
9	506	503	504	630	538	672	525	739	573	212	233	276
10	488	539	510	630	483	657	535	763	541	337	231	280
11	479	545	394	630	592	727	462	565	494	366	300	327
12	472	543	198	630	624	791	467	534	450	325	323	308
13	487	528	300	645	528	807	513	568	412	310	289	314
14	493	509	430	660	403	724	533	531	404	255	270	328
15	496	491	225	800	411	640	529	517	438	223	246	331
16	493	425	230	700	375	540	536	589	480	201	237	331
17	485	472	270	660	397	512	496	581	503	184	237	354
18	505	479	320	680	584	467	473	542	464	181	250	418
19	498	515	340	600	707	439	468	604	439	226	253	432
20	483	559	335	560	742	486	471	639	403	286	263	475
21	503	529	330	600	712	509	497	639	604	343	270	454
22	544	517	310	660	694	520	512	590	600	324	279	432
23	552	516	310	660	638	483	503	566	483	297	451	403
24	568	533	320	650	635	505	523	543	437	283	678	413
25	574	532	350	620	589	499	555	539	396	281	425	426
26	606	522	450	657	574	502	606	616	412	265	364	471
27	608	508	540	644	501	552	644	839	360	240	284	511
28	588	458	580	598	497	527	532	937	314	242	244	497
29	586	453	610	599	---	505	539	723	268	279	234	511
30	537	495	620	600	---	509	587	685	244	272	226	521
31	519	---	630	614	---	507	---	653	---	276	207	---
TOTAL	15821	15139	13145	19777	15507	17752	15479	18559	15143	7720	9282	10703
MEAN	510	505	424	638	554	573	516	599	505	249	299	357
MAX	608	559	630	800	742	807	644	937	862	366	678	521
MIN	459	425	198	560	375	439	462	482	244	155	207	192
AC-FT	31380	30030	26070	39230	30760	35210	30700	36810	30040	15310	18410	21230

CAL YR 1989 TOTAL 170503 MEAN 467 MAX 1100 MIN 101 AC-FT 338200
WTR YR 1990 TOTAL 174027 MEAN 477 MAX 937 MIN 155 AC-FT 345200

PLATTE RIVER BASIN

06787300 CALAMUS RESERVOIR NEAR BURWELL, NE

LOCATION.--Lat 41°49'38", long 99°13'11", in SW1/4SW1/4 sec.31, T.22 N., R.16W., Garfield County, Hydrologic Unit 1021008, near right bank in control house of outlet works of Calamus Dam on Calamus River, 4 mi upstream from mouth, 5.5 mi northwest of Burwell.

DRAINAGE AREA.--1,050 mi², approximately, of which about 110 mi² contributes directly to surface runoff.

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

GAGE.--Fluid gage with continuous recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; storage began Oct. 1, 1985. Usable capacity, 102,750 acre-ft between elevations 2213.3 ft, bottom of conservation pool, and 2244.0 ft, top of inlet structure; inactive capacity, 23,830 acre-ft between elevations 2185.0 ft, sill of outlet gate, and 2213.3 ft. Dead storage 817 acre-ft below elevation 2185.0 ft. Figures given herein represent total contents. Water is used for irrigation of North Loup project of Bureau of Reclamation.

COOPERATION.--Records of elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 131,100 acre-ft June 25, 1988, elevation, 2244.71 ft; minimum observed since appreciable storage was attained, 84,770 acre-ft Oct. 17, 1988, elevation 2235.04 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 125,400 acre-ft May 9, June 2, elevation, 2243.60 ft; minimum observed, 94,970 acre-ft Sept. 30, elevation, 2237.05 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,239.00	103,400	-
Oct. 31	2,239.44	105,400	+2,000
Nov. 30	2,239.71	106,600	+1,200
Dec. 31	2,239.73	106,700	+100
CAL YR 1989	-	-	-6,100
Jan. 31	2,239.75	106,800	+100
Feb. 28	2,239.82	107,100	+300
Mar. 31	2,241.08	113,000	+5,900
Apr. 30	2,243.05	122,600	+9,600
May 31	2,243.55	125,100	+2,500
June 30	2,243.45	124,600	-500
July 31	2,240.16	108,700	-15,900
Aug. 31	2,238.39	100,700	-8,000
Sept. 30	2,237.05	94,970	-5,730
WTR YR 1990	-	-	-8,430

PLATTE RIVER BASIN

06787500 CALAMUS RIVER NEAR BURWELL, NE

LOCATION.--Lat 41°48'35", long 99°10'56", in NW1/4NW1/4 sec.9, T.21 N., R.16 W., Garfield County, Hydrologic Unit 10210008, on left bank 20 ft downstream from highway bridge, 1.1 mi downstream from Calamus Dam, 1.5 mi upstream from mouth, and 3 mi northwest of Burwell.

DRAINAGE AREA.--1,060 mi², approximately, of which about 110 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WSP 1918: 1958. WDR NE-72: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,156.48 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Apr. 20, 1945, nonrecording gage at site 20 ft upstream; Apr. 21, 1945 to Jan. 28, 1964, water-stage recorder at site 400 ft downstream; Jan. 29, 1964 to Oct. 4, 1977, water-stage recorder at site 230 ft downstream; and Oct. 5, 1977 to July 30, 1985, water-stage recorder at site 190 ft downstream, all at present datum.

REMARKS.--Estimated daily discharges: Oct. 28-30, Dec. 11, 15, 21, 22, and Sept. 21-24. Records good except for periods of estimated record, which are fair. Diversions for irrigation above station, and since Oct. 1, 1985, flow regulated by the Calamus Dam.

AVERAGE DISCHARGE.--5 years (water years 1986-90), 263 ft³/s, 190,500 acre-ft/yr. Average discharge prior dam closure: 45 years (water years 1941-85), 305 ft³/s, 221,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,790 ft³/s May 4, 1964, gage height, 4.35 ft; maximum gage height, 5.90 ft Jan. 26, 1967, backwater from ice; minimum daily discharge, 13 ft³/s Apr. 27, 1986, Oct. 8-10, 1987, due to temporary closure of Calamus Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 392 ft³/s May 16, gage height, 1.97 ft; maximum gage height, 2.31 ft, Dec. 15, backwater from ice; minimum daily discharge, 18 ft³/s Nov. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	259	259	268	285	307	299	143	102	344	302	298	319
2	247	258	265	285	304	296	146	102	332	302	300	330
3	219	132	269	289	304	298	147	102	315	302	321	335
4	196	22	271	293	303	297	142	102	261	280	321	334
5	183	18	283	293	301	302	139	101	256	269	307	305
6	189	86	285	300	299	303	140	102	268	283	287	279
7	216	278	281	300	297	296	131	115	278	288	290	284
8	246	277	281	302	295	303	128	140	277	286	293	286
9	249	300	276	300	300	290	126	261	271	287	292	286
10	246	314	282	300	305	288	124	268	261	286	294	284
11	253	315	300	301	307	294	96	289	255	303	292	292
12	252	316	279	300	307	277	101	311	250	317	301	296
13	253	314	262	296	303	300	104	318	236	320	305	285
14	253	316	256	293	304	309	104	338	205	318	306	267
15	249	311	270	300	294	307	104	363	190	316	307	266
16	245	293	246	309	282	304	102	379	217	318	308	260
17	238	281	239	304	288	288	103	360	201	310	305	260
18	235	281	240	308	294	244	104	337	183	301	291	270
19	235	281	245	310	303	186	102	366	174	294	279	272
20	237	280	243	309	308	170	101	330	173	291	281	274
21	240	281	265	317	306	170	102	293	203	289	284	274
22	239	276	260	317	307	166	103	280	232	294	287	276
23	249	279	240	320	309	157	103	276	241	297	285	278
24	253	278	237	320	309	152	103	277	243	297	292	280
25	256	276	237	318	306	152	101	276	228	297	296	275
26	257	278	243	320	301	153	100	277	221	297	312	277
27	248	269	254	318	296	155	101	289	220	298	320	275
28	266	255	261	320	299	154	101	344	225	296	321	275
29	266	262	267	320	---	151	103	364	223	298	318	274
30	266	270	279	319	---	149	100	373	267	297	319	275
31	263	---	283	316	---	149	---	373	---	294	316	---
TOTAL	7503	7656	8167	9482	8438	7359	3404	8208	7250	9227	9328	8543
MEAN	242	255	263	306	301	237	113	265	242	298	301	285
MAX	266	316	300	320	309	309	147	379	344	320	321	335
MIN	183	18	237	285	282	149	96	101	173	269	279	260
AC-FT	14880	15190	16200	18810	16740	14600	6750	16280	14380	18300	18500	16950

CAL YR 1989 TOTAL 92304 MEAN 253 MAX 428 MIN 18 AC-FT 183100
WTR YR 1990 TOTAL 94565 MEAN 259 MAX 379 MIN 18 AC-FT 187600

PLATTE RIVER BASIN

06788500 NORTH LOUP RIVER AT ORD. NE

LOCATION.--Lat 41°36'27", long 98°55'17", in SW1/4NW1/4 sec.22, T.19 N., R.14 W., Valley County, Hydrologic Unit 10210007, on right bank 150 ft downstream from bridge on State Highway 70 at Ord.

DRAINAGE AREA.--3,750 mi², approximately, of which about 700 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--November 1936 to September 1938 (published as "near Ord"), June 1952 to current year.

REVISED RECORDS.--WSP 1730: 1957(M). WDR NE-74: Drainage area. WDR NE-75: 1974.

GAGE.--Water-stage recorder. Datum of gage is 2,012.14 ft above National Geodetic Vertical Datum of 1929. Nov. 25, 1936, to Sept. 30, 1938, nonrecording gage at site 2 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 16 to Jan. 15 and Feb. 1, 16. Records good except for periods of estimated record, which are poor. Diversions above stations for irrigation. Flow includes return water from North Loup irrigation project.

AVERAGE DISCHARGE.--39 years (1937-38, 1952-90), 887 ft³/s, 642,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s June 7, 1962, gage height, 5.52 ft; maximum gage height, 6.56 ft Jan. 16, 1981, ice jam; minimum daily discharge, 100 ft³/s Jan. 3, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,600 ft³/s Jan. 10, gage height, 3.93 ft, backwater from ice; Maximum gage height, 4.24 ft, Dec. 23, backwater from ice; minimum daily, 230 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	841	826	918	960	720	984	867	800	1010	632	506	544
2	831	771	959	920	758	1080	904	695	1040	606	666	599
3	810	761	914	960	789	1140	894	691	1100	569	751	665
4	788	614	894	990	833	1130	842	717	1180	469	852	565
5	811	649	931	1080	985	1140	839	672	946	446	780	537
6	792	675	995	1120	1090	1170	881	658	910	483	747	496
7	793	857	1000	1100	1100	1350	862	669	937	515	684	496
8	796	896	977	1300	1030	1440	826	715	941	498	671	529
9	817	905	958	1450	961	1380	846	1020	899	489	618	545
10	847	937	955	1600	958	1320	942	1100	863	501	593	591
11	843	969	884	1560	956	1320	876	1030	819	598	602	632
12	834	974	749	1500	1010	1360	763	969	779	638	661	618
13	843	936	720	1400	962	1360	824	1020	731	623	693	606
14	859	973	708	1400	806	1380	827	1060	712	622	658	592
15	858	960	352	1350	682	1320	836	1020	740	556	658	607
16	812	853	300	1160	670	1220	843	1080	1030	522	620	610
17	774	890	480	1020	744	1180	868	1090	949	499	576	628
18	779	912	430	1050	871	1100	851	1030	799	487	585	734
19	783	963	440	971	1040	979	836	1080	738	502	613	756
20	753	955	350	881	1100	903	824	1060	688	566	628	758
21	733	940	280	879	1120	890	840	1090	964	569	637	796
22	777	895	230	1040	1050	894	875	991	1050	614	620	792
23	800	938	320	1050	1020	925	888	948	866	634	694	751
24	822	958	500	1050	1040	856	1110	941	784	619	822	736
25	838	897	740	961	994	829	761	950	768	584	934	727
26	873	902	1000	981	1020	823	782	926	724	571	766	768
27	915	874	1060	1050	1030	811	856	1040	730	574	719	874
28	939	878	1080	990	993	806	920	1210	686	559	643	823
29	1000	864	1060	1000	---	851	819	1180	647	556	596	796
30	907	912	1000	925	---	851	823	1080	605	591	563	806
31	843	---	1000	812	---	881	---	1090	---	536	541	---
TOTAL	25711	26334	23184	34510	26332	33673	25725	29622	25635	17228	20697	19977
MEAN	829	878	748	1113	940	1086	857	956	854	556	668	666
MAX	1000	974	1080	1600	1120	1440	1110	1210	1180	638	934	874
MIN	733	614	230	812	670	806	761	658	605	446	506	496
AC-FT	51000	52230	45990	68450	52230	66790	51030	58760	50850	34170	41050	39620
CAL YR 1989	TOTAL 303360											
WTR YR 1990	TOTAL 308628											
MEAN 831	MEAN 846											
MAX 2400	MAX 1600											
MIN 230	MIN 230											
AC-FT 601700	AC-FT 612200											

PLATTE RIVER BASIN

06788988 MIRA CREEK NEAR NORTH LOUP, NE

LOCATION.--Lat 41°30'09", long 98°47'47", in NW1/4SE1/4 sec.27, T.18 N., R.13 W., Valley County, Hydrologic Unit 10210007, on left bank near county road 1.4 mi northwest of North Loup.

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

REVISED RECORDS.--WDR NE-83-1: 1982(M).

GAGE.--Water-stage recorder. Datum of gage is 1,964.41 ft above National Geodetic Vertical Datum of 1929, (levels by Nebraska Department of Roads).

REMARKS.--No estimated daily discharges. Records fair.

AVERAGE DISCHARGE.--11 years, 2.55ft³/s, 1,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,460 ft³/s Aug. 5, 1981, gage height, 10.56 ft, from floodmark, from rating curve extended above 200 ft³/s on basis of indirect measurement of peak flow; no flow at times in 1980-81.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23 ft³/s and maximim (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	0430	*2410	*9.28	June 21	1330	343	4.39
June 16	2400	1900	8.35	July 28	2400	46	2.58

Minimum daily discharge, 0.03 ft³/s, Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	.27	.38	.35	.52	.52	.71	.28	.22	3.9	2.9	1.6
2	2.2	.22	.34	.39	.43	.52	.62	.25	.24	3.8	4.4	2.8
3	1.9	.24	.35	.47	.41	.52	.59	.23	.28	3.9	3.8	3.2
4	1.8	.30	.36	.44	.44	.53	.59	.78	.29	3.5	3.4	3.4
5	1.4	.33	.41	.39	.51	.54	.58	.32	.30	3.4	2.9	3.3
6	1.1	.25	.42	.39	.61	.76	.56	.30	.25	3.3	3.3	2.6
7	.88	.21	.35	.41	.68	2.8	.53	.26	.39	3.7	2.7	1.8
8	.79	.16	.26	.94	.70	5.3	.52	.22	.37	3.9	2.4	1.2
9	.83	.31	.28	.91	.69	4.6	.49	1.8	.35	3.8	2.1	.67
10	.66	.33	.27	.79	.77	3.3	.66	1.8	.33	3.7	2.0	.47
11	.44	.30	.18	.71	.83	3.0	.63	1.0	.24	4.4	4.8	.43
12	.44	.27	.16	.58	.95	2.7	.57	.53	.20	4.6	6.0	.51
13	.39	.24	.17	.55	.73	1.8	.61	.39	.18	4.8	3.3	.75
14	.42	.26	.13	.58	.56	1.4	.62	.30	.20	5.0	3.9	.17
15	.28	.28	.12	.56	.55	1.2	.48	.33	27	4.4	4.1	.27
16	.26	.26	.10	.61	.56	1.0	.41	.31	1330	4.1	4.0	.32
17	.27	.26	.11	.64	.56	.74	.39	.86	632	3.6	3.3	.34
18	.24	.55	.12	.64	.60	.63	.41	.51	202	3.2	2.7	.39
19	.20	.74	.11	.62	.52	.51	.45	.45	54	3.6	2.6	.30
20	.19	.65	.13	.40	.53	.48	.49	2.3	20	3.8	2.8	.59
21	.23	.65	.11	.69	.56	.53	.39	.61	147	3.9	3.3	1.1
22	.26	.66	.03	.68	.64	.56	.35	.32	101	3.9	3.1	1.7
23	.23	.67	.05	.73	.75	.56	.35	.53	40	4.0	3.0	2.8
24	.22	1.2	.13	.70	.75	.64	1.9	.42	17	3.8	1.9	3.2
25	.20	1.5	.33	.65	.56	.69	.46	.42	10	3.9	1.8	3.6
26	.22	1.1	.39	.67	.54	.70	1.3	.34	7.8	4.1	1.7	4.1
27	.34	.33	.39	.65	.56	.65	1.2	.41	5.1	4.3	2.2	4.0
28	.31	.52	.41	.61	.55	.64	.78	.40	4.6	12	2.9	4.1
29	.30	.40	.42	.63	---	.77	.71	.30	4.3	16	3.0	4.1
30	.29	.44	.48	.60	---	.80	.42	.25	3.8	3.4	2.2	4.0
31	.28	---	.45	.61	---	.82	---	.24	---	3.1	2.3	---
TOTAL	20.27	13.90	7.94	18.59	17.06	40.21	18.77	17.46	2609.44	140.8	94.8	57.81
MEAN	.65	.46	.26	.60	.61	1.30	.63	.56	87.0	4.54	3.06	1.93
MAX	2.7	1.5	.48	.94	.95	5.3	1.9	2.3	1330	16	6.0	4.1
MIN	.19	.16	.03	.35	.41	.48	.35	.22	.18	3.1	1.7	.17
AC-FT	40	28	16	37	34	80	37	35	5180	279	188	115

CAL YR 1989 TOTAL 744.47 MEAN 2.04 MAX 66 MIN .03 AC-FT 1480
WTR YR 1990 TOTAL 3057.05 MEAN 8.38 MAX 1330 MIN .03 AC-FT 6060

PLATTE RIVER BASIN

06790500 NORTH LOUP RIVER NEAR ST. PAUL, NE

LOCATION.--Lat 41°15'48", long 98°26'56", in NW1/4NW1/4NE1/4 sec.22, T.15 N., R.10 W., Howard County, Hydrologic Unit 10210007, on right bank 310 ft downstream from bridge on U.S. Highway 281, 3 mi north of St. Paul, and 4 mi upstream from confluence with Middle Loup River.

DRAINAGE AREA.--4,290 mi², approximately, of which about 1,240 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1894 to September 1915, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 976: 1942. WSP 1390: 1896. WDR NE-74: Drainage area. WDR NE-75: 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,759.29 ft, adjusted, above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to Oct. 1, 1954.

REMARKS.--Estimated daily discharges: Dec. 14 to Feb. 11, and Feb. 21-23. Records fair except for period of estimated record, which is poor. Natural flow affected by diversions and ground-water withdrawals for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--83 years, 977 ft³/s, 707,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft³/s, estimated, June 6, 1896, gage height, 14.9 ft, from floodmark, datum then in use; minimum daily since 1931, 85 ft³/s Aug. 8, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,030 ft³/s June 16, gage height, 4.76 ft; maximum gage height, 5.22 ft Jan. 12, backwater from ice; minimum daily discharge, 250 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	957	1060	1030	1040	1000	1100	1050	970	1120	547	530	525
2	892	1020	1070	1080	940	1120	1040	945	1150	546	541	523
3	890	974	1050	1180	1100	1100	1020	827	1210	541	650	538
4	873	915	1120	1240	1150	1100	1030	817	1290	516	650	555
5	883	678	1020	1300	1200	1140	1020	847	1340	489	695	535
6	846	671	1140	1240	1300	1190	990	811	1070	475	656	531
7	836	677	1190	1300	1380	1490	996	773	1100	469	640	514
8	911	938	1240	1480	1400	1460	966	725	1260	461	584	516
9	973	983	1240	1600	1500	1460	938	959	1230	448	577	532
10	988	981	1200	1800	1550	1440	1010	1240	1080	446	563	545
11	1000	994	1110	1850	1600	1350	1020	1210	1030	451	561	574
12	957	969	996	1600	1630	1430	961	1150	979	493	574	626
13	942	944	725	1400	1530	1520	839	1110	1460	519	618	641
14	898	962	550	1400	1500	1700	851	1190	1040	533	648	656
15	933	1030	350	1400	1220	1580	808	1380	1320	532	631	660
16	951	969	420	1350	599	1550	772	1320	2860	511	616	686
17	948	910	560	1300	670	1390	778	1290	3000	487	558	707
18	931	944	450	1200	705	1290	778	1200	1570	461	540	746
19	904	894	480	1150	1030	1090	785	1310	1020	459	537	838
20	931	946	500	1100	1410	963	783	1290	719	484	537	862
21	925	914	330	1150	1370	945	760	1240	1070	501	540	840
22	892	917	250	1250	1230	964	738	1200	2170	504	543	915
23	925	838	330	1280	1190	1070	735	1000	1280	512	544	919
24	954	775	500	1200	1250	1110	774	883	897	510	557	873
25	988	803	900	1220	1210	1010	928	888	791	523	659	856
26	964	846	1050	1300	1130	960	738	869	1030	516	790	856
27	1080	977	1140	1350	1120	919	805	864	807	509	637	930
28	1040	916	1160	1300	1140	960	932	1090	689	672	617	1040
29	1150	834	1140	1240	---	995	972	1330	637	1370	563	985
30	1160	983	1100	1160	---	1030	932	1260	581	594	550	930
31	1070	---	1000	1100	---	1010	---	1110	---	550	531	---
TOTAL	29592	27262	26341	40560	34054	37436	26749	33098	36800	16629	18437	21454
MEAN	955	909	850	1308	1216	1208	892	1068	1227	536	595	715
MAX	1160	1060	1240	1850	1630	1700	1050	1380	3000	1370	790	1040
MIN	836	671	250	1040	599	919	735	725	581	446	530	514
AC-FT	58700	54070	52250	80450	67550	74250	53060	65650	72990	32980	36570	42550

CAL YR 1989 TOTAL 338274 MEAN 927 MAX 4400 MIN 250 AC-FT 671000
WTR YR 1990 TOTAL 348412 MEAN 955 MAX 3000 MIN 250 AC-FT 691100

PLATTE RIVER BASIN

06790500 NORTH LOUP RIVER NEAR ST. PAUL, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1974 to September 1978.

WATER TEMPERATURES: July 1974 to September 1978.

SUSPENDED SEDIMENT DISCHARGE: April 1946 to June 1953.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 426 microsiemens Jan. 18, 1976; minimum daily, 138 microsiemens Oct. 21, 1977.

WATER TEMPERATURES: Maximum, 34.0°C July 17, 1978; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATIONS: Maximum daily, 17,400 mg/L Apr. 27, 1951; minimum daily, not determined.

SEDIMENT LOADS: Maximum daily, 463,000 tons June 22, 1947; minimum daily, 20 tons Aug. 3, 1946, Feb. 22, 1953.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT						
19...	1100	887	228	8.2	4.5	12.8
NOV						
13...	1300	953	221	8.0	8.0	11.1
DEC						
05...	0945	976	222	8.0	1.0	13.4
JAN						
02...	0930	1080	231	7.6	0.0	11.8
30...	1000	1160	228	7.8	0.0	15.1
MAR						
27...	0920	878	262	7.8	5.0	11.7
APR						
24...	1040	746	--	8.4	18.0	9.2
MAY						
23...	1045	964	235	8.1	21.5	9.0
JUN						
19...	1530	940	258	8.3	28.0	7.6
JUL						
17...	1125	478	244	9.0	25.0	9.4
AUG						
14...	1020	644	238	8.8	23.0	8.0
SEP						
11...	1030	571	232	8.4	21.5	8.7

DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
MAR											
27...	0920	13	110	34	5.9	8.5	0.4	7.3	118	8.7	1.7
JUL											
17...	1125	16	110	34	5.8	8.5	0.4	7.9	122	7.2	3.2

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
MAR										
27...	0.30	47	186	0.25	442	0.500	0.090	30	9	3
JUL										
17...	0.30	35	175	0.24	226	<0.100	0.020	30	21	2

PLATTE RIVER BASIN

06791500 CEDAR RIVER NEAR SPALDING, NE

LOCATION.--Lat 41°42'41", long 98°26'48", in NE1/4NE1/4NE1/4 sec.15, T.20 N., R.10 W., Greeley County, Hydrologic Unit 10210010, on left bank 15 ft downstream from bridge on county road, 0.4 mi upstream from small tributary, and 4.7 mi northwest of Spalding.

DRAINAGE AREA.--762 mi², approximately, of which about 50 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1944 to September 1953, October 1957 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-73: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,896.24 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 4, 1961, at two sites 6.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 11-31, Jan. 1, 13, 20-23, and Feb. 15-20. Records good except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--42 years, 164 ft³/s, 118,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft³/s June 23, 1947, gage height, 7.50 ft, site and datum then in use, from rating curve extended above 640 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 30 ft³/s Jan. 30, 1946.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	2330	*1120	*5.08	July 28	2200	354	3.82

Minimum daily discharge, 113 ft³/s Sept. 14-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	166	179	195	150	156	153	153	152	138	139	117
2	134	159	169	188	154	157	149	151	163	133	154	121
3	135	158	171	183	165	156	147	147	140	124	161	126
4	138	160	167	177	155	155	147	149	143	119	168	126
5	144	159	175	172	151	158	144	148	146	116	142	121
6	144	159	185	169	152	161	138	148	141	118	132	118
7	149	158	184	168	153	211	140	149	140	124	130	119
8	158	153	184	165	153	239	143	146	158	120	129	119
9	159	153	177	165	153	235	147	193	150	117	130	118
10	153	151	179	166	154	220	151	194	141	118	129	119
11	149	151	170	164	156	219	146	188	139	131	131	121
12	148	152	155	164	160	219	143	181	137	142	133	121
13	147	152	160	160	160	213	152	181	138	136	133	118
14	145	155	155	162	153	204	159	175	128	129	131	113
15	145	154	150	160	150	192	159	183	163	123	132	113
16	146	151	150	157	150	182	151	180	305	120	131	113
17	134	146	155	156	155	172	146	165	209	119	129	113
18	136	166	155	156	155	165	143	157	181	120	126	126
19	143	161	150	155	155	155	144	177	166	128	123	134
20	142	158	155	160	160	154	149	178	157	142	124	138
21	142	157	150	155	165	157	152	186	202	153	125	134
22	147	156	145	160	163	156	150	178	208	142	127	128
23	148	156	160	165	163	146	149	171	193	135	128	124
24	149	155	180	167	161	146	174	163	174	137	133	124
25	153	157	195	163	157	151	194	164	163	161	138	126
26	160	159	205	161	157	151	172	164	158	148	136	127
27	172	160	205	161	155	149	164	158	158	140	132	126
28	176	159	200	159	155	149	155	151	152	197	127	125
29	180	169	195	155	---	153	156	145	148	197	126	124
30	180	203	205	158	---	150	156	144	141	157	123	127
31	174	---	200	157	---	152	---	144	---	144	119	---
TOTAL	4662	4753	5365	5103	4370	5383	4573	5111	4894	4228	4121	3679
MEAN	150	158	173	165	156	174	152	165	163	136	133	123
MAX	180	203	205	195	165	239	194	194	305	197	168	138
MIN	132	146	145	155	150	146	138	144	128	116	119	113
AC-FT	9250	9430	10640	10120	8670	10680	9070	10140	9710	8390	8170	7300

CAL YR 1989 TOTAL 58152 MEAN 159 MAX 286 MIN 121 AC-FT 115300
WTR YR 1990 TOTAL 56242 MEAN 154 MAX 305 MIN 113 AC-FT 111600

PLATTE RIVER BASIN

06792000 CEDAR RIVER NEAR FULLERTON, NE
(National stream-quality accounting network station)

LOCATION.--Lat 41°23'36", long 98°00'15", in NE1/4NE1/4 sec.4, T.16 N., R.6 W., Nance County, Hydrologic Unit 10210010, on left upstream bank near county bridge, 3 mi northwest of Fullerton and 7.2 mi, upstream from mouth.

DRAINAGE AREA.--1,220 mi², approximately, of which about 480 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1931 to June 1932, October 1940 to current year.

REVISED RECORDS.--WSP 1086: Drainage area. WSP 1390: 1932, 1941, 1943. WSP 1710: 1951(P), 1952(M), 1953, 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,638.39 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 5, 1942, nonrecording gage; Nov. 5, 1942, to June 23, 1947, water-stage recorder; June 24, 1947, to Apr. 6, 1948, nonrecording gage; Apr. 7, 1948, to Apr. 15, 1971, water-stage recorder, all on downstream side of bridge pier at datum 2.00 ft higher; Apr. 16, 1971, to Aug. 26, 1980, on downstream side of bridge pier and Aug. 27, 1980, to Mar. 5, 1987, on left bank upstream from bridge both at present datum. Mar. 5, 1987 to Apr. 19, 1988, on left bank 400 ft downstream from county bridge.

REMARKS.--Estimated daily discharges: Nov. 28 to Feb. 9, and Feb. 13-21. Records good except for periods of estimated record, which are poor. Natural flow affected by power developments, ground-water and surface-water withdrawals for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--50 years (1940-90), 250 ft³/s, 181,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,700 ft³/s Aug. 13, 1966, gage height, 16.90 ft, present datum, from high point on surge, from rating curve extended above 6,600 ft³/s on basis of flow-over-highway-embankment and contracted-opening measurement of peak flow; minimum daily, 30 ft³/s July 18, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 13	0635	2100	4.71	June 22	0005	1720	4.25
June 16	1800	*4600	*a7.29				

a From floodmark.

Minimum daily discharge, 76 ft³/s July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	206	226	230	250	290	374	325	238	249	170	192	105
2	203	218	200	260	280	380	309	248	256	155	214	112
3	201	218	180	250	300	385	301	239	260	176	218	132
4	198	220	200	250	310	397	295	236	256	128	224	137
5	211	224	220	240	340	390	269	230	242	105	267	138
6	212	216	220	240	330	394	278	234	241	107	217	144
7	210	210	210	240	330	458	272	229	250	115	209	133
8	209	210	210	250	340	531	271	221	366	105	211	126
9	214	215	215	260	394	483	274	257	334	102	200	138
10	216	195	190	270	293	473	276	271	286	140	182	130
11	215	192	180	270	272	494	259	262	250	142	191	141
12	206	203	90	260	272	493	243	271	251	162	185	147
13	206	201	170	250	240	503	249	253	1040	145	162	143
14	204	204	140	260	150	603	258	246	592	147	136	149
15	203	212	130	280	110	406	263	285	525	144	162	147
16	203	207	120	290	160	376	259	273	2820	132	159	153
17	203	169	140	280	250	373	254	254	2730	110	151	141
18	203	222	170	270	270	382	248	238	620	88	147	190
19	203	250	170	260	280	370	246	310	249	76	147	194
20	201	228	165	250	290	388	246	270	207	107	115	183
21	200	217	175	250	300	383	255	262	828	153	134	210
22	200	219	185	270	357	383	263	263	1050	156	142	182
23	201	203	200	310	326	380	261	291	361	154	129	170
24	205	236	230	310	317	370	258	305	229	490	130	172
25	208	224	250	300	317	354	255	274	192	363	118	167
26	207	212	270	310	320	353	267	245	211	925	105	162
27	216	221	270	320	332	347	264	241	218	292	150	161
28	220	160	280	310	357	342	252	249	197	206	128	173
29	224	130	270	300	---	349	249	251	167	387	116	162
30	233	170	250	300	---	340	243	247	158	418	105	161
31	233	---	240	310	---	335	---	244	---	216	97	---
TOTAL	6474	6232	6170	8470	8127	12589	7962	7937	15635	6316	5043	4603
MEAN	209	208	199	273	290	406	265	256	521	204	163	153
MAX	233	250	280	320	394	603	325	310	2820	925	267	210
MIN	198	130	90	240	110	335	243	221	158	76	97	105
AC-FT	12840	12360	12240	16800	16120	24970	15790	15740	31010	12530	10000	9130
CAL YR 1989	TOTAL 85378	MEAN 234	MAX 1000	MIN 69	AC-FT 169300							
WTR YR 1990	TOTAL 95558	MEAN 262	MAX 2820	MIN 76	AC-FT 189500							

PLATTE RIVER BASIN
06792000 CEDAR RIVER NEAR FULLERTON, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958-59, 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1974 to September 1983.

WATER TEMPERATURES: July 1974 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 550 microsiemens Jan. 1, 1978; minimum daily, 119 microsiemens Nov. 23, 1980.

WATER TEMPERATURES: Maximum, 36.0°C July 7, 1975; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT												
11...	0945	217	269	8.4	13.0	--	2	--	--	--	--	120
NOV												
15...	1100	212	268	8.2	0.5	721	25	11	14.3	K150	360	120
DEC												
12...	1200	90	443	7.9	0.0	--	15	--	--	--	--	190
JAN												
10...	0930	270	266	8.2	0.5	714	5	16	17.3	K60	230	120
FEB												
12...	1100	272	--	8.1	5.0	--	15	--	--	--	--	130
MAR												
15...	1015	406	311	8.3	9.0	722	14	30	11.9	230	1100	140
APR												
17...	1115	252	262	8.4	6.5	729	13	--	14.8	--	--	140
MAY												
18...	1100	233	299	8.4	16.5	716	12	12	10.7	K310	K370	140
JUN												
13...	1100	1020	--	7.8	18.5	714	170	--	7.1	--	--	77
JUL												
24...	1130	715	202	8.0	20.0	717	55	740	7.0	K100000	K110000	61
AUG												
16...	1200	159	--	--	25.5	--	38	--	--	--	--	130
SEP												
04...	1015	143	274	8.4	23.5	723	22	37	9.2	K1200	K1200	120

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT												
11...	--	37	6.0	12	0.5	7.0	--	--	--	8.0	3.1	0.30
NOV												
15...	0	38	6.2	7.9	0.3	6.6	138	0	168	9.0	2.1	0.20
DEC												
12...	--	59	9.9	12	0.4	8.6	--	--	--	13	5.7	0.30
JAN												
10...	0	37	6.0	7.7	0.3	6.2	118	0	144	8.0	1.5	0.20
FEB												
12...	--	41	6.7	11	0.4	6.7	--	--	--	12	5.6	0.30
MAR												
15...	0	43	7.0	8.8	0.3	7.0	138	0	168	12	1.9	0.20
APR												
17...	--	42	7.5	8.7	0.3	6.4	--	--	--	9.3	2.1	0.20
MAY												
18...	0	42	7.4	8.7	0.3	8.2	143	4	167	11	4.2	0.10
JUN												
13...	--	23	4.7	18	0.9	13	--	--	--	7.7	17	0.20
JUL												
24...	0	17	4.5	14	0.8	11	72	0	88	8.8	17	0.20
AUG												
16...	--	41	6.6	8.3	0.3	8.2	--	--	--	14	2.8	0.20
SEP												
04...	0	37	6.1	13	0.5	7.3	134	8	146	10	5.3	<0.10

PLATTE RIVER BASIN

06792000 CEDAR RIVER NEAR FULLERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 11...	39	--	190	0.26	111	<0.100	--	--	--	--	0.110	--
NOV 15...	42	199	198	0.27	114	0.460	0.020	0.28	0.30	0.190	0.150	0.150
DEC 12...	54	--	286	0.39	69.5	0.790	--	--	--	0.320	0.200	--
JAN 10...	42	186	183	0.25	136	0.610	0.050	0.25	0.30	0.220	0.150	0.170
FEB 12...	43	--	213	0.29	157	0.700	--	--	--	0.200	0.150	--
MAR 15...	41	211	206	0.29	231	0.400	0.030	0.27	0.30	0.300	0.180	0.180
APR 17...	38	--	199	0.27	136	<0.100	--	--	--	0.220	0.110	--
MAY 18...	35	193	204	0.26	121	<0.100	<0.010	--	0.60	0.200	0.100	0.100
JUN 13...	14	--	176	0.24	484	2.60	--	--	--	2.20	0.350	--
JUL 24...	18	155	145	0.21	299	2.10	0.160	6.1	6.3	0.640	0.280	0.260
AUG 16...	37	--	203	0.28	87.3	<0.100	--	--	--	0.200	0.200	--
SEP 04...	34	173	193	0.24	66.8	<0.100	0.020	0.28	0.30	0.240	0.140	0.150

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 11...	0945	--	--	--	--	30	--	--	--	--	17
NOV 15...	1100	10	6	140	<0.5	20	<1.0	1	<3	1	9
DEC 12...	1200	--	--	--	--	50	--	--	--	--	24
JAN 10...	0930	--	--	--	--	20	--	--	--	--	--
FEB 12...	1100	--	--	--	--	40	--	--	--	--	21
MAR 15...	1015	20	7	140	<0.5	30	<1.0	<5*	<3	<10*	19
APR 17...	1115	--	--	--	--	30	--	--	--	--	24
MAY 18...	1100	30	6	130	<0.5	30	<1.0	<1	<3	1	12
JUN 13...	1100	--	--	--	--	30	--	--	--	--	74
JUL 24...	1130	270	4	110	<0.5	40	<1.0	2	<3	6	340
AUG 16...	1200	--	--	--	--	40	--	--	--	--	43
SEP 04...	1015	--	--	--	--	30	--	--	--	--	--

*Minimum reporting level differs due to methodology.

PLATTE RIVER BASIN

06792000 CEDAR RIVER NEAR FULLERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 11...	--	--	10	--	--	--	--	--	--	--	--
NOV 15...	<1	15	10	<0.1	<10	<1	<1	<1.0	220	<6	4
DEC 12...	--	--	30	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 12...	--	--	15	--	--	--	--	--	--	--	--
MAR 15...	<10*	14	7	<0.1	<10	<10*	1	<1.0	240	<6	5
APR 17...	--	--	15	--	--	--	--	--	--	--	--
MAY 18...	<1	17	9	<0.1	<10	1	1	<1.0	240	7	5
JUN 13...	--	--	44	--	--	--	--	--	--	--	--
JUL 24...	1	9	87	0.2	<10	4	<1	<1.0	110	8	15
AUG 16...	--	--	32	--	--	--	--	--	--	--	--
SEP 04...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 15...	1100	212	0.5	360	206	33
JAN 10...	0930	270	0.5	370	303	19
MAR 15...	1015	406	9.0	276	303	49
MAY 18...	1100	233	16.5	351	221	59
JUL 24...	1130	715	20.0	5510	10600	90
SEP 04...	1015	143	23.5	191	74	76

LOCATION.--Lat 41°25'03", long 97°47'37", in NE1/4NE1/4 sec.32, T.17 N., R.4 W., Nance County, Hydrologic Unit 10210009, at skimming weir on downstream end of settling basin on left bank, 2 mi downstream from point of diversion and 3.5 mi southwest of Genoa.

GAGE.--Water-stage recorder and concrete weir. Datum of gage is 1,566.26 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1956, at datum 3.0 feet higher.

AVERAGE DISCHARGE.--53 years (water years 1938-90). 1,600 ft³/s. 1,159,000 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge. 3.360 ft³/s June 15; minimum daily. 14 ft³/s Feb. 18.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2230	2850	608	1910	48	2820	2380	2100	2990	1580	1490	781
2	2170	2990	374	2120	51	2670	2360	1950	2860	1520	1370	760
3	2250	2770	98	2170	42	2710	2290	1810	2950	1420	1310	860
4	2260	2590	1070	2070	51	2750	2210	1880	2920	1320	1480	841
5	2270	2310	2880	2040	490	2730	2280	1810	2780	1200	1610	969
6	2280	2240	2790	1990	485	2890	2330	1820	2460	1100	1730	961
7	2290	2300	2770	2010	858	2990	2450	1670	2360	1010	1570	821
8	2310	2350	395	2030	1850	3120	2310	1550	2610	964	1400	810
9	2280	2690	146	2130	1210	3060	2280	1900	2970	904	1240	772
10	2270	2530	191	2000	1160	3040	2500	2560	2530	842	1170	797
11	2280	2420	102	1510	1920	2960	2820	2000	2170	820	1130	861
12	2230	2520	223	1170	2460	2880	2560	2580	1830	846	1220	854
13	2260	2640	128	116	1640	2840	2510	2330	2610	889	1420	838
14	2270	2590	73	84	346	2790	2260	2300	2900	945	1980	908
15	2240	2650	99	226	48	2690	2230	2520	2820	932	1790	1000
16	2330	598	98	127	63	2580	2070	2650	2530	945	1780	983
17	2710	111	390	119	45	2610	2300	2730	1580	850	1570	1080
18	2770	1490	805	139	14	2610	2250	2520	2450	767	1390	1240
19	2500	1670	928	59	80	2570	2170	2630	2690	710	1370	1290
20	2430	2450	1210	60	112	2450	1860	2740	2650	833	1220	1410
21	2470	2440	1440	49	480	2280	1780	2830	2550	1100	1130	1760
22	2340	2530	1610	160	1150	2280	1690	2920	2470	1070	1090	1750
23	2340	1160	1850	177	2170	2580	1630	2740	2520	1040	1020	1810
24	2370	1500	1960	124	2430	2650	1670	2700	2520	1210	990	1740
25	2390	2610	1930	114	2700	2590	1780	2730	2270	1530	998	1650
26	2410	2530	1970	251	2020	2500	2080	2520	2130	2450	1030	1620
27	2470	1950	2090	153	2840	2360	1770	2350	2570	1690	1220	1630
28	2930	341	1770	222	2840	2370	2120	2340	2010	1490	993	1710
29	2960	144	1990	487	---	2580	2230	2630	1800	2100	922	1800
30	3130	313	2300	103	---	2430	2210	2960	1700	2200	848	1800
31	3220	---	2180	105	---	2480	---	2910	---	1640	810	---
TOTAL	75660	60277	36468	26025	29603	82860	65380	73680	74200	37917	40291	36106
MEAN	2441	2009	1176	840	1057	2673	2179	2377	2473	1223	1300	1204
MAX	3220	2990	2880	2170	2840	3120	2820	2960	2990	2450	1980	1810
MIN	2170	111	73	49	14	2280	1630	1550	1580	710	810	

PLATTE RIVER BASIN

06793000 LOUP RIVER NEAR GENOA, NE

LOCATION.--Lat 41°25'05", long 97°43'25", in SW1/4NE1/4 sec.25, T.17 N., R.4 W., Nance County, Hydrologic Unit 10210009, on right bank 12 ft downstream from bridge on State Highway 39, 2 mi south of Genoa, 3 mi upstream from Beaver Creek, and 6 mi downstream from diversion dam of Loup River Public Power District.

DRAINAGE AREA.--14,400 mi², approximately, of which about 5,650 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--August 1928 to June 1932, October 1943 to current year (October 1953 to April 1955, monthly discharge only).

REVISED RECORDS.--WDR NE-74: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,540.13 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1928, to June 30, 1932, nonrecording gage at present site at datum 1.49 ft higher. Oct. 1, 1943, to Sept. 16, 1974, (Apr. 26 to Dec. 22, 1949, wire-weight gage only), at present site and datum. Sept. 17, 1974, to Nov. 21, 1977, at site 300 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 23 to Dec. 4 and Dec. 19 to Jan. 14. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Records do not include flow of Loup River power canal (station 06792500), which diverts at point 6 mi upstream and returns to Platte River below mouth of Loup River; diversion began Dec. 2, 1936.

AVERAGE DISCHARGE.--47 years (water years 1944-90), 678 ft³/s, 491,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 129,000 ft³/s Aug. 13, 1966, gage height, 13.93 ft, from rating curve extended above 42,000 ft³/s on basis of indirect measurement of peak flow; no flow at times during 1956, 1959, 1961, 1963, 1970, 1973, 1974, 1975, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,900 ft³/s June 17, gage height, 9.11 ft; minimum daily, 9.6 ft³/s Nov. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	11	1600	860	3120	130	125	16	82	13	58	106
2	21	9.9	2200	800	2540	114	143	14	48	13	63	127
3	20	9.8	1400	840	2390	122	93	14	57	14	55	63
4	19	9.9	1000	900	2390	95	112	15	170	13	54	83
5	27	9.6	59	880	2410	85	102	12	29	14	53	71
6	23	16	44	940	2840	117	80	12	20	16	49	49
7	20	12	28	1000	3050	967	96	11	34	16	42	136
8	24	15	2290	1100	2010	2000	54	13	65	16	40	103
9	18	30	2480	1300	2550	1730	75	37	160	16	40	103
10	14	11	2230	2000	2400	1300	64	455	34	19	42	123
11	14	10	2090	4500	1730	1050	102	728	21	20	41	117
12	13	10	493	3600	1220	630	61	97	22	25	37	135
13	13	10	429	3300	1930	437	32	76	478	31	34	44
14	17	14	879	4000	3510	1830	24	44	763	41	125	24
15	14	12	477	3900	3250	1250	31	290	132	45	47	23
16	12	2240	512	3440	2270	854	18	1070	7230	47	37	21
17	12	2380	476	3510	949	667	26	445	15300	48	49	22
18	11	971	79	3360	2640	328	19	46	4180	45	33	28
19	10	903	80	3210	1990	215	19	221	2040	48	34	24
20	10	30	90	3250	2250	103	19	118	886	55	55	24
21	10	28	80	3050	2920	49	18	357	745	49	90	27
22	14	21	72	2530	2640	41	17	64	2720	48	98	19
23	13	1400	110	2650	1700	76	17	25	1360	46	103	18
24	12	1000	210	3170	1130	301	17	42	242	55	95	17
25	12	37	190	3250	907	249	17	35	80	65	67	16
26	12	35	170	3110	1090	53	98	28	73	85	98	16
27	14	600	200	3210	195	46	22	37	46	84	93	16
28	13	1800	600	3310	178	49	23	30	19	98	109	15
29	14	2400	900	3210	---	187	24	27	14	102	127	15
30	57	2000	900	3800	---	250	20	104	13	86	114	15
31	66	---	860	3620	---	285	---	108	---	62	127	---
TOTAL	571	16035.2	23228	81600	58199	15610	1568	4591	37063	1335	2109	1600
MEAN	18.4	535	749	2632	2079	504	52.3	148	1235	43.1	68.0	53.3
MAX	66	2400	2480	4500	3510	2000	143	1070	15300	102	127	136
MIN	10	9.6	28	800	178	41	17	11	13	13	33	15
AC-FT	1130	31810	46070	161900	115400	30960	3110	9110	73510	2650	4180	3170

CAL YR 1989 TOTAL 257763.9 MEAN 706 MAX 10000 MIN 8.4 AC-FT 511300
WTR YR 1990 TOTAL 243509.2 MEAN 667 MAX 15300 MIN 9.6 AC-FT 483000

PLATTE RIVER BASIN

06793500 BEAVER CREEK AT LORETTO, NE

LOCATION.--Lat 41°45'50", long 98°04'50", in NE1/4SE1/4 sec.26, T.21 N., R.7 W., Boone County, Hydrologic Unit 10210009, on left bank 5 ft downstream from county road bridge, at the west edge of Loretto.

DRAINAGE AREA.--311 mi², of which about 100 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1944 to September 1953, October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,785.95 ft above National Geodetic Vertical Datum of 1929. Prior to May 15, 1945, staff gage at bridge 25 ft upstream, May 15, 1945, to Aug. 16, 1946, water-stage recorder at site 85 ft upstream, Aug. 17, 1946, to Sept. 30, 1953, at site 5 ft downstream, all at present datum.

REMARKS.--Estimated daily discharges: Nov. 18-29, 24, Nov. 29 to Dec. 4, Dec. 9 to Jan. 16, Jan. 20-23, Feb. 1-6, 16-19, June 19-30, and July 1-8. Records fair except for periods of estimated record, which are poor. There are diversions for irrigation above station during the summer period.

COOPERATION.--Records were furnished by Nebraska Department of Water Resources.

AVERAGE DISCHARGE.--20 years (water years 1945-53, 1980-90), 81.4 ft³/s, 58,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 ft³/s June 2, 1950, gage height, 11.74 ft; minimum daily, 12 ft³/s July 8, Aug. 8, 9, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	1100	*764	*6.69	No other peak greater than base discharge.			
Minimum daily discharge, 31 ft ³ /s Sept. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	53	49	50	60	74	64	60	58	49	48	31
2	39	54	49	52	55	74	63	59	62	47	47	34
3	41	57	47	54	50	75	61	57	75	45	47	36
4	44	57	51	54	55	75	61	56	68	42	61	34
5	44	53	53	56	60	74	60	55	63	41	50	32
6	42	54	60	60	65	74	60	55	58	40	46	33
7	42	55	63	65	73	105	60	55	55	40	44	34
8	50	52	59	70	75	196	61	54	56	39	42	34
9	49	51	56	74	76	214	60	70	54	39	40	35
10	45	52	52	75	75	170	60	91	52	41	38	36
11	44	53	50	78	77	138	60	75	52	45	40	37
12	44	52	48	74	81	141	61	69	50	43	42	38
13	45	51	46	56	83	132	62	69	48	42	41	37
14	47	53	46	60	66	121	67	68	47	42	37	36
15	45	53	45	60	56	105	68	69	51	41	37	40
16	43	52	45	60	60	95	64	79	461	40	37	40
17	46	54	45	61	65	90	62	70	223	39	37	40
18	48	54	45	62	68	83	61	66	95	37	37	43
19	48	54	46	62	70	81	60	71	71	53	36	46
20	50	55	46	61	75	79	59	87	61	50	36	47
21	50	54	46	58	79	75	58	82	68	46	35	46
22	50	54	46	60	78	72	57	80	72	46	37	45
23	51	51	46	63	76	72	56	73	66	45	40	45
24	49	52	48	68	78	72	59	79	61	45	38	46
25	51	53	50	68	79	71	97	75	56	44	38	47
26	53	55	55	68	77	68	73	69	69	45	37	46
27	52	54	57	68	75	68	62	64	66	45	37	45
28	52	51	60	69	75	66	59	66	56	46	35	44
29	58	50	60	68	---	66	58	62	53	55	36	45
30	56	48	53	67	---	66	59	59	51	55	35	46
31	54	---	50	65	---	66	---	58	---	50	34	---
TOTAL	1473	1591	1572	1966	1962	2958	1872	2102	2378	1377	1245	1198
MEAN	47.5	53.0	50.7	63.4	70.1	95.4	62.4	67.8	79.3	44.4	40.2	39.9
MAX	58	57	63	78	83	214	97	91	461	55	61	47
MIN	39	48	45	50	50	66	56	54	47	37	34	31
AC-FT	2920	3160	3120	3900	3890	5870	3710	4170	4720	2730	2470	2380

CAL YR 1989 TOTAL 20616 MEAN 56.5 MAX 277 MIN 31 AC-FT 40890
WTR YR 1990 TOTAL 21694 MEAN 59.4 MAX 461 MIN 31 AC-FT 43030

PLATTE RIVER BASIN

06794000 BEAVER CREEK AT GENOA, NE

LOCATION.--Lat 41°26'32", long 97°44'11", in NE1/4SE1/4 sec.14, T.17 N., R.4 W., Nance County, Hydrologic Unit 10210009, on left bank in city park at southwest corner of Genoa, 0.2 mi downstream from Union Pacific Railroad bridge, 0.2 mi upstream from bridge on State Highway 39, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--647 mi², of which about 410 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WSP 1310: 1942(M). WDR NE-73: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,542.13 ft above National Geodetic Vertical Datum of 1929. October 1940 to Nov. 5, 1942, nonrecording gage and Nov. 6, 1942, to Nov. 1, 1955, water-stage recorder, at site 0.4 mi upstream at datum 4.62 ft higher.

REMARKS.--Estimated daily discharges: Nov. 17-19, Jan. 17, 28, Jan. 21 to Feb. 8, and Feb. 14-22. Records fair except for period of estimated record, which are poor. Natural flow affected slightly by ground-water and surface-water withdrawals for irrigation.

AVERAGE DISCHARGE.--50 years, 127 ft³/s, 92,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s July 19, 1950, gage height, 18.70 ft, site and datum then in use, from rating curve extended above 8,500 ft³/s; minimum daily, 0.41 ft³/s July 25, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 13	1000	3310	13.28	June 21	2300	3430	12.76
June 17	0200	*10600	*17.54				

Minimum daily discharge, 17 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	70	78	78	66	104	103	81	87	90	78	30
2	57	69	72	70	64	105	99	81	93	86	73	37
3	56	70	64	74	62	105	98	79	90	83	72	39
4	57	70	74	78	76	107	96	77	99	79	105	41
5	61	70	82	82	94	107	95	74	97	73	123	43
6	60	70	78	84	96	107	93	74	91	70	88	40
7	60	71	56	80	98	128	90	72	102	73	75	39
8	61	71	52	80	100	210	89	72	192	71	71	38
9	63	71	40	84	106	288	91	88	137	71	67	39
10	66	71	30	90	105	254	94	88	95	69	66	39
11	63	72	22	90	102	210	89	108	86	68	65	41
12	61	72	24	92	111	184	89	100	91	66	65	39
13	61	71	22	94	119	186	88	88	1680	65	63	39
14	61	71	18	108	118	302	90	85	264	61	63	38
15	62	72	20	112	116	180	94	194	1800	60	59	40
16	61	69	21	114	112	143	92	100	4510	55	52	41
17	61	64	23	90	100	130	87	98	7010	57	53	45
18	61	70	25	76	84	121	84	92	1080	55	52	49
19	62	74	19	74	94	114	84	136	335	54	54	53
20	63	79	22	73	100	111	84	103	213	166	49	57
21	64	79	19	58	108	111	84	110	1030	144	48	58
22	65	75	17	62	112	110	85	107	856	74	42	56
23	65	75	21	68	114	105	84	107	208	61	44	51
24	66	74	38	70	118	105	81	103	140	60	48	50
25	66	73	54	72	110	104	78	144	119	67	49	51
26	65	75	60	72	109	103	105	111	124	127	45	53
27	67	73	68	70	108	102	101	128	131	85	41	52
28	68	70	72	68	104	100	85	141	113	86	43	51
29	68	66	74	70	---	104	81	98	100	223	39	50
30	70	80	76	68	---	104	80	93	94	105	34	51
31	70	---	80	68	---	104	---	88	---	84	31	---
TOTAL	1950	2157	1421	2469	2806	4348	2693	3120	21067	2588	1857	1350
MEAN	62.9	71.9	45.8	79.6	100	140	89.8	101	702	83.5	59.9	45.0
MAX	70	80	82	114	119	302	105	194	7010	223	123	58
MIN	56	64	17	58	62	100	78	72	86	54	31	30
AC-FT	3870	4280	2820	4900	5570	8620	5340	6190	41790	5130	3680	2680

CAL YR 1989 TOTAL 34666.1 MEAN 95.0 MAX 2420 MIN 1.1 AC-FT 68760
WTR YR 1990 TOTAL 47826 MEAN 131 MAX 7010 MIN 17 AC-FT 94860

PLATTE RIVER BASIN

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06795500 SHELL CREEK NEAR COLUMBUS, NE

LOCATION.--Lat 41°31'33", long 97°16'55", in NE1/4NW1/4 sec.23, T.18 N., R.1 E., Platte County, Hydrologic Unit 10200201, on right bank 80 ft upstream from county road bridge, 1 mi upstream from Loseke Creek, and 7 mi northeast of Columbus.

DRAINAGE AREA.--270 mi², approximately.

PERIOD OF RECORD.--August 1947 to September 1975, October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,435 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 16-17, Nov. 22 to Mar. 2, June 19-20, and June 26-28. Records good except June 15-17 and for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--41 years, 45.2 ft³/s, 32,750 acre-ft/yr; median of yearly mean discharges, 41.1 ft³/s, 29,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s June 17, 1990, gage height, 22.76 ft; minimum daily discharge, 0.4 ft³/s July 27, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1947, reached a stage of 21.7 ft, from floodmark, discharge, 4,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 15	2155	1010	10.97	June 17	0400	*8000	*22.76
May 25	1430	725	9.06	June 22	0845	839	12.99
June 13	2230	1940	17.80	July 29	0930	892	13.43

Minimum daily discharge, 4.6 ft³/s Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	14	13	16	15	15	24	17	58	80	53	7.3
2	11	13	13	15	15	16	23	16	63	63	38	5.4
3	9.4	13	11	16	14	17	20	16	111	52	34	7.3
4	8.9	13	12	17	15	17	20	16	60	47	34	6.0
5	16	13	17	16	16	17	20	16	54	42	221	4.6
6	14	14	16	16	17	17	20	16	56	40	90	7.5
7	13	15	15	17	18	21	20	16	57	35	38	6.6
8	12	14	14	18	19	56	20	15	128	35	24	7.3
9	12	14	14	20	20	103	19	22	213	31	22	10
10	11	15	14	22	21	103	19	67	36	27	23	8.1
11	12	15	17	21	21	82	23	27	24	24	24	8.9
12	11	12	16	21	22	44	22	31	26	23	62	10
13	10	14	15	20	22	36	20	33	917	28	24	14
14	11	15	14	19	20	176	20	23	1140	30	18	6.6
15	11	13	11	18	19	244	21	380	3200	26	17	6.1
16	11	14	12	18	17	65	20	396	4200	23	17	7.1
17	11	15	13	16	16	42	20	113	4900	19	16	5.7
18	12	17	12	16	14	32	19	68	2200	19	16	6.3
19	11	16	11	15	15	28	18	212	555	18	14	8.6
20	10	15	9.6	15	16	27	18	159	520	17	19	10
21	11	13	10	14	17	26	18	45	377	230	21	10
22	11	13	8.0	16	19	24	18	31	682	89	13	11
23	12	12	9.0	17	18	24	18	26	332	32	13	8.9
24	12	12	12	17	18	23	19	31	256	21	14	8.4
25	11	11	13	16	17	22	18	365	220	29	16	8.6
26	11	11	14	17	18	22	18	150	183	89	16	9.0
27	12	11	15	18	17	22	17	70	153	77	12	9.5
28	14	12	15	17	17	22	17	55	128	75	12	10
29	15	12	16	17	---	23	17	55	128	641	9.3	8.0
30	14	13	17	16	---	25	17	52	96	261	9.2	8.3
31	14	---	17	16	---	25	---	54	---	99	9.1	---
TOTAL	364.3	404	415.6	533	493	1416	583	2593	21073	2322	948.6	245.1
MEAN	11.8	13.5	13.4	17.2	17.6	45.7	19.4	83.6	702	74.9	30.6	8.17
MAX	16	17	17	22	22	244	24	396	4900	641	221	14
MIN	8.9	11	8.0	14	14	15	17	15	24	17	9.1	4.6
AC-FT	723	801	824	1060	978	2810	1160	5140	41800	4610	1880	486

CAL YR 1989 TOTAL 16954.1 MEAN 46.4 MAX 1980 MIN 3.5 AC-FT 33630
WTR YR 1990 TOTAL 31390.6 MEAN 86.0 MAX 4900 MIN 4.6 AC-FT 62260

PLATTE RIVER BASIN

06796000 PLATTE RIVER AT NORTH BEND, NE

LOCATION.--Lat 41°27'10", long 96°45'50", in SE1/4 sec.7, T.17 N., R.6 E., Dodge County, Hydrologic Unit 10200201, on left bank 80 ft upstream from bridge on State Highway 79, 1 mi south of North Bend, and 5 mi downstream from Shell Creek.

DRAINAGE AREA.--77,100 mi², approximately, of which about 63,300 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--April 1949 to current year.

REVISED RECORDS.--WDR NE-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,262.32 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1951, nonrecording gage and Sept. 12, 1951, to Sept. 30, 1970, water-stage recorder, at present site at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 2, Dec. 10 to Feb. 7, and Aug. 17, 20-26. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--41 years, 4,505 ft³/s, 3,264,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 112,000 ft³/s Mar. 29, 1960, gage height, 10.04 ft, present datum; maximum gage height, 15.55 ft Mar. 19, 1978, ice jam; minimum daily discharge, 36 ft³/s July 29, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,300 ft³/s June 17, gage height, 7.71 ft; minimum daily, 500 ft³/s Dec. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2690	5050	1900	4900	4000	4100	6020	4400	4380	2830	3450	1380
2	2310	4480	2500	5100	3500	4480	5560	4420	4300	2820	2850	842
3	2270	4180	3600	5100	3000	4280	5350	4570	4580	2460	2980	1410
4	2400	4540	4760	5000	2200	4040	5070	4610	4450	2020	2170	1020
5	2830	3560	5500	4800	2300	4160	4280	4710	4050	2380	2560	1320
6	2820	5530	6000	4800	2900	4180	5010	4670	4460	2110	2660	1230
7	2920	1980	5360	4900	4000	4650	4740	4330	4060	1730	2510	1290
8	2660	2850	4710	5000	7220	6530	5200	3830	4160	1870	2360	1220
9	2860	3470	3590	5200	6440	8030	4930	3950	5240	1820	2030	935
10	2950	3520	2500	5400	5760	8030	4740	4930	5530	1700	1720	1010
11	2860	3770	1300	5400	5970	7660	4830	5140	3750	1870	1820	1130
12	3430	3320	800	5200	6330	9290	5050	5550	3790	1600	1730	965
13	3090	3410	600	4900	5710	6730	4880	5000	4280	1710	1510	1070
14	3600	3610	500	5000	4390	6750	5150	4000	10400	1670	2050	1170
15	3310	3530	560	5200	3310	8530	4100	4240	8810	1730	1820	969
16	3540	3170	660	6200	2670	6800	4380	6640	18400	1540	2040	1350
17	3310	2180	780	6000	1960	4270	4030	5830	33600	1420	1720	973
18	3560	3000	860	5800	1600	5550	4290	5140	25800	1200	2050	1680
19	3800	4150	950	5600	2960	6010	4290	4940	13000	1150	2720	1930
20	3560	3570	1000	5200	3300	4860	4350	5580	7240	1400	2390	1440
21	3750	4170	1400	5000	4070	4520	4260	5060	5540	1340	3200	2370
22	4030	4080	2200	4800	5240	4230	3880	5570	8750	1840	2380	2020
23	3370	3440	2200	4700	5960	4250	3460	5820	9010	1620	2580	2670
24	4490	3750	2100	4600	6760	4140	3940	5460	5560	1590	2210	2130
25	3740	4120	2150	4800	5110	4890	3590	6000	4830	2260	1990	2730
26	3620	4660	2300	5400	4470	5190	3690	6100	3390	4500	2030	2150
27	4370	4150	2400	5800	4550	5220	3950	5210	3830	5590	2370	2230
28	4190	3160	2600	5800	4290	4780	3500	4280	3920	4470	2470	2360
29	4220	2940	3000	5400	---	5410	4230	4470	3420	4500	1850	1940
30	4860	1600	3700	5200	---	5480	4200	4410	2800	6040	1530	2520
31	4610	---	4500	4800	---	6120	---	4420	---	3860	1690	---
TOTAL	106020	108940	76980	161000	119970	173160	134950	153280	225330	74640	69240	47454
MEAN	3420	3631	2483	5194	4285	5586	4498	4945	7511	2408	2234	1582
MAX	4860	5530	6000	6200	7220	9290	6020	6640	33600	6040	3450	2730
MIN	2270	1600	500	4600	1600	4040	3460	3830	2800	1150	1510	842
AC-FT	210300	216100	152700	319300	238000	343500	267700	304000	446900	148000	137300	94120

CAL YR 1989 TOTAL 1334465 MEAN 3656 MAX 19800 MIN 500 AC-FT 2647000
WTR YR 1990 TOTAL 1450964 MEAN 3975 MAX 33600 MIN 500 AC-FT 2878000

PLATTE RIVER BASIN

06796973 ELKHORN RIVER NEAR ATKINSON, NE

LOCATION.--Lat 42°29'12", long 98°54'42", in SW1/4NW1/4 sec.13, T.29 N., R.14 W, Holt County, Hydrologic Unit 10220001, on left bank 10 ft downstream from county road bridge, 4.0 mi southeast of Atkinson.

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,042 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 16 to Feb. 21. Records good except for period of estimated daily discharges, which is poor. Minor diversions for irrigation above station.

COOPERATION.--Discharge record furnished by Nebraska Department of Water Resources.

AVERAGE DISCHARGE.--8 years (water years 1983-90), 100 ft³/s, 72,450 acre-ft/year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s Apr.8, 1984, gage height, 8.41 ft; minimum daily, 2.6 ft³/s Aug. 19, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85 ft³/s Aug. 23, gage height, 3.26 ft; minimum daily, 2.6 ft³/s Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	14	15	13	20	25	27	26	50	14	5.9	33
2	10	13	14	17	22	25	27	25	50	13	10	34
3	10	14	15	18	22	25	27	25	52	11	7.9	32
4	11	14	17	19	20	25	26	25	52	9.8	7.3	28
5	11	14	18	18	19	25	25	23	49	9.9	7.1	25
6	10	14	19	19	18	27	26	23	44	9.3	7.0	21
7	11	14	18	20	20	32	26	23	41	10	6.4	16
8	11	15	17	22	19	32	25	27	37	9.0	5.6	14
9	11	15	15	21	17	36	26	37	33	8.9	5.1	12
10	11	15	14	19	18	45	25	45	29	16	4.6	11
11	11	15	11	18	19	46	25	45	28	18	5.5	10
12	11	15	12	19	20	44	25	45	24	17	4.5	9.8
13	11	15	13	20	17	39	27	44	23	16	4.9	8.8
14	11	15	9.0	22	18	38	27	44	20	15	4.8	8.0
15	11	16	10	23	15	37	27	44	24	14	4.7	7.4
16	11	10	10	22	16	35	26	43	24	13	4.3	6.8
17	11	10	11	19	20	35	26	40	25	12	4.0	7.0
18	11	12	8.0	20	19	34	26	37	23	10	3.0	8.2
19	11	11	8.6	20	25	32	26	36	21	9.6	2.6	8.7
20	11	11	8.0	17	29	32	26	35	20	10	2.7	8.7
21	12	11	7.4	24	31	31	25	35	19	9.4	2.7	8.5
22	11	12	7.0	26	30	29	25	35	20	9.4	5.6	8.0
23	12	12	11	27	28	29	26	34	19	9.5	54	8.4
24	11	11	13	21	27	28	26	32	18	9.6	39	9.4
25	12	12	14	22	27	29	25	44	17	8.3	35	8.9
26	11	13	15	23	28	28	25	57	25	8.5	40	8.4
27	12	13	16	21	26	28	25	61	21	7.5	37	8.1
28	13	14	15	20	26	28	25	62	18	7.0	37	7.8
29	13	15	14	17	---	28	27	58	17	7.0	35	7.8
30	13	14	13	18	---	28	26	58	16	6.5	31	8.9
31	13	---	12	15	---	28	---	56	---	6.4	30	---
TOTAL	349	399	400.0	620	616	983	776	1224	859	334.6	454.2	393.6
MEAN	11.3	13.3	12.9	20.0	22.0	31.7	25.9	39.5	28.6	10.8	14.7	13.1
MAX	13	16	19	27	31	46	27	62	52	18	54	34
MIN	10	10	7.0	13	15	25	25	23	16	6.4	2.6	6.8
AC-FT	692	791	793	1230	1220	1950	1540	2430	1700	664	901	781

CAL YR 1989 TOTAL 7481.2 MEAN 20.5 MAX 90 MIN 4.4 AC-FT 14840
WTR YR 1990 TOTAL 7408.4 MEAN 20.3 MAX 62 MIN 2.6 AC-FT 14690

PLATTE RIVER BASIN

06797500 ELKHORN RIVER AT EWING, NE

LOCATION.--Lat 42°16'03", long 98°20'11", in NW1/4SW1/4 sec.35, T.27 N., R.9 W., Holt County, Hydrologic Unit 10220001, on right bank 800 ft downstream from bridge on State Highway L-45B, 0.8 mi north of Ewing, and 1.5 mi upstream from South Fork Elkhorn River.

DRAINAGE AREA.--1,400 mi², approximately, of which about 740 mi² contributes directly to surface runoff.

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

GAGE.--Water-stage recorder. Datum of gage is 1,836.24 ft, above National Geodetic Vertical Datum of 1929, levels by Nebraska Department of Roads. Prior to Oct. 22, 1952, at site 300 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 16-18, Nov. 22 to Dec. 3, Dec. 7 to Feb. 20, and Feb. 24, 25. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--43 years, 180 ft³/s, 130,400 acre-ft/yr; median of yearly mean discharges, 119 ft³/s, 86,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,500 ft³/s June 10, 1962, gage height, 10.60 ft; minimum daily, 5.2 ft³/s Sept. 6, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 11.32 ft June 23, 24, 1947, from floodmark at site 300 ft upstream, discharge, 6,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 23	2240	*253	*4.11	No peaks greater than base discharge.			
Minimum daily discharge, 12 ft ³ /s Aug. 18, 19.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	46	54	40	78	106	80	86	125	45	19	88
2	21	44	52	41	60	106	76	82	130	41	22	86
3	20	42	56	43	52	101	73	80	134	38	21	83
4	20	43	66	46	52	99	71	77	130	34	23	80
5	22	44	62	48	54	98	69	74	125	33	23	73
6	22	43	65	50	54	95	67	71	120	33	20	67
7	24	43	60	52	55	110	67	68	113	33	18	65
8	26	43	48	56	60	122	68	69	109	31	17	61
9	26	43	52	58	64	130	68	89	101	37	16	57
10	27	42	38	56	68	137	67	100	97	44	16	55
11	27	41	31	56	74	151	66	111	89	49	22	52
12	26	41	33	54	82	170	66	132	82	52	20	50
13	26	42	35	58	74	169	70	142	76	50	18	46
14	27	41	38	64	64	163	70	145	72	47	17	43
15	28	41	41	72	60	150	68	142	100	42	16	41
16	28	34	43	78	74	140	68	142	91	38	15	39
17	28	36	38	84	90	135	67	135	92	34	14	39
18	29	38	35	88	100	126	67	127	101	35	12	42
19	30	46	32	84	100	118	68	130	99	29	12	44
20	31	47	29	80	104	113	67	135	84	29	15	46
21	34	51	27	76	104	109	65	134	77	31	13	45
22	35	47	25	84	109	107	64	128	78	32	18	43
23	36	40	26	92	111	100	64	124	76	32	147	41
24	36	46	28	100	100	97	67	118	71	33	171	40
25	36	46	29	110	105	96	84	116	65	29	182	39
26	36	46	31	110	110	91	78	116	60	28	151	38
27	39	48	34	96	108	91	81	122	56	25	122	37
28	39	44	37	88	106	87	90	128	55	32	113	35
29	41	48	37	83	---	85	92	128	52	28	111	34
30	45	52	38	82	---	84	89	129	50	23	102	36
31	47	---	39	86	---	82	---	130	---	21	93	---
TOTAL	934	1308	1259	2215	2272	3568	2157	3510	2710	1088	1579	1545
MEAN	30.1	43.6	40.6	71.5	81.1	115	71.9	113	90.3	35.1	50.9	51.5
MAX	47	52	66	110	111	170	92	145	134	52	182	88
MIN	20	34	25	40	52	82	64	68	50	21	12	34
AC-FT	1850	2590	2500	4390	4510	7080	4280	6960	5380	2160	3130	3060

CAL YR 1989 TOTAL 20773.3 MEAN 56.9 MAX 220 MIN 7.2 AC-FT 41200
WTR YR 1990 TOTAL 24145 MEAN 66.2 MAX 182 MIN 12 AC-FT 47890

PLATTE RIVER BASIN

06798000 SOUTH FORK ELKHORN RIVER NEAR EWING, NE

LOCATION.--Lat 42°14'29", long 98°23'53", in SE1/4NE1/4 sec.7, T.26 N., R.9 W., Holt County, Hydrologic Unit 10220001, on right bank 17 ft downstream from bridge on county highway, 2.9 mi southwest of intersection with U.S. Highway 275 in Ewing and 5.5 mi upstream from mouth.

DRAINAGE AREA.--314 mi², approximately, of which about 190 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July 1947 to September 1953, August 1960 to September 1972, October 1977 to current year. Prior to October 1977 station published as "at Ewing" at sites 4.5 mi downstream at different datum.

GAGE.--Water-stage recorder. Elevation of gage is 1,880 ft from topographic map. See WSP 1918 for history of changes prior to June 14, 1963.

REMARKS.--Estimated daily discharges: Nov. 21 to Feb. 6, Feb. 12-23, and Feb. 25 to Mar. 4. Records fair except for periods of estimated record, which are poor.

COOPERATION.--Records furnished by Nebraska Department of Water Resources since Oct. 1, 1982.

AVERAGE DISCHARGE.--31 years (water years 1948-53, 1961-72, 1978-90) 68.5 ft³/s, 49,630 acre-ft/yr; median of yearly mean discharges, 52.8 ft³/s, 38,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,640 ft³/s Mar. 18, 1987, gage height, 7.59 ft; minimum discharge, 11 ft³/s Jan. 15, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1947, reached a stage of 7.22 ft, from floodmarks at site and datum then in use; discharge, about 3,400 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 19	1800	ice jam	*1.90	No peaks greater than base discharge.			
Aug. 23	0630	*130	1.77				

Minimum daily discharge, 21 ft³/s Aug. 18-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	31	31	36	33	35	36	34	40	37	29	36
2	25	31	32	37	33	35	37	33	43	36	32	39
3	26	31	31	37	34	35	37	33	39	36	27	35
4	32	31	34	36	35	38	40	33	37	35	26	34
5	36	31	33	36	35	35	38	34	37	34	26	34
6	32	32	33	36	36	35	37	33	36	31	25	33
7	31	32	31	37	37	47	40	33	36	32	23	32
8	34	32	30	37	38	43	43	34	35	28	23	33
9	34	32	31	37	43	44	40	42	32	40	22	31
10	35	32	30	37	39	42	37	36	34	43	23	32
11	38	32	30	37	41	47	39	39	36	38	28	31
12	36	32	31	36	42	47	36	47	37	35	28	29
13	37	32	29	35	41	45	39	43	35	35	26	30
14	36	32	28	35	38	43	36	40	37	34	26	30
15	37	32	27	36	36	39	38	44	94	33	25	30
16	36	33	28	36	35	38	38	46	72	34	24	29
17	34	33	28	37	35	37	37	39	72	34	23	30
18	32	33	29	37	35	35	38	40	85	33	21	34
19	33	33	28	36	35	37	40	47	100	31	21	32
20	34	33	29	35	34	36	43	45	84	30	21	31
21	34	33	28	33	36	38	43	43	62	28	21	30
22	33	31	28	34	36	38	44	45	55	28	32	28
23	33	30	27	35	37	38	45	47	52	29	94	31
24	35	31	33	38	37	38	45	46	51	29	48	33
25	38	32	38	37	35	39	40	46	45	29	39	31
26	39	31	39	38	35	35	38	41	46	30	39	31
27	38	29	40	38	34	37	37	40	41	30	45	31
28	31	29	40	37	34	37	36	41	39	39	41	31
29	31	29	41	36	---	35	36	41	39	39	40	31
30	31	31	40	35	---	35	33	42	37	31	38	31
31	32	---	38	34	---	36	---	40	---	30	36	---
TOTAL	1038	946	995	1121	1019	1199	1166	1247	1488	1031	972	953
MEAN	33.5	31.5	32.1	36.2	36.4	38.7	38.9	40.2	49.6	33.3	31.4	31.8
MAX	39	33	41	38	43	47	45	47	100	43	94	39
MIN	25	29	27	33	33	35	33	33	32	28	21	28
AC-FT	2060	1880	1970	2220	2020	2380	2310	2470	2950	2040	1930	1890

CAL YR 1989 TOTAL 12446 MEAN 34.1 MAX 63 MIN 20 AC-FT 24690
WTR YR 1990 TOTAL 13175 MEAN 36.1 MAX 100 MIN 21 AC-FT 26130

PLATTE RIVER BASIN

06798300 CLEARWATER CREEK NR CLEARWATER, NE

LOCATION.--Lat 42°08'20", long 98°12'10", in SW1/4NW1/4 sec.13, T.25 N., R.8 W., Antelope County, Hydrologic Unit 10220001, on left bank at downstream side of county road bridge, 0.5 mi west and 2 mi south of Clearwater, and about 3 mi upstream from mouth.

DRAINAGE AREA.--210 mi², approximately, of which about 130 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July 1961 to September 1964, October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,810 ft above National Geodetic Vertical Datum of 1929 from topographic map. Prior to Sept., wire-weight gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 16-20, 23-24, Nov. 28 to Dec. 2, Dec. 11 to Jan. 6, Jan. 12-14, 22, Feb. 1-4, 14-20, July 1-2, 4-7, 14, 30-31, Aug. 1-4, 18-23, 26-27, 29-31, Sept. 1, and Sept. 3-5. Records good except for periods of estimated record, which are poor.

COOPERATION.--Records were furnished by Nebraska Department of Water Resources.

AVERAGE DISCHARGE.--16 years (water years 1962-64, 1978-90), 42.3 ft³/s, 30,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1510 ft³/s Mar. 18, 1987, gage height, 9.00 ft; maximum gage height, 9.00 ft Aug. 5, 1981 and Mar. 18, 1987; minimum daily discharge, 4.4 ft³/s Aug. 8, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	0700	*546	*6.08	Aug 24	0630	187	4.82
July 28	2330	251	4.85	Sept. 2	0630	367	5.46

Minimum daily discharge, 13 ft³/s July 19, 21-23, 25-27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	21	26	24	26	26	27	24	22	17	22	18
2	18	20	24	25	22	27	26	23	36	17	21	163
3	18	21	23	26	23	27	26	22	35	17	21	54
4	19	22	26	27	24	28	25	23	35	15	20	36
5	19	20	24	27	25	27	23	21	34	15	21	29
6	18	20	25	28	24	27	24	20	28	16	20	26
7	18	19	24	30	24	45	25	20	24	18	18	23
8	20	19	22	29	24	51	25	21	22	16	17	23
9	19	19	25	29	25	62	25	35	21	17	15	23
10	21	20	24	30	25	63	25	32	19	26	14	23
11	20	22	21	29	26	55	25	29	17	27	20	23
12	21	21	20	26	26	49	24	31	16	23	21	22
13	22	21	19	24	24	41	27	31	15	20	18	20
14	21	22	19	28	16	37	28	29	20	20	17	21
15	22	21	19	31	20	34	27	32	369	18	18	22
16	22	21	18	30	21	33	25	32	191	18	18	22
17	24	21	18	30	20	31	26	27	119	14	16	23
18	24	21	18	29	23	28	27	23	85	15	14	25
19	24	22	18	29	25	27	27	49	54	13	14	25
20	24	23	18	31	27	27	27	47	36	15	17	24
21	25	23	18	32	29	27	25	40	32	13	18	22
22	23	24	18	34	25	25	24	33	29	13	36	21
23	24	24	18	34	26	26	24	28	26	13	33	22
24	24	25	19	34	26	26	27	25	24	14	116	23
25	24	27	25	32	27	27	26	30	23	13	58	22
26	24	26	28	32	27	28	25	29	25	13	37	23
27	25	24	30	31	26	28	25	26	39	13	29	22
28	24	22	29	31	26	28	25	25	33	48	24	23
29	25	24	28	32	---	28	27	23	26	110	24	23
30	23	25	26	30	---	29	26	22	21	38	25	23
31	23	---	25	28	---	29	---	21	---	26	20	---
TOTAL	676	660	695	912	682	1046	768	873	1476	671	782	869
MEAN	21.8	22.0	22.4	29.4	24.4	33.7	25.6	28.2	49.2	21.6	25.2	29.0
MAX	25	27	30	34	29	63	28	49	369	110	116	163
MIN	18	19	18	24	16	25	23	20	15	13	14	18
AC-FT	1340	1310	1380	1810	1350	2070	1520	1730	2930	1330	1550	1720

CAL YR 1989 TOTAL 8570.8 MEAN 23.5 MAX 71 MIN 4.8 AC-FT 17000
WTR YR 1990 TOTAL 10110 MEAN 27.7 MAX 369 MIN 13 AC-FT 20050

PLATTE RIVER BASIN

06798500 ELKHORN RIVER AT NELIGH, NE

LOCATION.--Lat 42°07'20", long 98°01'40", in SE1/4NE1/4 sec.20, T.25 N., R.6 W., Antelope County, Hydrologic Unit 10220001, on right bank 30 ft downstream from bridge on old State Highway 14 at Neligh.

DRAINAGE AREA.--2,200 mi², approximately, of which about 1,200 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1930 to September 1958, August 1960 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1006: 1935, 1942. WSP 1390: 1931-32, 1937(M). WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,714.00 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 16, 1933, nonrecording gage at site 10 ft downstream at present datum. Apr. 16, 1933, to Jan. 23, 1939, nonrecording gage at bridge 30 ft upstream at present datum. Jan. 24, 1939, to Oct. 9, 1958, and Aug. 8, 1960, to Sept. 8, 1970, water-stage recorder at site 20 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 16-18, 22-24, Nov. 27 to Dec. 4, Dec. 18 to Feb. 4, and Feb. 13-17. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--58 years, 303 ft³/s, 219,500 acre-ft/yr; median of yearly mean discharges, 238 ft³/s, 172,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s Mar. 19, 1987, gage height, 11.99 ft; maximum gage height, 12.53 ft June 23, 1947; minimum daily, 12 ft³/s July 2, 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 29, 1960, reached a stage of 12.24 ft, from floodmark, discharge, 12,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	1337	*1120	*5.30	No other peak greater than base discharge.			
Minimum daily discharge, 33 ft ³ /s Aug. 20.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	111	130	120	130	188	190	184	198	124	89	151
2	70	110	125	120	150	188	178	179	252	114	79	284
3	73	111	106	130	160	181	168	177	282	110	87	313
4	76	113	120	135	175	173	164	172	248	97	87	206
5	85	113	157	150	206	172	152	170	228	92	74	173
6	84	110	161	150	197	169	143	164	248	96	68	152
7	84	110	143	155	199	223	142	159	216	99	64	136
8	92	110	115	160	204	284	140	154	211	101	60	127
9	95	108	110	165	199	308	142	195	197	112	58	117
10	90	109	90	180	203	321	143	209	188	145	54	114
11	93	110	78	155	197	330	138	200	171	165	59	110
12	91	110	86	145	196	355	137	213	154	150	69	103
13	95	111	92	140	100	358	148	232	138	140	63	101
14	98	110	98	150	72	342	164	227	140	129	55	93
15	99	108	106	155	66	311	165	227	820	120	51	91
16	95	105	114	165	110	280	162	232	647	109	57	88
17	93	100	118	170	190	264	155	206	387	96	48	86
18	94	107	114	155	214	242	156	181	296	85	40	91
19	93	134	110	145	226	219	150	203	261	81	35	97
20	94	149	104	140	227	207	154	208	239	78	33	100
21	96	126	96	130	244	206	155	186	200	77	35	102
22	98	110	86	150	246	204	152	163	182	76	51	99
23	99	100	80	190	247	186	149	144	170	77	160	93
24	100	106	86	190	234	180	162	133	160	86	372	93
25	106	135	92	180	223	182	155	134	154	85	352	93
26	111	126	96	190	203	186	169	136	147	83	276	91
27	116	96	102	190	195	187	171	138	144	78	216	90
28	115	88	116	170	193	185	171	144	146	80	191	81
29	114	86	130	160	---	186	187	154	139	215	180	80
30	111	104	130	150	---	187	190	184	133	155	172	80
31	111	---	125	140	---	189	---	201	---	110	157	---
TOTAL	2945	3326	3416	4825	5206	7193	4752	5609	7086	3365	3392	3635
MEAN	95.0	111	110	156	186	232	158	181	237	109	109	121
MAX	116	149	161	190	247	358	190	232	820	215	372	313
MIN	70	86	78	120	66	169	137	133	133	76	33	80
AC-FT	5840	6600	6780	9570	10330	14270	9430	11130	14070	6670	6730	7210

CAL YR 1989 TOTAL 49783 MEAN 136 MAX 451 MIN 33 AC-FT 98740
WTR YR 1990 TOTAL 54760 MEAN 150 MAX 820 MIN 33 AC-FT 108600

PLATTE RIVER BASIN

06799000 ELKHORN RIVER AT NORFOLK, NE

LOCATION.--Lat 42°00'14", long 97°25'31", in SW1/4SW1/4 sec.34, T.24 N., R.1 W., Madison County, Hydrologic Unit 10220001, on left bank 200 ft downstream from U.S. Highway 81 bridge, 1 mi south of intersection of U.S. Highways 81 and 275, and 3.6 mi upstream from North Fork Elkhorn River.

DRAINAGE AREA.--2,790 mi², approximately, of which about 1,790 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1896 to November 1903 (no winter records), October 1945 to current year. Gage height records collected at site 200 ft upstream from May 10, 1941 to Sept. 26, 1945 are contained in reports of U.S. Weather Bureau. Published as "near Norfolk" from October 1957 to September 1977.

REVISED RECORDS.--WSP 1390: 1898-1900. WSP 1730: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,502.95 ft above National Geodetic Vertical Datum of 1929. See WSP 1918 for history of changes prior to Aug. 30, 1958. Aug. 30, 1958, to July 27, 1978, water-stage recorder at site 3.2 mi upstream at datum 19.88 ft higher and July 28, 1978 to Mar. 18, 1987, present site at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 16 to Feb. 25. Records fair except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--45 years, 509 ft³/s, 368,800 acre-ft/yr; median of yearly mean discharges, 411 ft³/s, 298,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s June 14, 1967, gage height, 8.52 ft, site and datum then in use; maximum gage height observed, 15.63 ft Mar. 11, 1949, at site 200 ft upstream at present datum, backwater from ice; minimum daily discharge, 33 ft³/s Aug. 3, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 13, 1944, reached a stage of 13.8 ft, at site 200 ft upstream at present datum, discharge, 14,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	1300	*10500	*9.25	No other peak greater than base discharge.			
Minimum daily discharge, 95 ft ³ /s Aug. 21.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	184	220	215	190	259	323	289	325	300	276	203
2	127	184	230	220	190	255	317	267	326	278	239	211
3	123	184	220	230	185	250	308	257	328	235	229	244
4	125	188	250	245	250	249	304	258	361	206	364	359
5	134	192	290	260	320	246	295	248	360	185	348	265
6	137	188	270	270	410	246	289	258	325	210	220	225
7	137	189	240	280	430	305	276	259	315	222	182	210
8	144	192	220	290	430	360	272	256	329	177	168	199
9	157	197	240	280	380	403	271	311	335	162	149	194
10	162	196	150	270	360	436	269	328	345	252	140	186
11	165	199	98	260	360	459	269	331	364	405	140	187
12	158	196	130	240	370	483	261	338	379	332	146	183
13	161	194	125	230	320	532	269	343	385	248	157	177
14	164	192	120	260	210	732	283	371	379	221	158	170
15	166	186	150	260	170	650	284	395	2000	209	145	161
16	162	180	185	250	215	519	279	402	7440	187	140	152
17	154	165	190	240	280	482	262	400	4360	171	138	153
18	150	160	180	230	350	442	253	396	1650	151	135	167
19	150	160	165	225	380	428	243	408	970	162	121	185
20	150	175	155	220	400	410	248	407	658	547	103	191
21	158	170	150	215	360	406	260	452	527	332	95	189
22	168	170	150	210	340	401	273	438	480	193	121	178
23	175	160	155	220	320	375	277	438	420	165	127	167
24	181	165	160	220	300	350	283	399	385	167	158	158
25	186	175	190	210	290	337	307	389	351	172	368	155
26	185	185	200	220	285	341	287	374	346	200	432	152
27	181	200	215	210	276	344	282	371	315	182	356	145
28	181	185	210	200	260	344	273	353	270	215	302	141
29	186	170	210	220	---	343	280	334	297	787	262	139
30	191	200	220	230	---	336	282	330	300	485	234	140
31	186	---	220	210	---	330	---	328	---	385	215	---
TOTAL	4942	5481	5908	7340	8641	12053	8379	10728	25625	8143	6368	5586
MEAN	159	183	191	237	309	389	279	346	854	263	205	186
MAX	191	200	290	290	430	732	323	452	7440	787	432	359
MIN	123	160	98	200	170	246	243	248	270	151	95	139
AC-FT	9800	10870	11720	14560	17140	23910	16620	21280	50830	16150	12630	11080

CAL YR 1989 TOTAL 90378 MEAN 248 MAX 1700 MIN 50 AC-FT 179300
WTR YR 1990 TOTAL 109194 MEAN 299 MAX 7440 MIN 95 AC-FT 216600

PLATTE RIVER BASIN

155

06799080 WILLOW CREEK NEAR FOSTER, NE

LOCATION.--Lat 42°10'38", long 97°40'02" in NW1/4NE1/4 sec.4, T.25 N., R.3 W., Pierce County, Hydrologic Unit 10220002, on left downstream bank at county road bridge, 6.8 mi south of Foster and 7.2 mi southwest of Pierce.

DRAINAGE AREA.--137 mi².

PERIOD OF RECORD.--October 1975 (monthly discharge only) to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,650 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 15 to Feb. 28. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--15 years, 14.4 ft³/s, 10,400 acre-ft/yr; median of yearly mean discharges, 9.45 ft³/s, 6,850 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 574 ft³/s Mar. 18, 1987, gage height, 7.94 ft; maximum gage height, 8.28 ft Feb. 24, 1983, backwater from ice; minimum daily discharge, 1.5 ft³/s Feb. 2, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 13	1354	(a)	*3.47	No peaks greater than base discharge.			
Mar. 14	0742	*21	3.21				

a Backwater from ice.

Minimum daily discharge, 2.1 ft³/s Aug. 1, 7, 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	6.6	7.2	7.0	8.3	7.9	8.3	8.9	9.2	4.4	2.1	3.3
2	4.7	6.7	6.9	7.6	7.8	7.8	7.9	8.6	9.6	3.9	2.6	5.0
3	5.4	6.8	7.6	8.0	7.1	7.9	7.9	8.3	9.8	3.8	3.4	4.7
4	5.4	7.0	8.2	7.9	8.0	7.9	7.9	8.3	10.0	3.8	4.5	4.1
5	5.5	7.0	7.2	7.6	8.4	7.9	7.7	7.9	9.0	4.4	3.2	3.8
6	5.3	7.0	7.3	7.4	8.1	7.8	7.8	7.7	8.4	4.4	2.9	3.7
7	5.3	7.0	7.0	7.6	8.4	12	7.9	7.5	8.1	4.5	2.1	3.7
8	5.6	6.9	7.4	8.2	8.8	12	7.8	7.2	8.1	3.3	2.0	3.9
9	5.5	6.9	8.0	7.8	9.9	11	7.8	12	7.6	3.9	2.0	3.9
10	5.4	6.8	6.0	7.8	8.3	10	8.2	10	7.4	5.2	2.8	4.1
11	5.4	6.8	4.7	7.0	8.5	11	8.0	9.1	7.4	5.2	3.0	4.0
12	5.2	6.8	5.2	6.4	8.8	11	7.9	10	7.0	4.7	3.2	4.0
13	5.4	6.8	6.0	7.8	7.4	11	8.4	11	6.8	4.5	3.1	3.8
14	5.2	6.9	5.6	10	8.2	17	8.5	10	6.3	4.4	2.5	3.7
15	5.3	6.6	5.2	8.6	8.4	12	8.2	11	8.2	4.3	2.6	3.5
16	5.2	6.5	5.3	7.6	8.4	11	8.1	11	9.7	4.1	3.0	3.4
17	5.3	6.3	5.4	8.0	8.3	10	8.4	10	8.8	3.8	2.7	3.5
18	5.4	6.2	5.5	8.2	8.5	9.8	8.0	10	7.5	2.9	3.1	4.1
19	5.5	7.6	5.4	7.9	8.4	9.5	8.2	13	7.2	3.2	3.2	4.3
20	5.7	7.2	5.0	6.8	8.0	9.7	8.1	12	7.0	3.4	3.1	4.3
21	6.0	6.8	4.9	6.0	8.0	9.3	7.8	12	6.9	3.4	3.1	4.1
22	5.8	6.6	5.7	7.6	8.2	8.9	7.8	11	7.2	2.7	2.8	3.9
23	5.8	7.2	6.6	9.7	8.4	8.5	7.7	12	6.8	2.6	3.2	4.0
24	5.8	7.4	7.2	8.0	7.5	8.8	13	11	6.5	3.4	4.4	4.1
25	5.9	7.0	7.6	7.4	7.1	9.0	10	11	6.3	2.5	5.0	3.7
26	5.9	6.3	7.4	7.8	10	8.7	10	9.7	6.0	3.6	4.0	3.9
27	5.9	5.9	7.0	8.2	8.2	8.6	9.5	9.4	5.7	3.4	3.5	3.7
28	6.2	6.2	7.8	8.4	7.8	8.4	9.4	9.5	5.5	3.4	3.4	3.5
29	7.0	6.8	8.2	8.0	---	8.4	9.7	9.0	5.1	3.7	3.5	3.7
30	6.7	7.6	8.3	7.8	---	8.4	9.6	9.0	4.7	3.3	3.4	3.8
31	6.5	---	7.6	8.6	---	8.5	---	9.1	---	2.8	3.3	---
TOTAL	174.4	204.2	204.4	242.7	231.2	299.7	255.5	306.2	223.8	116.9	96.7	117.2
MEAN	5.63	6.81	6.59	7.83	8.26	9.67	8.52	9.88	7.46	3.77	3.12	3.91
MAX	7.0	7.6	8.3	10	10	17	13	13	10	5.2	5.0	5.0
MIN	4.7	5.9	4.7	6.0	7.1	7.8	7.7	7.2	4.7	2.5	2.0	3.3
AC-FT	346	405	405	481	459	594	507	607	444	232	192	232

CAL YR 1989 TOTAL 2869.1 MEAN 7.86 MAX 60 MIN 3.8 AC-FT 5690
WTR YR 1990 TOTAL 2472.9 MEAN 6.78 MAX 17 MIN 2.0 AC-FT 4900

PLATTE RIVER BASIN

06799100 NORTH FORK ELKHORN RIVER NEAR PIERCE, NE

LOCATION.--Lat 42°10'44", long 97°29'04", in SW1/4 sec.31, T.26 N., R.1 W., Pierce County, Hydrologic Unit 10220002, on left downstream wingwall of county road bridge, 2.5 mi southeast of Pierce.

DRAINAGE AREA.--700 mi², approximately, of which about 30 mi² is noncontributing.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,553.07 ft above National Geodetic Vertical Datum of 1929 (U.S. Weather Bureau levels).

REMARKS.--Estimated daily discharges: Nov. 16-19, 22-24, 28, 29, Dec. 2, 3, Dec. 8 to Feb. 4, Feb. 14-21, Mar. 13, and June 17 to July 2. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--30 years, 87.8 ft³/s, 63,600 acre-ft/yr; median of yearly mean discharges, 66.3 ft³/s, 48,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft³/s Feb. 19, 1971, gage height, 15.10 ft; minimum daily, 2.7 ft³/s July 29, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 870 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 31	0733	(a)	*3.24	No peaks greater than base discharge.			
May 26	0234	*46	2.76				

a Backwater from ice.

Minimum daily discharge, 2.9 ft³/s Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	19	24	19	27	28	27	30	34	16	11	4.9
2	15	18	20	20	26	28	28	29	35	16	11	9.0
3	14	18	25	21	24	28	26	30	35	15	11	11
4	14	18	29	21	30	28	25	31	33	10	11	8.5
5	15	18	24	22	38	28	28	30	33	10	10	7.5
6	15	18	23	23	29	29	27	29	31	8.6	10	7.2
7	15	18	22	24	27	36	27	26	31	9.4	7.7	6.6
8	15	18	23	25	27	37	28	26	31	8.7	6.6	6.6
9	16	17	21	26	28	37	28	36	31	12	5.9	7.5
10	16	17	19	27	26	34	29	37	30	18	5.1	7.5
11	16	17	22	28	26	30	27	33	30	20	7.4	7.8
12	15	16	21	29	28	32	27	35	30	20	9.1	8.3
13	15	16	21	26	26	35	28	36	30	17	8.3	8.0
14	15	16	20	27	25	39	29	34	29	15	5.6	7.9
15	16	15	19	27	23	35	29	34	33	14	3.6	8.5
16	17	15	18	25	21	32	28	35	41	12	3.2	9.5
17	18	14	17	23	20	30	28	33	37	10	2.9	9.7
18	17	14	17	25	25	29	28	32	34	10	3.7	11
19	16	23	16	27	29	28	28	39	31	9.5	4.0	13
20	20	18	17	25	35	29	29	41	28	25	4.2	13
21	19	19	17	21	44	30	28	39	26	14	4.6	12
22	19	17	16	25	33	28	28	35	23	7.3	6.8	11
23	18	18	16	26	31	28	27	38	21	6.3	7.6	11
24	18	18	17	24	28	28	38	43	19	8.6	9.9	12
25	17	19	18	26	27	28	33	45	17	8.6	11	11
26	17	16	19	27	37	29	30	46	16	11	11	11
27	17	15	19	25	32	28	29	42	15	11	8.8	11
28	17	14	20	29	27	27	31	38	15	11	9.0	11
29	19	18	21	27	---	26	32	36	16	13	7.4	11
30	19	22	20	25	---	27	32	34	16	13	6.8	12
31	19	---	19	30	---	27	---	34	---	12	5.4	---
TOTAL	513	519	620	775	799	938	862	1086	831	392.0	229.6	286.0
MEAN	16.5	17.3	20.0	25.0	28.5	30.3	28.7	35.0	27.7	12.6	7.41	9.53
MAX	20	23	29	30	44	39	38	46	41	25	11	13
MIN	14	14	16	19	20	26	25	26	15	6.3	2.9	4.9
AC-FT	1020	1030	1230	1540	1580	1860	1710	2150	1650	778	455	567

CAL YR 1989 TOTAL 10532.8 MEAN 28.9 MAX 600 MIN 2.7 AC-FT 20890
WTR YR 1990 TOTAL 7850.6 MEAN 21.5 MAX 46 MIN 2.9 AC-FT 15570

PLATTE RIVER BASIN

157

06799230 UNION CREEK AT MADISON, NE

LOCATION.--Lat 41°49'52", long 97°27'19", in SW1/4SE1/4 sec.32, T.22 N., R.1 W., Madison County, Hydrologic Unit 10220003, on left bank 12 ft downstream from bridge on U.S. Highway 81, in Madison.

DRAINAGE AREA.--174 mi².

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,549.70 ft, above National Geodetic Vertical Datum of 1929, levels by Nebraska Natural Resources Commission.

REMARKS.--Estimated daily discharges: Feb. 7, 9-11. Records good, except those for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--12 years, 42.0 ft³/s, 30,430 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft³/s June 16, 1990, gage height, 25.72 ft; minimum daily, 3.6 ft³/s July 30, 31, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	0740	11500	24.72	June 17	0615	6290	22.66
June 16	0410	*15100	*25.72	June 28	2330	1360	16.54

Minimum daily discharge, 5.7 ft³/s Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	15	22	17	19	21	19	18	18	25	24	5.7
2	16	15	23	17	19	21	18	17	19	24	24	7.6
3	15	16	22	17	19	21	18	17	19	21	32	9.6
4	14	15	24	17	18	21	17	16	20	19	41	15
5	14	15	22	17	20	20	17	16	18	19	27	10
6	13	15	20	17	20	20	17	16	16	15	22	8.6
7	14	15	18	18	20	33	17	16	17	16	15	8.6
8	14	16	18	18	21	48	17	14	19	16	14	8.7
9	13	17	18	18	22	95	21	32	27	17	14	11
10	12	17	18	19	22	38	20	27	22	46	14	13
11	12	18	17	19	24	28	19	21	18	41	17	12
12	11	18	17	17	26	28	19	20	17	20	14	12
13	11	19	17	19	26	31	19	21	167	18	12	13
14	10	20	17	19	22	56	19	22	139	15	8.7	14
15	11	19	18	20	20	41	19	25	4840	11	9.0	16
16	10	18	16	20	19	28	19	29	7590	10	8.7	16
17	10	19	15	20	18	25	19	25	3770	13	7.6	16
18	10	19	15	20	18	23	19	21	389	9.6	12	18
19	9.9	19	15	20	18	22	18	39	81	94	17	15
20	9.6	20	16	20	19	22	18	49	55	110	20	13
21	10	19	14	20	21	21	18	27	48	42	17	14
22	11	19	15	20	22	20	18	22	49	24	10	14
23	11	18	16	21	23	19	18	23	54	18	18	14
24	11	18	16	22	22	19	17	20	42	14	30	14
25	13	19	16	21	21	20	18	21	34	14	6.6	14
26	14	22	16	21	20	20	17	20	33	15	6.2	13
27	15	25	16	21	20	20	17	19	31	15	6.3	13
28	17	21	17	21	20	19	17	19	29	379	6.3	12
29	16	21	19	22	---	21	18	17	29	888	6.6	12
30	15	23	18	22	---	20	18	17	26	65	9.2	14
31	15	---	18	21	---	20	---	17	---	32	9.2	---
TOTAL	393.5	550	549	601	579	861	545	683	17636	2065.6	478.4	376.8
MEAN	12.7	18.3	17.7	19.4	20.7	27.8	18.2	22.0	588	66.6	15.4	12.6
MAX	17	25	24	22	26	95	21	49	7590	888	41	18
MIN	9.6	15	14	17	18	19	17	14	16	9.6	6.2	5.7
AC-FT	781	1090	1090	1190	1150	1710	1080	1350	34980	4100	949	747

CAL YR 1989 TOTAL 10427.7 MEAN 28.6 MAX 848 MIN 4.4 AC-FT 20680
WTR YR 1990 TOTAL 25318.3 MEAN 69.4 MAX 7590 MIN 5.7 AC-FT 50220

PLATTE RIVER BASIN

06799350 ELKHORN RIVER AT WEST POINT, NE

LOCATION.--Lat 41°50'22", long 96°43'38", in SW1/4NW1/4 sec.34, T.22 N., R.6 E., Cuming county, Hydrologic Unit 10220003, on right bank near right downstream wingwall of bridge on State Highway 32 and 1 mi west of West Point.

DRAINAGE AREA.--5,100 mi², approximately, of which about 4,100 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1972 to current year. March 1960 to September 1972 (no winter records 1960-68) in files of Corps of Engineers. Gage-height records collected since 1940 are in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 1,291.26 ft above National Geodetic Vertical Datum of 1929. Prior to May 18, 1976, at site on left bank 50 ft upstream from bridge at same datum.

REMARKS.--Estimated daily discharges: Nov. 16 to Feb. 24. Records good except for period of estimated record, which is poor. Some small diversions above station for irrigation.

AVERAGE DISCHARGE.--22 years (water years 1969-90), 855 ft³/s, 619,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, 33,000 ft³/s June 25, 1969, gage height, 13.21 ft; maximum gage height, 16.09 ft Mar. 18, 1978, ice jam; minimum daily, 41 ft³/s Aug. 31, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 31, 1960 reached a stage of 16.09 ft, backwater from ice; observed by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 17	0415	*30300	*14.71	No other peak greater than base discharge.			
Minimum daily discharge, 174 ft ³ /s July 19.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	311	360	280	270	433	515	423	534	353	808	379
2	228	311	320	290	280	424	482	436	554	313	620	370
3	228	313	290	300	300	418	468	445	604	282	503	370
4	233	319	270	330	350	418	457	429	572	244	458	349
5	257	322	320	320	440	399	434	410	595	212	486	412
6	251	317	320	320	500	383	425	409	577	194	499	389
7	250	321	310	330	520	431	418	405	507	195	364	342
8	258	328	300	340	550	489	418	384	485	188	306	318
9	260	337	300	360	540	557	423	492	470	201	274	305
10	260	334	220	380	540	619	443	656	440	307	260	284
11	261	340	230	380	520	649	430	641	439	601	257	267
12	255	334	260	360	490	602	413	617	400	487	252	258
13	255	345	240	350	440	596	417	602	2200	436	247	247
14	257	345	250	380	370	803	421	590	1160	326	247	223
15	264	351	260	380	280	1520	426	698	3990	270	243	212
16	265	310	260	370	350	1060	424	827	21100	247	231	202
17	267	290	260	360	400	653	435	911	25500	225	221	201
18	267	270	250	360	430	559	439	800	9450	187	211	224
19	272	280	245	340	490	511	440	1080	3460	174	219	257
20	280	300	235	340	540	495	435	1010	2230	516	208	288
21	282	320	230	310	560	478	440	979	1570	660	203	280
22	287	310	230	340	580	469	434	875	1330	560	220	280
23	290	310	235	370	640	453	441	835	1090	259	239	277
24	278	320	240	370	540	443	450	789	905	212	305	280
25	290	320	245	360	452	430	448	750	747	193	364	280
26	295	320	250	370	501	426	519	694	633	239	428	266
27	292	310	260	350	444	436	497	654	579	228	552	256
28	293	300	270	340	440	447	459	632	492	265	537	255
29	310	270	290	360	---	474	450	587	429	2500	496	259
30	299	360	300	320	---	492	427	545	392	2740	444	266
31	310	---	300	290	---	526	---	530	---	1310	405	---
TOTAL	8325	9518	8350	10650	12757	17093	13328	20135	83434	15124	11107	8596
MEAN	269	317	269	344	456	551	444	650	2781	488	358	287
MAX	310	360	360	380	640	1520	519	1080	25500	2740	808	412
MIN	228	270	220	280	270	383	413	384	392	174	203	201
AC-FT	16510	18880	16560	21120	25300	33900	26440	39940	165500	30000	22030	17050

CAL YR 1989 TOTAL 157819 MEAN 432 MAX 6400 MIN 84 AC-FT 313000
WTR YR 1990 TOTAL 218417 MEAN 598 MAX 25500 MIN 174 AC-FT 433200

PLATTE RIVER BASIN

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06799385 PEBBLE CREEK AT SCRIBNER, NE

LOCATION.--Lat 41°39'34", long 96°41'00", in NW1/4SE1/4 sec.36, T.20 N., R.6 E., Dodge County, Hydrologic Unit 10220003, on right bank 12 ft downstream from bridge on county road, 1 mi southwest of Scribner and 3 mi upstream from mouth.

DRAINAGE AREA.--204 mi².

PERIOD OF RECORD.--October 1978 to current year.

REVISED RECORDS.--WRD NE-82-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,234.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 15-18, Nov. 27 to Feb. 5, and Feb. 13 to Mar. 3. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--12 years, 66.2 ft³/s, 47,960 acre-ft/yr; median of yearly mean discharges, 51.4 ft³/s, 37,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s June 17, 1990, gage height, 23.90 ft; minimum daily, 0.29 ft³/s July 20, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 13	0931	4060	18.24	July 25	1538	2010	13.95
June 15	0831	4560	19.47	Aug. 3	0039	1150	10.73
June 17	0502	*23000	*23.90				

Minimum daily discharge, 9.5 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	15	14	13	13	15	20	13	20	58	25	10
2	14	15	13	14	13	16	17	13	20	54	52	11
3	14	16	14	15	12	16	16	13	20	51	217	12
4	14	15	15	15	14	16	16	15	18	42	29	12
5	34	14	15	16	16	17	16	14	18	37	26	11
6	21	14	14	16	16	17	15	14	17	36	23	11
7	18	15	15	16	16	29	15	13	17	38	19	10
8	17	16	14	17	15	31	15	13	41	33	17	11
9	17	13	14	18	15	27	15	27	28	28	15	11
10	15	13	15	18	15	24	16	30	17	27	15	12
11	15	14	15	17	16	34	16	20	16	40	16	11
12	15	15	14	17	17	29	16	21	15	36	15	11
13	14	15	13	16	16	27	17	21	2010	26	14	11
14	14	15	12	16	15	73	17	19	605	22	13	11
15	15	15	12	17	14	35	15	66	3210	19	12	11
16	15	15	13	16	13	30	15	55	5530	16	12	11
17	15	16	14	16	12	27	16	26	7420	11	12	11
18	16	16	13	16	13	25	15	23	404	11	11	13
19	16	17	11	15	14	22	15	74	254	43	11	13
20	16	17	12	15	15	21	14	51	159	39	10	12
21	15	16	11	14	15	20	14	28	141	34	12	12
22	14	15	9.5	16	16	21	13	26	163	16	12	11
23	15	19	10	18	16	21	12	26	128	12	13	11
24	14	18	13	17	15	19	13	27	110	18	14	11
25	14	16	15	16	15	20	13	25	99	387	16	11
26	13	15	16	15	15	19	12	24	92	88	16	11
27	14	14	14	15	14	18	12	22	82	13	12	11
28	13	13	15	14	15	18	13	21	73	74	12	11
29	15	14	15	14	---	21	13	21	69	242	12	11
30	16	15	15	14	---	21	13	19	67	48	11	11
31	15	---	14	14	---	21	---	20	---	29	10	---
TOTAL	487	456	419.5	486	411	750	445	800	20863	1628	704	337
MEAN	15.7	15.2	13.5	15.7	14.7	24.2	14.8	25.8	695	52.5	22.7	11.2
MAX	34	19	16	18	17	73	20	74	7420	387	217	13
MIN	13	13	9.5	13	12	15	12	13	15	11	10	10
AC-FT	966	904	832	964	815	1490	883	1590	41380	3230	1400	668

CAL YR 1989 TOTAL 13939.8 MEAN 38.2 MAX 1440 MIN 4.5 AC-FT 27650
WTR YR 1990 TOTAL 27786.5 MEAN 76.1 MAX 7420 MIN 9.5 AC-FT 55110

PLATTE RIVER BASIN

06799450 LOGAN CREEK AT PENDER, NE

LOCATION.--Lat 42°06'40", long 96°42'00", in NW1/4 sec.26, T.25 N., R.6 E., Thurston County, Hydrologic Unit 10220004, on right bank 200 ft downstream from bridge on Nebraska State Highway 94 at Pender and 0.7 mi downstream from Rattlesnake Creek.

DRAINAGE AREA.--731 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,300.96 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 23, 1966, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 16 to Mar. 1. Records fair except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--25 years, 157 ft³/s, 113,700 acre-ft/yr; median of yearly mean discharges, 123 ft³/s, 89,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,900 ft³/s Feb. 19, 1971, gage height, 23.11 ft; minimum daily, 12 ft³/s Aug. 11, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	1030	*3420	*10.42	No other peak greater than base discharge.			
Minimum daily discharge, 23 ft ³ /s Aug. 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	44	44	46	52	52	54	49	75	73	61	35
2	36	44	42	50	48	55	52	48	75	70	58	36
3	37	43	38	52	45	53	52	48	71	67	55	51
4	38	43	60	52	50	54	52	47	67	64	51	45
5	42	44	58	52	54	53	51	46	64	59	50	42
6	42	44	58	54	56	53	52	45	58	58	45	41
7	41	44	54	56	56	59	53	45	57	55	42	40
8	41	44	42	58	58	64	56	44	57	50	41	41
9	42	44	40	58	58	62	61	68	55	54	36	41
10	42	45	38	60	60	60	68	94	52	54	32	41
11	42	45	34	60	60	60	63	75	52	57	38	41
12	42	46	32	58	58	58	60	78	49	53	35	41
13	41	46	32	56	52	60	64	79	64	46	32	40
14	41	46	32	50	45	104	63	68	55	39	30	38
15	41	46	31	54	41	124	59	103	275	38	26	39
16	40	45	27	58	38	76	58	103	2430	36	24	42
17	40	44	30	56	36	68	59	76	1540	33	24	43
18	40	40	32	54	40	63	58	65	404	31	23	47
19	41	40	26	50	45	58	60	130	189	36	24	48
20	42	44	29	47	50	57	58	155	141	305	29	47
21	44	50	28	42	56	57	54	103	123	123	30	47
22	44	44	27	44	54	55	55	85	198	66	30	48
23	44	40	25	46	54	53	54	241	127	58	32	46
24	44	42	28	48	52	54	57	330	103	56	48	48
25	43	45	40	58	50	55	56	159	94	62	101	49
26	43	46	54	58	48	54	53	131	88	61	56	50
27	43	38	56	56	48	54	51	104	84	111	45	48
28	43	32	54	56	50	56	53	91	83	106	42	48
29	43	34	54	56	---	56	53	83	80	349	40	48
30	42	38	54	54	---	55	51	77	77	131	38	49
31	42	---	52	54	---	55	---	74	---	70	37	---
TOTAL	1284	1290	1251	1653	1414	1897	1690	2944	6887	2471	1255	1320
MEAN	41.4	43.0	40.4	53.3	50.5	61.2	56.3	95.0	230	79.7	40.5	44.0
MAX	44	50	60	60	60	124	68	330	2430	349	101	51
MIN	36	32	25	42	36	52	51	44	49	31	23	35
AC-FT	2550	2560	2480	3280	2800	3760	3350	5840	13660	4900	2490	2620

CAL YR 1989 TOTAL 24396 MEAN 66.8 MAX 2100 MIN 13 AC-FT 48390
WTR YR 1990 TOTAL 25356 MEAN 69.5 MAX 2430 MIN 23 AC-FT 50290

PLATTE RIVER BASIN

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06799500 LOGAN CREEK NEAR UEHLING, NE

LOCATION (REVISED).--Lat 41°42'46", long 96°31'18", in SE1/4SE1/4 sec.9, T.20 N., R.8 E., Dodge County, Hydrologic Unit 10220004, near left bank on upstream side of bridge on county road, 2 mi southwest of Uehling and 8 mi upstream from mouth.

DRAINAGE AREA.--1,030 mi², approximately.

PERIOD OF RECORD.--March 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,208.73 ft above National Geodetic Vertical Datum of 1929.

See WSP 1918 for history of changes prior to July 15, 1963. July 16, 1963 to Mar. 27, 1989, near right bank on downstream side of bridge at present site and datum. Mar. 28, 1989 to Mar. 22, 1990, 250 ft upstream on left bank at same datum.

REMARKS.--Estimated daily discharges: Nov. 15 to Mar. 1. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--49 years, 200 ft³/s, 144,900 acre-ft/yr; median of yearly mean discharges, 168 ft³/s, 122,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft³/s Feb. 20, 1971, gage height, 20.15 ft, from floodmark; maximum gage height, 20.15 ft, Mar. 27, 1962, present datum, in addition to Feb. 20, 1971; minimum daily discharge, 6.1 ft³/s July 26, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1940, reached a stage of 20.6 ft, present datum, from floodmarks, discharge, 22,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	0505	2810	8.21	June 17	0300	*8260	*15.87

Minimum daily discharge, 30 ft³/s Dec. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	58	46	50	66	90	79	74	99	142	98	62
2	52	58	44	52	64	93	74	72	105	134	267	63
3	50	58	40	53	64	85	71	72	103	129	91	69
4	50	58	50	54	62	82	71	73	93	116	84	78
5	68	59	66	54	63	81	69	72	89	108	84	74
6	61	60	62	56	64	80	67	72	84	104	87	65
7	55	60	58	58	62	90	68	71	80	100	78	62
8	54	59	44	60	62	97	70	70	81	93	75	60
9	54	57	41	62	64	97	72	87	80	87	73	61
10	55	58	42	62	66	92	80	106	77	113	66	62
11	55	58	35	62	68	93	80	112	76	128	64	62
12	55	58	34	64	70	93	75	103	76	108	69	60
13	55	59	36	62	64	93	76	102	907	89	68	59
14	55	58	33	60	56	125	78	103	296	78	66	58
15	55	50	34	62	52	160	80	99	1620	69	66	57
16	55	47	33	66	52	147	78	142	3110	70	64	58
17	53	46	32	68	50	108	76	129	5530	63	62	59
18	53	42	34	66	68	94	75	95	2210	53	58	63
19	53	46	32	64	84	86	74	172	676	49	61	70
20	54	47	34	60	94	83	76	205	404	139	59	70
21	56	52	30	54	96	82	77	185	317	319	58	68
22	57	45	38	46	98	84	73	133	303	118	66	65
23	58	47	50	49	94	81	73	159	350	82	65	62
24	58	48	54	58	90	77	77	348	243	84	74	62
25	58	49	56	64	86	78	77	354	208	163	87	63
26	58	47	58	64	84	77	76	186	189	114	123	62
27	58	45	58	66	82	76	73	155	176	147	89	61
28	58	42	56	68	86	75	71	128	169	499	73	61
29	60	38	56	70	---	80	74	113	160	364	68	59
30	63	41	56	68	---	80	74	104	152	170	65	60
31	59	---	54	68	---	81	---	102	---	105	62	---
TOTAL	1737	1550	1396	1870	2011	2840	2234	3998	18063	4137	2470	1895
MEAN	56.0	51.7	45.0	60.3	71.8	91.6	74.5	129	602	133	79.7	63.2
MAX	68	60	66	70	98	160	80	354	5530	499	267	78
MIN	50	38	30	46	50	75	67	70	76	49	58	57
AC-FT	3450	3070	2770	3710	3990	5630	4430	7930	35830	8210	4900	3760
CAL YR 1989	TOTAL 32454	MEAN 88.9	MAX 2300	MIN 17	AC-FT 64370							
WTR YR 1990	TOTAL 44201	MEAN 121	MAX 5530	MIN 30	AC-FT 87670							

PLATTE RIVER BASIN

06800000 MAPLE CREEK NEAR NICKERSON, NE

LOCATION.--Lat 41°32'45", long 96°30'05", in NW1/4SW1/4 sec.11, T.18 N., R.8 E., Dodge County, Hydrologic Unit 10220003, on left bank 30 ft downstream from bridge on U.S. Highways 77 and 275, 1.5 mi northwest of Nickerson, and 4 mi upstream from mouth.

DRAINAGE AREA.--450 mi², approximately.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1630: 1957-58.

GAGE.--Water-stage recorder. Datum of gage is 1,194.56 ft above National Geodetic Vertical Datum of 1929. Prior to July 28, 1960, nonrecording gage at site 60 ft upstream, and July 28, 1960 to July 28, 1987, water-stage recorder at site 180 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 14 to Dec. 6, 8, Jan. 14, 19-22, Jan. 31 to Feb. 5, 13-21, and Feb. 25 to Mar. 3. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--39 years, 68.2 ft³/s, 49,410 acre-ft/yr; median of yearly mean discharges, 53 ft³/s, 38,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s June 17, 1990, gage height, 16.30 ft from floodmark; maximum gage height, 17.65 ft June 17, 1984, from floodmark; minimum daily discharge, 0.1 ft³/s Jan. 15, 16, 1956, Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known since 1944, 35,000 ft³/s June 11, 1944, from indirect measurement of peak flow; gage height, 16.28 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 13	2204	6160	15.66	July 29	1000	1100	10.15
June 17	----	*11600	*a16.30	Aug. 3	0700	846	9.71
July 25	1800	962	9.89				

a From floodmark.

Minimum daily discharge, 2.5 ft³/s July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	10	9.4	14	14	28	13	25	18	57	19
2	14	16	9.6	9.6	13	15	25	13	26	11	53	19
3	14	13	9.4	10	12	15	23	14	25	8.4	395	19
4	14	9.2	10	9.4	12	15	20	16	25	6.2	138	16
5	17	8.8	11	9.2	12	14	19	16	24	14	67	15
6	45	8.5	12	10	13	13	18	14	20	23	57	15
7	23	9.2	9.3	10	14	17	18	14	22	29	46	14
8	18	12	8.8	11	16	27	18	13	46	39	38	13
9	17	10	7.6	12	15	42	18	17	59	40	38	14
10	16	9.8	7.2	12	16	30	19	43	36	39	45	13
11	14	11	7.0	10	18	83	19	45	25	39	47	13
12	11	11	7.2	10	21	51	20	27	23	38	44	13
13	10	11	7.0	11	16	32	21	23	2690	30	42	12
14	8.7	11	6.6	11	15	37	21	23	2110	26	40	11
15	9.2	10	6.0	12	14	52	20	29	3620	27	38	11
16	10	9.4	6.6	12	13	37	21	274	5800	28	36	10
17	13	10	7.2	12	11	26	22	66	7000	12	34	10
18	13	11	7.8	12	10	23	20	39	3150	11	32	13
19	13	13	8.2	12	11	21	20	59	1010	7.9	30	13
20	13	12	7.8	11	12	19	20	198	171	7.2	29	13
21	12	11	7.0	11	14	19	18	67	91	15	28	14
22	11	10	6.0	13	14	20	18	45	142	4.1	26	12
23	11	10	5.0	15	16	21	18	39	84	3.5	26	11
24	10	11	7.6	14	16	21	17	40	50	2.5	25	11
25	10	11	10	14	15	20	15	67	39	319	35	10
26	12	11	9.6	17	14	19	16	99	29	489	30	9.7
27	7.9	10	10	14	14	20	15	40	19	108	25	8.6
28	12	9.4	11	14	15	20	15	33	14	45	21	9.0
29	15	10	10	15	---	23	14	31	9.9	542	20	8.7
30	17	10	9.6	15	---	25	14	26	11	237	18	9.5
31	19	---	9.4	16	---	28	---	25	---	95	18	---
TOTAL	443.8	326.3	261.5	373.6	396	819	570	1468	26395.9	2313.8	1578	379.5
MEAN	14.3	10.9	8.44	12.1	14.1	26.4	19.0	47.4	880	74.6	50.9	12.6
MAX	45	17	12	17	21	83	28	274	7000	542	395	19
MIN	7.9	8.5	5.0	9.2	10	13	14	13	9.9	2.5	18	8.6
AC-FT	880	647	519	741	785	1620	1130	2910	52360	4590	3130	753

CAL YR 1989 TOTAL 22134.7 MEAN 60.6 MAX 2510 MIN 1.5 AC-FT 43900
WTR YR 1990 TOTAL 35325.4 MEAN 96.8 MAX 7000 MIN 2.5 AC-FT 70070

06800500 ELKHORN RIVER AT WATERLOO, NE
(National stream-quality accounting network station)

LOCATION (REVISED).--Lat 41°17'25", long 96°17'05", in SW1/4 sec.3, T.15 N., R.10 E., Douglas County, Hydrologic Unit 10220003, on right bank 800 ft downstream from Nebraska Highway 64 bridge at north edge of Waterloo and 3.5 mi downstream from Rawhide Creek.

DRAINAGE AREA.--6,900 mi², approximately, of which about 5,870 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1899 to November 1903, May 1911 to September 1915, August 1928 to current year. Published as "at Arlington" 1899-1903, July 1913 to September 1915. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1914(M), 1915, 1936, 1943(M). WDR NE-74: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,104.73 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1960, to July 28, 1978, at datum 2.00 ft higher. See WSP 1918 for history of changes prior to Oct. 1, 1960.

REMARKS.--Estimated daily discharges: Nov. 16 to Feb. 5 and Feb. 13-26. Records good except for periods of estimated record, which are poor. Some small diversions above station for irrigation.

AVERAGE DISCHARGE.--70 years, 1,215 ft³/s, 880,300 acre-ft/yr; median of yearly mean discharges, 1,018 ft³/s, 737,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s June 12, 1944, gage height, 16.6 ft from floodmark in gage well, site and datum then in use, from rating curve extended above 22,000 ft³/s on basis of current-meter measurement of peak flow in main channel and velocity-area studies of overflow section; minimum observed, 50 ft³/s Nov. 12, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stage and discharge of the flood of June 12, 1944, are the greatest known since at least 1880.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 14	0608	9050	8.31	June 19	0356	*37000	*17.30

Minimum daily discharge, 280 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	483	480	350	520	740	739	583	756	1310	1150	531
2	391	476	490	370	540	728	716	584	750	1220	757	512
3	389	475	490	400	560	710	694	602	752	1130	1600	506
4	382	475	540	410	640	693	684	649	770	1030	1260	549
5	404	475	520	390	700	688	666	655	794	976	735	554
6	480	475	470	380	611	683	642	619	770	930	693	525
7	495	477	400	440	612	712	635	596	796	894	689	547
8	445	467	350	460	682	783	633	578	861	863	677	522
9	443	468	350	480	728	833	630	617	876	826	631	485
10	445	468	340	500	844	876	630	712	839	810	608	465
11	442	465	300	520	871	891	640	866	733	864	595	457
12	432	464	340	540	842	1010	662	906	682	1010	588	442
13	431	463	350	500	700	964	668	886	1720	1040	579	435
14	434	463	330	520	500	944	663	859	7120	948	576	420
15	440	461	350	520	370	1120	656	857	6860	857	560	404
16	447	400	330	540	400	1330	651	960	15900	784	541	391
17	436	330	340	520	450	1390	654	1200	22500	742	526	381
18	432	320	330	520	500	960	657	992	30200	700	514	400
19	434	330	330	500	540	852	650	926	31100	688	490	423
20	444	430	320	480	580	806	638	1060	9010	676	483	441
21	456	470	300	470	600	784	630	1400	5050	720	489	451
22	460	480	280	520	640	768	628	1110	4340	1240	482	449
23	451	450	290	540	680	753	618	983	3490	1100	484	421
24	459	440	300	540	660	734	610	958	2830	821	500	407
25	462	450	300	560	620	721	599	1170	2410	1270	520	413
26	464	490	310	560	640	719	600	1260	2160	3730	571	412
27	469	516	320	600	720	715	589	981	1930	1880	587	401
28	461	400	340	680	760	706	605	896	1750	809	593	389
29	459	340	360	690	---	716	602	854	1600	896	608	377
30	473	420	370	640	---	727	584	824	1450	2970	591	373
31	489	---	350	560	---	740	---	775	---	2350	564	---
TOTAL	13751	13321	11270	15700	17510	25796	19273	26918	160799	36084	20241	13483
MEAN	444	444	364	506	625	832	642	868	5360	1164	653	449
MAX	495	516	540	690	871	1390	739	1400	31100	3730	1600	554
MIN	382	320	280	350	370	683	584	578	682	676	482	373
AC-FT	27280	26420	22350	31140	34730	51170	38230	53390	318900	71570	40150	26740

CAL YR 1989 TOTAL 275935 MEAN 756 MAX 6950 MIN 99 AC-FT 547300
WTR YR 1990 TOTAL 374146 MEAN 1025 MAX 31100 MIN 280 AC-FT 742100

PLATTE RIVER BASIN
06800500 ELKHORN RIVER AT WATERLOO, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1977 to September 1981.

WATER TEMPERATURES: November 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 750 microsiemens Jan. 10, 1979; minimum daily, 235 microsiemens Mar. 15, 1979.

WATER TEMPERATURES: Maximum, 36.0°C Aug. 19, 1979; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L) (00904)
NOV 14...	1345	463	--	8.3	5.0	727	12	13.6	K1300	K220	240	--
JAN 11...	1030	520	565	8.1	1.5	735	6.0	14.8	1100	560	240	49
MAR 20...	1200	806	555	8.2	6.5	738	70	16.3	2400	81000	230	30
MAY 16...	1500	886	560	8.7	18.0	729	22	13.0	K1000	920	240	18
JUL 27...	1000	1940	318	7.9	23.0	732	550	5.9	K1100	K140000	120	20
SEP 05...	1030	560	520	8.5	25.5	736	18	8.8	K540	K230	210	4

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03) (39086)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 14...	71	16	28	0.8	8.3	--	--	--	46	19	0.30	28
JAN 11...	70	15	25	0.7	7.0	188	0	229	43	16	0.30	30
MAR 20...	69	15	22	0.6	11	205	0	250	46	14	0.30	26
MAY 16...	68	17	24	0.7	10	222	10	251	47	14	0.30	20
JUL 27...	35	7.9	11	0.4	13	100	0	122	25	8.7	0.60	14
SEP 05...	61	14	23	0.7	9.4	206	18	215	44	17	0.30	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
NOV 14...	372	366	0.51	465	1.70	0.060	0.64	0.70	0.520	0.440	0.420
JAN 11...	349	327	0.47	490	1.60	0.270	0.33	0.60	0.420	0.330	0.360
MAR 20...	354	336	0.48	770	1.80	0.200	0.60	0.80	0.640	0.370	0.360
MAY 16...	346	339	0.47	828	0.900	0.010	2.1	2.1	0.590	0.280	0.260
JUL 27...	195	190	0.27	1020	2.80	0.300	7.4	7.7	0.670	0.330	0.290
SEP 05...	--	294	0.40	445	0.200	0.030	0.97	1.0	0.480	0.340	0.350

PLATTE RIVER BASIN

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06800500 ELKHORN RIVER AT WATERLOO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 14...	1345	<10	6	160	<0.5	<1.0	1	<3	1	6	<1
MAR 20...	1200	10	5	170	<0.5	<1.0	1	<3	2	19	1
MAY 16...	1500	20	7	150	<0.5	<1.0	<1	<3	4	23	<1
JUL 27...	1000	220	4	150	<0.5	<1.0	1	<3	10	480	3

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 14...	23	37	<0.1	<10	2	4	<1.0	390	<6	3
MAR 20...	18	20	<0.1	<10	2	5	<1.0	330	<6	<3
MAY 16...	20	25	<0.1	<10	10	5	<1.0	370	<6	9
JUL 27...	10	42	<0.1	<10	8	2	<1.0	170	7	36

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 14...	1345	463	5.0	154	193	35
JAN 11...	1030	520	1.5	43	60	87
MAR 20...	1200	806	6.5	312	679	79
MAY 16...	1500	886	18.0	413	988	72
JUL 27...	1000	1940	23.0	2480	13000	99
SEP 05...	1030	560	25.5	149	225	63

PLATTE RIVER BASIN

06801000 PLATTE RIVER NEAR ASHLAND, NE

LOCATION.--Lat 41°03'44", long 96°19'28", in SE1/4SW1/4 sec.29, T.13 N., R.10 E., Sarpy County, Hydrologic Unit 10200202, on left bank upstream side and 35 ft northeast of Highway 6 bridge, 3 mi northeast of Ashland and 2 mi upstream from Salt Creek.

DRAINAGE AREA.--84,200 mi² from state base maps, scale 1:1,000,000.

PERIOD OF RECORD.--August 1928 to May 1953, July 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,040.00 ft above National Vertical Datum of 1929. Prior to Oct. 1, 1929, chain gage at former highway bridge 1/2 mi upstream at datum 15.83 ft higher. Oct. 1, 1929 to Oct. 7, 1933, staff or chain gage at former bridge datum 14.79 ft higher. Oct. 14, 1933 to Dec. 10, 1938, water-stage recorder at site 950 ft upstream from former bridge at datum 14.79 ft higher. Dec. 11, 1938 to June 16, 1948, water-stage recorder at site of former bridge 1/2 mi upstream at datum 14.79 ft higher. June 17, 1948 to May 11, 1953, 1/2 mi downstream on Highway 6 bridge at datum 12.51 ft higher.

REMARKS.--Estimated daily discharges: Dec. 1-3, Dec. 10 to Jan. 24, and Feb. 15-23. Records good except for periods of estimated record which are poor. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

AVERAGE DISCHARGE.--11 years (water years 1942-52, since storage in Lake McConaughy), 5,961 ft³/s, 4,319,000 acre-ft/yr; 2 years (1989-90) 4,803 ft³/s, 3,480,000 acre-ft/yr. Figures unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge known since 1928, 107,000 ft³/s June 12, 1944, includes overbank flow caused by breaking of dikes, gage height, 8.10 ft, site and datum then in use; minimum daily, 265 ft³/s Aug. 18, 1941.

EXTREME FOR CURRENT YEAR.--Maximum discharge, 80,600 ft³/s June 17, gage height 19.85 ft; minimum daily, 840 ft³/s Dec. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3260	4030	2300	5400	5010	5330	6370	4900	5230	3290	5550	1900
2	3190	4310	3000	5800	4390	5540	6130	5020	5090	2890	4210	1550
3	2900	4040	3600	5600	3570	5530	5700	4960	4970	2810	4060	1480
4	2820	3870	4190	5600	3340	5100	5700	5230	5080	2270	4090	1270
5	3020	4060	5320	5400	3230	4940	5370	5230	4830	1780	3130	1260
6	3410	3640	5650	5400	3750	4850	4690	5240	4390	2230	3150	1420
7	3430	4680	5740	5600	4530	5070	5210	5220	4790	1920	3030	1290
8	3490	2900	4870	5600	5700	5620	5070	5180	4750	1620	2950	1550
9	3270	3070	4190	5800	7760	7790	5340	5080	4990	1650	2620	1430
10	3390	3710	3600	6000	6960	7980	5290	5100	5230	1740	2510	1320
11	3440	3760	2000	6200	6830	7870	5110	5640	5460	1680	2070	1300
12	3270	3930	1100	6000	6990	7890	5280	6300	4080	1870	2190	1430
13	3510	3750	960	5400	7310	8570	5520	6490	3980	1840	2050	1260
14	3170	3750	840	5800	5850	7210	5400	5950	12500	1720	1890	1260
15	3360	3950	900	6200	4000	7370	5580	5370	15600	1540	2290	1330
16	3140	4010	1000	7000	3000	8430	4920	6060	34900	1470	2380	1250
17	3280	3560	1100	6800	2100	7520	5060	9290	58800	1270	2700	1290
18	3090	2880	1200	6400	1800	5640	4880	7000	62700	1210	2730	1630
19	3330	4230	1400	6000	2000	6580	5090	6380	59600	1090	3020	1920
20	3550	4430	1600	5800	2500	6870	5200	6040	25100	1190	3960	2330
21	3370	4170	2000	5600	4000	5860	5340	6930	13100	1100	3680	1880
22	3450	4640	2700	5400	8000	5540	5240	6150	11000	1400	3990	2660
23	3430	4520	2600	5200	9000	5350	4930	6510	15000	1990	3290	2340
24	3250	4180	2600	5200	7430	5420	4660	6630	12000	2260	3500	2760
25	3720	4190	2500	5750	7030	5070	4950	6770	8720	2720	3290	2290
26	3410	4300	2500	6400	6390	5880	4630	7280	7780	7740	2920	2800
27	3390	4650	2700	6790	5520	5970	4660	6870	5590	7410	2700	2460
28	3680	4190	3200	6220	5580	5920	4900	6080	5310	6130	2540	2350
29	3840	3870	4100	6280	---	5790	4530	5160	5030	5040	2730	2510
30	3810	1800	4600	6090	---	6060	4950	5320	4160	6350	2330	2060
31	4260	---	5200	5180	---	6200	---	5220	---	7100	1850	---
TOTAL	104930	117070	89260	181910	143570	194760	155700	184600	419760	86320	93400	53580
MEAN	3385	3902	2879	5868	5127	6283	5190	5955	13990	2785	3013	1786
MAX	4260	4680	5740	7000	9000	8570	6370	9290	62700	7740	5550	2800
MIN	2820	1800	840	5180	1800	4850	4530	4900	3980	1090	1850	1250
AC-FT	208100	232200	177000	360800	284800	386300	308800	366200	832600	171200	185300	106300

CAL YR 1989 TOTAL 1613330 MEAN 4420 MAX 30700 MIN 840 AC-FT 3200000
WTR YR 1990 TOTAL 1824860 MEAN 5000 MAX 62700 MIN 840 AC-FT 3620000

PLATTE RIVER BASIN

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06803000 SALT CREEK AT ROCA, NE

LOCATION.--Lat 40°39'29", long 96°39'55", in NW1/4SW1/4 sec.17, T.8 N., R.7 E., Lancaster County, Hydrologic Unit 10200203, on left bank 15 ft downstream from highway bridge at west edge of Roca.

DRAINAGE AREA.--167 mi².

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WDR NE-71: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,192.50 ft above National Geodetic Vertical Datum of 1929, Kansas City supplementary adjustment of 1943. Prior to May 16, 1956, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 15-24, Jan. 20, 21, and Feb. 1-3, 15-18. Records good except for periods of estimated record, which are poor. Flood flow affected by several detention dams.

AVERAGE DISCHARGE.--39 years, 46.6 ft³/s, 33,760 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,700 ft³/s July 10, 1958, gage height, 22.70 ft; minimum daily, 0.2 ft³/s July 23, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 8, 1950, reached a stage of 26.0 ft, from floodmark established by Corps of Engineers, discharge, 67,000 ft³/s, but may have been exceeded by flood of July 5, 1908.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0930	*1190	*11.50	No other peak greater than base discharge.			
Minimum daily discharge, 1.7 ft ³ /s Sept. 1, 11.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	24	7.5	7.7	9.0	10	18	8.9	9.9	5.6	10	1.7
2	7.8	22	7.4	7.8	7.8	10	16	8.4	9.3	5.0	7.6	2.0
3	7.4	8.4	6.3	9.3	9.4	10	14	9.2	7.9	4.7	7.1	2.4
4	6.6	7.5	7.3	9.5	9.7	10	14	16	16	4.2	6.2	2.6
5	6.3	7.5	7.8	8.7	10	10	14	16	55	4.1	6.0	2.6
6	7.0	7.5	8.8	9.5	11	11	13	13	54	4.6	5.0	3.1
7	6.3	7.7	8.6	10	10	18	13	12	55	5.4	4.4	2.9
8	7.0	7.6	7.5	11	10	20	13	11	55	4.6	4.1	3.0
9	7.8	7.4	6.6	13	11	17	13	14	50	4.1	3.9	2.7
10	7.0	7.5	7.2	13	11	15	13	18	45	4.0	3.5	2.4
11	7.4	7.5	5.8	11	11	16	12	14	44	3.0	3.8	1.7
12	6.6	7.8	6.0	8.4	11	16	12	12	40	2.9	4.9	2.1
13	6.5	7.3	6.1	8.4	11	14	13	14	37	4.2	5.8	2.1
14	6.2	7.3	5.9	9.8	9.4	26	14	13	32	4.6	4.7	1.8
15	7.7	7.4	5.0	9.5	8.8	19	14	12	26	4.3	3.9	1.8
16	7.9	7.0	4.5	10	8.4	15	13	13	30	6.4	3.9	1.9
17	7.8	6.6	4.8	11	7.8	14	13	13	35	5.1	4.2	2.1
18	7.5	7.0	4.6	9.9	9.4	12	12	12	35	4.2	4.1	2.2
19	7.8	7.5	4.4	9.5	11	11	12	16	24	4.4	4.2	2.5
20	7.6	7.6	3.9	9.2	12	10	12	18	21	4.6	4.8	2.4
21	7.9	7.5	3.6	9.0	12	10	13	14	21	4.5	4.3	2.3
22	8.3	7.3	3.8	11	12	9.5	12	12	23	5.1	4.2	2.5
23	8.9	6.7	3.5	11	13	11	12	12	17	4.2	3.7	2.2
24	9.2	7.3	4.5	11	12	13	12	11	15	3.5	3.4	2.2
25	33	7.6	5.2	10	12	13	12	12	14	5.2	2.8	2.3
26	130	7.5	5.9	10	10	14	11	12	11	546	3.6	1.9
27	109	7.4	6.5	11	11	14	11	11	9.3	60	3.5	2.2
28	48	6.9	7.3	10	10	13	11	11	7.9	31	3.0	2.2
29	41	6.6	8.0	9.9	---	19	9.4	11	6.7	23	2.4	2.3
30	36	7.2	7.4	9.8	---	20	9.0	10	5.8	17	2.5	2.3
31	14	---	8.0	10	---	19	---	9.9	---	12	2.4	---
TOTAL	589.5	252.1	189.7	308.9	290.7	439.5	380.4	388.4	811.8	801.5	137.9	68.4
MEAN	19.0	8.40	6.12	9.96	10.4	14.2	12.7	12.5	27.1	25.9	4.45	2.28
MAX	130	24	8.8	13	13	26	18	18	55	546	10	3.1
MIN	6.2	6.6	3.5	7.7	7.8	9.5	9.0	8.4	5.8	2.9	2.4	1.7
AC-FT	1170	500	376	613	577	872	755	770	1610	1590	274	136

CAL YR 1989 TOTAL 10571.6 MEAN 29.0 MAX 1960 MIN 1.8 AC-FT 20970
WTR YR 1990 TOTAL 4658.8 MEAN 12.8 MAX 546 MIN 1.7 AC-FT 9240

PLATTE RIVER BASIN

06803500 SALT CREEK AT LINCOLN, NE

LOCATION.--Lat 40°50'49", long 96°40'54", in NW1/4SW1/4 sec.7, T.10 N., R.7 E., Lancaster County, Hydrologic Unit 10200203 on right bank 135 ft downstream from bridge on North 27th Street at north edge of Lincoln, 1 mi downstream from Oak Creek.

DRAINAGE AREA.--684 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WDR NE-71: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,113.90 ft above National Geodetic Vertical Datum of 1929. Prior to July 27, 1979, water-stage recorder for stages above 6.2 ft on downstream side of bridge pier, 135 ft upstream at same datum, and nonrecording gage read twice daily.

REMARKS.--No estimated daily discharges. Records good. Flood flow affected by several detention dams.

AVERAGE DISCHARGE.--41 years, 231 ft³/s, 167,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,200 ft³/s June 2, 1951, gage height, 26.15 ft; minimum daily, 21 ft³/s July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1951, may have been equaled or exceeded in discharge by flood of July 6, 1908, which reached a stage of 33.6 ft. Channel changes since 1908 have materially altered the stage-discharge relation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 9	0412	3030	8.25	July 26	0233	*19200	*20.43
July 25	1833	8230	13.14	Aug. 12	1005	5070	10.39

Minimum daily discharge, 39 ft³/s Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	220	69	68	70	77	108	50	101	74	97	65
2	86	221	68	72	62	77	103	51	95	76	138	60
3	82	217	60	76	73	75	95	188	87	70	135	59
4	80	199	72	72	69	74	89	158	84	61	86	62
5	97	189	73	68	73	75	86	79	95	80	75	64
6	81	186	94	71	70	82	85	67	138	144	70	68
7	80	184	77	70	69	194	79	63	294	70	65	98
8	80	182	74	73	71	214	72	62	174	60	60	89
9	81	180	73	76	69	122	76	870	160	58	58	66
10	78	105	69	78	69	102	71	195	146	96	61	73
11	78	65	54	77	68	90	69	126	126	68	57	67
12	75	59	64	62	70	91	78	188	122	63	1060	64
13	77	63	67	72	73	214	99	111	117	54	187	61
14	73	63	61	69	57	151	75	103	124	48	91	55
15	76	64	48	70	72	118	81	119	191	52	90	52
16	96	61	53	71	73	97	72	102	139	59	98	49
17	85	70	61	72	66	91	70	98	162	58	96	55
18	79	66	63	71	72	85	65	94	121	62	68	100
19	78	65	53	69	73	82	69	234	111	160	61	58
20	79	66	57	70	74	81	72	116	150	112	64	54
21	77	64	59	70	76	77	70	115	373	82	65	49
22	78	64	56	86	79	78	66	105	252	70	66	45
23	89	58	58	92	79	98	65	112	140	53	66	40
24	294	60	59	78	78	95	61	257	111	54	65	41
25	324	61	68	71	73	85	58	156	103	2670	64	42
26	373	62	74	74	72	84	69	127	99	7510	60	42
27	445	66	75	75	74	88	64	116	94	675	62	44
28	405	56	81	68	76	95	56	127	90	230	66	41
29	363	67	81	69	---	190	54	111	89	156	69	39
30	352	67	75	71	---	118	54	120	84	125	65	41
31	315	---	72	68	---	129	---	100	---	107	64	---
TOTAL	4749	3150	2068	2249	2000	3329	2231	4520	4172	13257	3429	1743
MEAN	153	105	66.7	72.5	71.4	107	74.4	146	139	428	111	58.1
MAX	445	221	94	92	79	214	108	870	373	7510	1060	100
MIN	73	56	48	62	57	74	54	50	84	48	57	39
AC-FT	9420	6250	4100	4460	3970	6600	4430	8970	8280	26300	6800	3460

CAL YR 1989 TOTAL 68824 MEAN 189 MAX 11900 MIN 43 AC-FT 136500
WTR YR 1990 TOTAL 46897 MEAN 128 MAX 7510 MIN 39 AC-FT 93020

PLATTE RIVER BASIN

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06803510 LITTLE SALT CREEK NEAR LINCOLN, NE

LOCATION.--Lat 40°53'36", long 96°40'52", in NW1/4SW1/4 sec.30, T.11 N., R.7 E., Lancaster County, Hydrologic Unit 10200203, on left bank 10 ft downstream from county road bridge and 0.4 mi north of intersection of Interstate Highway 80 and North 27th Street north of Lincoln.

DRAINAGE AREA.--43.6 mi².

PERIOD OF RECORD.--January 1969 to current year.

REVISED RECORDS.--WDR NE-77-1: 1969-73(M).

GAGE.--Water-stage recorder. Datum of gage is 1,114.73 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 10, 1980, water-stage recorder at present site and datum 3.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 17 to Jan. 1, Jan. 20, 21, Feb. 14-18, and June 11. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--21 years, 15.3 ft³/s, 11,080 acre-ft/yr; median of yearly mean discharges, 12.5 ft³/s, 9,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s July 19, 1985, gage height, 18.24 ft, from floodmark, from rating curve extended above 3,710 ft³/s; maximum gage height, 20.02 ft, Aug. 25, 1987; minimum daily discharge, 0.20 ft³/s Sept. 29, 30, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0100	*4470	*17.41	No other peak greater than base discharge.			
Minimum daily discharge, 1.3 ft ³ /s Oct. 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	2.8	4.1	5.6	6.4	8.9	6.8	3.8	4.7	2.6	4.1	3.1
2	5.5	3.7	4.1	6.2	2.1	9.8	5.0	4.6	4.2	2.1	4.1	3.0
3	4.6	4.4	4.0	6.4	4.4	6.4	4.7	5.6	2.4	2.4	4.7	3.3
4	4.2	4.5	4.5	5.9	7.3	6.1	4.7	12	2.2	2.3	4.4	3.4
5	6.4	5.4	5.0	5.1	13	4.5	4.5	6.2	3.0	2.0	3.5	3.2
6	6.0	3.8	4.7	4.2	13	2.8	4.0	5.8	2.7	2.7	3.6	2.9
7	2.7	3.8	4.4	5.2	14	8.4	4.0	6.2	11	3.5	3.9	2.7
8	4.3	3.6	4.0	5.1	13	4.4	4.7	5.7	14	2.7	4.1	2.5
9	5.9	4.3	4.5	7.2	14	3.3	4.3	91	9.4	2.7	4.6	2.2
10	4.2	5.6	4.3	8.8	14	3.9	3.8	13	6.7	3.2	4.8	2.5
11	3.0	6.1	3.9	8.4	17	6.0	3.5	7.2	5.6	3.2	5.1	2.5
12	1.5	3.9	4.1	6.4	18	6.4	3.5	11	4.6	1.8	68	2.7
13	2.8	5.1	3.9	3.6	13	9.3	4.7	11	3.7	1.7	12	2.9
14	4.1	4.3	3.9	5.9	7.0	10	5.2	7.1	3.8	1.7	7.4	2.8
15	5.2	4.5	3.5	7.6	5.6	5.1	5.1	6.7	5.6	2.0	6.3	2.4
16	2.8	2.6	3.2	9.3	4.4	4.2	4.9	6.2	4.7	2.1	7.6	2.0
17	1.8	3.8	3.4	11	4.0	5.3	4.2	5.3	3.7	2.3	6.8	1.5
18	1.3	4.0	3.0	8.8	5.0	4.6	4.1	4.6	3.3	2.4	4.6	2.0
19	1.9	4.5	2.7	4.5	6.0	4.4	4.2	7.7	3.4	9.8	4.4	2.6
20	2.7	4.3	2.8	4.3	5.8	5.1	4.8	5.0	3.4	18	4.2	2.5
21	3.5	4.0	2.5	4.1	5.6	4.0	5.4	5.2	7.8	3.4	4.1	2.2
22	4.3	3.9	2.3	11	6.2	4.0	7.2	5.4	8.0	2.8	4.2	1.9
23	5.4	3.8	2.3	13	6.9	4.3	6.2	6.1	3.8	2.6	4.2	2.4
24	5.7	4.1	4.0	17	6.3	4.7	6.9	45	3.0	2.8	4.9	3.5
25	3.5	4.3	6.6	12	5.1	4.9	5.9	17	3.3	345	4.2	4.1
26	5.8	4.6	7.4	14	5.2	4.4	5.0	7.5	3.1	1200	3.5	4.3
27	6.2	4.4	4.6	15	6.7	5.1	4.0	4.6	2.9	23	3.4	4.5
28	6.4	3.8	4.7	13	8.0	5.1	3.9	4.4	3.0	12	3.5	4.0
29	6.2	3.6	4.6	9.5	---	11	3.7	3.9	2.7	7.8	3.5	3.4
30	3.6	4.0	4.7	8.7	---	8.7	3.5	4.4	2.9	5.7	3.4	3.5
31	3.7	---	4.8	7.7	---	8.0	---	4.5	---	4.5	3.4	---
TOTAL	133.5	125.5	126.5	254.5	237.0	183.1	142.4	333.7	142.6	1680.8	210.5	86.5
MEAN	4.31	4.18	4.08	8.21	8.46	5.91	4.75	10.8	4.75	54.2	6.79	2.88
MAX	8.3	6.1	7.4	17	18	11	7.2	91	14	1200	68	4.5
MIN	1.3	2.6	2.3	3.6	2.1	2.8	3.5	3.8	2.2	1.7	3.4	1.5
AC-FT	265	249	251	505	470	363	282	662	283	3330	418	172

CAL YR 1989 TOTAL 4630.2 MEAN 12.7 MAX 1140 MIN 1.3 AC-FT 9180
WTR YR 1990 TOTAL 3656.6 MEAN 10.0 MAX 1200 MIN 1.3 AC-FT 7250

PLATTE RIVER BASIN

06803520 STEVENS CREEK NEAR LINCOLN, NE

LOCATION.--Lat 40°51'25", long 96°35'42", in NW1/4NE1/4 sec.11, T.10 N., R.7 E., Lancaster County, Hydrologic Unit 10200203, on left bank 10 ft upstream and 20 ft west from county road bridge on Havelock Avenue and 1.6 mi east of 70th Street at east edge of Lincoln.

DRAINAGE AREA.--47.8 mi².

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,125.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 15-24, Jan. 12, and Feb. 15-19. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--22 years, 18.6 ft³/s, 13,480 acre-ft/yr; median of yearly mean discharges, 17.6 ft³/s, 12,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft³/s Sept. 8, 1989, gage height, 19.42 ft; maximum gage height, 19.57 ft June 13, 1984; no flow July 31, Aug. 2-4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0030	*7270	*17.75	Aug. 12	1130	2700	13.81

Minimum daily discharge, 0.82 ft³/s July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.2	2.7	4.0	3.2	3.5	5.3	2.1	3.8	1.8	5.7	2.7
2	2.3	2.2	2.9	4.1	3.2	3.5	4.4	2.1	3.6	1.7	5.4	2.6
3	2.1	2.2	2.9	4.1	3.2	3.7	3.7	2.1	3.4	1.6	5.5	2.4
4	2.1	2.7	2.9	3.6	3.1	3.6	3.1	4.7	3.2	1.5	6.1	2.3
5	2.9	2.4	3.2	3.6	3.1	3.4	3.1	4.7	3.3	1.9	6.0	2.3
6	2.6	2.1	3.2	3.7	3.1	3.7	3.0	3.2	3.4	2.1	5.3	2.3
7	2.6	2.1	3.1	3.8	3.1	5.3	2.7	2.8	3.4	2.5	5.1	1.9
8	2.6	2.1	3.1	3.9	3.0	5.9	2.6	2.3	7.5	1.8	5.2	1.8
9	2.6	2.3	3.1	4.1	2.8	5.2	2.8	9.8	4.9	1.5	5.0	2.3
10	2.6	2.5	3.1	4.4	2.8	4.6	2.8	5.7	4.2	1.5	5.1	1.8
11	2.3	2.1	3.1	4.4	2.8	4.6	2.9	3.6	3.9	1.6	5.2	1.7
12	2.2	2.5	2.8	4.2	2.8	4.8	2.8	5.3	3.6	1.4	6.1	1.4
13	2.1	2.3	2.6	4.3	2.6	4.5	3.0	7.3	3.5	1.3	3.8	1.4
14	2.3	2.3	2.6	4.3	3.0	5.0	3.6	4.3	3.2	1.4	14	1.2
15	1.8	2.3	2.5	4.3	2.9	4.7	3.6	3.6	3.0	1.3	9.9	1.1
16	2.1	2.3	2.2	4.1	2.7	4.1	3.5	3.4	3.0	1.1	8.0	1.1
17	2.3	2.3	2.0	3.9	2.5	3.9	3.2	3.2	3.8	1.1	7.3	1.1
18	2.3	2.3	2.1	3.9	2.8	3.4	3.1	3.4	3.8	.89	6.5	1.3
19	2.3	2.3	1.6	3.8	3.0	3.3	2.9	3.4	3.2	.82	5.7	1.4
20	2.3	2.3	1.7	3.8	3.2	3.1	2.9	4.2	2.5	2.6	5.2	1.3
21	2.4	2.2	1.8	3.6	3.3	3.0	2.9	3.3	4.5	3.3	4.9	1.2
22	2.6	2.2	1.6	3.6	3.5	3.0	2.9	3.0	12	1.7	4.8	1.2
23	2.8	2.2	1.5	3.6	3.9	3.1	2.9	2.9	5.5	1.4	4.7	1.2
24	2.9	2.2	2.0	3.6	3.9	3.1	2.9	26	3.5	1.3	4.4	1.2
25	2.2	2.2	2.9	3.6	3.7	3.3	2.8	6.1	3.0	1170	4.2	1.1
26	2.6	2.2	3.2	3.5	3.6	3.4	2.6	4.2	2.7	2560	4.3	1.1
27	2.7	2.3	3.2	3.5	3.7	3.4	2.5	4.2	2.3	22	3.8	.98
28	3.6	2.3	3.3	3.3	3.5	3.3	2.3	9.5	2.1	16	3.6	1.1
29	2.6	2.4	3.6	3.3	---	4.8	2.2	5.2	2.0	11	3.3	.83
30	2.1	2.5	3.7	3.2	---	5.5	2.0	3.9	1.8	7.5	3.1	1.1
31	2.2	---	3.9	3.2	---	5.4	---	3.7	---	6.2	2.9	---
TOTAL	75.4	68.5	84.1	118.3	88.0	125.1	91.0	153.2	113.6	3831.81	809.2	46.41
MEAN	2.43	2.28	2.71	3.82	3.14	4.04	3.03	4.94	3.79	124	26.1	1.55
MAX	3.6	2.7	3.9	4.4	3.9	5.9	5.3	26	12	2560	611	2.7
MIN	1.8	2.1	1.5	3.2	2.5	3.0	2.0	2.1	1.8	.82	2.9	.83
AC-FT	150	136	167	235	175	248	180	304	225	7600	1610	92

CAL YR 1989 TOTAL 9397.17 MEAN 25.7 MAX 4810 MIN .54 AC-FT 18640
WTR YR 1990 TOTAL 5604.62 MEAN 15.4 MAX 2560 MIN .82 AC-FT 11120

PLATTE RIVER BASIN

06803525 SALT CREEK BELOW STEVENS CREEK, NEAR WAVERLY, NE

LOCATION.--Lat 40°54'18", long 96°35'09", in NW1/4SW1/4 sec.24, T.11 N., R.7 E., Lancaster County, Hydrologic Unit 10200203, at bridge 0.5 mi north of Interstate Highway 80 and 3 mi southwest of Waverly.

DRAINAGE AREA.--815 mi².

PERIOD OF RECORD.--Water years 1971 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV 14...	1115	85	6300	7.7	6.5	10.7	K7800	K1600	350	89
DEC 11...	1400	80	7280	7.9	0.0	15.7	K120000	8200	350	91
JAN 11...	1445	107	6490	8.1	6.5	15.6	K34000	K2900	380	100
FEB 07...	1400	108	6470	8.3	9.5	18.6	--	K1600	340	90
MAR 20...	1530	110	6560	8.2	11.0	15.6	6000	1000	360	93
APR 24...	0930	100	6120	7.9	14.0	6.5	K200	K360	360	91
MAY 15...	1400	140	5220	7.9	20.0	7.3	K200	K370	350	92
JUN 11...	1400	140	5180	7.9	26.5	7.3	K500	K190	320	83
JUL 23...	1500	75	7440	8.0	28.0	10.3	K400	K80	340	86
AUG 20...	1500	90	6720	8.4	24.0	9.7	K710	K200	350	91
SEP 05...	1400	80	7270	8.4	28.0	15.2	K200	--	360	90

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)
NOV 14...	30	1400	33	17	271	340	1900	0.70	26	3970
DEC 11...	30	1300	30	15	281	330	1900	0.60	25	3870
JAN 11...	32	1200	27	13	281	320	1700	0.60	23	3560
FEB 07...	29	1200	28	16	276	330	1600	0.60	21	3450
MAR 20...	30	1300	30	16	284	310	1800	0.50	25	3760
APR 24...	32	1300	30	14	276	280	1700	0.30	19	3610
MAY 15...	30	1100	25	14	279	250	1500	<0.10	25	3180
JUN 11...	27	900	22	12	253	270	1400	0.80	20	2880
JUL 23...	31	1400	33	16	280	390	2100	2.1	22	4210
AUG 20...	29	1200	28	15	274	330	1500	1.0	23	3370
SEP 05...	32	1400	32	17	283	340	2000	<0.10	21	4080

PLATTE RIVER BASIN

06803525 SALT CREEK BELOW STEVENS CREEK, NEAR WAVERLY, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 14...	5.40	911	1.40	1.40	5.70	1.1	6.8	8.2	1.70
DEC 11...	5.26	835	1.30	1.30	6.50	0.70	7.2	8.5	1.30
JAN 11...	4.84	1030	1.60	--	3.80	0.60	4.4	6.0	2.50
FEB 07...	4.69	1010	--	--	3.00	1.8	4.8	--	3.10
MAR 20...	5.11	1120	2.30	--	2.80	0.70	3.5	5.8	3.00
APR 24...	4.91	975	2.20	2.20	2.50	1.8	4.3	6.5	2.80
MAY 15...	4.32	1200	2.70	--	2.20	1.2	3.4	6.1	--
JUN 11...	3.91	1090	2.50	2.70	1.30	1.3	2.6	5.1	1.70
JUL 23...	5.73	854	4.00	--	2.00	1.0	3.0	7.0	3.40
AUG 20...	4.58	819	3.60	3.70	0.980	1.4	2.4	6.0	2.80
SEP 05...	5.55	882	2.70	2.70	1.90	1.4	3.3	6.0	3.50

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)
NOV 14...	4	<100	<1	2	4	600	1
DEC 11...	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--
FEB 07...	4	<100	<1	2	5	310	1
MAR 20...	--	--	--	--	--	--	--
APR 24...	--	--	--	--	--	--	--
MAY 15...	5	<100	<1	2	5	500	<1
JUN 11...	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--
AUG 20...	7	100	<1	2	9	910	<1
SEP 05...	--	--	--	--	--	--	--

PLATTE RIVER BASIN

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06803525 SALT CREEK BELOW STEVENS CREEK, NEAR WAVERLY, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
NOV 14...	260	<0.10	1	<1	30	7.2
DEC 11...	--	--	--	--	--	5.8
JAN 11...	--	--	--	--	--	7.7
FEB 07...	450	0.10	2	<1	30	7.9
MAR 20...	--	--	--	--	--	8.9
APR 24...	--	--	--	--	--	7.3
MAY 15...	<10	<0.10	1	<1	10	8.5
JUN 11...	--	--	--	--	--	10
JUL 23...	--	--	--	--	--	7.2
AUG 20...	280	<0.10	1	<1	30	6.9
SEP 05...	--	--	--	--	--	7.0

PLATTE RIVER BASIN

06803530 ROCK CREEK NEAR CERESCO, NE

LOCATION.--Lat 41°00'56", long 96°32'39", in NE1/4NE1/4 sec.17, T.12 N., R.8 E., Lancaster County, Hydrologic Unit 10200203, on right bank 20 ft downstream from bridge on east-west county road and 5.7 mi southeast of Ceresco.

DRAINAGE AREA.--119 mi².

PERIOD OF RECORD.--April 1970 to current year.

REVISED RECORDS.--WDR NE-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,112.18 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 6, 1980, at present site at datum 3.0 ft higher. July 14, 1981 to Feb. 29, 1984, on left bank 30 ft downstream from bridge at present datum.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 29, Jan. 12-15, 19-31, and Feb. 15-19, 26-28. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--20 years, 38.4 ft³/s, 27,820 acre-ft/yr; median of yearly mean discharges, 30 ft³/s, 21,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,300 ft³/s Aug. 25, 1987, gage height, 19.60 ft, present datum, from floodmark; minimum daily, 0.25 ft³/s July 13, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 26	0845	*6240	*a17.36	No other peak greater than base discharge.			

a From floodmark.

Minimum daily discharge, 4.5 ft³/s Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	9.3	9.8	14	12	11	18	11	15	9.3	14	7.2
2	7.9	9.2	9.6	13	11	12	15	10	13	9.0	14	7.3
3	8.2	9.5	9.0	13	14	13	13	12	12	8.3	15	7.3
4	9.3	10	10	13	13	13	13	20	11	7.5	15	7.0
5	10	9.9	11	13	13	13	12	15	11	6.7	14	6.5
6	10	8.6	12	12	13	14	12	13	9.9	8.9	14	6.2
7	9.4	8.9	11	12	13	28	12	11	64	11	14	6.0
8	11	9.2	10	12	13	30	12	12	141	8.3	13	5.7
9	11	9.1	9.4	14	13	24	12	82	57	7.7	13	5.3
10	10	8.8	8.8	14	13	22	12	33	16	8.0	13	5.1
11	11	9.0	8.2	13	13	24	11	19	13	7.9	13	5.1
12	9.8	9.0	7.2	12	14	23	10	28	12	7.3	72	4.9
13	9.6	9.3	7.0	11	13	25	12	30	11	5.9	27	4.7
14	9.5	9.4	6.8	10	10	31	13	21	11	4.6	17	4.5
15	9.6	9.5	6.6	11	9.0	22	12	19	12	5.5	15	4.9
16	15	6.6	6.6	13	8.4	18	12	19	12	5.4	20	4.7
17	11	8.2	6.0	14	8.0	16	12	15	11	5.6	17	4.9
18	8.9	8.4	8.0	12	9.0	14	11	13	11	6.3	13	6.8
19	9.1	9.3	8.8	11	10	13	12	17	173	14	12	6.8
20	9.2	9.9	8.2	10	12	13	13	16	17	30	11	5.9
21	9.2	9.5	7.6	9.0	13	14	13	14	27	9.1	12	5.8
22	9.3	9.2	7.4	11	14	14	13	13	51	8.6	11	5.6
23	9.4	8.1	7.2	11	14	13	12	14	15	8.4	11	4.8
24	9.4	9.3	8.0	11	14	13	12	77	11	8.2	16	4.9
25	9.7	9.8	13	10	12	14	12	44	10	598	11	5.4
26	11	10	16	11	11	14	12	23	10	3670	10	5.8
27	9.7	9.9	16	10	11	13	11	40	9.7	178	8.8	5.9
28	9.9	9.4	15	11	12	13	11	38	9.3	41	7.9	6.5
29	9.8	9.0	14	11	---	21	9.9	17	9.3	24	7.6	5.7
30	11	10	14	11	---	20	11	15	9.3	17	6.8	5.9
31	9.5	---	14	12	---	21	---	15	---	15	7.1	---
TOTAL	306.3	275.3	306.2	365.0	335.4	549	365.9	726	794.5	4754.5	465.2	173.1
MEAN	9.88	9.18	9.88	11.8	12.0	17.7	12.2	23.4	26.5	153	15.0	5.77
MAX	15	10	16	14	14	31	18	82	173	3670	72	7.3
MIN	7.9	6.6	6.0	9.0	8.0	11	9.9	10	9.3	4.6	6.8	4.5
AC-FT	608	546	607	724	665	1090	726	1440	1580	9430	923	343

CAL YR 1989 TOTAL 9026.1 MEAN 24.7 MAX 2500 MIN 3.0 AC-FT 17900
WTR YR 1990 TOTAL 9416.4 MEAN 25.8 MAX 3670 MIN 4.5 AC-FT 18680

PLATTE RIVER BASIN

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06803555 SALT CREEK AT GREENWOOD, NE

LOCATION.--Lat 40°57'56", long 96°27'01", at center of sec.31, T.12 N., R.9 E., Cass County, Hydrologic Unit 10200203, on right bank just downstream from county road bridge, 0.5 mi west of Greenwood.

DRAINAGE AREA.--1,051 mi².

PERIOD OF RECORD.--November 1951 to current year. Records furnished by Corps of Engineers prior to Oct. 1, 1972.

REVISED RECORDS.--WDR NE-71: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,068.14 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 5, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 7 to Jan. 3, Jan. 21, Feb. 16-18, and Apr. 24-26. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--38 years (water years 1953-90), 339 ft³/s, 245,600 acre-ft/yr; median of yearly mean discharges, 283 ft³/s, 205,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,800 ft³/s June 13, 1984, gage height, 26.50 ft; minimum daily, 14 ft³/s Jan. 10, 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0600	*40600	*a25.77	Aug. 12	1430	6260	10.54

a From floodmark.

Minimum daily discharge, 70 ft³/s Dec. 22, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	281	116	145	137	127	180	120	141	102	156	103
2	156	244	114	145	129	129	169	118	137	96	156	103
3	148	240	108	140	151	127	163	123	129	99	242	96
4	145	233	118	130	140	127	154	332	122	93	164	96
5	145	223	120	128	141	126	149	185	120	115	133	96
6	151	219	143	130	143	126	149	157	138	148	120	99
7	132	215	110	127	143	223	145	140	307	142	121	102
8	134	214	120	130	152	275	142	133	389	98	117	140
9	127	211	110	133	141	243	147	854	275	93	119	101
10	125	189	100	138	138	184	150	355	178	113	126	99
11	124	127	105	142	136	179	143	212	158	123	130	100
12	118	116	100	129	137	171	145	287	146	104	2290	98
13	118	115	105	139	138	164	180	253	141	95	602	98
14	117	112	110	140	117	331	160	187	138	90	207	94
15	115	115	95	129	118	211	159	181	198	85	164	91
16	153	111	90	131	110	184	149	180	168	86	155	88
17	139	122	95	152	120	167	149	161	179	85	171	88
18	123	117	105	153	130	158	145	151	157	84	132	148
19	119	117	75	151	128	150	145	255	283	100	128	115
20	118	115	85	141	129	147	150	183	161	291	130	101
21	117	113	75	120	127	146	150	161	411	117	140	103
22	117	112	70	142	132	145	149	151	376	124	144	94
23	119	109	70	160	132	144	144	147	174	97	140	90
24	206	109	110	164	132	161	145	456	139	95	135	90
25	347	110	140	142	129	151	150	273	123	4180	130	91
26	352	110	130	139	124	150	146	192	121	23900	120	91
27	438	112	150	141	127	148	151	309	113	1500	109	88
28	432	111	140	133	128	151	132	346	111	404	106	92
29	388	124	140	132	---	248	128	173	108	262	107	88
30	361	120	135	136	---	191	124	160	109	208	103	91
31	338	---	140	135	---	206	---	158	---	180	101	---
TOTAL	5887	4566	3424	4297	3709	5390	4492	7093	5450	33309	6898	2974
MEAN	190	152	110	139	132	174	150	229	182	1074	223	99.1
MAX	438	281	150	164	152	331	180	854	411	23900	2290	148
MIN	115	109	70	120	110	126	124	118	108	84	101	88
AC-FT	11680	9060	6790	8520	7360	10690	8910	14070	10810	66070	13680	5900

CAL YR 1989 TOTAL 102701 MEAN 281 MAX 22300 MIN 70 AC-FT 203700
WTR YR 1990 TOTAL 87489 MEAN 240 MAX 23900 MIN 70 AC-FT 173500

PLATTE RIVER BASIN

06804000 WAHOO CREEK AT ITHACA, NE

LOCATION.--Lat 41°08'40", long 96°32'10", in NW1/4NW1/4 sec.33, T.14 N., R.8 E., Saunders County, Hydrologic Unit 10200203, on right bank 16 ft downstream from bridge on State Highway 63 and 0.5 mi south of Ithaca.

DRAINAGE AREA.--271 mi², of which 268 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WDR NE-71-1: Drainage area. WDR NE-78-1: 1977(P).

GAGE.--Water-stage recorder. Datum of gage is 1,110.48 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1959, nonrecording gages at same site and datum. Oct. 28, 1959, to Feb. 22, 1961, nonrecording gage at site 1.5 mi upstream at datum 8.21 ft higher.

REMARKS.--Estimated daily discharges: Dec. 7 to Jan. 2, Feb. 14 to Feb. 18, and May 31 to June 4. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--41 years, 85.9 ft³/s, 62,230 acre-ft/yr; median of yearly mean discharges, 74.2 ft³/s, 53,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,400 ft³/s June 24, 1963, gage height, 22.93 ft, from rating curve extended above 13,000 ft³/s on basis of indirect measurement of peak flow; minimum daily, 3.3 ft³/s June 11, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since about 1910, 23.22 ft, from floodmark, Aug. 2, 1959, discharge, 45,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0240	*3940	*19.54	No other peak greater than base discharge.			
Minimum daily discharge, 7.8 ft ³ /s Sept. 16.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	26	28	30	33	32	35	28	34	28	33	18
2	25	25	29	30	30	32	32	28	33	27	31	17
3	25	28	27	30	34	33	31	30	32	27	31	14
4	25	27	29	30	33	33	30	34	31	26	31	18
5	26	27	29	30	34	33	30	34	29	26	29	14
6	26	26	32	30	34	33	29	33	28	28	29	11
7	26	26	30	31	33	41	29	32	35	30	28	12
8	27	26	28	31	35	47	29	30	98	27	28	14
9	27	26	26	31	34	43	30	46	165	25	27	15
10	25	26	25	33	33	38	30	58	38	27	27	16
11	24	26	25	33	33	40	29	37	34	30	27	17
12	24	26	24	29	34	40	29	36	34	26	27	17
13	23	26	24	35	35	37	30	38	31	25	26	9.3
14	24	26	23	33	27	38	30	36	30	23	25	8.7
15	26	26	23	31	26	37	30	34	32	22	25	8.7
16	25	26	23	31	26	36	30	33	45	23	23	7.8
17	24	26	22	32	25	34	30	31	65	23	23	8.5
18	24	26	22	32	29	33	30	31	42	22	21	11
19	25	29	22	32	32	32	29	33	238	22	23	12
20	25	28	21	32	33	32	29	34	44	26	19	11
21	25	29	21	33	33	32	30	33	72	25	19	11
22	25	28	20	35	34	32	30	31	153	23	19	11
23	26	27	20	34	35	32	30	31	45	21	18	11
24	25	28	24	34	34	32	29	33	33	25	18	11
25	25	28	27	32	33	32	29	144	30	363	17	12
26	25	29	28	34	31	32	29	87	29	2770	16	11
27	24	29	29	34	34	31	29	42	29	147	16	13
28	24	28	29	32	33	31	29	61	29	60	16	14
29	26	32	29	32	---	37	28	41	29	67	16	17
30	27	29	30	33	---	38	29	35	28	43	16	17
31	27	---	30	30	---	38	---	35	---	35	15	---
TOTAL	782	815	799	989	900	1091	893	1269	1595	4092	719	388.0
MEAN	25.2	27.2	25.8	31.9	32.1	35.2	29.8	40.9	53.2	132	23.2	12.9
MAX	27	32	32	35	35	47	35	144	238	2770	33	18
MIN	23	25	20	29	25	31	28	28	28	21	15	7.8
AC-FT	1550	1620	1580	1960	1790	2160	1770	2520	3160	8120	1430	770

CAL YR 1989 TOTAL 17833 MEAN 48.9 MAX 2570 MIN 19 AC-FT 35370
WTR YR 1990 TOTAL 14332.0 MEAN 39.3 MAX 2770 MIN 7.8 AC-FT 28430

PLATTE RIVER BASIN

06804900 JOHNSON CREEK NEAR MEMPHIS, NE

LOCATION.--Lat 41°08'48", long 96°23'12", in NW1/4NW1/4 sec.35, T.14 N., R. 9 E., Saunders County, Hydrologic Unit 10200203, on left downstream bank on Saunders County road No. 37, 3.5 mi north and 2 mi east of Memphis.

DRAINAGE AREA.--21.5 mi².

PERIOD OF RECORD.--September, 1990.

GAGE.--Water-stage recorder. Datum of gage is 1,070.00 ft above National Geodetic Vertical Datum of 1929.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

[illegible]

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DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3580	4720	3210	6800	5200	6220	7260	5440	5590	3840	7040	2140
2	3520	5070	4060	6800	4600	5940	6980	5810	5230	3560	4750	2150
3	3440	4840	4260	6600	4000	6120	6390	5930	5340	3500	4200	2000
4	3310	4500	4040	6400	3700	5900	6190	6570	5310	2830	4100	1730
5	3360	4610	4700	6400	3820	5580	5680	6360	5430	2560	4000	1850
6	3850	4740	6050	6200	3940	5540	5040	6570	4620	2910	3930	1690
7	3790	4920	6110	6400	4560	5940	5570	6480	5250	2620	3490	1720
8	3940	4410	5890	6600	6110	6790	5520	6100	5810	2080	3490	1780
9	3750	3360	4950	6800	8680	8940	6010	7260	6490	1960	3190	1730
10	3750	4390	4220	7000	8680	10300	5950	7250	5990	2010	3120	1640
11	3800	4230	3000	7400	8680	10100	5910	7310	6240	2090	2910	1490
12	3680	4270	2020	6800	8730	9570	6040	8080	4620	2020	4380	1510
13	3710	4210	1570	6600	7400	11200	6630	8580	4730	2210	4510	1540
14	3570	4160	1360	7200	6800	9330	6570	7570	10700	2000	2820	1440
15	3620	4360	1200	8000	5400	9240	6550	6410	15200	1960	2740	1440
16	3670	4550	1200	8600	4000	10700	6290	6850	30600	1860	2740	1500
17	3670	4240	1300	8660	3000	9810	5510	10200	51000	1830	3090	1410
18	3630	3390	1500	7380	2100	7410	6030	8490	60700	1700	2760	1690
19	3760	4180	1700	6800	2300	7740	5600	7820	58200	1660	2850	1610
20	3930	4640	2000	6400	2800	8100	5680	7040	25000	2100	3660	1870
21	3830	4370	2700	6200	4000	6750	5860	7610	15800	1790	3410	1890
22	3950	5120	3000	5800	5980	6330	5710	6920	13500	1910	3930	1950
23	3730	5180	3100	5600	8880	6090	5450	6960	14800	2300	3180	2110
24	3970	4780	3000	5550	9000	5820	5050	7720	13300	2770	3360	2520
25	4060	4290	2900	5410	8800	5630	5650	8250	10000	5080	3120	2200
26	4110	4470	2880	5620	7580	5750	5350	8250	8510	33200	2700	2600
27	4220	4870	3000	6570	6830	6470	5210	8250	6290	21000	2680	2420
28	4310	4770	4400	6540	6320	6310	5710	7360	5270	11300	2560	2160
29	4640	4000	6000	6700	---	6070	4960	5920	5730	7030	2730	2300
30	4530	2770	6400	7040	---	7000	5660	5720	5190	7190	2600	2140
31	5230	---	6600	6200	---	6880	---	5450	---	8580	2290	---
TOTAL	119910	132410	108320	207070	161890	229570	176010	220530	420440	149450	106330	56220
MEAN	3868	4414	3494	6680	5782	7405	5867	7114	14010	4821	3430	1874
MAX	5230	5180	6600	8660	9000	11200	7260	102				

PLATTE RIVER BASIN
06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1974 to September 1981.

WATER TEMPERATURES: November 1974 to September 1981.

SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1981.

REMARKS.--Prior to July 1, 1971, sediment records were obtained by the U.S. Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,450 microsiemens Sept. 1, 1976; minimum daily, 254 microsiemens Aug. 7, 1981.

WATER TEMPERATURES: Maximum, 36.0°C July 24, 1977, Aug. 19, 1979; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATIONS: Maximum daily, 11,600 mg/L May 19, 1974; minimum daily, 60 mg/L July 19, 1976.

SEDIMENT LOADS: Maximum daily, 1,180,000 tons Mar. 21, 1978; minimum daily, 64 tons July 19, 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
NOV 21...	1100	3940	--	8.2	4.0	734	36	13.8	K120	250	170	5
FEB 07...	1100	4340	--	8.3	1.5	736	25	17.5	K50	K250	180	17
MAY 16...	1100	7480	691	8.7	17.0	731	17	11.2	K140	K740	200	31
AUG 20...	1030	3370	--	8.3	23.0	737	71	9.3	K500	K360	170	20

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)
NOV 21...	50	12	86	3	8.5	170	0	207	62	95	0.30	38
FEB 07...	53	12	73	2	7.7	165	0	201	76	78	0.30	37
MAY 16...	55	15	65	2	9.3	168	10	185	110	56	0.30	24
AUG 20...	50	11	96	3	10	151	0	184	82	120	0.30	27

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 21...	462	460	0.63	4910	1.00	0.210	0.89	1.1	0.390	0.240	0.230
FEB 07...	461	443	0.63	5400	1.30	0.130	0.47	0.60	0.340	0.230	0.250
MAY 16...	425	437	0.58	8580	0.200	<0.010	--	0.90	0.250	0.080	0.070
AUG 20...	495	489	0.67	4500	0.200	0.100	1.6	1.7	0.460	0.280	0.210

PLATTE RIVER BASIN

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06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 21...	1100	10	6	110	<0.5	1.0	<1	<3	3	5	<1
FEB 07...	1100	30	6	110	<0.5	<1.0	1	<3	1	15	1
MAY 16...	1100	20	6	110	<0.5	<1.0	<1	<3	3	10	<1
AUG 20...	1030	10	7	140	<0.5	<1.0	<1	<3	5	7	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 21...	27	7	<0.1	<10	1	1	<1.0	370	<6	5
FEB 07...	23	10	<0.1	<10	2	2	<1.0	370	<6	<3
MAY 16...	27	5	<0.1	<10	2	2	<1.0	430	8	3
AUG 20...	25	5	<0.1	<10	8	1	<1.0	340	9	8

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 21...	1100	3940	4.0	251	2670	50
FEB 07...	1100	4340	1.5	115	1350	76
MAY 16...	1100	7480	17.0	746	15100	39
AUG 20...	1030	3370	23.0	280	2550	86

WEEPING WATER CREEK BASIN

06806500 WEEPING WATER CREEK AT UNION, NE

LOCATION.--Lat 40°47'35", long 95°54'40", in SW1/4NW1/4 sec.36, T.10 N., R.13 E., Cass County, Hydrologic unit 10240001, on left bank near downstream side of bridge on U.S. Highways 73 and 75, 1.5 mi southeast of Union and 2.8 mi downstream from South Branch Weeping Water Creek.

DRAINAGE AREA.--241 mi².

PERIOD OF RECORD.--February 1950 to current year.

REVISED RECORDS.--WSP 2118: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 926.72 ft above National Geodetic Vertical Datum of 1929. Prior to May 14, 1951, nonrecording gage at site 2 mi upstream at different datum. May 15, 1951, to Aug. 22, 1968, water-stage recorder for stages above 7.9 ft and nonrecording gage, Aug. 23, 1968 to Aug. 22, 1980, water-stage recorder on downstream side of bridge pier, Aug. 23, 1980 to Nov. 4, 1980 at present site, all at datum 3.00 ft higher. Nov. 5, 1980 to Aug. 23, 1984 at present site and datum. Aug. 24, 1984, to Mar. 5, 1986, on left bank 200 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 23, Nov. 27 to Dec. 3, Dec. 8 to Jan. 1, Jan. 6-14, 20-22, Jan. 26 to Feb. 7, and Feb. 14-19, 23-26. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years, 96.8 ft³/s, 70,130 acre-ft/yr; median of yearly mean discharges, 74 ft³/s, 53,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,300 ft³/s May 9, 1950, gage height, 29.80 ft, from floodmark, present site and datum, from rating curve extended above 12,000 ft³/s on basis of measurement of peak flow through bridges and over highway embankment; minimum daily, 0.1 ft³/s Sept. 10-12, 14, 15, 17, 18, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0640	*24700	*29.20	No other peak greater than base discharge.			
Minimum daily discharge, 6.6 ft ³ /s July 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	19	16	20	18	16	29	15	21	12	65	21
2	16	18	15	20	19	17	27	15	20	11	65	21
3	15	17	17	21	19	16	25	16	18	9.9	240	21
4	15	17	18	21	18	17	24	26	16	7.8	81	21
5	17	17	18	20	18	17	22	29	16	7.0	61	22
6	18	16	20	19	17	17	21	25	15	84	55	19
7	18	16	20	19	18	25	21	21	46	56	51	18
8	18	17	18	20	19	39	21	18	118	26	47	22
9	18	18	17	21	18	36	22	43	78	15	44	25
10	17	17	15	20	18	30	23	63	43	32	42	22
11	16	17	14	20	17	29	21	34	25	37	50	18
12	15	16	14	19	18	28	20	37	20	18	112	18
13	14	16	12	17	18	29	24	92	16	16	220	16
14	15	17	10	18	15	116	26	57	18	13	78	14
15	17	17	9.6	19	14	61	25	37	21	11	51	13
16	14	16	11	21	14	38	24	35	25	10	41	13
17	16	15	10	23	13	30	23	31	177	8.1	44	13
18	17	16	9.4	21	16	27	21	27	170	6.6	44	18
19	16	17	8.6	19	18	24	21	27	209	6.7	34	21
20	17	19	8.6	19	18	22	22	28	80	30	35	19
21	16	19	8.4	20	15	22	22	25	218	22	33	18
22	17	19	7.4	21	18	22	22	24	253	25	30	16
23	18	16	7.4	23	18	23	22	22	67	15	30	14
24	18	17	10	26	17	24	20	25	31	13	37	15
25	17	18	15	23	17	25	19	33	23	1090	61	14
26	19	18	18	22	18	25	19	42	19	15700	38	12
27	19	17	21	20	18	24	19	28	17	843	29	13
28	17	16	21	19	16	24	18	45	15	950	25	12
29	17	16	21	19	---	27	17	36	13	159	23	11
30	33	15	20	18	---	29	16	23	13	92	22	11
31	22	---	21	18	---	31	---	22	---	74	21	---
TOTAL	540	509	451.4	626	480	910	656	1001	1821	19400.1	1809	511
MEAN	17.4	17.0	14.6	20.2	17.1	29.4	21.9	32.3	60.7	626	58.4	17.0
MAX	33	19	21	26	19	116	29	92	253	15700	240	25
MIN	14	15	7.4	17	13	16	16	15	13	6.6	21	11
AC-FT	1070	1010	895	1240	952	1800	1300	1990	3610	38480	3590	1010

CAL YR 1989 TOTAL 27501.6 MEAN 75.3 MAX 8080 MIN 3.0 AC-FT 54550
WTR YR 1990 TOTAL 28714.5 MEAN 78.7 MAX 15700 MIN 6.6 AC-FT 56860

LOCATION.--Lat 40°40'55", long 95°50'48", in NW1/4NE1/4 sec.9, T.8 N., R.14 E., Otoe County, Hydrologic Unit 10240001, on right bank 2.0 mi upstream from Highway 2 Bridge at Nebraska City, and at mile 562.6.

DRAINAGE AREA.--410,000 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--August 1929 to current year. Gage-height records collected in this vicinity from August 1878 to December 1899 are contained in reports of Missouri River Commission.

REVISID RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage encoder. Datum of gage is 905.36 ft above NGVD, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Estimated daily discharges: Dec. 2, 3, and Jan. 4, 5, 7, 8. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U.S. Army Corps of Engineers rain-gage and satellite data collection platform at station.

AVERAGE DISCHARGE.--61 years, 36,850 ft³/s, 26,700,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 414,000 ft³/s Apr. 19, 1952; maximum gage height, 27.66 ft Apr. 18, 1952; minimum discharge, 1,600 ft³/s Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft Dec. 24, 1960, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 115,000 ft³/s June 14, gage height, 20.56 ft; minimum daily discharge, 8,740 ft³/s Dec. 18, gage height, 1.49 ft, result of freeze-up.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33300	24600	14100	18400	18400	19600	28500	31900	32900	40900	37600	30800
2	33000	22200	13500	17300	18100	18800	28800	31400	34800	39400	35000	30800
3	33000	20800	14500	17100	17300	17500	28100	31200	35600	35400	34100	31000
4	32800	19700	15300	16500	16600	17100	27300	31700	34300	36100	34000	31500
5	32700	19200	15000	17000	15500	16600	27000	31400	36000	35300	32800	32000
6	33000	19300	15900	17800	16500	16100	27300	31300	35600	32700	31400	32400
7	33400	19000	18300	17600	18200	16500	27500	31200	33200	34600	30900	32600
8	33300	18300	18200	17400	18600	17600	28400	31000	36500	34000	30700	32900
9	33300	17100	17100	17300	19100	18400	28700	31900	36400	31400	30900	33500
10	33400	16100	16600	17500	20200	20700	29100	32400	34000	33600	31100	33600
11	33400	16700	16100	18000	19800	21300	29000	31900	35100	35100	32200	33800
12	33200	16500	16400	17700	18900	20300	29100	32500	35200	34000	34100	34000
13	33300	16100	14500	17200	18700	19800	29100	31100	32100	34300	36000	34100
14	33500	15800	14000	16800	19200	22700	29100	30000	44400	34300	33900	34100
15	33400	15800	11400	18100	19700	22500	29100	31200	47800	32900	32400	34000
16	33900	16000	9810	16400	19200	21000	29500	32500	57800	33100	32000	33900
17	33700	16100	9280	19000	17600	21000	29500	31300	78600	32800	31500	33900
18	33300	15900	8740	20200	16500	19200	29800	34400	108000	31600	31500	33900
19	33100	14900	9030	19700	16400	17100	29900	34700	114000	31900	31600	34100
20	32900	16200	11400	19100	16300	17000	29800	42200	94100	33200	31600	34100
21	32800	16100	14300	18600	17300	16900	29600	44800	59500	33200	32000	34400
22	32800	15100	15100	17500	18700	15800	29700	38400	49000	35000	31900	33800
23	32800	15500	14600	16700	18900	15800	29700	32800	47700	33100	32400	33700
24	32900	15200	13500	16900	19900	15900	29800	38400	48800	33000	31700	33300
25	33000	14800	12900	17400	19500	15800	30100	49800	46100	34600	32900	33500
26	33400	14500	14000	17400	18900	15700	30800	48500	42200	83100	35300	33200
27	33400	14900	17200	17400	18900	16000	31000	44400	38600	65100	33000	33200
28	32300	15600	19600	17800	19400	18000	31200	40200	38500	47400	31900	32900
29	30600	15000	20300	17500	---	20700	31800	36200	38100	40300	31200	32700
30	28700	14400	20400	17900	---	23800	31700	36200	37000	38300	31400	32800
31	26500	---	19800	18700	---	26700	---	35600	---	39900	31100	

LITTLE NEMAHA RIVER BASIN

06811500 LITTLE NEMAHA RIVER AT AUBURN, NE

LOCATION.--Lat 40°23'33", long 95°48'46", in NE1/4NW1/4 sec.23, T.5 N., R.14 E., Nemaha County, Hydrologic Unit 10240006, on left bank at downstream side of bridge on U.S. Highway 136, 1 mi downstream from Longs Creek and Willow Creek and 1 mi east of Auburn.

DRAINAGE AREA.--793 mi².

PERIOD OF RECORD.--August 1949 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 889.87 ft above National Geodetic Vertical Datum of 1929. See WSP 2119 for history of changes prior to July 24, 1967.

REMARKS.--Estimated daily discharges: Nov. 16-18, 28-30, Dec. 11 to Jan. 14, Jan. 21-24, and Feb. 16-18. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--41 years, 292 ft³/s, 211,600 acre-ft/yr; median of yearly mean discharges, 203 ft³/s, 147,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 164,000 ft³/s May 9, 1950, gage height, 27.65 ft, from floodmark, from rating curve extended above 49,000 ft³/s on basis of computations of peak flow through bridge and culvert openings and over highway and railway embankments at gage heights 24.96 ft and 27.65 ft; minimum daily, 0.87 ft³/s July 6-8, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0800	*17900	*21.35	No other peak above base discharge.			
Minimum daily discharge, 22 ft ³ /s July 19.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	61	82	52	65	55	128	53	97	37	140	33
2	56	57	70	56	53	54	113	53	90	34	122	32
3	53	56	56	58	55	53	94	59	82	31	132	31
4	54	58	82	64	58	53	83	91	72	29	138	29
5	59	62	80	62	69	52	74	93	68	27	107	28
6	63	60	82	62	62	55	68	85	67	30	90	27
7	59	58	82	70	62	74	65	74	94	36	80	26
8	59	58	76	76	62	104	66	65	226	35	73	26
9	59	58	84	84	61	112	67	83	326	32	69	25
10	57	56	77	80	59	99	72	95	159	83	65	25
11	56	56	52	84	59	92	65	99	106	75	62	25
12	53	57	45	78	60	87	61	110	87	49	75	26
13	53	58	52	72	59	82	70	148	74	42	359	27
14	53	58	47	76	47	204	82	154	69	37	166	26
15	55	58	43	79	39	220	85	187	70	34	100	26
16	58	46	40	84	40	122	78	470	103	33	93	26
17	58	50	42	101	45	94	75	205	174	30	91	25
18	55	48	43	89	60	79	71	140	113	25	75	30
19	55	59	45	80	62	67	67	142	75	22	63	33
20	57	61	40	80	63	63	68	172	61	27	376	33
21	60	61	37	80	61	61	70	131	62	34	121	33
22	60	61	34	80	61	61	67	111	138	46	78	31
23	61	55	34	81	65	61	65	100	146	55	62	29
24	62	62	35	81	63	69	63	117	87	37	53	29
25	61	64	38	78	59	70	61	233	66	387	51	29
26	62	66	40	73	52	72	58	164	56	13900	52	29
27	59	66	50	71	64	72	59	122	51	5030	47	29
28	61	47	50	64	58	77	57	133	47	2290	41	29
29	61	56	58	61	---	106	56	195	43	984	38	29
30	65	70	56	64	---	124	54	121	40	309	36	29
31	69	---	54	57	---	130	---	103	---	189	34	---
TOTAL	1812	1743	1706	2277	1623	2724	2162	4108	2949	24009	3089	855
MEAN	58.5	58.1	55.0	73.5	58.0	87.9	72.1	133	98.3	774	99.6	28.5
MAX	69	70	84	101	69	220	128	470	326	13900	376	33
MIN	53	46	34	52	39	52	54	53	40	22	34	25
AC-FT	3590	3460	3380	4520	3220	5400	4290	8150	5850	47620	6130	1700

CAL YR 1989 TOTAL 75980.5 MEAN 208 MAX 20100 MIN 4.6 AC-FT 150700
WTR YR 1990 TOTAL 49057 MEAN 134 MAX 13900 MIN 22 AC-FT 97300

MISSOURI RIVER MAIN STEM

185

06813500 MISSOURI RIVER AT RULO, NE

LOCATION.--Lat 40°03'13", long 95°25'19", in NW1/4NW1/4 sec.17, T.1 N., R.18 E., Richardson County Hydrologic Unit 10240005, on right bank at downstream side of bridge on U.S. Highway 159 at Rulo, 3.2 mi upstream from Big Nemaha River, and at mile 498.0.

DRAINAGE AREA.--414,900 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of U.S. Geological Survey. Gage-height record collected at site 80 ft upstream January 1886 to December 1899 published in reports of Missouri River Commission September 1929 to September 1950 in files of Kansas City office of U.S. Army Corps of Engineers.

GAGE.--Water-stage encoder. Datum of gage is 837.23 ft above NGVD Oct. 1949 to Sept. 12, 1950, nonrecording gage at site 80 ft upstream and Sept. 13, 1950 to Apr. 19, 1983, recording gage on downstream end of middle pier, all at same datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers satellite data collection platform at station.

AVERAGE DISCHARGE.--41 years, 41,170 ft³/s, 29,830,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft³/s Apr. 22, 1952, gage height, 25.60 ft; minimum daily discharge, 4,420 ft³/s Jan. 13, 1957; minimum gage height, 0.65 ft Jan. 7, 1971, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft, from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 120,000 ft³/s June 20, gage height, 20.35 ft; minimum daily discharge, 9,660 ft³/s Dec. 19, minimum gage height 1.46 ft Dec. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34900	28600	15900	19500	20300	20800	30900	33500	35700	43400	48100	33700
2	34700	26300	15100	18000	19900	20900	32100	33600	35000	45300	44000	33300
3	34600	24300	16500	17300	19300	19100	31500	33400	36900	41300	42700	33400
4	34900	22800	17400	17400	18500	17800	30900	34100	35700	39400	42500	33600
5	34700	21600	16700	17500	17500	17600	30400	34300	35600	40200	39900	33700
6	35100	21100	16400	18000	16900	17100	30400	33600	37200	37400	37500	34100
7	35400	21100	17800	18500	18400	17100	30600	33500	35700	37000	36000	34000
8	35500	20300	19500	18300	19900	18000	30600	33400	41000	38200	35100	34300
9	35400	19700	18700	18100	20400	19100	31000	33100	40700	35200	35000	34400
10	35100	17900	17600	18400	21200	20600	31100	35600	36600	34400	34800	34800
11	35200	17400	17000	18900	22200	24700	31100	36200	35500	36600	35100	34800
12	35100	17900	16600	19500	21500	24300	31300	35100	37100	36000	37000	35000
13	34700	17800	16200	18900	20800	22900	31500	35100	34300	35700	46200	35100
14	34500	17500	14800	18400	20500	23300	32100	33300	42700	36000	42000	35000
15	34400	17100	13800	17900	20900	26800	32100	34800	56500	35100	38200	34800
16	34200	16900	12200	17600	21300	27100	32000	40300	72400	34400	37400	34800
17	34400	17000	10800	18700	20600	26200	32700	36100	89000	34600	37200	34800
18	33800	17000	10200	21700	18900	25300	32700	35500	109000	33600	35800	35000
19	33700	16400	9660	22400	17800	22700	33000	37000	117000	33200	35100	35300
20	33800	15900	9980	21700	17800	20600	32700	40300	118000	35000	38200	35200
21	33800	17000	11800	21200	18000	20600	32600	49200	95500	36000	36400	35600
22	33400	16900	14100	20200	19400	19900	32200	44700	74100	38400	35100	35500
23	33500	16600	14600	18800	20700	18700	32100	37100	65000	37600	35300	34600
24	33600	17100	14000	18000	21100	18700	32200	36200	60400	36900	34800	34500
25	34200	16900	13400	18200	21600	18400	32500	46800	55200	37500	34600	34000
26	34500	16600	13100	18700	20900	18100	33100	56400	49900	73600	36700	34000
27	34800	16700	14400	18500	19900	17700	33200	47800	44800	94300	37900	33800
28	34500	17200	17600	18800	20600	18600	33300	44000	43300	74100	35900	33600
29	33100	17300	20000	19000	---	21000	33600	40000	43900	60900	34900	33200
30	31900	16500	20600	18900	---	24100	33200	38100	41700	50800	34400	33200
31	30100	---	20400	19700	---	28000	---	38600	---	49700	34200	---
TOTAL	1061500	563400	476840	586700	556800	655800	958700	1180700	1655400	1331800	1168000	1031100
MEAN	34240	18780	15380	18930	19890	21150	31960	38090	55180	42960	37680	34370
MAX	35500	28600	20600	22400	22200	28000	33600	56400	118000	94300	48100	35600
MIN	30100	15900	9660	17300	16900	17100	30400	33100	34300	33200	34200	33200
AC-FT	2105000	1118000	945800	1164000	1104000	1301000	1902000	2342000	3283000	2642000	2317000	2045000

CAL YR 1989 TOTAL 11307010 MEAN 30980 MAX 114000 MIN 8190 AC-FT 22430000
WTR YR 1990 TOTAL 11226740 MEAN 30760 MAX 118000 MIN 9660 AC-FT 22270000

MISSOURI RIVER BASIN

BIG NEMAHA RIVER BASIN

06814000 TURKEY CREEK NEAR SENECA, KS

LOCATION.--Lat 39°56'52", long 96°06'30", in SW1/4NW1/4SW1/4 sec.20, T.1 S., R.12 E., Nemaha County, Hydrologic Unit 10240007, on left bank at downstream side of highway bridge, 2.0 mi downstream from Clear Creek, 5.0 mi upstream from Big Nemaha River, and 8.0 mi northwest of Seneca.

DRAINAGE AREA.--276 mi².

PERIOD OF RECORD.--October 1948 to current year. Monthly discharge only for some periods, published in WSP 1310.

GAGE.--Water-stage recorder. Datum of gage is 1,037.53 ft above sea level. Prior to Oct. 19, 1956, water-stage recorder (occasional operation only) and nonrecording gage on former channel 400 ft south of present site at present datum. Oct. 19, 1956, to June 15, 1957, nonrecording gage at highway bridge 1.2 mi upstream at different datum. June 16, 1957, to Mar. 27, 1958, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--42 years, 127 ft³/s, 92,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s Oct. 11, 1973, gage height, 24.77 ft; no flow at times in 1956-57, 1977, and 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 15	2100	3,270	18.12	June 15	1700	*13,300	*23.50

Minimum discharge, 1.6 ft³/s Sept. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.0	e10	e6.7	e10	8.4	6.6	101	10	41	38	9.9	5.5
2	e6.0	e9.0	e7.5	e11	7.5	6.3	63	9.4	38	34	9.4	5.6
3	e5.5	e8.5	e7.5	e10	8.9	6.2	49	11	33	29	809	5.7
4	e5.5	e8.0	e7.0	e10	7.9	6.4	41	22	28	25	343	5.2
5	e5.5	e8.0	e7.0	e10	8.8	6.3	35	26	26	22	58	5.2
6	e5.8	e7.5	e8.0	e10	8.2	7.1	30	19	76	24	35	4.7
7	e6.2	e8.0	e8.6	e11	8.6	27	26	15	562	27	27	4.7
8	e6.4	e8.0	e8.0	e11	8.9	60	24	12	300	22	23	5.0
9	e6.4	e7.5	e8.0	e11	8.6	56	25	17	93	20	21	6.0
10	e6.4	e7.0	e7.5	e12	8.5	44	31	36	62	23	20	5.3
11	e6.4	e6.6	e7.0	e12	8.0	32	26	39	52	22	38	4.9
12	e6.4	e6.5	e6.6	e11	7.6	20	22	31	45	20	363	4.7
13	e6.4	e7.0	e6.4	e10	7.2	17	32	48	41	20	118	3.9
14	e6.4	e7.0	e6.0	e10	5.9	35	47	55	90	17	40	3.8
15	e6.6	e7.0	e6.0	e10	6.9	57	40	1610	5500	16	29	3.4
16	e7.0	e6.5	e6.0	e12	7.2	56	29	938	5170	14	100	3.1
17	e8.0	e6.0	e6.5	e14	7.2	38	24	205	623	13	81	3.2
18	e9.0	e6.2	e6.0	e15	7.6	23	21	121	262	11	21	5.6
19	e8.0	e6.4	e5.5	e13	7.5	16	20	98	1030	11	23	6.5
20	e7.0	e6.6	e5.5	16	7.9	14	20	83	260	11	42	6.4
21	e6.6	e6.6	e5.5	15	8.2	13	21	68	138	25	16	17
22	e6.9	e6.4	e5.5	15	11	13	20	58	124	37	15	8.0
23	e6.9	e6.2	e5.6	14	16	14	18	52	91	20	13	4.4
24	e6.9	e6.6	e6.0	13	13	17	18	97	75	14	11	3.5
25	e6.9	e6.6	e7.0	13	10	18	16	105	68	12	10	3.0
26	e6.9	e6.6	e8.0	14	8.8	23	15	64	62	20	9.3	2.1
27	e9.0	e6.8	e9.0	11	7.7	29	14	52	55	42	8.2	1.8
28	e13	e6.8	e10	11	6.8	40	13	88	50	19	7.4	e1.7
29	e20	e6.4	e11	10	---	184	13	59	45	12	7.0	e1.7
30	e15	e6.4	e10	9.2	---	138	12	47	42	12	6.7	e1.7
31	e12	---	e9.0	9.3	---	102	---	42	---	10	6.1	---
TOTAL	242.0	212.7	223.9	363.5	238.8	1124.9	866	4137.4	15082	642	2320.0	143.3
MEAN	7.81	7.09	7.22	11.7	8.53	36.3	28.9	133	503	20.7	74.8	4.78
MAX	20	10	11	16	16	184	101	1610	5500	42	809	17
MIN	5.5	6.0	5.5	9.2	5.9	6.2	12	9.4	26	10	6.1	1.7
AC-FT	480	422	444	721	474	2230	1720	8210	29920	1270	4600	284

CAL YR 1989 TOTAL 18250.59 MEAN 50.0 MAX 7560 MIN .00 AC-FT 36200
WTR YR 1990 TOTAL 25596.5 MEAN 70.1 MAX 5500 MIN 1.7 AC-FT 50770

e Estimated

BIG NEMAHA RIVER BASIN

187

06814500 NORTH FORK BIG NEMAHA RIVER AT HUMBOLDT, NE

LOCATION.--Lat 40°09'25", long 95°56'40", in NW1/4NE1/4 sec.10, T.2 N., R.13 E., Richardson County, Hydrologic Humboldt, Unit 10240008, on right bank near right downstream wingwall of bridge on State Highway 105 at south edge of Humboldt, 800 ft downstream from Long Branch Creek.

DRAINAGE AREA.--548 mi².

PERIOD OF RECORD.--October 1952 to current year. Prior to October 1967 published as North Fork Nemaha River at Humboldt.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder; nonrecording gage read twice daily. Datum of gage is 944.44 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1968, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 15-19, 22-25, Nov. 27 to Feb. 5, and Feb. 13-22, 25-28. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--38 years, 200 ft³/s, 144,900 acre-ft/yr; median of yearly mean discharges, 152 ft³/s, 110,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft³/s Aug. 13, 1982, gage height, 31.25 ft, from floodmark; maximum gage height, 31.70 ft July 10, 1958; minimum daily, 0.07 ft³/s July 22, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	1100	*10600	*a11.30	July 26	2100	5790	8.71

a From floodmark.

Minimum daily discharge, 10 ft³/s Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	28	32	34	38	41	81	35	49	28	111	18
2	28	26	30	39	36	40	59	35	47	27	97	17
3	25	26	28	44	36	40	49	39	44	25	171	16
4	25	29	33	49	34	39	47	59	40	22	134	17
5	28	29	35	42	37	40	44	54	41	21	93	15
6	31	29	37	45	39	41	40	49	45	36	79	11
7	29	29	35	48	39	60	39	45	146	35	70	11
8	30	29	32	52	40	66	38	43	139	30	65	11
9	30	29	34	54	40	64	40	58	72	32	59	12
10	29	28	28	56	39	57	47	71	55	106	55	12
11	29	29	23	64	40	52	42	56	49	82	77	11
12	29	30	21	66	40	47	38	62	46	51	81	11
13	29	30	24	56	40	47	46	83	47	35	73	12
14	30	31	23	50	30	51	51	69	137	32	74	10
15	29	27	22	52	29	88	47	978	3230	28	61	11
16	29	24	20	54	29	59	44	457	1970	30	63	13
17	34	24	23	56	34	49	44	144	917	25	83	15
18	31	27	24	52	37	43	41	94	372	29	49	20
19	27	30	28	50	49	38	40	100	342	27	44	22
20	27	32	34	48	51	36	44	116	115	34	59	22
21	28	31	27	45	51	37	47	80	76	62	65	23
22	28	29	21	47	53	37	47	66	59	72	35	23
23	29	27	17	50	49	36	45	59	49	68	29	19
24	28	26	19	47	47	40	42	63	43	38	25	19
25	28	30	21	44	42	39	43	64	50	34	23	19
26	27	34	23	46	37	39	43	60	46	1320	23	19
27	27	33	27	43	39	38	41	55	45	1090	21	19
28	32	27	30	43	40	44	38	57	38	416	19	20
29	33	25	37	40	---	80	38	66	34	265	19	20
30	31	28	35	40	---	79	36	53	33	179	20	19
31	29	---	35	38	---	82	---	50	---	136	18	---
TOTAL	898	856	858	1494	1115	1549	1341	3320	8376	4415	1895	487
MEAN	29.0	28.5	27.7	48.2	39.8	50.0	44.7	107	279	142	61.1	16.2
MAX	34	34	37	66	53	88	81	978	3230	1320	171	23
MIN	25	24	17	34	29	36	36	35	33	21	18	10
AC-FT	1780	1700	1700	2960	2210	3070	2660	6590	16610	8760	3760	966

CAL YR 1989 TOTAL 49381.9 MEAN 135 MAX 11700 MIN 8.0 AC-FT 97950
WTR YR 1990 TOTAL 26604 MEAN 72.9 MAX 3230 MIN 10 AC-FT 52770

BIG NEMAHA RIVER BASIN

06815000 BIG NEMAHA RIVER AT FALLS CITY, NE

LOCATION.--Lat 40°02'08", long 95°35'45", in NE1/4SE1/4 sec.22, T.1 N., R.16 E., Richardson County, Hydrologic Unit 10240008, on right bank near upstream side of bridge on U.S. Highway 73, 1 mi south of Falls City and 13 mi upstream from mouth.

DRAINAGE AREA.--1,340 mi².

PERIOD OF RECORD.--March 1944 to current year. Prior to October 1967, published as Nemaha River at Falls City.

REVISED RECORDS.--WSP 1086: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 861.24 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 16, 1952, nonrecording gage and Oct. 17, 1952 to Aug. 24, 1982, water-stage recorder for stages above 6.1 ft at site 150 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 15-20, 23-25, Nov. 28 to Dec. 5, Dec. 8 to Jan. 5, Jan. 12-15, 19-20, Jan. 25 to Feb. 6, and Feb. 14-21, 26-27. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--46 years, 598 ft³/s, 433,300 acre-ft/yr; median of yearly mean discharges, 468 ft³/s, 339,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,600 ft³/s Oct. 11, 1973, gage height, 31.40 ft; minimum daily discharge, 3.0 ft³/s July 9, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 16	0138	16500	15.18	June 15	1448	*18300	*16.78

Minimum daily discharge, 24 ft³/s Dec. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	87	60	72	48	65	345	76	160	195	100	70
2	58	74	48	78	45	63	294	72	149	174	90	65
3	54	68	38	84	46	62	220	74	130	159	298	61
4	52	64	45	90	52	63	181	139	114	141	1620	58
5	53	64	68	86	60	63	161	148	103	128	386	56
6	56	61	70	92	64	64	146	123	99	130	185	51
7	58	61	66	93	63	99	135	103	502	160	124	47
8	60	61	52	91	62	189	127	85	1580	149	101	48
9	60	61	54	97	60	221	125	90	541	134	86	48
10	60	61	40	112	60	212	135	113	293	133	77	49
11	60	60	31	117	58	182	135	112	185	230	84	48
12	57	60	28	86	61	141	126	146	143	166	241	47
13	56	63	33	82	57	122	143	152	121	141	807	47
14	56	66	30	78	38	119	161	202	525	123	282	45
15	56	60	28	82	37	178	169	5080	7190	110	165	41
16	55	52	26	92	37	216	154	8200	13400	99	138	41
17	63	49	29	102	36	217	132	1190	3760	88	357	42
18	64	52	30	98	58	154	117	657	1310	84	231	50
19	65	56	32	86	56	121	111	504	2730	86	488	54
20	61	60	32	76	60	104	112	448	1770	95	3890	53
21	59	59	28	72	70	97	132	381	600	168	568	59
22	57	59	26	91	84	93	118	318	659	204	313	60
23	59	48	24	98	91	94	107	273	469	221	212	56
24	61	54	29	90	95	109	99	258	362	143	169	52
25	67	60	35	70	86	114	93	560	322	111	140	49
26	60	62	40	74	62	123	92	363	298	130	120	46
27	58	63	52	68	66	127	90	263	278	1410	104	45
28	78	47	62	64	69	146	87	213	251	412	92	43
29	103	38	80	62	---	284	83	224	226	242	84	41
30	108	50	78	58	---	529	79	211	213	163	78	42
31	112	---	76	52	---	391	---	174	---	119	75	---
TOTAL	1989	1780	1370	2593	1681	4762	4209	20952	38483	6048	11705	1514
MEAN	64.2	59.3	44.2	83.6	60.0	154	140	676	1283	195	378	50.5
MAX	112	87	80	117	95	529	345	8200	13400	1410	3890	70
MIN	52	38	24	52	36	62	79	72	99	84	75	41
AC-FT	3950	3530	2720	5140	3330	9450	8350	41560	76330	12000	23220	3000

CAL YR 1989 TOTAL 88870 MEAN 243 MAX 16200 MIN 12 AC-FT 176300
WTR YR 1990 TOTAL 97086 MEAN 266 MAX 13400 MIN 24 AC-FT 192600

06821500 ARIKAREE RIVER AT HAIGLER, NE

LOCATION.--Lat 40°01'45", long 101°58'10", in NE1/4NE1/4 sec.29, T.1 N., R.41 W., Dundy County, Hydrologic Unit 10250001, on right bank at downstream side of bridge on U.S. Highway 34, 1.3 mi upstream from Burlington Northern Inc. bridge, 1.8 mi upstream from confluence with North Fork Republican River, 2 mi northwest of Haigler, and 3.2 mi downstream from Kansas-Nebraska State line.

DRAINAGE AREA.--1,640 mi², approximately, of which about 980 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1919: 1951, 1954, 1956, 1960. WSP 2119: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3,250.98 ft above National Geodetic Vertical Datum of 1929. See WSP 1919 for history of changes prior to Sept. 29, 1964. Sept. 29, 1964 to Apr. 25, 1982 on left bank 57 ft downstream from bridge at present datum.

REMARKS.--Estimated daily discharge: Dec. 12 to Feb. 5. Record fair except for periods of estimated record, which are poor. Natural flow affected by ground-water withdrawals and diversions for irrigation of about 1,500 acres in Colorado and by return flow from Haigler Canal.

AVERAGE DISCHARGE.--59 years, 21.2 ft³/s, 15,360 acre-ft/yr; median of yearly mean discharges, 17 ft³/s, 12,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s May 31, 1935, gage height, 11.2 ft, site and datum then in use, from floodmarks, from rating curve extended above 3,800 ft³/s on basis of slope-area measurement of peak flow; no flow for some periods in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 31	0129	*198	*6.40	No peaks greater than base discharge.			

Minimum daily discharge, 0.03 ft³/s, July 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	6.3	2.2	.70	.50	7.1	14	7.6	37	.04	.17	.66
2	6.0	8.8	1.1	.90	.60	8.6	11	7.7	34	.09	.15	2.1
3	8.1	7.3	.95	.80	.60	7.7	10	8.8	29	.04	.12	2.5
4	8.3	7.4	.94	.60	.70	8.6	9.7	31	22	.04	.20	1.5
5	11	11	1.1	.70	.70	6.9	11	25	20	.04	.30	1.2
6	11	9.4	1.1	.70	.58	15	16	19	19	.04	1.6	.62
7	9.5	8.6	.94	.70	.56	25	16	15	20	.04	4.3	.88
8	9.6	4.4	.96	.80	.64	21	13	11	19	.04	13	.21
9	9.9	1.9	1.0	.90	.57	17	12	24	10	.04	10	.16
10	10	1.6	.94	.80	.70	13	8.5	30	5.8	.04	5.8	.12
11	9.8	1.4	.65	1.0	2.2	12	9.5	20	12	.04	3.6	.16
12	10	1.3	.60	.90	14	13	12	14	14	.04	7.0	.07
13	9.0	1.1	.60	.90	21	11	16	17	10	.04	6.4	.22
14	8.8	1.2	.70	.90	2.2	9.2	16	21	5.5	.05	3.0	.39
15	10	1.4	.50	1.0	1.3	9.1	12	31	5.3	.05	1.6	1.6
16	13	1.7	.40	.90	.88	7.8	9.5	20	3.1	.05	1.9	2.7
17	16	1.8	.50	.90	.94	6.9	7.0	12	1.8	.05	2.4	2.9
18	15	1.8	.50	.80	1.2	7.8	7.6	10	1.0	.05	2.0	3.9
19	14	1.8	.40	.80	5.0	6.9	8.1	8.9	.45	.05	2.7	5.1
20	9.2	1.8	.40	.70	12	8.1	7.3	7.8	.27	.06	2.6	4.5
21	9.4	1.8	.50	.50	4.3	7.9	6.6	7.7	.23	.06	1.5	5.4
22	9.7	1.8	.30	.50	16	7.6	6.1	12	.16	.05	1.3	5.6
23	9.8	23	.40	.60	16	6.2	5.8	11	.15	.04	1.7	7.0
24	9.3	27	.70	.60	15	4.5	5.0	13	.14	.04	2.7	5.2
25	8.5	21	.80	.50	12	8.9	4.7	13	.12	.04	3.4	4.8
26	12	20	.90	.60	7.7	8.5	25	13	.10	.03	2.8	4.2
27	8.3	26	1.0	.60	9.1	8.4	22	21	.08	.04	2.5	2.6
28	22	14	1.1	.40	7.4	10	15	28	.05	.04	2.3	1.0
29	14	19	.90	.40	---	19	10	20	.04	8.7	1.5	.83
30	7.6	4.9	.60	.50	---	19	7.7	41	.04	.99	.96	.64
31	5.4	---	.70	.50	---	21	---	65	---	.18	.86	---
TOTAL	317.5	240.5	24.38	22.10	154.37	342.7	334.1	585.5	270.33	11.14	90.36	68.76
MEAN	10.2	8.02	.79	.71	5.51	11.1	11.1	18.9	9.01	.36	2.91	2.29
MAX	22	27	2.2	1.0	21	25	25	65	37	8.7	13	7.0
MIN	3.3	1.1	.30	.40	.50	4.5	4.7	7.6	.04	.03	.12	.07
AC-FT	630	477	48	44	306	680	663	1160	536	22	179	136

CAL YR 1989 TOTAL 2071.28 MEAN 5.67 MAX 71 MIN .26 AC-FT 4110
WTR YR 1990 TOTAL 2461.74 MEAN 6.74 MAX 65 MIN .03 AC-FT 4880

KANSAS RIVER BASIN

06823000 NORTH FORK REPUBLICAN RIVER AT COLORADO-NEBRASKA STATE LINE

LOCATION.--Lat 40°04'10", long 102°03'05", in SE1/4NW1/4 sec.10, T.1 N., R.42 W., Dundy County, Nebraska, Hydrologic Unit 10250002, on right bank 100 ft east of Colorado-Nebraska State line and 9.5 mi upstream from confluence with Arikaree River.

DRAINAGE AREA.--1,360 mi², approximately, of which about 100 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1932, published as North Fork of Arikaree River at Colorado-Nebraska State line. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1947(M). WSP 1390: 1934. WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Steel piling control since January 1965. Datum of gage is 3,336.09 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1934, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 4-7, Dec. 11, 12, 15-29, Jan. 21, 22, 25, 28, 29, and Feb. 3, 4, 15-17. Records good except for periods of estimated record, which are poor. Natural flow affected by diversion in Pioneer Canal for irrigation of about 2,700 acres in Colorado and Nebraska.

AVERAGE DISCHARGE.--60 years, 46.5 ft³/s, 33,690 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft³/s Apr. 28, 1947, gage height, 5.92 ft, from rating curve extended above 800 ft³/s on basis of slope-area measurement of peak flow; no flow Aug. 25, 26, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 130 ft³/s and maximum (*).

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 12	1015	ice jam	*1.85	No peaks greater than base discharge.			
Apr. 26	0740	*81	1.54				

Minimum daily discharge, 3.7 ft³/s, July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	40	49	56	53	52	55	50	42	4.0	17	5.5
2	28	40	49	57	53	52	52	49	34	4.2	12	8.3
3	29	40	49	55	52	51	52	49	32	4.2	12	7.7
4	28	40	49	55	52	51	50	51	31	4.6	14	6.2
5	27	40	49	55	52	52	52	51	24	6.3	15	5.2
6	27	40	49	54	52	60	52	50	24	7.1	19	4.3
7	27	40	49	55	52	66	50	49	25	5.3	18	4.7
8	27	50	50	55	52	63	51	49	25	5.9	16	4.5
9	27	51	48	56	51	62	50	49	36	6.0	16	4.4
10	27	50	48	55	51	59	50	47	26	5.4	15	5.5
11	27	50	49	56	53	57	50	44	17	4.9	14	6.1
12	29	50	50	54	55	56	49	44	16	5.6	15	6.0
13	27	50	50	54	57	54	48	46	15	4.9	16	4.3
14	27	49	44	54	54	54	48	52	12	4.7	12	4.1
15	28	49	48	54	52	58	48	48	11	5.5	11	7.1
16	31	49	50	54	52	57	49	45	11	4.3	11	5.2
17	31	49	50	53	52	50	49	45	10	5.7	11	8.1
18	31	48	50	53	50	54	50	43	9.2	5.1	8.2	18
19	34	48	49	54	50	52	51	42	8.0	3.7	7.4	19
20	36	48	49	63	51	50	53	43	7.5	4.6	11	20
21	36	48	52	60	52	50	53	30	7.6	11	13	20
22	35	34	52	54	52	50	51	29	7.1	12	13	20
23	36	26	50	53	52	52	54	25	6.5	9.7	13	20
24	36	27	48	53	51	52	51	25	7.4	6.2	12	19
25	36	30	48	52	52	56	59	25	6.7	9.6	6.6	21
26	36	30	52	53	51	56	74	25	5.2	9.9	5.9	27
27	35	31	54	53	52	53	67	27	5.0	12	5.2	38
28	34	30	56	52	52	56	55	27	5.1	13	4.7	40
29	40	47	58	52	---	60	53	25	4.8	36	4.8	42
30	41	49	57	53	---	59	50	37	4.4	23	4.7	44
31	40	---	57	53	---	60	---	47	---	21	5.0	---
TOTAL	983	1273	1562	1690	1460	1714	1576	1268	475.5	265.4	358.5	445.2
MEAN	31.7	42.4	50.4	54.5	52.1	55.3	52.5	40.9	15.8	8.56	11.6	14.8
MAX	41	51	58	63	57	66	74	52	42	36	19	44
MIN	27	26	44	52	50	50	48	25	4.4	3.7	4.7	4.1
AC-FT	1950	2520	3100	3350	2900	3400	3130	2520	943	526	711	883

CAL YR 1989 TOTAL 13241.6 MEAN 36.3 MAX 68 MIN 6.2 AC-FT 26260
WTR YR 1990 TOTAL 13070.6 MEAN 35.8 MAX 74 MIN 3.7 AC-FT 25930

KANSAS RIVER BASIN

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06823500 BUFFALO CREEK NEAR HAIGLER, NE

LOCATION.--Lat 40°02'22", long 101°51'57", in SE1/4NW1/4 sec.20, T.1 N., R.40 W., Dundy County, Hydrologic Unit 10250002, on left bank 15 ft upstream from county highway bridge, 0.4 mi upstream from mouth, and 4 mi northeast of Haigler.

DRAINAGE AREA.--260 mi², approximately, of which about 13 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WSP 2119: 1948-50(M), 1957(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,188.90 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1980, at site 0.5 mi upstream at datum 15.67 ft higher.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 3, Dec. 11 to Feb. 22, and Mar. 17 to Apr. 11. Records fair except for periods of estimated record, which are poor. Natural low affected by diversion about 1 mi upstream for irrigation of 880 acres.

AVERAGE DISCHARGE.--50 years, 7.23 ft³/s, 5,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 140 ft³/s June 27, 1948, gage height, 4.37 ft, site and datum then in use; maximum gage height, 5.93 ft Jan. 3, 1976, site and datum then in use, backwater from ice; no flow at times in 1955, 1968, 1973-80, 1984, 1987-90.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 28	0145	(a)	*5.42	No peaks greater than base discharge.			
Mar. 6	1230	*9.5	3.72				

a Backwater from ice.

No flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	5.7	4.6	5.0	7.0	7.0	7.6	6.5	5.7	.00	.02	.04
2	4.7	5.8	4.5	5.6	5.2	7.0	7.0	6.6	5.0	.00	.02	.04
3	4.7	6.0	5.0	6.2	5.4	6.9	6.6	7.3	4.8	.00	.03	.03
4	4.9	6.2	5.7	5.8	6.2	6.8	6.2	7.5	4.5	.00	2.2	.03
5	4.4	5.8	6.8	5.0	6.4	6.8	7.0	7.2	4.2	.01	6.1	.03
6	4.2	5.7	6.5	5.4	6.2	8.5	8.4	6.9	4.0	.01	6.3	.03
7	5.2	5.8	6.4	5.8	6.4	9.0	8.4	6.7	3.9	.00	5.7	.03
8	5.3	5.8	6.9	6.4	8.0	8.7	7.4	6.3	3.8	.00	.14	.03
9	5.3	5.9	6.6	7.2	7.0	7.7	6.4	6.5	3.6	.00	.02	.03
10	5.3	6.1	6.0	7.0	7.4	7.3	6.6	6.4	3.6	.00	.02	.04
11	5.4	6.2	5.4	8.0	7.8	7.0	6.6	6.2	2.6	.00	.02	.05
12	4.7	6.4	4.2	7.6	7.8	6.9	6.8	6.1	.05	.00	.03	.06
13	4.0	6.2	4.5	7.8	7.4	6.9	7.2	6.7	.41	.00	.25	.05
14	4.7	5.9	5.0	8.2	6.0	6.8	7.0	6.5	1.7	.00	.51	.05
15	5.3	5.7	4.2	8.6	5.0	6.9	6.8	6.8	.99	.00	.37	.03
16	5.7	5.2	3.6	8.2	4.7	6.7	6.5	6.4	.08	.00	.27	.03
17	5.8	5.7	3.8	8.2	5.6	6.6	6.4	6.0	.01	.00	.03	.07
18	5.8	5.8	4.2	7.8	8.0	6.6	6.3	5.8	.01	.00	.03	.20
19	5.6	5.9	3.7	7.0	7.4	6.6	6.4	5.5	.01	.00	.03	2.2
20	5.9	4.9	3.4	6.4	7.0	6.6	6.2	5.7	.01	.00	.03	5.4
21	5.8	4.3	3.8	6.0	6.6	6.6	6.2	5.7	.01	.00	1.0	5.2
22	5.6	4.3	2.6	7.0	8.4	6.2	6.2	5.6	.01	.00	2.3	5.2
23	5.5	4.2	2.8	7.4	7.4	5.6	6.2	5.4	.01	.00	1.2	5.2
24	5.5	4.6	4.5	8.0	7.2	5.0	6.2	5.6	.02	.01	.03	5.1
25	4.5	4.7	5.2	7.4	7.2	7.0	6.6	5.3	.02	.02	.03	5.0
26	4.6	4.7	6.6	7.8	7.2	6.8	7.6	4.9	.01	.01	.03	5.0
27	5.3	4.3	7.4	7.8	7.2	6.8	7.4	6.6	.01	.05	.03	4.9
28	5.8	3.5	8.2	7.2	7.1	7.0	6.9	6.9	.01	.02	.03	5.1
29	5.7	4.0	7.0	7.6	---	7.4	6.5	6.0	.01	.02	.03	5.5
30	5.5	4.7	5.6	7.6	---	8.6	6.5	8.0	.01	.02	.03	5.6
31	5.6	---	5.2	6.8	---	8.6	---	7.1	---	.17	.03	---
TOTAL	161.1	160.0	159.9	217.8	190.2	218.9	204.1	196.7	49.09	0.34	26.86	60.27
MEAN	5.20	5.33	5.16	7.03	6.79	7.06	6.80	6.35	1.64	.011	.87	2.01
MAX	5.9	6.4	8.2	8.6	8.4	9.0	8.4	8.0	5.7	.17	6.3	5.6
MIN	4.0	3.5	2.6	5.0	4.7	5.0	6.2	4.9	.01	.00	.02	.03
AC-FT	320	317	317	432	377	434	405	390	97	.7	53	120

CAL YR 1989 TOTAL 1568.07 MEAN 4.30 MAX 10 MIN .00 AC-FT 3110
WTR YR 1990 TOTAL 1645.26 MEAN 4.51 MAX 9.0 MIN .00 AC-FT 3260

KANSAS RIVER BASIN

06824000 ROCK CREEK AT PARKS, NE

LOCATION.--Lat 40°02'30", long 101°43'40", in SW1/4NE1/4 sec.21, T.1 N., R.39 W., Dundy County, Hydrologic Unit 10250002, on right bank at west edge of Parks, 100 ft downstream from county road bridge and 0.5 mi upstream from mouth.

DRAINAGE AREA.--20 mi², approximately, of which about 17 mi² contributes directly to surface runoff.

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

REVISED RECORDS.--WSP 1630: 1951(M). WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,093.35 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 28, Dec. 9, 16, Dec. 22 to Jan. 2, Jan. 7-9, 13, 26, 27, Feb. 1-16, Mar. 3-7, and May 21 to June 6. Records good except for periods of estimated record, which are poor. One diversion about 2 mi above station for irrigation of 215 acres; flow regulated at times by reservoir at State fish hatchery 7 mi upstream.

AVERAGE DISCHARGE.--50 years, 13.5 ft³/s, 9,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 493 ft³/s July 5, 1965, gage height, 6.00 ft, from rating curve extended above 40 ft³/s on basis of slope-conveyance study; minimum daily, 2.6 ft³/s Nov. 19, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 27	0730	26	2.54	May 30	0030	*32	*2.70

Minimum daily discharge, 7.9 ft³/s Apr. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	10	11	11	11	11	14	11	14	8.7	9.8	8.6
2	9.3	10	10	11	11	11	14	11	14	8.6	9.8	8.6
3	9.4	10	10	11	11	11	14	11	12	8.6	9.8	8.3
4	9.7	10	10	11	11	10	13	10	11	8.7	10	8.2
5	9.6	10	10	11	11	10	14	10	11	8.5	10	8.2
6	10	10	10	10	11	14	14	10	11	8.7	10	8.2
7	10	11	10	9.7	11	14	13	10	11	8.7	11	8.3
8	10	11	11	10	11	14	13	10	10	8.8	10	8.4
9	10	11	10	12	11	13	12	13	10	8.7	10	8.4
10	10	11	9.9	12	12	12	12	12	10	8.9	9.9	8.4
11	10	11	10	12	12	11	12	11	10	8.9	9.9	8.4
12	10	11	8.9	12	13	11	11	11	10	9.0	10	8.4
13	10	10	9.6	11	13	11	11	12	10	8.9	10	8.4
14	10	10	9.8	11	12	10	11	13	9.8	8.9	9.9	8.0
15	10	10	10	12	11	11	11	14	9.8	8.9	9.9	8.2
16	10	11	10	11	11	11	9.0	14	9.8	8.9	9.8	8.3
17	10	11	9.9	11	11	11	7.9	13	9.6	8.9	9.6	8.6
18	10	11	9.8	11	11	12	8.1	12	9.6	9.0	9.4	9.1
19	11	11	9.7	12	10	12	8.6	12	9.5	9.1	9.3	9.0
20	11	11	10	13	11	12	9.5	11	9.4	9.1	9.4	9.0
21	11	11	11	13	11	12	10	11	9.4	9.2	9.3	8.7
22	10	11	10	14	11	12	10	17	9.4	9.3	9.5	8.7
23	10	11	9.6	12	11	12	10	15	9.3	9.4	9.5	8.7
24	10	11	9.8	12	11	13	10	13	9.2	9.3	9.3	8.7
25	10	11	11	12	11	13	10	12	9.1	9.4	9.2	8.7
26	9.9	11	12	12	11	13	11	11	9.0	9.3	9.1	8.7
27	10	11	11	11	11	13	11	20	9.3	9.6	9.0	8.8
28	10	11	11	12	11	14	11	13	9.0	9.6	8.9	8.9
29	10	11	12	11	---	14	11	14	9.0	9.8	8.8	9.0
30	9.9	11	13	11	---	15	11	25	9.0	9.9	8.7	8.8
31	10	---	11	11	---	15	---	16	---	10	8.6	---
TOTAL	309.7	321	321.0	355.7	314	378	337.1	398	303.2	281.3	297.4	256.7
MEAN	9.99	10.7	10.4	11.5	11.2	12.2	11.2	12.8	10.1	9.07	9.59	8.56
MAX	11	11	13	14	13	15	14	25	14	10	11	9.1
MIN	8.9	10	8.9	9.7	10	10	7.9	10	9.0	8.5	8.6	8.0
AC-FT	614	637	637	706	623	750	669	789	601	558	590	509

CAL YR 1989 TOTAL 3863.3 MEAN 10.6 MAX 16 MIN 7.8 AC-FT 7660
WTR YR 1990 TOTAL 3873.1 MEAN 10.6 MAX 25 MIN 7.9 AC-FT 7680

06824500 REPUBLICAN RIVER AT BENKELMAN, NE

LOCATION.--Lat 40°01'55", long 101°32'30", in SE1/4SW1/4 sec.19, T.1 N., R.37 W., Dundy County, Hydrologic Unit 10250002, on left bank at downstream side of bridge on U.S. Highway 34, 0.6 mi south of Burlington Northern Inc. track, 1 mi southwest of Benkelman, 2 mi upstream from South Fork Republican River, and 11 mi downstream from Rock Creek.

DRAINAGE AREA.--4,830 mi², approximately, of which about 1,230 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1894 to September 1895 (published as North Fork Republican River at Benkelman), October 1902 to November 1906, October 1946 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1895. WSP 1919: 1952, 1956. WSP 2119: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,975.34 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 17, 1946, nonrecording gages at several sites within 1.5 mi of present site at various datums; Dec. 17, 1946, to May 26, 1972, water-stage recorder at present site and datum and May 27, 1972, to Aug 11, 1978, at site 150 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 12 to Feb. 19 and Feb. 26 to Mar. 1, and Mar. 6-8. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--49 years, 84.1 ft³/s, 60,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,040 ft³/s Sept. 7, 1951, gage height, 7.58 ft; maximum gage height, 7.80 ft Aug. 9, 1950; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1826, 13.1 ft May 31, 1935, from elevations furnished by State Highway Department.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 22	1915	(a)	*4.58	No peaks greater than base discharge.			
May 31	1630	*182	3.94				

a Backwater from ice.

No flow July 18, 19, Sept. 5-7, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	54	58	72	82	78	105	79	157	3.8	16	.78
2	33	55	61	74	78	77	101	62	123	2.5	13	.89
3	33	57	60	76	76	78	98	73	89	1.2	13	.55
4	34	54	62	80	84	83	98	84	82	1.2	16	.11
5	36	52	64	78	90	83	106	85	76	11	17	.00
6	38	54	66	76	100	100	107	74	69	6.6	24	.00
7	38	56	66	80	100	110	103	69	66	3.0	21	.00
8	37	55	69	83	98	130	103	69	66	1.3	24	.03
9	37	64	66	90	97	127	107	83	63	1.0	20	.07
10	37	64	67	92	98	121	99	87	60	1.5	19	.15
11	37	60	58	90	100	116	89	90	49	1.3	27	.33
12	36	62	42	90	100	115	91	78	43	1.4	25	.29
13	36	69	40	88	98	113	106	80	39	2.5	20	.07
14	36	73	46	90	94	105	114	84	33	2.3	21	.00
15	37	72	50	90	88	98	110	121	29	1.5	17	.04
16	39	70	60	90	90	87	106	130	27	.82	14	.05
17	42	68	70	86	92	77	93	123	23	.02	13	.93
18	42	68	66	80	100	80	88	110	17	.00	12	2.7
19	43	67	66	74	120	87	88	100	12	.00	11	2.9
20	46	64	64	72	91	87	84	90	9.1	.92	11	3.0
21	45	61	62	80	89	90	80	84	8.0	5.7	9.1	2.7
22	46	59	60	120	86	91	87	71	8.1	6.6	15	2.4
23	44	55	62	130	101	89	92	60	7.6	4.3	14	1.9
24	53	53	74	120	97	88	88	64	6.7	2.6	14	4.7
25	56	54	82	110	89	89	78	62	5.9	5.0	11	5.7
26	54	54	92	90	84	89	92	59	6.1	2.5	8.9	5.6
27	51	56	94	90	82	81	125	111	7.9	7.4	6.7	8.1
28	50	57	94	86	80	89	119	95	5.7	10	4.0	14
29	57	49	88	80	---	98	103	104	5.0	16	3.8	25
30	58	56	82	82	---	115	90	162	4.2	16	2.6	31
31	59	---	76	82	---	111	---	168	---	22	1.5	---
TOTAL	1323	1792	2067	2721	2584	2982	2950	2811	1197.3	141.96	444.6	113.99
MEAN	42.7	59.7	66.7	87.8	92.3	96.2	98.3	90.7	39.9	4.58	14.3	3.80
MAX	59	73	94	130	120	130	125	168	157	22	27	31
MIN	33	49	40	72	76	77	78	59	4.2	.00	1.5	.00
AC-FT	2620	3550	4100	5400	5130	5910	5850	5580	2370	282	882	226

CAL YR 1989 TOTAL 20064.51 MEAN 55.0 MAX 191 MIN .91 AC-FT 39800
WTR YR 1990 TOTAL 21127.85 MEAN 57.9 MAX 168 MIN .00 AC-FT 41910

KANSAS RIVER BASIN

06827500 SOUTH FORK REPUBLICAN RIVER NEAR BENKELMAN, NE

LOCATION.--Lat 40°00'34", long 101°32'32", in NE1/4SW1/4 sec.31, T.1 N., R.37 W., Dundy County, Hydrologic Unit 10250003, on right bank 100 ft upstream from bridge on State Highway 61, 1 mi downstream from Kansas-Nebraska State line, 2.5 mi southwest of Benkelman, and 4 mi upstream from mouth.

DRAINAGE AREA.--2,740 mi², approximately, of which about 2,190 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1894 to September 1895, October 1902 to November 1906, October 1930 to September 1932, August 1937 to current year. Published as South Fork of Republican River at Benkelman prior to 1906 and as Republican River at Benkelman 1931-32. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1310: 1904-6, 1931. WSP 1390: 1940, 1945, 1947. WSP 1919: 1951-52, 1954-56. WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,990.91 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 10, 1947, nonrecording gages at several sites within 3.5 mi of present site at various datums. Dec. 10, 1947, to Sept. 28, 1966, water-stage recorder 130 ft downstream at datum 2.00 ft higher, and Sept. 29, 1966, to Mar. 7, 1968, at present site at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Dec. 1-4, Dec. 11 to Feb. 10, and Feb. 15, 16. Records fair except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station, and since July 6, 1950, by storage in Bonny Reservoir.

AVERAGE DISCHARGE.--60 years, 46.5 ft³/s, 33,690 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge determined, 19,600 ft³/s Aug. 16, 1958, gage height, 8.70 ft, site and datum then in use, but may have been higher during flood of June 24, 1945; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1923, 10.1 ft May 31, 1935, from floodmarks at site 0.2 mi downstream, at datum 2.00 ft higher, discharge, 150,000 ft³/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45 ft³/s June 7, gage height, 2.94 ft; maximum gage height, 3.00 ft Jan. 19, backwater from ice; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	8.1	14	24	33	24	29	27	34	.36	6.7	.00
2	1.4	9.5	14	24	33	24	27	27	32	.16	3.1	.00
3	1.5	11	15	24	33	23	27	27	31	.06	2.0	.00
4	1.7	12	15	26	33	24	26	26	33	.02	1.8	.00
5	2.4	12	16	26	35	23	27	26	37	.04	1.8	.00
6	2.5	11	15	25	36	25	29	25	40	.03	2.3	.00
7	2.9	12	15	24	35	30	29	25	43	.00	2.0	.00
8	3.2	13	16	24	35	30	29	25	41	.00	1.6	.00
9	3.1	13	17	25	34	27	28	26	36	.00	1.0	.00
10	2.8	13	17	25	30	26	26	26	30	.00	.74	.00
11	2.9	13	15	24	31	26	26	26	24	.00	1.4	.00
12	2.5	13	14	25	34	26	27	26	19	.00	1.0	.00
13	2.2	13	14	25	32	25	29	27	16	.00	1.8	.00
14	2.1	14	14	25	31	25	30	27	14	.00	1.8	.00
15	2.4	13	12	25	28	25	29	31	13	.00	1.6	.00
16	2.6	13	12	25	30	24	28	33	11	.00	1.2	.00
17	3.3	14	12	25	34	24	27	30	9.5	.00	.98	.00
18	4.2	14	12	23	29	24	27	29	8.4	.00	.66	.00
19	5.1	14	12	40	31	24	26	28	7.3	.00	.37	.00
20	6.1	14	11	32	32	24	29	27	6.3	.00	.00	.00
21	6.8	14	10	29	28	24	28	27	5.6	.00	.00	.00
22	6.9	14	9.0	30	28	24	27	26	5.0	.00	.00	.00
23	6.9	14	9.0	31	28	24	27	26	4.5	.00	.00	.00
24	7.0	15	11	33	27	24	27	25	4.0	.00	.00	.00
25	6.8	15	12	35	26	25	27	25	3.3	.00	.00	.00
26	6.3	15	13	35	25	24	27	26	2.5	.00	.00	.00
27	5.3	14	15	35	24	25	29	28	1.9	.00	.00	.00
28	6.2	13	17	32	24	26	28	29	1.5	.00	.00	.00
29	7.1	13	20	34	---	28	27	28	.94	.02	.00	.00
30	7.9	14	21	35	---	29	26	35	.59	.04	.00	.00
31	8.4	---	23	34	---	30	---	37	---	3.7	.00	---
TOTAL	131.8	390.6	442.0	879	859	786	828	856	515.33	4.43	33.85	0.00
MEAN	4.25	13.0	14.3	28.4	30.7	25.4	27.6	27.6	17.2	.14	1.09	.000
MAX	8.4	15	23	40	36	30	30	37	43	3.7	6.7	.00
MIN	1.3	8.1	9.0	23	24	23	26	25	.59	.00	.00	.00
AC-FT	261	775	877	1740	1700	1560	1640	1700	1020	8.8	67	.00

CAL YR 1989 TOTAL 6246.48 MEAN 17.1 MAX 175 MIN .75 AC-FT 12390
WTR YR 1990 TOTAL 5726.01 MEAN 15.7 MAX 43 MIN .00 AC-FT 11360

KANSAS RIVER BASIN

195

06828500 REPUBLICAN RIVER AT STRATTON, NE

LOCATION.--Lat 40°08'28", long 101°13'42", in SW1/4NW1/4 sec.13, T.2 N., R.35 W., Hitchcock County, Hydrologic Unit 10250004, on right bank at downstream side of county bridge, 0.5 mi south of Stratton, 0.2 mi downstream from Muddy Creek, 10 mi upstream from Trenton Dam, and 19 mi downstream from South Fork Republican River.

DRAINAGE AREA.--8,450 mi², approximately, of which about 3,800 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2119: Drainage area. WDR NE-73: 1968-71(M), 1972.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,775.49 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1967, at site 0.3 mi downstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 2, Dec. 12, and Dec. 14 to Feb. 20. Records good except for periods of estimated records, which are poor. Natural flow affected by irrigation development above station and by storage in Bonny Reservoir (station 06826000).

AVERAGE DISCHARGE.--40 years, 120 ft³/s, 86,940 acre-ft/yr; median of yearly mean discharges, 108 ft³/s, 78,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s July 31, 1962, gage height, 9.34 ft, site then in use; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1826 occurred May 31, 1935, discharge, about 200,000 ft³/s, based on slope-area measurement at Max.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,330 ft³/s May 27, gage height, 8.17 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	50	74	100	100	127	130	94	187	.01	.00	.00
2	11	48	68	84	104	126	125	89	177	.00	.00	.00
3	13	48	63	78	106	125	113	90	142	.00	.00	.00
4	18	52	81	80	110	121	116	114	126	.00	.00	.00
5	23	54	86	82	116	116	125	101	116	.00	.00	.00
6	22	51	74	82	118	134	130	109	110	.00	.00	.00
7	25	57	73	80	118	163	129	94	108	.00	.00	.00
8	25	61	74	82	120	185	128	88	104	.00	.00	.00
9	24	61	75	82	122	171	125	98	98	.00	.00	.00
10	24	62	74	90	130	154	118	92	89	.00	.00	.00
11	24	61	45	100	130	146	112	91	79	.00	.00	.00
12	24	62	50	104	136	141	111	91	65	.00	.00	.00
13	22	64	54	100	120	132	121	89	58	.00	.00	.00
14	22	63	64	110	100	124	122	93	54	.00	.00	.00
15	24	69	58	116	100	113	121	128	51	.00	.00	.00
16	26	73	68	118	110	107	121	144	46	.00	.00	.00
17	33	74	72	118	116	102	116	154	37	.00	.00	.00
18	34	78	70	110	126	97	110	140	28	.00	.00	.00
19	36	80	74	106	140	96	105	120	18	.00	.00	.00
20	38	75	84	92	160	101	103	96	13	.00	.00	.00
21	41	72	92	88	143	103	99	88	9.0	.00	.00	.00
22	41	72	92	120	137	100	96	85	6.4	.00	.00	.00
23	39	75	78	140	136	102	95	81	4.3	.00	.00	.00
24	39	75	80	150	140	108	90	79	2.1	.00	.00	.00
25	43	71	84	140	133	106	87	79	.79	.00	.00	.00
26	40	67	100	120	130	105	88	73	.36	.00	.00	.00
27	39	71	120	116	125	108	107	534	.19	.00	.00	.00
28	41	70	130	120	124	112	119	155	.15	.00	.00	.00
29	41	68	140	116	---	122	107	117	.10	.00	.00	.00
30	46	72	130	110	---	127	99	167	.06	.00	.00	.00
31	50	---	120	116	---	129	---	184	---	.00	.00	---
TOTAL	940	1956	2547	3250	3450	3803	3368	3757	1729.45	0.01	0.00	0.00
MEAN	30.3	65.2	82.2	105	123	123	112	121	57.6	.000	.000	.000
MAX	50	80	140	150	160	185	130	534	187	.01	.00	.00
MIN	11	48	45	78	100	96	87	73	.06	.00	.00	.00
AC-FT	1860	3880	5050	6450	6840	7540	6680	7450	3430	.02	.00	.00

CAL YR 1989 TOTAL 23577.38 MEAN 64.6 MAX 740 MIN .53 AC-FT 46770
WTR YR 1990 TOTAL 24800.46 MEAN 67.9 MAX 534 MIN .00 AC-FT 49190

KANSAS RIVER BASIN

06829000 SWANSON LAKE NEAR TRENTON, NE

LOCATION.--Lat 40°10'10", long 101°03'35", in SE1/4NE1/4 sec.5, T.2 N., R.33 W., Hitchcock County, Hydrologic Unit 10250004, in gate-control house at right end of spillway on downstream side of Trenton Dam on Republican River, 2.5 mi west of Trenton.

DRAINAGE AREA.--8,620 mi², approximately, of which about 3,940 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 13, 1953, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began May 4, 1953. Capacity, 110,100 acre-ft between elevations 2,710.0 ft, sill of outlet gates, and 2,752.0 ft, top of storage pool. Top of flood-control pool is at elevation 2,773.0 ft, capacity, 246,300 acre-ft. Top of superstorage flood-control pool at elevation 2,785.0 ft, capacity, 353,900 acre-ft. Dead storage, 2,120 acre-ft. Figures given herein represent total contents. Water used for irrigation in Frenchman-Cambridge irrigation project.

COOPERATION.--Capacity table furnished by Bureau of Reclamation (effective Feb. 1984).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 148,900 acre-ft Aug. 2, 3, 1962, elevation, 2,757.42 ft; minimum since operation of reservoir began, 19,950 acre-ft Oct. 24, 1954, elevation, 2,722.61 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 92,060 acre-ft June 11, elevation, 2,747.67 ft; minimum contents, 36,460 acre-ft Sept. 27-28, elevation, 2,731.91 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)

2,730	31,690	2,750	102,600
2,735	45,210	2,755	127,700
2,740	61,590	2,760	156,100
2,745	80,700		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52940	53460	55890	58700	64020	69980	77170	82440	90830	82980	54250	37640
2	52900	53530	55920	58770	64130	70170	77410	82560	91090	81820	53590	37560
3	52870	53560	55980	58940	64200	70320	77650	83020	91180	80620	53000	37480
4	52840	53690	56150	59080	64410	70550	77860	83190	91220	79560	52220	37420
5	52870	53730	56320	59180	64630	70660	78180	83440	91270	78500	51570	37340
6	52870	53760	56450	59500	64810	71050	78300	83560	91400	78020	50890	37210
7	52870	53860	56590	59560	65030	71550	78580	83690	91570	77010	50060	37180
8	52900	53920	56730	59700	65280	71860	78700	83900	91660	76050	49330	37180
9	52900	53960	56830	59770	65500	72170	78980	84270	91750	75140	48510	37130
10	52900	54060	56890	60010	65760	72520	79070	84320	92020	74200	47790	37100
11	52940	54120	57000	60120	66020	72790	79270	84570	92060	73300	47200	37100
12	52940	54250	57130	60290	66350	73020	79390	84780	92060	72170	46740	37020
13	52940	54290	57130	60430	66600	73340	79640	85030	92060	71320	46130	36910
14	52900	54320	57200	60640	66750	73450	79800	85160	92020	70480	45580	36890
15	52870	54490	57240	60780	66900	73770	80050	85670	92060	69560	45000	36810
16	52870	54550	57240	60850	66940	73850	80170	85970	92060	68320	44550	36750
17	52870	54620	57270	60960	67120	73920	80290	86090	92020	67080	44100	36730
18	52870	54680	57400	61310	67350	74120	80490	86430	91570	66050	43650	36700
19	52870	54850	57510	61700	67610	74280	80620	86520	91270	64990	43240	36700
20	52970	54920	57540	61870	67910	74510	80780	86780	90880	63980	42800	36670
21	53000	55020	57580	61980	68130	74670	80990	86860	90530	63050	42390	36670
22	53070	55120	57610	62090	68390	74830	81110	86990	90220	62120	42040	36620
23	53100	55250	57680	62190	68660	74990	81280	87070	89490	61060	41610	36600
24	53100	55320	57780	62340	68880	75260	81400	87250	89050	59980	41150	36570
25	53160	55480	57920	62830	69150	75380	81490	87330	88540	59150	40560	36490
26	53330	55580	57920	62940	69300	75620	81780	87460	87760	58220	40030	36490
27	53330	55680	58020	63080	69530	75780	82020	88670	86900	57470	39460	36470
28	53360	55720	58090	63300	69710	76170	82110	89010	86010	56860	38940	36470
29	53430	55750	58290	63440	---	76330	82230	89400	85030	56190	38310	36540
30	53430	55820	58390	63660	---	76650	82310	89880	83900	55650	37910	36570
31	53460	---	58570	63800	---	78180	---	90310	---	54950	37690	---
MEAN	53020	54580	57230	61090	66750	73600	79970	85860	90320	68250	45170	36900
MAX	53460	55820	58570	63800	69710	78180	82310	90310	92060	82980	54250	37640
MIN	52840	53460	55890	58700	64020	69980	77170	82440	83900	54950	37690	36470

(†)	2737.61	2738.32	2739.13	2740.62	2742.22	2744.38	2745.39	2747.27	2745.77	2738.06	2732.37	2731.95
(‡)	+490	+2360	+2750	+5230	+5910	+8470	+4130	+8000	-6410	-28950	-17260	-1120

CAL YR 1989	MEAN	67860	MAX	84780	MIN	52810	(†)	-5410
WTR YR 1990	MEAN	64370	MAX	92060	MIN	36470	(‡)	-16400

(†) Elevation, in feet, at end of month.
(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

06829500 REPUBLICAN RIVER AT TRENTON, NE

LOCATION.--Lat 40°10'00", long 101°02'40", in SE1/4 sec.4, T.2 N., R.33 W., Hitchcock County, Hydrologic Unit 10250004, on left bank 300 ft upstream from Elm Creek, 0.9 mi downstream from centerline of spillway of Trenton Dam, and 1.5 mi southwest of Trenton.

DRAINAGE AREA.--8,620 mi², approximately, of which about 3,940 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1946 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,671.06 ft above National Geodetic Vertical Datum of 1929. See WSP 2119 for history of changes prior to Oct. 1, 1959.

REMARKS.--No estimated daily discharges. Records fair. Natural flow affected by irrigation development above station, since July 6, 1950, by storage in Bonny Reservoir (station 06826000), since 1953 by storage in Swanson Lake (station 06829000), and since June 1957 by Meeker-Driftwood Canal which diverts directly from Swanson Lake for irrigation of about 16,400 acres.

AVERAGE DISCHARGE.--37 years (1954-90), 51.5 ft³/s, 37,310 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s June 16, 1948, gage height, 5.64 ft, former site and datum; no flow at times in 1947-50, 1952-54.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood known since about 1826 occurred May 31, 1935, discharge, about 200,000 ft³/s. Discharge of 21,100 ft³/s was measured July 3, 1946, gage height, 6.0 ft, former site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 259 ft³/s July 17, gage height, 4.77 ft; minimum daily, 0.30 ft³/s May 21-24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	.79	.84	.99	.70	.74	.62	.56	.71	183	162	1.2
2	.44	.78	.73	.83	.68	.75	.56	.56	1.0	184	160	.72
3	.41	.77	.81	.90	.69	.79	.60	.89	.39	185	159	.53
4	.51	.77	.86	1.0	.74	.77	.59	.76	.44	182	158	.37
5	.58	.87	.88	.92	.84	.71	.63	.63	.48	181	156	.43
6	.55	.83	.87	.87	.82	1.2	.58	.63	.53	162	156	.44
7	.64	.76	.87	.87	.90	.95	.53	.60	.65	148	155	.46
8	.72	.78	.93	.80	.89	.80	.65	.72	.61	146	154	.44
9	.68	.83	.97	.78	.88	.71	.58	.81	.69	144	153	.45
10	.72	.85	.97	.78	.91	.68	.48	.63	.78	143	152	.54
11	.69	.92	.90	.71	1.0	.75	.52	.71	.76	143	125	.59
12	.70	.94	.90	.70	.98	.75	.78	.72	.69	142	102	.45
13	1.0	.95	.87	.72	.90	.71	.74	.63	.74	140	82	.49
14	.80	.92	.94	.70	.81	.61	.65	5.6	.80	142	66	.47
15	.71	.86	.89	.69	.70	.65	.63	.63	.90	141	64	.54
16	.70	.78	.87	.64	.94	.53	.63	.38	.91	195	62	.49
17	.77	.85	.87	.70	.77	.54	.53	.34	1.6	255	60	.49
18	.82	.90	.68	.64	.74	.65	.59	.38	69	256	59	.56
19	.80	.90	.40	.93	.71	.63	.65	.38	106	254	57	.56
20	.83	.84	.49	.90	.73	.66	.63	.56	103	253	56	.58
21	.87	.84	.37	.65	.78	.65	.63	.30	99	252	55	.49
22	.84	.79	.49	.70	.80	.61	.63	.30	97	251	54	.49
23	.88	.78	.57	.70	.74	.57	.63	.30	146	250	52	.49
24	.81	.82	.69	.70	.71	.59	.63	.30	178	248	51	.53
25	.91	.91	.83	.73	.69	.60	.63	.38	178	246	50	.56
26	.92	1.0	.83	.74	.77	.60	.67	.34	179	244	49	.54
27	.83	.88	.96	.66	.71	.61	.76	4.0	180	244	49	.53
28	.87	.74	1.1	.61	.73	.68	.61	.84	181	203	48	.56
29	.79	.85	1.0	.65	---	.65	.59	.55	181	164	48	.61
30	.71	.86	.96	.70	---	.63	.56	.56	182	163	43	.70
31	.83	---	.96	.70	---	.60	---	.44	---	162	7.3	---
TOTAL	23.23	25.36	25.30	23.61	22.26	21.37	18.51	25.43	1891.68	6006	2804.3	16.30
MEAN	.75	.85	.82	.76	.79	.69	.62	.82	63.1	194	90.5	.54
MAX	1.0	1.0	1.1	1.0	1.0	1.2	.78	5.6	182	256	162	1.2
MIN	.41	.74	.37	.61	.68	.53	.48	.30	.39	140	7.3	.37
AC-FT	46	50	50	47	44	42	37	50	3750	11910	5560	32

CAL YR 1989 TOTAL 4890.19 MEAN 13.4 MAX 138 MIN .37 AC-FT 9700
WTR YR 1990 TOTAL 10903.35 MEAN 29.9 MAX 256 MIN .30 AC-FT 21630

KANSAS RIVER BASIN

06831500 FRENCHMAN CREEK NEAR IMPERIAL, NE

LOCATION.--Lat 40°25'45", Long 101°37'25", in SW1/4NW1/4 sec.3, T.5 N., R.38 W., Chase County, Hydrologic Unit 10250005, on right bank 0.2 mi downstream from bridge on county highway, 5.8 mi upstream from Enders Dam, and 6.1 miles south of Imperial.

DRAINAGE AREA.--880 mi², approximately, of which about 720 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1940 to current year. Published as Frenchman River near Imperial October 1965 to September 1972.

REVISED RECORDS.--WSP 976: 1942(M). WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,130 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Mar. 7, 1941, nonrecording gage at bridge 0.2 mi upstream at different datum. Mar. 7, 1941, to Sept. 30, 1958, water-stage recorder at site 0.2 mi downstream at datum 4.35 ft lower.

REMARKS.--Estimated daily discharges: Dec. 13, 15-17, 21, Jan. 21, 22, 26, 27, 29-31, and Feb. 2, 5, 17, 18. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--50 years, 57.6 ft³/s, 41,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,340 ft³/s Mar. 22, 1960, gage height, 8.43 ft; minimum daily, 4.8 ft³/s Mar. 12, 1977, backwater from ice.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1940, reached a stage of 12.4 ft. from floodmarks, site and datum in use Mar. 7, 1941, to Sept. 30, 1958 (discharge not determined but believed greater than that of Mar. 22, 1960).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 30	1600	*42	*a1.67	No peaks greater than base discharge.			

a Backwater from trash on control.

Minimum daily discharge, 9.4 ft³/s Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	19	21	24	27	27	24	28	32	13	16	10
2	18	20	21	24	27	26	22	27	34	13	15	10
3	18	20	22	24	27	25	22	26	29	13	15	9.9
4	19	20	21	24	27	25	22	25	30	13	16	9.7
5	19	21	21	24	27	25	26	23	27	13	16	9.5
6	19	20	21	24	28	26	27	22	26	14	16	9.4
7	19	21	22	24	28	30	25	22	25	14	15	9.5
8	19	23	22	24	28	30	24	23	24	14	14	9.8
9	19	22	22	24	28	26	23	28	23	14	14	10
10	19	22	22	24	28	25	23	28	23	14	14	9.9
11	19	21	20	24	29	25	23	27	21	14	14	10
12	19	21	20	24	30	26	23	28	19	14	15	9.7
13	19	21	20	24	30	24	23	27	18	14	14	9.7
14	19	20	20	24	28	23	23	27	17	14	14	9.7
15	19	20	20	24	28	23	23	30	19	15	14	9.8
16	19	21	20	24	26	24	23	32	19	14	14	10
17	20	21	20	24	26	22	22	30	18	14	13	12
18	20	21	21	24	26	23	22	29	18	13	13	13
19	20	22	23	24	27	22	23	32	17	14	13	13
20	21	22	22	22	28	22	23	32	17	14	12	13
21	21	21	21	25	29	22	23	34	16	15	12	13
22	18	22	19	26	29	22	22	33	16	16	12	13
23	15	21	21	27	29	21	22	33	16	16	12	13
24	15	21	24	27	29	23	23	33	16	15	12	13
25	15	21	28	26	28	23	24	34	16	15	12	13
26	15	21	28	26	28	23	30	34	16	15	12	13
27	17	21	27	26	28	22	30	35	16	15	11	13
28	18	20	27	26	27	23	30	34	15	15	11	13
29	18	21	26	26	---	24	30	33	15	17	10	14
30	19	22	25	27	---	24	29	40	14	17	10	14
31	19	---	24	27	---	25	---	38	---	18	10	---
TOTAL	572	629	691	767	780	751	729	927	612	449	411	339.6
MEAN	18.5	21.0	22.3	24.7	27.9	24.2	24.3	29.9	20.4	14.5	13.3	11.3
MAX	21	23	28	27	30	30	30	40	34	18	16	14
MIN	15	19	19	22	26	21	22	22	14	13	10	9.4
AC-FT	1130	1250	1370	1520	1550	1490	1450	1840	1210	891	815	674

CAL YR 1989 TOTAL 8507 MEAN 23.3 MAX 52 MIN 15 AC-FT 16870
WTR YR 1990 TOTAL 7657.6 MEAN 21.0 MAX 40 MIN 9.4 AC-FT 15190

KANSAS RIVER BASIN

199

06832000 ENDERS RESERVOIR NEAR ENDERS, NE

LOCATION.--Lat 40°25'05", long 101°30'55", in NE1/4 sec.9, T.5 N., R.37 W., Chase County, Hydrologic Unit 10250005, near right bank in control house at outlet tube of Enders Dam on Frenchman Creek, 2.2 mi southeast of Enders.

DRAINAGE AREA.--950 mi², approximately, of which about 790 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 3, 1960, mercury-column pressure gage at same datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began Oct. 23, 1950. Capacity, 36,010 acre-ft between elevations 3,080.0 ft, sill of outlet gates, and 3,112.3 ft, top of storage pool. Top of flood-control pool at elevation 3,127.0 ft, capacity, 74,520 acre-ft. Top of superstorage flood-control pool at elevation 3,129.5 ft, capacity, 80,730 acre-ft. Dead storage, 8,470 acre-ft. Figures given herein represent total contents. Water used for irrigation in Frenchman-Cambridge irrigation project.

COOPERATION.--Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 55,330 acre-ft Mar. 25, 1960, elevation, 3,118.20 ft; minimum since operation of reservoir began, 8,870 acre-ft Aug. 28, 1978, elevation, 3,080.67 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 26,350 acre-ft June 11, elevation, 3,099.85 ft; minimum, 9,960 acre-ft Aug. 5, elevation, 3,082.40 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)

3,085	11,770	3,100	26,540
3,090	15,830	3,110	40,660

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14440	15790	17270	18840	20570	22100	23540	24670	26010	22250	9997	11400
2	14450	15860	17320	18890	20630	22130	23590	24720	26110	21650	9990	11380
3	14450	15910	17370	18940	20680	22200	23660	24760	26130	21080	9990	11360
4	14520	15990	17440	19020	20720	22280	23700	24800	26210	20500	9977	11350
5	14580	16000	17520	19070	20780	22280	23750	24830	26240	20010	10010	11350
6	14630	16070	17560	19100	20840	22390	23820	24880	26230	19620	10080	11350
7	14670	16140	17590	19170	20900	22480	23840	24910	26280	19240	10160	11320
8	14740	16170	17660	19250	20940	22560	23920	24930	26300	18860	10230	11300
9	14810	16230	17730	19290	21000	22610	23920	24980	26300	18550	10270	11290
10	14840	16290	17750	19350	21070	22650	23950	25030	26320	18210	10350	11290
11	14910	16330	17790	19380	21150	22710	23980	25050	26340	17870	10500	11260
12	14940	16390	17850	19420	21180	22770	24040	25100	26330	17510	10530	11250
13	15000	16420	17900	19490	21210	22790	24070	25160	26300	17160	10600	11230
14	15040	16460	17930	19550	21280	22810	24140	25180	26280	16830	10650	11210
15	15030	16500	17970	19600	21340	22870	24180	25300	26330	16460	10710	11200
16	15050	16540	18030	19650	21380	22870	24190	25320	26320	16070	10790	11210
17	15100	16590	18080	19680	21450	22900	24200	25380	26250	15670	10850	11190
18	15140	16650	18140	19730	21520	22940	24250	25460	26110	15190	10880	11210
19	15210	16690	18220	19850	21560	22980	24310	25480	26010	14740	10930	11250
20	15260	16740	18230	19920	21620	23060	24370	25440	25870	14270	10950	11460
21	15310	16800	18270	19970	21680	23090	24460	25540	25700	13850	11000	11500
22	15390	16830	18300	20050	21740	23090	24520	25610	25530	13440	11090	11540
23	15420	16900	18400	20110	21800	23130	24530	25610	25420	13030	11110	11640
24	15490	16970	18420	20140	21830	23180	24560	25610	25240	12610	11150	11820
25	15540	17000	18470	20210	21870	23240	24580	25690	25000	12210	11190	11860
26	15560	17080	18530	20270	21930	23270	24600	25760	24650	11190	11240	12010
27	15600	17080	18580	20320	21990	23310	24580	25820	24260	11350	11280	12050
28	15670	17110	18630	20360	22040	23370	24580	25830	23850	10900	11320	12070
29	15670	17160	18670	20420	---	23400	24600	25860	23410	10480	11330	12170
30	15720	17210	18730	20470	---	23460	24640	25930	22780	10230	11380	12260
31	15770	---	18780	20530	---	23520	---	26030	---	10060	11410	---
MEAN	15100	16530	18040	19680	21310	22850	24170	25310	25670	15840	10710	11490
MAX	15770	17210	18780	20530	22040	23520	24640	26030	26340	22250	11410	12260
MIN	14440	15790	17270	18840	20570	22100	23540	24670	22780	10060	9977	11190

(†)	3089.93	3091.49	3093.10	3094.79	3096.18	3097.48	3098.43	3099.59	3096.84	3082.54	3084.50	3085.65
(‡)	+1330	+1440	+1570	+1750	+1510	+1480	+1120	+1390	-3250	-12720	+1350	+850

CAL YR 1989	MEAN	20650	MAX	27500	MIN	11170	(†)	-1570
WTR YR 1990	MEAN	18870	MAX	26340	MIN	9977	(‡)	-2180

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

06832500 FRENCHMAN CREEK NEAR ENDERS, NE

LOCATION.--Lat 40°25'05", long 101°30'35", in NW1/4NW1/4 sec.10, T.5 N., R.37 W., Chase County, Hydrologic Unit 10250005, on left bank 0.2 mi downstream from Enders Dam and 2.5 mi southeast of Enders.

DRAINAGE AREA.--950 mi², approximately, of which about 790 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--February 1946 to current year. Published as Frenchman River near Enders October 1965 to September 1972.

REVISED RECORDS.--WSP 2119: 1956, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,026.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 14, 1948, at site 800 ft upstream at datum 6.03 ft higher. June 14, 1948, to Sept. 14, 1972, at present site at datum 5.00 ft higher.

REMARKS.--Estimated daily discharges Dec. 23-26 and Mar. 5 to Apr. 11. Records good except those below 5.0 ft³/s, which are poor. Flow regulated by Enders Reservoir (station 06832000).

AVERAGE DISCHARGE.--44 years, 55.7 ft³/s, 40,350 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 763 ft³/s Aug. 20, 1953, gage height, 11.31 ft, present datum; maximum gage height, 11.65 ft, present datum, July 18, 1958, backwater from downstream tributary; no flow for many days in 1972-85.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 309 ft³/s July 3, gage height, 8.73 ft; minimum daily, .20 ft³/s Dec. 22, 23 and June 7-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	.39	.41	.31	.41	.35	.36	.56	.24	290	59	.33
2	.52	.37	.41	.31	.41	.37	.36	.50	.25	292	36	.36
3	.33	.37	.36	.31	.37	.37	.36	.43	.24	297	36	.43
4	.47	.37	.33	.31	.37	.37	.36	.41	.23	278	36	.45
5	.71	.38	.33	.31	.37	.36	.37	.41	.23	261	13	.47
6	.71	.53	.33	.31	.38	.36	.37	.41	.22	226	.31	.75
7	.71	.37	.33	.31	.41	.36	.37	.41	.20	221	.29	.31
8	.71	.33	.33	.31	.41	.36	.37	.39	.20	183	.29	.31
9	.71	.33	.33	.32	.41	.36	.37	.33	.20	181	.29	.29
10	.70	.33	.33	.35	.41	.36	.37	.33	.20	181	.29	.29
11	.71	.33	.33	.37	.41	.36	.37	.33	.20	182	.66	.29
12	.57	.34	.33	.37	.43	.36	.37	.33	.23	184	.29	.29
13	.50	.40	.33	.37	.45	.36	.38	.33	.22	189	.29	.31
14	.58	.71	.32	.37	.45	.36	.41	.31	.22	190	.29	.37
15	.66	.51	.29	.37	.42	.36	.41	.33	.32	206	.29	.41
16	.50	.50	.27	.37	.41	.36	.46	.29	7.3	207	.29	.35
17	.50	.53	.27	.40	.41	.36	.50	.29	52	218	.29	.33
18	.50	.44	.25	.41	.41	.36	.50	.29	57	233	.29	.39
19	.50	.50	.23	.41	.41	.36	.53	.29	70	241	.29	.33
20	.53	.53	.22	.41	.33	.36	.56	.28	66	238	.29	.33
21	.56	.39	.22	.41	.33	.36	.56	.25	65	233	.29	.33
22	.56	.37	.20	.41	.34	.36	.60	.25	67	231	.31	.34
23	.56	.37	.20	.41	.37	.36	.63	.25	82	231	.31	.29
24	.45	.37	.25	.41	.37	.36	.63	.25	104	232	.31	.29
25	.45	.37	.25	.41	.37	.36	.59	.25	133	225	.31	.32
26	.63	.37	.30	.41	.37	.36	.63	.26	178	239	.31	.33
27	.58	.39	.31	.38	.37	.36	.58	.25	194	236	.31	.33
28	.56	.41	.31	.37	.37	.36	.56	.22	220	236	.31	.31
29	.51	.41	.31	.37	---	.36	.56	.22	250	246	.31	.31
30	.45	.41	.31	.38	---	.36	.56	.23	273	163	.32	.33
31	.45	---	.31	.41	---	.36	---	.23	---	114	.33	---
TOTAL	17.58	12.42	9.30	11.37	10.97	11.18	14.05	9.91	1821.70	6884	188.16	10.57
MEAN	.57	.41	.30	.37	.39	.36	.47	.32	60.7	222	6.07	.35
MAX	.71	.71	.41	.41	.45	.37	.63	.56	273	297	59	.75
MIN	.33	.33	.20	.31	.33	.35	.36	.22	.20	114	.29	.29
AC-FT	35	25	18	23	22	22	28	20	3610	13650	373	21

CAL YR 1989 TOTAL 9443.27 MEAN 25.9 MAX 266 MIN .18 AC-FT 18730
WTR YR 1990 TOTAL 9001.21 MEAN 24.7 MAX 297 MIN .20 AC-FT 17850

KANSAS RIVER BASIN

201

06834000 FRENCHMAN CREEK AT PALISADE, NE

LOCATION.--Lat 40°21'12", long 101°07'35", in SW1/4SE1/4 sec.36, T.5 N., R.34 W., Hayes County, Hydrologic Unit 10250005, on right bank at upstream side of bridge on U.S. Highway 6, 0.7 mi west of Palisade, and 1.5 mi upstream from Stinking Water Creek.

DRAINAGE AREA.--1,110 mi², approximately, of which about 950 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1894 to October 1896, June 1950 to current year. Published as Frenchman River at Palisade, October 1894 to October 1896 and October 1965 to September 1972.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,743.49 ft above National Geodetic Vertical Datum of 1929. October 1894 to October 1896, nonrecording gage at railroad bridge 0.4 mi downstream at different datum; June 1950 to Feb. 7, 1977, recording gage at site 2,000 ft upstream at datum 4.0 ft higher.

REMARKS.--Estimated daily discharges: Nov. 16-20, 22-24, Nov. 27 to Dec. 4, Dec. 11 to Jan. 9, Jan. 12, 13, Jan. 19 to Feb. 6, and Feb. 14-19. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station and, since Oct. 23, 1950, by storage in Enders Reservoir (station 06832000).

AVERAGE DISCHARGE.--42 years, 77.8 ft³/s, 56,370 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft³/s June 17, 1956, gage height, 8.79 ft, site and datum then in use; minimum daily, 5.4 ft³/s Sept. 14, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 566 ft³/s May 27, gage height, 7.00 ft; minimum daily, 5.4 ft³/s Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	23	23	21	28	28	26	24	37	213	157	6.4
2	19	25	25	21	29	28	25	23	36	232	122	7.1
3	20	25	30	21	30	28	25	24	33	233	89	6.1
4	21	25	34	21	35	28	25	25	30	242	84	6.3
5	21	24	23	21	49	27	26	24	28	233	74	5.6
6	20	24	21	21	45	30	27	23	27	221	69	5.8
7	20	24	21	22	33	32	26	23	26	201	54	6.0
8	20	24	21	24	31	31	25	23	25	191	46	5.7
9	20	24	21	27	32	30	25	25	24	165	42	5.5
10	20	24	21	33	30	29	24	25	23	159	38	5.6
11	20	23	21	30	30	28	25	24	22	158	35	6.5
12	19	23	21	30	30	29	26	23	21	157	34	6.3
13	19	23	21	29	29	28	26	22	21	157	35	5.9
14	19	23	21	29	29	28	25	23	21	162	30	5.4
15	19	23	21	28	29	28	25	25	21	163	28	6.0
16	20	23	21	28	29	28	25	23	20	173	26	6.3
17	21	23	21	29	29	28	24	23	18	174	25	6.9
18	21	23	21	29	29	28	24	22	24	181	22	9.1
19	22	22	20	28	29	28	25	22	43	196	21	10
20	22	22	20	27	29	28	25	21	54	210	21	11
21	23	22	19	27	29	28	24	22	61	212	19	11
22	22	22	16	27	29	28	24	22	61	215	17	11
23	22	23	19	27	29	27	24	21	65	212	16	11
24	21	23	20	28	28	29	24	21	67	213	16	12
25	21	23	21	28	28	27	23	22	84	215	14	11
26	21	22	21	28	29	26	24	22	95	212	13	11
27	21	22	21	28	28	26	26	192	133	222	12	11
28	22	22	21	27	28	26	25	102	149	223	10	11
29	22	22	21	27	---	26	24	47	169	227	9.1	13
30	22	23	21	27	---	26	24	45	194	236	7.5	14
31	23	---	21	28	---	26	---	42	---	242	6.5	---
TOTAL	642	694	669	821	862	867	746	1025	1632	6250	1192.1	249.5
MEAN	20.7	23.1	21.6	26.5	30.8	28.0	24.9	33.1	54.4	202	38.5	8.32
MAX	23	25	34	33	49	32	27	192	194	242	157	14
MIN	19	22	16	21	28	26	23	21	18	157	6.5	5.4
AC-FT	1270	1380	1330	1630	1710	1720	1480	2030	3240	12400	2360	495
CAL YR 1989	TOTAL	17405	MEAN	47.7	MAX	364	MIN	14	AC-FT	34520		
WTR YR 1990	TOTAL	15649.6	MEAN	42.9	MAX	242	MIN	5.4	AC-FT	31040		

KANSAS RIVER BASIN

06835000 STINKING WATER CREEK NEAR PALISADE, NE

LOCATION.--Lat 40°22'10", Long 101°06'50", in SW1/4NW1/4 sec.30, T.5 N., R.33 W., Hayes County, Hydrologic Unit 10250006, on right bank 25 ft downstream from county bridge, 1.2 mi upstream from mouth, and 1.8 mi northwest of Palisade.

DRAINAGE AREA.--1,500 mi², approximately, of which about 380 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1730: 1952(M). WSP 1919: 1951(P), 1955. WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,740.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 13, 14, 16-24, 31, Jan. 1, 2, 4-6, 15, 20-23, 25, 27, 28, 31, and Feb. 3, 4, 12-14, 17, 18. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--41 years, 38 ft³/s, 27,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,030 ft³/s June 17, 1956, gage height, 11.30 ft, from rating curve extended above 1,200 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 6.0 ft³/s Aug. 4, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 1	0930	(a)	*4.06				
May 29	0600	*49	3.64				

No peaks greater than base discharge.

a Backwater from ice.

Minimum daily discharge, 6.5 ft³/s Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	24	25	29	28	31	30	26	43	11	15	7.3
2	19	24	25	28	28	31	30	25	41	11	14	7.2
3	19	24	25	27	28	31	29	25	38	10	13	6.8
4	20	24	25	27	28	31	29	25	33	9.6	12	6.9
5	21	24	26	27	27	31	30	25	31	9.4	13	6.6
6	21	24	26	27	28	32	31	25	28	9.7	13	6.5
7	21	24	27	26	28	35	32	24	26	9.8	13	6.7
8	21	24	28	27	28	38	32	24	24	9.5	12	6.8
9	21	24	28	27	29	39	31	25	23	9.3	11	6.9
10	21	24	30	28	29	38	30	28	23	9.2	10	7.2
11	21	24	28	28	29	37	29	31	22	9.1	10	7.4
12	20	24	26	28	30	36	29	30	20	8.8	11	7.7
13	21	24	25	27	31	36	29	28	19	9.0	11	7.7
14	21	24	24	27	32	36	29	27	19	9.1	13	7.2
15	21	24	23	28	32	34	28	29	19	9.2	13	7.1
16	20	24	23	28	32	33	29	30	19	8.9	12	7.2
17	21	24	23	28	32	32	29	31	19	8.3	13	7.8
18	21	24	23	28	31	31	29	29	18	7.8	12	9.0
19	22	24	23	27	31	31	28	26	18	9.8	11	9.9
20	22	24	23	27	31	30	28	25	17	11	11	11
21	22	25	23	28	31	30	28	24	17	13	12	11
22	22	25	24	28	31	30	28	24	16	13	11	11
23	22	24	24	28	31	30	27	24	16	13	11	10
24	21	24	25	28	32	30	26	23	16	12	11	11
25	21	25	25	28	33	30	26	23	15	12	10	11
26	22	25	25	27	32	30	26	23	14	11	9.6	11
27	23	25	27	27	32	30	27	24	14	11	8.9	11
28	23	25	29	28	31	30	28	32	13	11	8.4	12
29	24	24	29	28	---	30	27	47	13	12	8.0	12
30	24	24	29	28	---	30	26	40	12	12	7.6	13
31	23	---	29	28	---	31	---	41	---	13	7.5	---
TOTAL	660	726	795	855	845	1004	860	863	646	322.5	348.0	263.9
MEAN	21.3	24.2	25.6	27.6	30.2	32.4	28.7	27.8	21.5	10.4	11.2	8.80
MAX	24	25	30	29	33	39	32	47	43	13	15	13
MIN	19	24	23	26	27	30	26	23	12	7.8	7.5	6.5
AC-FT	1310	1440	1580	1700	1680	1990	1710	1710	1280	640	690	523

CAL YR 1989 TOTAL 9486 MEAN 26.0 MAX 438 MIN 12 AC-FT 18820
WTR YR 1990 TOTAL 8188.4 MEAN 22.4 MAX 47 MIN 6.5 AC-FT 16240

KANSAS RIVER BASIN

203

06835500 FRENCHMAN CREEK AT CULBERTSON, NE

LOCATION.--Lat 40°14'05", long 100°52'40", in SW1/4SE1/4 sec.12, T.3 N., R.32 W., Hitchcock County, Hydrologic Unit 10250005, on right bank 8 ft upstream from bridge on U.S. Highways 6 and 34, 2 mi west of Culbertson, and 4.5 mi upstream from mouth.

DRAINAGE AREA.--2,770 mi², approximately, of which about 1,470 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--June 1913 to September 1915 (gage heights and discharge measurements only), October 1930 to current year. Published as Frenchman River at Culbertson October 1965 to September 1972. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1390: 1931, 1933, 1934(M), 1938(M). WSP 2119: Drainage area. WDR NE-84-1: 1979, 1982(M).

GAGE.--Water-stage recorder. Datum of gage is 2,583.44 ft above National Geodetic Vertical Datum of 1929. See WSP 1919 for history of changes prior to Nov. 2, 1950.

REMARKS.--Estimated daily discharges: Dec. 14-27 and July 15-31. Records good except for periods of estimated record, which are fair. Natural flow affected by irrigation development above station and, since Oct. 23, 1950, by storage in Enders Reservoir (station 06832000). Principal diversion is by Culbertson Canal, 20,800 acres.

AVERAGE DISCHARGE.--60 years, 96.1 ft³/s, 69,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s, estimated, May 31, 1935, gage height, 14.8 ft, from floodmarks, present site and datum; no flow Aug. 7, 8, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 252 ft³/s May 28, gage height, 4.74 ft; minimum daily, .25 ft³/s Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	52	58	67	67	69	67	24	49	8.6	.87	.30
2	44	52	58	65	64	69	66	24	49	6.5	.90	.30
3	45	52	59	65	62	69	65	25	42	5.9	.87	.30
4	45	54	58	65	65	69	65	25	38	5.5	.74	.30
5	49	54	61	65	67	70	65	27	34	5.5	.75	.30
6	48	54	60	65	71	73	67	29	31	5.7	.70	.28
7	48	54	60	69	70	78	67	29	29	5.6	.74	.25
8	49	54	61	70	70	82	69	30	28	5.3	.80	.26
9	49	54	61	72	69	81	67	30	24	3.8	1.6	.27
10	48	54	60	73	68	80	50	30	21	3.3	16	.37
11	48	55	59	72	69	79	44	33	21	2.3	13	.29
12	48	55	51	69	72	77	47	36	21	2.0	8.2	.29
13	48	55	54	69	73	76	38	36	21	2.0	5.2	.29
14	48	54	52	72	72	77	35	35	20	1.8	6.3	.29
15	48	55	51	71	69	74	46	37	20	1.7	7.6	.35
16	48	54	51	69	64	73	33	39	25	1.7	6.7	.37
17	48	55	52	68	63	71	30	38	21	1.7	5.7	.43
18	49	55	52	66	74	69	29	39	20	1.7	5.5	.66
19	50	56	52	68	75	68	29	38	18	1.6	4.2	.91
20	51	56	51	59	73	68	32	37	14	1.5	2.6	1.2
21	51	55	51	54	71	68	34	35	12	1.5	2.0	1.7
22	52	56	50	64	71	68	34	34	11	1.5	4.4	2.5
23	52	55	51	73	73	66	29	34	11	1.5	3.9	2.8
24	52	56	52	72	70	64	29	33	11	1.5	1.9	4.0
25	48	57	56	68	70	65	27	33	11	1.5	2.6	3.9
26	52	57	57	67	70	66	27	33	11	1.5	2.3	5.3
27	52	57	58	70	70	66	27	39	10	1.5	1.4	4.5
28	52	53	59	68	69	66	26	141	11	1.5	.55	5.4
29	52	59	65	65	---	67	25	79	9.3	1.5	.47	6.1
30	52	55	65	66	---	67	25	63	8.8	1.5	.36	6.8
31	51	---	68	67	---	67	---	52	---	1.2	.30	---
TOTAL	1519	1644	1753	2093	1941	2202	1294	1217	652.1	89.9	109.15	51.01
MEAN	49.0	54.8	56.5	67.5	69.3	71.0	43.1	39.3	21.7	2.90	3.52	1.70
MAX	52	59	68	73	75	82	69	141	49	8.6	16	6.8
MIN	42	52	50	54	62	64	25	24	8.8	1.2	.30	.25
AC-FT	3010	3260	3480	4150	3850	4370	2570	2410	1290	178	216	101
CAL YR 1989	TOTAL	17588.4	MEAN	48.2	MAX	309	MIN	5.7	AC-FT	34890		
WTR YR 1990	TOTAL	14565.16	MEAN	39.9	MAX	141	MIN	.25	AC-FT	28890		

KANSAS RIVER BASIN

06836500 DRIFTWOOD CREEK NEAR MCCOOK, NE

LOCATION.--Lat 40°09'41", long 100°39'35", in SE1/4SW1/4 sec.1, T.2 N., R.30 W., Red Willow County, Hydrologic Unit 10250004, on right bank downstream from county road bridge, 3.0 mi downstream from siphon and wasteway on Meeker-Driftwood Canal, 3.5 mi southwest of McCook, and 2.6 miles upstream from mouth.

DRAINAGE AREA.--360 mi², approximately, of which about 350 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--March 1946 to current year.

REVISED RECORDS.--WSP 1210: 1950.

GAGE.--Water-stage recorder. Datum of gage is 2,485.23 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 12, 1962, at site 1.7 mi upstream in old channel at datum 8.55 ft higher, Oct. 12, 1962, to Apr. 11, 1963, at site 1.4 mi upstream at datum 4.80 ft higher, and Apr. 12, 1963 to Apr. 22, 1982 at site 1.9 mi upstream at datum 8.55 ft higher.

REMARKS.--Estimated daily discharges: Dec. 15-27, Jan. 5, 20-23, 26, 28-20, and Feb. 2-4, 15-17. Records good except for periods of estimated record, which are poor. Natural flow affected by waste from Meeker-Driftwood Canal and by irrigation development above station.

AVERAGE DISCHARGE.--44 years, 10.1 ft³/s, 7,320 acre-ft/yr; median of yearly mean discharges, 8.3 ft³/s, 6,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,740 ft³/s Aug. 7, 1950, gage height, 25.43 ft, at site then in use, from floodmark, from rating curve extended above 3,000 ft³/s; no flow at times in 1946-50, 1952-56.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 28	0605	*112	*4.99	No peaks greater than base discharge.			
Minimum daily discharge, 3.1 ft ³ /s, Sept. 29.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	5.0	5.1	5.3	5.9	5.8	5.8	4.0	8.4	5.0	7.3	7.4
2	4.6	5.1	5.3	5.2	5.6	5.8	5.7	4.2	7.0	5.8	6.6	5.5
3	4.8	5.4	5.7	5.2	5.6	5.8	5.7	4.5	6.5	6.6	6.3	4.8
4	4.9	5.4	5.4	5.0	5.8	5.8	5.6	5.9	6.0	8.4	7.2	4.7
5	5.3	5.2	5.5	5.2	5.9	5.8	5.5	5.8	5.8	8.3	7.2	4.7
6	5.6	5.0	5.5	5.3	5.9	6.0	5.6	6.4	5.4	8.6	7.9	4.5
7	5.2	5.0	5.3	4.9	6.0	6.8	5.6	6.6	5.4	7.5	9.0	4.6
8	5.3	5.0	5.0	5.0	6.1	7.2	5.3	5.2	5.7	7.9	9.6	5.4
9	5.4	5.0	5.0	5.2	6.0	6.8	5.3	5.0	5.6	9.6	10	5.8
10	5.3	5.0	5.0	5.4	5.9	6.3	5.3	5.3	5.5	7.9	9.3	4.5
11	5.2	5.0	4.7	5.6	6.1	6.2	5.2	4.8	5.3	7.9	9.0	5.3
12	5.3	4.9	5.5	5.4	6.5	6.8	5.0	4.6	5.2	8.8	14	4.2
13	5.3	4.9	5.0	5.2	6.5	6.7	5.1	4.6	5.1	10	13	5.1
14	5.3	4.8	5.0	5.4	6.4	6.2	4.9	4.7	4.7	13	11	6.3
15	5.4	4.8	4.6	5.7	6.0	5.9	5.2	15	4.7	12	11	5.9
16	5.5	4.9	4.6	5.6	5.8	5.8	5.6	11	4.7	15	9.5	5.9
17	5.5	4.9	5.2	5.5	5.8	5.6	4.8	6.2	4.6	12	8.7	5.8
18	5.5	4.9	5.4	5.3	5.9	5.8	4.7	6.0	4.5	13	7.6	5.8
19	5.5	5.0	5.0	5.3	5.8	5.6	4.7	38	4.4	10	22	5.3
20	5.8	5.2	4.8	5.6	5.6	5.5	4.7	8.4	4.3	9.3	14	5.1
21	5.6	5.3	5.0	6.0	5.8	5.6	4.7	6.9	35	11	12	4.8
22	5.3	5.1	4.4	6.0	5.9	5.6	4.6	6.4	10	11	8.6	3.9
23	5.3	4.6	4.2	6.2	5.8	5.5	4.5	5.7	9.4	11	7.8	3.7
24	5.2	4.7	4.2	6.2	5.9	5.5	4.5	5.5	4.5	13	9.4	3.6
25	5.7	4.9	5.0	6.4	5.8	5.5	4.6	5.9	4.2	12	9.8	3.5
26	5.8	4.8	5.6	6.4	5.8	5.5	5.1	5.2	4.0	12	9.7	3.4
27	6.6	4.9	6.2	6.0	5.9	5.5	4.9	15	5.8	14	9.2	3.3
28	6.8	4.6	7.8	6.0	5.9	5.6	4.7	73	19	9.1	9.1	3.2
29	6.1	5.2	6.1	5.8	---	5.9	4.6	13	6.7	7.9	7.2	3.1
30	5.4	5.0	5.7	5.8	---	6.1	4.2	21	4.8	8.9	7.2	3.8
31	5.0	---	5.5	5.9	---	6.0	---	13	---	8.0	9.5	---
TOTAL	168.1	149.5	162.3	173.0	165.9	184.5	151.7	326.8	212.2	304.5	299.7	142.9
MEAN	5.42	4.98	5.24	5.58	5.92	5.95	5.06	10.5	7.07	9.82	9.67	4.76
MAX	6.8	5.4	7.8	6.4	6.5	7.2	5.8	73	35	15	22	7.4
MIN	4.6	4.6	4.2	4.9	5.6	5.5	4.2	4.0	4.0	5.0	6.3	3.1
AC-FT	333	297	322	343	329	366	301	648	421	604	594	283

CAL YR 1989 TOTAL 3734.0 MEAN 10.2 MAX 902 MIN 3.1 AC-FT 7410
WTR YR 1990 TOTAL 2441.1 MEAN 6.69 MAX 73 MIN 3.1 AC-FT 4840

KANSAS RIVER BASIN

205

06837000 REPUBLICAN RIVER AT MCCOOK, NE

LOCATION (REVISED).--Lat 40°11'15", long 100°37'05", in SW1/4NE1/4 sec.32, T.3 N., R.29 W., Red Willow County, Hydrologic Unit 10250004, on left bank at downstream side of bridge on U.S. Highway 83 at south edge of McCook, 2.5 mi downstream from Driftwood Creek, and 10.5 mi upstream from Red Willow Creek.

DRAINAGE AREA.--12,310 mi², approximately, of which about 6,260 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1930 to June 1932, October 1954 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,456.37 ft above National Geodetic Vertical Datum of 1929. October 1930 to June 1932, nonrecording gage on former highway bridge 300 ft upstream at different datum and October 1954 to Mar. 13, 1959, on highway bridge 25 ft upstream at present datum. Mar. 13, 1959 to Mar. 29, 1988 at present site and datum. Mar. 29, 1988 to Oct. 31, 1989 200 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 12 to Feb. 9 and Feb. 15-18. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station and by storage in Bonny Reservoir, Enders Reservoir (station 06832000), and Swanson Lake (station 06829000).

AVERAGE DISCHARGE.--37 years, 167 ft³/s, 121,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,890 ft³/s Mar. 21, 1960, gage height, 9.14 ft; no flow for several days in July and August 1931.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1826 occurred May 31, 1935, discharge, about 245,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 241 ft³/s May 29, gage height, 4.40 ft; maximum gage height, 4.76 ft Feb. 16, backwater from ice; minimum daily, 1.9 ft³/s Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	78	84	94	88	99	99	54	115	161	142	24
2	64	81	85	92	86	99	99	52	97	160	142	16
3	67	80	83	94	86	97	99	58	90	153	141	11
4	68	82	87	94	88	96	98	66	83	153	139	8.3
5	69	83	90	96	92	96	101	60	76	159	138	6.2
6	72	81	88	98	96	110	103	65	70	163	138	4.2
7	72	81	87	100	96	123	105	62	67	150	136	3.2
8	72	81	88	108	94	124	105	59	67	131	133	2.6
9	73	81	88	112	96	121	101	70	62	131	155	3.3
10	72	81	86	116	98	120	90	63	55	129	162	1.9
11	71	82	83	118	99	118	81	63	50	126	157	5.3
12	72	84	80	114	102	119	79	69	45	125	147	3.8
13	73	83	78	106	101	113	81	70	45	126	121	2.7
14	74	84	80	110	99	109	73	68	45	133	97	3.2
15	74	83	74	108	88	107	74	101	47	133	83	3.7
16	74	83	78	104	86	103	71	95	45	134	77	3.6
17	73	85	82	102	88	101	63	79	43	155	69	4.3
18	72	85	84	96	96	102	62	79	39	200	60	5.5
19	75	85	86	86	115	100	61	111	46	200	89	6.3
20	78	85	86	88	110	99	62	83	84	203	70	7.1
21	78	81	82	92	104	98	64	74	117	212	60	7.3
22	78	81	80	98	103	96	64	71	107	211	55	6.9
23	78	82	78	108	101	92	59	66	110	206	55	6.1
24	79	84	78	110	99	95	61	67	125	207	56	6.3
25	77	82	86	100	99	94	59	67	162	210	53	5.5
26	76	84	100	98	99	94	61	63	166	210	51	5.2
27	78	83	110	98	97	91	65	74	165	216	47	5.3
28	79	79	116	94	96	94	58	147	180	211	45	6.2
29	80	79	114	90	---	97	54	171	165	180	42	8.7
30	80	85	110	92	---	95	53	156	160	150	41	11
31	77	---	100	90	---	97	---	134	---	146	36	---
TOTAL	2289	2468	2731	3106	2702	3199	2305	2517	2728	5184	2937	194.7
MEAN	73.8	82.3	88.1	100	96.5	103	76.8	81.2	90.9	167	94.7	6.49
MAX	80	85	116	118	115	124	105	171	180	216	162	24
MIN	64	78	74	86	86	91	53	52	39	125	36	1.9
AC-FT	4540	4900	5420	6160	5360	6350	4570	4990	5410	10280	5830	386

CAL YR 1989 TOTAL 33791 MEAN 92.6 MAX 792 MIN 40 AC-FT 67020
WTR YR 1990 TOTAL 32360.7 MEAN 88.7 MAX 216 MIN 1.9 AC-FT 64190

KANSAS RIVER BASIN

06837300 RED WILLOW CREEK ABOVE HUGH BUTLER LAKE, NE

LOCATION.--Lat 40°24'05", long 100°46'45", in NE1/4SE1/4 sec.13, T.5 N., R.31 W., Hayes County, Hydrologic Unit 10250007, on right bank 1,000 ft above county road bridge, 7.2 mi upstream from Red Willow Dam, and 12 mi northeast of Culbertson.

DRAINAGE AREA.--600 mi², approximately, of which about 200 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Artificial control since March 1961. Datum of gage is 2,594.80 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 23, 1961, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Sept. 24-30. Records good except for period of estimated record, which is fair. Natural flow affected by pump irrigation development above station.

AVERAGE DISCHARGE.--30 years, 26.5 ft³/s, 19,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft³/s June 16, 1972, gage height, 13.27 ft, from rating curve extended above 1,000 ft³/s on basis of slope-conveyance study; minimum daily, 3.1 ft³/s July 12, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 15	0230	*63	*1.48	No peaks greater than base discharge.			
Minimum daily discharge, 3.1 ft ³ /s July 12.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	15	18	18	27	27	24	24	28	7.5	7.3	5.4
2	13	15	16	17	17	26	25	22	30	7.2	7.0	5.8
3	13	15	13	18	22	26	24	21	32	7.0	6.1	6.3
4	13	15	18	17	21	26	23	22	31	6.2	5.9	6.6
5	13	16	15	15	25	28	23	22	29	5.8	5.9	6.3
6	14	15	15	15	24	28	24	21	27	7.0	6.7	5.8
7	14	16	16	18	22	32	24	20	23	6.7	6.6	6.0
8	14	16	16	18	23	38	24	20	21	5.8	7.5	5.8
9	14	16	17	19	24	44	24	21	19	5.7	7.0	4.5
10	15	16	17	20	25	44	23	24	17	4.5	5.6	5.6
11	15	16	15	20	27	39	23	26	16	4.3	6.0	5.5
12	14	16	15	18	29	34	22	29	15	3.1	6.1	5.9
13	15	16	19	20	32	31	22	29	14	3.7	7.3	6.9
14	15	16	15	21	33	29	22	26	13	3.9	13	7.0
15	14	16	9.7	19	31	28	23	26	13	3.8	26	6.7
16	13	16	15	19	25	26	24	26	14	4.5	11	6.6
17	14	16	14	19	31	25	23	26	12	5.0	9.7	6.8
18	14	16	16	19	27	24	22	27	11	4.6	8.9	7.5
19	14	16	12	18	27	23	22	26	11	4.9	6.9	7.9
20	15	16	15	16	24	23	21	25	11	8.9	7.0	8.5
21	15	17	13	18	25	23	21	24	11	11	6.8	8.3
22	15	17	7.1	23	26	22	21	24	10	12	6.3	8.3
23	15	17	12	21	26	22	20	22	10	11	6.9	8.2
24	16	17	16	21	27	22	20	22	8.8	9.3	7.1	8.0
25	16	16	16	23	27	22	20	21	9.4	8.1	8.4	8.0
26	15	16	16	25	27	23	20	21	9.0	7.1	8.0	7.8
27	15	16	18	19	27	23	22	21	8.2	7.6	7.2	7.8
28	16	16	20	23	26	23	24	20	8.5	8.1	6.3	7.8
29	16	15	22	19	---	23	26	20	8.2	6.1	4.9	7.8
30	16	18	22	24	---	24	26	23	7.8	7.0	4.8	8.0
31	16	---	21	23	---	24	---	26	---	7.5	4.9	---
TOTAL	450	480	489.8	603	727	852	682	727	477.9	204.9	239.1	207.4
MEAN	14.5	16.0	15.8	19.5	26.0	27.5	22.7	23.5	15.9	6.61	7.71	6.91
MAX	16	18	22	25	33	44	26	29	32	12	26	8.5
MIN	13	15	7.1	15	17	22	20	20	7.8	3.1	4.8	4.5
AC-FT	893	952	972	1200	1440	1690	1350	1440	948	406	474	411

CAL YR 1989 TOTAL 7409.5 MEAN 20.3 MAX 472 MIN 5.2 AC-FT 14700
WTR YR 1990 TOTAL 6140.1 MEAN 16.8 MAX 44 MIN 3.1 AC-FT 12180

06837390 HUGH BUTLER LAKE NEAR MCCOOK, NE

LOCATION.--Lat 40°21'35", long 100°39'55", in SW1/4NW1/4 sec.31, T.5 N., R.29 W., Frontier County, Hydrologic Unit 10250007, in gate-control house at outlet tube of Red Willow Dam on Red Willow Creek, 12 mi north of McCook.

DRAINAGE AREA.--730 mi², approximately, of which about 310 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--September 1961 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to July 10, 1962, nonrecording gage at present datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began Sept. 5, 1961. Capacity, 31,470 acre-ft between elevations 2,522.0 ft, sill of outlet works, and 2,581.8 ft, top of irrigation pool. Top of flood-control pool and crest of mean spillway at elevation 2,604.9 ft, capacity, 86,360 acre-ft. Top of superstorage flood control pool at elevation 2,627.8 ft, capacity, 162,600 acre-ft. Dead storage, 6,310 acre-ft. Figures given herein represent total contents. Water used for irrigation in Frenchman-Cambridge irrigation project.

COOPERATION.--Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 41,680 acre-ft July 15, 16, 1967, elevation, 2,584.14 ft; minimum since operation of reservoir began, 16,930 acre-ft Sept. 8, 1978, elevation, 2,565.31 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 31,420 acre-ft June 12, elevation, 2,577.66 ft; minimum, 19,900 acre-ft Sept. 17, elevation, 2,568.25 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)

2,570	21,800	2,580	34,910
2,575	27,800	2,585	43,170

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25010	25230	25770	26540	27540	28470	29620	30250	31420	29090	23860	20100
2	24970	25240	25770	26570	27570	28510	29640	30280	31340	28840	23700	20090
3	24930	25240	25800	26620	27590	28530	29680	30340	31350	28590	23580	20060
4	24950	25280	25840	26630	27620	28580	29730	30410	31370	28340	23420	20050
5	24980	25290	25870	26670	27650	28590	29770	30440	31400	28100	23290	20040
6	24980	25300	25890	26680	27680	28750	29790	30470	31410	27890	23140	20040
7	24980	25340	25910	26720	27720	28830	29810	30590	31400	27740	23020	20030
8	25000	25340	25930	26770	27750	28900	29850	30540	31410	27540	22940	20030
9	25030	25360	25970	26780	27770	28970	29890	30490	31410	27330	22840	20010
10	25030	25390	25980	26820	27830	29050	29870	30510	31400	27170	22740	20040
11	25060	25410	25980	26820	27850	29160	29850	30580	31420	26980	22620	20010
12	25060	25430	26010	26820	27910	29230	29880	30590	31380	26740	22590	20010
13	25090	25440	26030	26860	27930	29260	29920	30650	31350	26540	22500	20010
14	25100	25450	26070	26910	27960	29270	29960	30680	31280	26370	22460	19990
15	25110	25460	26060	26930	28000	29310	30000	30800	31400	26200	22460	19970
16	25050	25460	26080	26970	28010	29280	30000	30800	31400	26010	22450	19940
17	25030	25490	26110	26980	28080	29310	29990	30810	31350	25840	22420	19950
18	25030	25510	26150	27020	28100	29340	30000	30950	31340	25640	22380	19960
19	25030	25560	26170	27130	28130	29320	30040	30910	31300	25440	22330	19950
20	25050	25580	26200	27170	28170	29360	30090	30930	31140	25250	22250	19970
21	25090	25600	26210	27220	28210	29420	30130	30950	31030	25110	22180	19970
22	25110	25600	26220	27270	28260	29410	30180	31000	30880	24990	22140	19960
23	25130	25620	26260	27310	28300	29390	30210	31040	30750	24870	22050	19950
24	25160	25660	26320	27340	28300	29390	30130	31040	30640	24760	21930	19980
25	25190	25690	26340	27350	28330	29420	30250	31060	30450	24680	21800	19990
26	25240	25700	26370	27400	28370	29430	30280	31080	30250	24570	21560	20000
27	25220	25700	26390	27420	28390	29460	30250	31110	30030	24500	21240	20010
28	25270	25700	26420	27440	28430	29500	30300	31100	29790	24390	20860	20000
29	25240	25720	26440	27470	---	29510	30230	31130	29580	24280	20510	20000
30	25210	25750	26490	27480	---	29550	30230	31210	29340	24150	20160	20010
31	25240	---	26520	27540	---	29600	---	31260	---	23990	20100	---
MEAN	25080	25480	26120	27020	27980	29160	29990	30770	31000	26190	22310	20000
MAX	25270	25750	26520	27540	28430	29600	30300	31260	31420	29090	23860	20100
MIN	24930	25230	25770	26540	27540	28470	29620	30250	29340	23990	20100	19940
(†)	2572.96	2573.37	2573.99	2574.80	2575.48	2576.35	2576.82	2577.54	2576.16	2571.91	2568.43	2568.35
(‡)	+210	+510	+770	+1020	+890	+1170	+630	+1030	-1920	-5350	-3890	-90
CAL YR 1989	MEAN	27880	MAX	31310	MIN	24150	(†)	-1020				
WTR YR 1990	MEAN	26750	MAX	31420	MIN	19940	(‡)	-5020				

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

06837500 RED WILLOW CREEK NEAR MCCOOK, NE

LOCATION.--Lat 40°20'50", long 100°38'35", in SW1/4NW1/4 sec.6, T.4 N., R.29 W., Red Willow County, Hydrologic Unit 10250007, on left bank 45 ft downstream from bridge on U.S. Highway 83, 3 mi downstream from Red Willow Dam and 10 mi north of McCook.

DRAINAGE AREA.--740 mi², approximately, of which about 320 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1940 to September 1947. Annual maximums, water years 1958-60. October 1960 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder, concrete control since Dec. 23, 1965. Datum of gage is 2,485.97 ft above National Geodetic Vertical Datum of 1929. October 1940 to September 1947, water-stage recorder at site 45 ft upstream at datum 9.55 ft higher. Nov. 22, 1957, to Sept. 30, 1960, crest-stage gage, Oct. 1, 1960, to Apr. 5, 1961, nonrecording gage, and Apr. 6, 1961, to Sept. 26, 1974, water-stage recorder at site 45 ft upstream, present datum.

REMARKS.--Estimated daily discharges: July 27 to Aug. 6. Records good except for period of estimated record, which is poor. Natural flow affected by irrigation development above station and, since Sept. 5, 1961, by storage in Hugh Butler Lake (station 06837390).

AVERAGE DISCHARGE.--29 years (1962-90), 20.1 ft³/s, 14,560 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s June 22, 1947, gage height, 31.95 ft, present datum, from rating curve extended above 2,500 ft³/s on basis of contracted-opening measurement of peak flow; minimum daily, 0.60 ft³/s Sept. 22, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1935, reached a stage of 33.45 ft, from floodmarks, discharge, 45,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 196 ft³/s Aug. 28, gage height, 10.63 ft; minimum daily, 2.9 ft³/s Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.6	3.3	3.2	3.8	4.4	3.9	4.0	3.8	127	82	4.9
2	3.6	3.5	3.5	3.2	4.0	4.5	3.7	4.1	3.7	129	84	4.5
3	4.0	3.5	3.6	3.3	4.1	4.5	3.8	4.4	3.6	123	72	4.2
4	4.0	3.3	3.6	3.3	4.0	4.5	3.7	4.3	3.5	114	64	4.1
5	4.1	3.3	3.4	3.3	4.1	4.5	3.9	4.3	3.4	111	64	4.0
6	3.9	3.4	3.4	3.2	4.1	4.6	3.8	4.3	3.4	103	64	3.9
7	3.9	3.4	3.4	3.3	4.2	4.4	3.8	4.3	3.4	98	57	4.0
8	3.7	3.3	3.4	3.3	4.4	4.3	3.6	3.8	3.6	98	62	4.0
9	3.5	3.4	3.6	3.3	4.4	4.1	3.6	4.4	3.6	101	61	3.9
10	3.6	3.4	3.2	3.3	4.5	4.2	3.6	4.1	3.5	102	57	3.9
11	3.5	3.5	3.1	3.3	4.5	4.3	3.5	4.0	3.5	100	59	4.1
12	3.5	3.4	3.3	3.5	4.5	4.2	3.6	4.2	3.3	99	61	4.0
13	3.4	3.4	3.2	3.6	4.1	4.2	3.8	4.1	3.2	99	52	3.9
14	3.1	3.4	3.2	3.3	4.0	4.2	4.0	4.0	3.5	98	39	3.6
15	3.0	3.4	3.1	3.4	4.2	4.0	4.3	4.5	3.6	98	33	3.9
16	3.2	3.4	3.2	3.4	4.1	3.9	4.0	4.1	4.2	97	32	3.7
17	3.3	3.4	3.2	3.4	4.2	3.9	4.0	4.0	3.9	98	32	3.8
18	3.5	3.4	3.3	3.3	4.2	4.0	4.0	4.0	4.0	102	31	3.9
19	3.3	3.4	3.3	3.6	4.2	4.0	4.0	4.2	27	100	31	3.8
20	3.5	3.4	3.3	3.7	4.1	4.1	3.7	4.1	59	88	35	3.8
21	3.5	3.3	3.2	3.5	4.1	4.1	3.8	4.3	30	78	34	3.7
22	3.4	3.2	3.2	3.5	4.0	3.9	4.1	4.1	51	78	37	3.6
23	3.4	3.3	3.3	3.5	4.1	3.9	4.2	3.9	57	70	44	3.5
24	3.3	3.4	3.6	3.1	4.2	4.0	4.2	4.0	68	61	56	3.6
25	3.6	3.4	3.5	3.1	4.2	3.9	3.9	3.8	94	61	69	3.5
26	3.7	3.4	3.4	3.2	4.4	3.9	5.5	3.7	109	60	105	3.5
27	3.8	3.4	3.5	3.2	4.3	4.0	4.5	3.6	119	60	153	3.1
28	3.8	3.5	3.4	3.2	4.3	4.0	4.2	3.8	129	54	178	2.9
29	3.6	3.6	3.2	3.4	---	4.0	4.1	3.7	126	60	188	3.0
30	3.6	3.5	3.3	3.6	---	4.1	4.0	4.2	122	76	186	3.0
31	3.6	---	3.3	3.9	---	4.0	---	4.1	---	80	54	---
TOTAL	110.7	102.2	103.5	104.4	117.3	128.6	118.8	126.4	1055.7	2823	2176	113.3
MEAN	3.57	3.41	3.34	3.37	4.19	4.15	3.96	4.08	35.2	91.1	70.2	3.78
MAX	4.1	3.6	3.6	3.9	4.5	4.6	5.5	4.5	129	129	188	4.9
MIN	3.0	3.2	3.1	3.1	3.8	3.9	3.5	3.6	3.2	54	31	2.9
AC-FT	220	203	205	207	233	255	236	251	2090	5600	4320	225

CAL YR 1989 TOTAL 6403.0 MEAN 17.5 MAX 128 MIN 3.0 AC-FT 12700
WTR YR 1990 TOTAL 7079.9 MEAN 19.4 MAX 188 MIN 2.9 AC-FT 14040

KANSAS RIVER BASIN

209

06838000 RED WILLOW CREEK NEAR RED WILLOW, NE

LOCATION.--Lat 40°14'10", long 100°30'00", in NE1/4NE1/4 sec.17, T.3 N., R.28 W., Red Willow County, Hydrologic Unit 10250007, on left bank near downstream side of bridge on U.S. Highways 6 and 34, 0.8 mi north of Red Willow and 2.5 mi upstream from mouth.

DRAINAGE AREA.--830 mi², approximately, of which about 410 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WSP 1510: 1945(M). WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,398.64 ft above National Geodetic Vertical Datum of 1929. Prior to May 26, 1945, nonrecording gage at bridge 1.2 mi upstream at datum 11.16 ft higher, May 26, 1945, to Aug. 2, 1974, water-stage recorder at present site and datum, and Aug. 3, 1974, to June 27, 1980, on right bank at downstream side of bridge, present datum.

REMARKS.--Estimated daily discharges: Nov. 16, 23-24, Nov. 28 to Dec. 5, Dec. 11 to Feb. 11, and Feb. 14-19. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station, since Sept. 5, 1961, by storage in Hugh Butler Lake (station 06837390), and since June 1963 by Red Willow Canal which diverts 4.5 mi above station for irrigation of about 4,150 acres.

AVERAGE DISCHARGE.--28 years (1963-90), 13.8 ft³/s, 10,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s June 22, 1947, gage height, 18.36 ft, from rating curve extended above 6,800 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.02 ft³/s Aug. 18, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 109 ft³/s Aug. 30, gage height, 6.29 ft; minimum daily, 0.02 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	6.9	6.2	9.0	7.8	8.5	8.0	8.5	7.7	11	5.7	14
2	4.2	6.8	7.0	9.0	8.0	8.7	7.8	8.4	7.4	16	6.6	4.7
3	5.0	7.1	8.0	9.4	8.2	8.5	8.0	8.9	7.3	15	9.5	3.8
4	5.4	7.1	10	9.8	8.6	8.6	8.0	10	7.0	6.0	5.8	3.3
5	5.9	7.1	8.6	10	9.6	8.4	8.8	8.8	6.8	6.2	1.7	1.6
6	12	7.0	7.6	10	10	9.8	8.4	8.6	6.6	4.0	2.7	1.2
7	10	7.0	7.1	9.6	11	11	8.2	8.5	6.6	1.9	3.1	1.1
8	5.9	7.1	7.0	9.4	11	9.8	8.2	8.2	7.2	.76	1.4	1.7
9	5.8	7.1	7.1	9.2	12	9.0	8.0	9.6	6.9	7.4	.43	1.5
10	5.5	7.2	7.0	9.2	13	8.6	8.0	8.8	6.8	18	.86	8.4
11	5.7	7.1	6.4	9.0	11	8.8	8.0	8.6	6.5	16	2.4	2.4
12	5.7	7.0	6.2	8.8	9.7	9.2	8.2	9.3	6.2	15	7.9	1.8
13	6.0	7.1	6.4	8.2	9.2	8.3	8.4	8.7	5.8	20	11	1.9
14	5.8	7.2	6.2	8.2	9.0	8.0	8.4	8.3	5.6	24	5.0	1.8
15	5.3	7.1	6.6	8.6	9.0	8.0	9.1	13	6.1	25	5.7	2.0
16	5.6	6.8	7.4	8.6	9.2	8.0	8.9	9.3	6.7	19	1.9	2.1
17	6.1	7.4	7.6	8.2	9.2	7.8	8.5	8.0	6.7	9.7	1.2	2.4
18	6.3	7.0	7.4	8.0	9.0	8.0	8.5	8.3	5.7	8.4	.02	3.2
19	6.7	7.0	7.2	8.2	9.8	7.9	8.7	10	4.6	9.6	.55	3.1
20	7.0	7.0	6.8	8.0	11	8.0	8.9	8.2	10	13	3.2	3.6
21	7.6	6.9	6.2	7.6	9.0	8.2	8.5	8.5	19	9.3	.72	3.3
22	7.3	6.7	6.0	7.8	8.8	8.2	8.4	7.9	4.6	8.5	1.3	3.0
23	7.1	6.4	7.0	8.2	8.7	7.9	8.5	7.5	.74	13	2.8	3.1
24	7.6	7.8	8.0	8.6	8.6	8.0	8.4	7.9	.91	6.9	4.7	3.5
25	7.7	7.2	10	8.0	8.5	8.1	8.2	7.9	5.8	4.9	24	3.5
26	7.4	7.1	12	8.2	8.4	8.1	8.4	7.3	4.7	4.2	28	3.5
27	7.5	6.7	13	8.0	8.5	8.1	10	7.3	15	8.0	75	3.6
28	7.4	6.2	13	8.0	8.5	8.4	8.8	7.3	18	6.5	79	3.4
29	7.3	6.0	12	8.2	---	8.5	8.6	7.3	20	6.0	99	3.6
30	7.0	6.0	11	8.2	---	8.2	8.4	11	12	8.3	103	3.8
31	6.9	---	9.2	7.8	---	8.2	---	8.8	---	5.8	97	---
TOTAL	205.0	208.1	251.2	267.0	264.3	262.8	253.2	268.7	234.95	327.36	591.18	99.9
MEAN	6.61	6.94	8.10	8.61	9.44	8.48	8.44	8.67	7.83	10.6	19.1	3.33
MAX	12	7.8	13	10	13	11	10	13	20	25	103	14
MIN	4.2	6.0	6.0	7.6	7.8	7.8	7.8	7.3	.74	.76	.02	1.1
AC-FT	407	413	498	530	524	521	502	533	466	649	1170	198

CAL YR 1989 TOTAL 3820.52 MEAN 10.5 MAX 172 MIN .26 AC-FT 7580
WTR YR 1990 TOTAL 3233.69 MEAN 8.86 MAX 103 MIN .02 AC-FT 6410

LOCATION.--Lat 40°38'00", long 100°29'20", in SE1/4NW1/4 sec.27, T.8 N., R.28 W., Frontier County, Hydrologic Unit 10250008, on left bank 15 ft upstream from bridge on State Highway 23, 0.5 mi upstream from mouth, and 1 mi east of Curtis.

PERIOD OF RECORD.--March 1951 to September 1958. Annual maximums, water years 1960-70. October 1977 to current year.

REMARKS.--Estimated daily discharge: Nov. 27 to Dec. 2 and Dec. 12-14. Records good except for periods of estimated record which are fair.

AVERAGE DISCHARGE.--20 years (1952-58, 1978-90), 6.48 ft³/s, 4.690 acre-ft/yr.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 27.3 ft June 21, 1947, from floodmark (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 454 ft³/s Aug. 15, gage height, 10.33 ft; minimum daily, 1.5 ft³/s July 3, 4, 24.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	4.6	3.8	5.0	5.3	6.1	6.0	5.8	6.2	1.8	2.8	2.5
2	3.7	4.4	4.0	5.1	4.9	6.0	5.9	5.8	7.7	1.9	2.7	2.5
3	3.5	4.5	4.4	5.2	5.3	5.9	6.0	5.9	7.2	1.5	2.7	2.5
4	3.7	4.5	4.8	5.1	5.1	5.9	6.1	6.2	6.1	1.5	2.2	2.4
5	4.0	4.5	4.7	5.1	5.3	5.9	6.1	5.9	5.9	1.9	1.6	2.4
6	3.7	4.6	4.7	5.0	5.3	6.4	6.2	5.8	5.7	2.2	1.8	2.4
7	3.6	4.6	4.4	5.1	5.3	7.6	6.1	5.8	5.6	2.0	2.5	2.4
8	3.8	4.8	4.2	5.2	5.4	6.8	6.2	5.6	5.6	2.1	2.3	2.4
9	3.7	4.8	4.3	5.3	5.4	6.3	6.2	6.2	5.5	1.9	1.9	2.4
10	3.8	4.8	4.3	5.3	5.4	6.0	6.1	6.0	5.4	2.7	2.0	2.4
11	3.7	5.0	3.8	5.4	5.7	6.0	5.9	5.8	5.4	2.6	7.4	2.5
12	3.2	4.5	3.5	5.3	5.8	6.7	6.0	5.9	5.2	2.5	72	2.5
13	3.2	4.5	3.3	5.3	5.6	6.2	6.2	5.8	5.1	2.5	11	2.5
14	3.2	4.5	3.4	5.4	4.9	5.8	6.2	5.7	5.0	2.5	3.5	2.4
15	3.5	4.5	3.6	5.4	5.0	5.7	6.2	6.8	5.1	2.7	121	2.5
16	4.4	4.6	4.4	5.4	4.9	5.6	6.1	6.6	5.4	2.3	4.5	2.2
17	4.5	4.8	4.7	5.3	5.7	5.6	5.9	5.7	5.1	1.8	3.6	2.2
18	4.6	4.8	4.6	5.2	5.6	5.6	5.9	5.7	4.9	1.6	3.2	2.8
19	4.6	4.8	4.8	5.2	5.5	5.6	6.1	6.2	4.9	2.5	3.1	2.6
20	4.7	4.9	4.7	5.0	5.5	5.7	6.2	5.9	4.8	3.1	3.1	2.6
21	4.9	4.5	4.7	5.1	5.6	5.8	6.1	6.5	5.0	2.8	3.0	2.6
22	4.8	4.6	4.2	5.6	5.7	5.8	6.1	5.8	4.9	2.2	2.9	2.5
23	4.6	4.3	4.5	5.5	5.9	5.8	6.1	5.7	4.8	1.9	2.9	2.5
24	4.4	4.2	4.8	5.4	6.1	5.7	5.9	5.6	4.1	1.5	2.3	2.7
25	4.8	4.2	5.2	5.3	6.1	5.9	5.9	5.8	2.9	1.8	1.8	2.8
26	4.7	4.0	5.5	5.4	6.0	5.9	6.0	5.7	2.7	1.9	2.6	2.9
27	5.0	3.9	5.3	5.4	6.0	6.0	6.4	5.6	3.0	2.2	2.6	2.9
28	4.8	3.8	5.3	5.1	6.0	6.1	6.3	5.6	2.5	2.6	2.5	2.9
29	4.8	3.7	5.2	5.1	---	6.1	5.9	5.7	2.7	2.7	2.6	2.9
30	4.8	3.7	5.1	5.3	---	6.1	5.7	6.5	3.0	2.9	2.6	2.9
31	4.5	---	5.2	5.3	---	6.1	---	6.6	---	3.2	2.6	---
TOTAL	128.3	133.9	139.4	162.8	154.3	186.7	182.0	184.2	147.4	69.3	283.3	76.7
MEAN	4.14	4.46	4.50	5.25	5.51	6.02	6.07	5.94	4.91	2.24	9.14	2.56
MAX	5.0	5.0	5.5	5.6	6.1	7.6	6.4	6.8	7.7	3.2	121	2.9
MIN	3.1	3.7	3.3	5.0	4.9	5.6	5.7	5.6	2.5	1.5	1.6	2.2
AC-FT	254	266	276	323	306	370	361	365	292	137	562	152

CAL YR 1989	TOTAL 1958.5	MEAN 5.37	MAX 160	MIN 1.2	AC-FT 3880
WTR YR 1990	TOTAL 1848.3	MEAN 5.06	MAX 121	MIN 1.5	AC-FT 3670

06841000 MEDICINE CREEK ABOVE HARRY STRUNK LAKE, NE

LOCATION.--Lat 40°30'10", long 100°19'20", in SW1/4 sec.7, T.6 N., R.26 W., Frontier County, Hydrologic Unit 10250008, on right bank 0.3 mi downstream from top of Harry Strunk Lake flood-control pool, 2.5 mi upstream from top of irrigation pool, 3.8 mi southeast of Stockville, and 13.5 mi upstream from Medicine Creek Dam.

DRAINAGE AREA.--770 mi², approximately, of which about 530 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--January 1950 to current year. Prior to October 1950, published as "above Medicine Creek Reservoir."

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Concrete control since November 1950. Datum of gage is 2,380.94 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 10, Jan. 21-23 and Feb. 16-18. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--40 years, 62.8 ft³/s, 45,500 acre-ft/yr; median of yearly mean discharges, 56 ft³/s, 40,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s June 21, 1967, gage height, 20.05 ft; minimum daily, 9.1 ft³/s Aug. 9, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 24.4 ft June 22, 1947, from floodmark (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 15	1300	*433	*8.04	No peaks greater than base discharge.			
Minimum daily discharge, 13 ft ³ /s July 5.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	42	47	60	48	51	52	40	60	20	24	15
2	33	42	45	60	51	52	51	43	64	17	21	15
3	34	43	45	58	49	52	51	47	78	17	17	15
4	35	44	45	56	55	52	50	50	72	15	16	16
5	36	45	45	56	51	52	51	50	61	13	16	16
6	36	45	46	54	48	58	52	48	54	15	17	16
7	37	44	49	54	49	65	53	48	49	16	17	16
8	37	44	50	52	50	76	52	48	49	15	21	16
9	37	44	49	50	51	72	52	50	46	14	20	15
10	38	45	49	50	51	68	50	54	44	15	19	15
11	38	44	48	50	52	65	48	56	42	15	156	14
12	37	44	45	52	55	67	48	59	40	14	40	21
13	37	45	45	52	56	72	48	54	38	15	76	22
14	37	45	48	49	55	64	50	53	37	20	63	21
15	38	44	48	48	50	60	51	55	37	22	264	20
16	37	44	43	48	45	57	51	58	39	20	118	20
17	37	45	45	48	45	55	50	57	37	18	65	19
18	37	44	45	47	70	53	50	54	39	16	52	22
19	37	45	42	48	51	52	49	54	39	14	43	23
20	38	46	48	48	48	52	49	53	38	21	34	25
21	39	46	43	45	48	52	49	54	85	27	31	25
22	40	46	41	45	49	51	49	56	45	26	30	24
23	41	45	41	70	50	51	49	52	36	24	28	24
24	41	45	48	48	51	51	49	50	34	22	28	24
25	41	44	54	51	53	50	47	49	33	21	23	24
26	41	44	58	50	52	51	48	49	30	20	23	24
27	41	45	64	49	52	52	50	49	28	21	21	24
28	42	45	66	50	51	51	49	49	27	22	21	24
29	43	46	64	53	---	51	43	48	23	23	19	24
30	43	47	56	52	---	51	39	52	23	23	16	26
31	43	---	58	50	---	52	---	58	---	25	16	---
TOTAL	1185	1337	1520	1603	1436	1758	1480	1597	1327	586	1355	605
MEAN	38.2	44.6	49.0	51.7	51.3	56.7	49.3	51.5	44.2	18.9	43.7	20.2
MAX	43	47	66	70	70	76	53	59	85	27	264	26
MIN	33	42	41	45	45	50	39	40	23	13	16	14
AC-FT	2350	2650	3010	3180	2850	3490	2940	3170	2630	1160	2690	1200

CAL YR 1989 TOTAL 16970 MEAN 46.5 MAX 485 MIN 17 AC-FT 33660
WTR YR 1990 TOTAL 15789 MEAN 43.3 MAX 264 MIN 13 AC-FT 31320

06842000 HARRY STRUNK LAKE NEAR CAMBRIDGE, NE

LOCATION.--Lat 40°22'40", long 100°13'00", in NE1/4 sec.25, T.5 N., R.26 W., Frontier County, Hydrologic Unit 10250008, near right bank in control house at outlet tube of Medicine Creek Dam on Medicine Creek, 7 mi northwest of Cambridge.

DRAINAGE AREA.--880 mi², approximately, of which about 640 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--August 1949 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 18, 1960, nonrecording gage at present datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began Aug. 8, 1949. Capacity, 31,540 acre-ft between elevation 2,335.0 ft, sill of outlet gates, and 2,366.1 ft, top of storage pool and crest of slot in spillway. Top of flood-control pool and crest of main spillway at elevation 2,386.2 ft, capacity, 88,420 acre-ft. Top of superstorage flood-control pool at elevation 2,400.0 ft, capacity, 146,300 acre-ft. Maximum water-surface elevation, 2,408.9 ft, 194,100 acre-ft. Dead storage, 4,160 acre-ft. Figures given herein represent total contents. Water used for irrigation in Frenchman-Cambridge irrigation project.

COOPERATION.--Capacity table furnished by Bureau of Reclamation (effective Oct. 1982).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 55,750 acre-ft Mar. 23, 1960, elevation, 2,374.10 ft; minimum since operation of reservoir began, 7,840 acre-ft Sept. 7, 1978, elevation, 2,340.39 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,700 acre-ft June 5-6, elevation, 2,367.16 ft; minimum, 13,240 acre-ft Aug. 31, elevation, 2,348.58 ft.

Capacity table (elevation, in feet, and
contents, in acre-feet)

2,350	14,500	2,365	33,730
2,355	19,630	2,370	43,470
2,360	25,910	2,375	55,110

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18050	20090	22380	24790	27800	30600	34070	35380	37600	32280	18410	13310
2	18030	20160	22440	24880	27870	30730	34180	35470	37570	31500	18170	13320
3	18040	20260	22520	24990	27950	30800	34340	35500	37580	30780	17950	13340
4	18170	20350	22640	25060	28040	30930	34390	35740	37640	30040	17750	13350
5	18240	20420	22770	25130	28170	31010	34450	35780	37680	29390	17540	13370
6	18310	20490	22780	25210	28260	31220	34530	35890	37660	28830	17260	13380
7	18360	20580	22860	25330	28450	31400	34640	36100	37660	28420	16910	13400
8	18460	20640	22970	25420	28540	31600	34710	36100	37680	27870	16650	13410
9	18530	20740	23070	25520	28660	31800	34790	36080	37600	27210	16280	13430
10	18600	20830	23130	25670	28780	31940	34710	36170	37580	26570	15920	13420
11	18700	20910	23160	25710	28900	32150	34700	36290	37640	25920	15800	13470
12	18760	20980	23230	25790	29010	32300	34710	36340	37600	25170	15770	13490
13	18850	21030	23310	25870	29060	32350	34770	36530	37490	24610	15780	13560
14	18910	21120	23420	26010	29170	32420	34840	36620	37390	24100	16020	13510
15	18970	21190	23430	26090	29230	32530	34870	36890	37490	23610	16370	13540
16	18920	21260	23470	26210	29260	32610	34860	36850	37510	23050	16640	13520
17	18970	21320	23560	26290	29390	32700	34800	36940	37450	22430	16740	13520
18	19030	21410	23660	26390	29480	32770	34840	37150	37450	21880	16810	13600
19	19090	21500	23750	26590	29610	32850	34930	37130	37320	21350	16850	13610
20	19200	21580	23810	26690	29710	33040	35040	37050	37280	20950	16820	13690
21	19280	21670	23870	26730	29820	33180	35090	37240	36980	20700	16800	13730
22	19370	21720	23940	26840	29920	33180	35160	37390	36770	20490	16770	13740
23	19460	21810	24040	26950	30060	33110	35160	37430	36590	20240	16600	13770
24	19540	21850	24100	27080	30100	33230	35090	37370	36470	20090	16360	13830
25	19620	21930	24170	27150	30180	33390	35180	37430	36100	19560	16120	13910
26	19730	22020	24250	27280	30320	33470	35250	37510	35500	19340	15750	13940
27	19780	22080	24340	27350	30370	33560	35180	37390	34870	19270	15090	13960
28	19900	22130	24420	27450	30480	33660	35360	37390	34250	19220	14470	14000
29	19920	22210	24490	27510	---	33750	35270	37330	33560	19180	13860	14000
30	19970	22290	24610	27620	---	33850	35340	37350	32900	18910	13340	14050
31	20080	---	24710	27740	---	33960	---	37450	---	18640	13290	---
MEAN	18990	21220	23530	26240	29160	32450	34840	36690	36830	23920	16290	13610
MAX	20080	22290	24710	27740	30480	33960	35360	37510	37680	32280	18410	14050
MIN	18030	20090	22380	24790	27800	30600	34070	35380	32900	18640	13290	13310
(†)	2355.39	2357.23	2359.11	2361.28	2363.07	2365.13	2365.90	2367.03	2364.52	2354.12	2348.64	2349.50
(‡)	+2070	+2210	+2420	+3030	+2740	+3480	+1380	+2110	-4550	-14260	-5350	+760
CAL YR 1989 MEAN	28170		MAX	37820	MIN	16290	(‡)	-3610				
WTR YR 1990 MEAN	26120		MAX	37680	MIN	13290	(‡)	-3960				

(†) Elevation in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

213

06842500 MEDICINE CREEK BELOW HARRY STRUNK LAKE, NE

LOCATION.--Lat 40°22'20", long 100°13'20", at center of sec.25, T.5 N., R.26 W., Frontier County, Hydrologic Unit 10250008, on right bank 0.5 mi downstream from Medicine Creek Dam and 6.5 mi northwest of Cambridge.

DRAINAGE AREA.--880 mi², approximately, of which about 640 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1950, published as "below Medicine Creek Dam." Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Concrete control since August 1950. Datum of gage is 2,295.26 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Apr. 24, 1950, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good except those below 1.0 ft³/s, which are poor. Flow regulated by Harry Strunk Lake (station 06842000).

AVERAGE DISCHARGE.--41 years, 58.9 ft³/s, 42,670 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft³/s Mar. 23, 1960, gage height, 5.97 ft; no flow Sept. 11-13, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 355 ft³/s Aug. 27, gage height, 2.91 ft; maximum gage height, 2.93 ft June 28; no flow Sept. 11-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.34	.43	.35	.40	.51	1.1	.64	33	303	142	.28
2	.36	.34	.42	.35	.40	.51	1.2	.65	38	315	164	.25
3	.44	.34	.43	.39	.41	.51	1.2	.73	38	327	136	.22
4	.43	.34	.47	.38	.42	.53	1.2	.65	42	318	112	.25
5	.28	.34	.47	.39	.44	.56	1.8	.66	46	309	116	.19
6	.30	.34	.47	.40	.44	.78	4.4	.64	46	273	167	.16
7	.35	.35	.46	.42	.44	.69	17	.65	47	245	179	.13
8	.32	.38	.47	.44	.44	.63	17	1.2	47	242	171	.10
9	.33	.38	.47	.44	.45	.55	26	3.8	46	310	207	.05
10	.34	.38	.49	.44	.48	.57	31	3.1	44	318	222	.02
11	.34	.38	.50	.43	.53	.64	32	4.6	43	325	163	.00
12	.34	.38	.51	.46	.50	.62	32	8.2	43	333	97	.00
13	.34	.38	.47	.31	.42	.67	32	9.0	41	300	41	.00
14	.34	.38	.51	.32	.39	.67	34	11	38	277	21	5.6
15	.34	.38	.49	.34	.40	.72	34	15	37	278	21	11
16	.37	.40	.47	.34	.44	.66	34	18	42	309	21	.19
17	.39	.41	.44	.34	.45	.70	34	18	40	315	21	3.4
18	.34	.42	.46	.34	.44	.74	34	21	51	294	21	1.9
19	.34	.42	.47	.35	.38	.73	34	23	94	256	26	2.0
20	.34	.39	.45	.35	.40	.75	34	24	124	191	47	1.9
21	.34	.38	.42	.35	.39	.78	35	25	171	148	47	.15
22	.34	.39	.42	.35	.44	.78	34	26	159	135	51	.08
23	.34	.42	.42	.35	.44	.83	34	27	125	159	94	.06
24	.34	.42	.41	.35	.43	.76	34	29	131	189	150	.10
25	.34	.42	.38	.35	.40	.76	13	29	191	198	160	.12
26	.34	.42	.38	.36	.42	.81	.66	29	281	153	192	2.0
27	.34	.43	.40	.36	.47	.85	.65	29	286	79	351	.12
28	.34	.45	.38	.37	.48	.96	.64	29	301	39	339	1.9
29	.34	.47	.36	.39	---	1.0	.63	29	324	41	334	.13
30	.34	.47	.37	.39	---	1.0	.63	32	307	159	298	.13
31	.34	---	.37	.40	---	1.0	---	33	---	180	53	---
TOTAL	10.73	11.74	13.66	11.60	12.14	22.27	589.11	481.52	3256	7318	4164	32.43
MEAN	.35	.39	.44	.37	.43	.72	19.6	15.5	109	236	134	1.08
MAX	.44	.47	.51	.46	.53	1.0	.35	.33	324	333	351	11
MIN	.28	.34	.36	.31	.38	.51	.63	.64	33	39	21	.00
AC-FT	21	23	27	23	24	44	1170	955	6460	14520	8260	64

CAL YR 1989 TOTAL 16349.72 MEAN 44.8 MAX 340 MIN .22 AC-FT 32430
WTR YR 1990 TOTAL 15923.20 MEAN 43.6 MAX 351 MIN .00 AC-FT 31580

KANSAS RIVER BASIN

06843500 REPUBLICAN RIVER AT CAMBRIDGE, NE

LOCATION.--Lat 40°17'05", long 100°08'35", in NW1/4SE1/4 sec.28, T.4 N., R.25 W., Furnas County, Hydrologic Unit 10250004, on left bank 400 ft south of U.S. Highways 6 and 34, 0.5 mi downstream from Medicine Creek, 1 mi east of Cambridge, and 1.3 mi upstream from Cambridge diversion dam.

DRAINAGE AREA.--14,520 mi², approximately, of which about 7,810 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--September 1945 to current year.

REVISED RECORDS.--WSP 2119: Drainage area. WDR NE-84: 1983(M).

GAGE.--Water-stage recorder. Datum of gage is 2,239.07 ft above National Geodetic Vertical Datum of 1929. Prior to July 13, 1948, nonrecording gage at site 150 ft upstream at same datum and July 13, 1948, to Sept. 25, 1950, at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 5, Dec. 11 to Feb. 9, Feb. 15-20, and Sept. 5-11. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station and since 1949 by regulation from upstream reservoirs.

AVERAGE DISCHARGE.--41 years (water years 1950-90, since storage in Harry Strunk Lake), 258 ft³/s, 186,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s June 22, 1947, gage height, 16.7 ft, from floodmarks, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.07 ft³/s Sept. 27, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1826, 17.6 ft May 31 to June 1, 1935, from information by local resident, discharge, about 280,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 930 ft³/s May 19, gage height, 5.83 ft; minimum daily, 0.14 ft³/s Sept. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	86	86	116	130	126	143	82	210	325	246	89
2	60	85	90	116	120	125	137	83	190	330	231	35
3	60	90	90	120	118	124	129	88	166	346	223	13
4	63	93	92	120	120	124	128	98	154	355	208	6.9
5	67	91	94	116	130	122	133	97	144	345	175	3.0
6	67	89	97	116	140	143	136	91	140	345	207	1.5
7	76	88	86	116	135	187	140	91	137	315	231	.80
8	76	90	85	120	135	189	147	89	136	281	213	.40
9	74	91	83	125	140	174	146	101	129	316	212	.30
10	73	91	80	135	183	165	155	106	121	345	259	.30
11	72	91	78	135	149	166	147	98	108	338	263	.30
12	71	91	74	125	141	180	139	102	99	363	228	.30
13	72	94	66	120	136	168	139	103	91	331	170	.30
14	73	95	60	125	128	160	138	99	86	313	135	.28
15	73	95	54	130	120	156	137	119	89	309	117	2.9
16	71	99	44	140	110	152	133	158	86	328	102	4.3
17	76	95	54	120	120	145	130	140	85	338	88	.84
18	80	94	70	106	130	139	124	153	80	331	86	1.7
19	85	92	82	90	130	134	126	662	97	336	105	1.6
20	90	88	94	58	140	132	126	273	137	284	144	1.7
21	92	85	100	90	144	130	124	186	183	245	140	1.3
22	91	84	104	110	135	130	122	157	246	235	135	.50
23	90	87	104	120	134	128	119	136	180	242	147	.20
24	86	89	90	140	133	132	115	135	163	287	197	.18
25	83	90	82	130	131	136	112	138	201	293	201	.17
26	82	90	90	120	128	135	93	131	311	281	206	.16
27	82	90	104	125	128	133	93	123	341	232	338	.14
28	86	91	120	124	127	132	93	126	345	200	354	.14
29	86	97	125	124	---	147	86	169	384	183	334	.18
30	87	88	125	125	---	147	82	229	370	232	314	.17
31	87	---	120	124	---	146	---	239	---	298	163	---
TOTAL	2396	2719	2723	3681	3715	4507	3772	4602	5209	9297	6172	167.56
MEAN	77.3	90.6	87.8	119	133	145	126	148	174	300	199	5.59
MAX	92	99	125	140	183	189	155	662	384	363	354	.89
MIN	60	84	44	58	110	122	82	82	80	183	86	.14
AC-FT	4750	5390	5400	7300	7370	8940	7480	9130	10330	18440	12240	332

CAL YR 1989 TOTAL 53266 MEAN 146 MAX 741 MIN 44 AC-FT 105700
WTR YR 1990 TOTAL 48960.56 MEAN 134 MAX 662 MIN .14 AC-FT 97110

KANSAS RIVER BASIN

215

06844000 MUDDY CREEK AT ARAPAHOE, NE

LOCATION.--Lat 40°18'20", long 99°54'40", in NW1/4NW1/4 sec.22, T.4 N., R.23 W., Furnas County, Hydrologic Unit 10250009, on left bank 10 ft upstream from bridge on U.S. Highways 6 and 34, 0.2 mi west of Arapahoe, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--246 mi².

PERIOD OF RECORD.--December 1950 to September 1972, and October 1977 to current year.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,143.92 ft, above National Geodetic Vertical Datum of 1929. December 1950 to Jan. 11, 1951, nonrecording gage, and Jan. 12, 1951, to Sept. 30, 1972, recording gage at site on left bank 20 ft downstream from bridge at present datum.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 3, Dec. 15-25, Jan. 1, 5-7, 12-13, 19-21, 25-26, 28-30, and Feb. 1-2, 4, 14-19. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station and return flow from irrigated areas.

AVERAGE DISCHARGE.--34 years (1951-72, 1978-90), 14.4 ft³/s, 10,430 acre-ft/yr; median of yearly mean discharges, 11 ft³/s, 8,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s May 8, 1986, gage height, 28.90 ft, observed; no flow Aug. 26 to Sept. 2, 1953, July 23, 29, Aug. 4, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 31 ft occurred June 22, 1947, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 19	1330	*928	14.53	No other peak above base discharge.			
Minimum daily discharge, 3.4 ft ³ /s July 19.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	5.9	5.6	7.8	7.2	7.5	7.1	5.2	8.5	4.3	5.2	4.2
2	5.5	5.8	5.8	7.8	7.2	7.6	6.9	5.7	8.2	4.3	5.3	4.2
3	5.7	5.7	6.4	7.6	7.4	7.8	6.8	5.8	8.3	4.9	4.8	4.2
4	5.8	5.8	6.2	8.3	7.2	7.8	6.8	6.0	7.8	4.4	4.4	4.1
5	6.2	5.7	6.2	8.0	6.9	7.9	6.8	6.1	7.3	4.2	4.3	4.0
6	6.2	5.6	6.3	7.8	7.0	8.0	6.9	6.0	7.2	4.4	4.3	3.9
7	6.1	5.6	6.4	8.0	7.6	9.1	7.0	5.8	7.0	4.9	4.4	4.1
8	6.1	5.6	6.5	7.3	7.2	9.5	7.0	5.7	7.0	4.5	4.9	4.2
9	6.0	5.6	6.5	7.4	7.5	9.1	6.9	6.1	7.0	4.6	4.3	4.1
10	5.9	5.6	6.5	7.5	7.3	8.4	6.8	6.3	7.0	5.2	4.0	4.1
11	5.9	5.7	6.5	7.5	7.6	8.0	6.8	6.1	7.2	5.6	4.6	4.0
12	5.9	5.8	5.9	8.1	8.0	7.9	6.8	6.4	7.0	5.1	8.8	3.9
13	5.9	5.8	6.2	8.0	7.9	7.9	6.8	7.0	6.1	4.9	7.2	3.8
14	5.8	5.8	6.5	7.4	7.4	7.7	6.8	6.7	5.8	4.7	6.3	3.6
15	5.9	5.8	6.2	7.1	7.2	7.3	6.8	6.7	5.8	4.6	6.5	3.8
16	5.8	5.7	6.0	7.2	7.2	7.0	6.7	6.3	5.7	4.3	11	3.9
17	6.0	5.7	6.2	7.2	7.2	6.9	6.5	9.3	8.2	3.9	16	4.0
18	6.2	5.8	6.4	7.6	7.4	6.8	6.6	7.9	11	4.9	8.9	4.4
19	6.1	5.9	6.2	8.0	7.4	6.8	6.5	367	7.2	3.4	10	4.8
20	6.3	6.0	6.2	9.0	7.7	6.8	6.4	52	6.6	4.1	14	4.9
21	6.4	6.1	6.6	8.0	7.6	6.8	6.4	15	6.2	4.2	6.7	4.8
22	6.5	6.0	6.2	7.4	7.6	6.9	6.4	10	5.8	4.2	5.8	4.8
23	6.4	6.0	6.2	7.3	7.9	7.0	6.4	9.1	5.8	4.1	5.1	4.7
24	6.3	6.0	6.8	7.1	8.0	7.0	6.3	8.6	5.7	4.0	5.2	4.6
25	6.2	6.1	7.2	7.2	7.7	7.0	6.2	8.5	5.5	4.6	4.8	4.6
26	6.3	6.2	7.5	7.2	7.5	7.0	6.3	8.2	5.3	5.8	4.6	4.6
27	6.5	6.0	7.9	6.8	7.5	6.8	6.2	7.9	5.4	5.0	4.7	4.6
28	6.4	5.6	7.8	7.2	7.6	6.9	6.0	7.7	5.1	5.6	5.5	4.6
29	6.4	5.4	7.7	7.2	---	7.1	5.7	7.5	5.1	5.7	5.9	4.7
30	6.0	5.6	7.6	7.0	---	7.3	5.6	8.2	4.8	5.0	5.4	4.6
31	6.0	---	7.7	6.7	---	7.4	---	8.5	---	4.6	4.7	---
TOTAL	188.5	173.9	203.9	233.7	208.9	233.0	197.2	633.3	200.6	144.0	197.6	128.8
MEAN	6.08	5.80	6.58	7.54	7.46	7.52	6.57	20.4	6.69	4.65	6.37	4.29
MAX	6.5	6.2	7.9	9.0	8.0	9.5	7.1	367	11	5.8	16	4.9
MIN	5.5	5.4	5.6	6.7	6.9	6.8	5.6	5.2	4.8	3.4	4.0	3.6
AC-FT	374	345	404	464	414	462	391	1260	398	286	392	255

CAL YR 1989 TOTAL 5796.0 MEAN 15.9 MAX 2150 MIN 3.8 AC-FT 11500
WTR YR 1990 TOTAL 2743.4 MEAN 7.52 MAX 367 MIN 3.4 AC-FT 5440

06844210 TURKEY CREEK AT EDISON, NE

DRAINAGE AREA.--74.9 mi².

PERIOD OF RECORD.--October 1977 to current year.

REVISED RECORDS.--WDR NE-81-1: 1978-80(M). WDR NE-89-1: 1981(M).

GAGE.--Water-stage recorder. Elevation of gage is 2,090 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 25-26, Dec. 1, 3-11, Dec. 21 to Jan. 1, and Aug. 13-17. Records good except for periods of estimated record, which are poor. Natural flow affected by pump irrigation development above station and by return flow from irrigated areas.

AVERAGE DISCHARGE.--13 years, 7.37 ft³/s, 5,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 795 ft³/s June 25, 1989, gage height, 12.91 ft, from floodmark; minimum daily, 0.74 ft³/s Sept. 9, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 610 ft³/s May 19, gage height, 11.20 ft; minimum daily, 2.5 ft³/s Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	5.8	6.8	10	9.1	12	10	9.9	11	7.4	3.4	5.8
2	4.1	5.7	6.9	6.3	6.9	11	9.8	9.6	10	7.1	3.2	6.1
3	4.4	5.7	6.4	5.7	4.0	9.4	9.6	9.7	11	7.1	3.6	5.7
4	4.5	5.8	6.4	10	9.5	9.6	9.6	10	10	7.9	8.3	5.1
5	4.7	6.2	6.8	10	7.6	9.9	9.7	10	9.6	8.9	3.3	4.7
6	5.1	6.4	6.8	9.3	9.2	11	10	10	9.6	9.3	3.2	4.5
7	5.1	6.2	6.8	6.7	10	13	9.8	9.8	9.6	11	5.1	4.3
8	4.9	6.1	7.2	10	8.8	14	9.6	9.8	9.8	7.2	4.7	3.2
9	5.0	6.1	7.4	11	8.7	14	9.6	11	9.8	5.5	5.9	3.0
10	4.8	6.2	7.4	10	8.8	11	9.3	11	9.8	5.7	5.4	3.0
11	4.8	6.3	7.2	9.6	8.9	11	9.3	10	9.5	6.6	81	2.5
12	4.9	6.2	7.6	9.1	9.8	11	9.3	11	9.3	7.1	219	3.3
13	5.0	6.2	7.3	7.4	11	11	9.3	12	9.1	5.9	115	3.2
14	5.1	6.2	8.1	6.4	11	10	9.5	10	8.9	5.4	19	3.0
15	4.9	6.3	8.1	9.9	5.1	10	9.6	10	8.7	6.8	9.8	3.0
16	4.4	5.7	4.3	9.8	9.6	10	9.6	11	9.0	6.0	7.4	4.0
17	4.5	7.0	4.2	9.1	9.1	10	9.3	10	8.9	8.0	6.4	4.1
18	5.2	6.6	4.6	8.6	9.7	9.8	9.3	9.8	8.8	6.8	5.5	3.8
19	5.4	6.6	5.4	10	11	9.5	9.5	221	8.7	4.7	9.8	3.8
20	5.4	6.6	6.9	5.7	11	9.6	9.7	116	8.9	4.3	44	4.3
21	5.4	6.6	8.0	3.3	10	9.5	10	26	9.3	3.7	8.1	4.2
22	5.9	6.5	9.8	9.9	11	9.6	9.9	16	12	3.7	6.1	4.0
23	6.0	5.3	9.0	9.2	11	9.6	9.9	13	9.6	3.9	5.7	3.8
24	5.9	6.4	9.0	10	11	9.6	10	12	8.6	3.2	5.5	3.8
25	5.9	7.0	10	9.7	12	9.4	10	11	8.6	3.8	4.7	4.0
26	5.7	6.8	10	5.1	13	9.4	10	11	8.6	4.0	5.6	4.1
27	5.7	6.5	8.0	6.3	11	9.6	10	10	9.4	3.4	6.1	4.2
28	6.4	5.1	7.8	10	9.8	9.7	10	10	9.2	3.9	6.9	4.1
29	6.4	6.0	7.8	3.4	---	10	10	10	8.9	4.3	5.7	4.2
30	6.2	6.3	8.0	9.1	---	10	9.9	11	8.3	4.2	4.6	4.5
31	6.0	---	8.0	8.3	---	10	---	11	---	4.2	5.2	---
TOTAL	161.9	186.4	228.0	258.9	267.6	323.2	291.1	662.6	282.5	181.0	627.2	121.3
MEAN	5.22	6.21	7.35	8.35	9.56	10.4	9.70	21.4	9.42	5.84	20.2	4.04
MAX	6.4	7.0	10	11	13	14	10	221	12	11	219	6.1
MIN	4.1	5.1	4.2	3.3	4.0	9.4	9.3	9.6	8.3	3.2	3.2	2.5
AC-FT	321	370	452	514	531	641	577	1310	560	359	1240	241

CAL YR 1989	TOTAL	3557.7	MEAN	9.75	MAX	300	MIN	2.2	AC-FT	7060
WTR YR 1990	TOTAL	3591.7	MEAN	9.84	MAX	221	MIN	2.5	AC-FT	7120

KANSAS RIVER BASIN

217

06844500 REPUBLICAN RIVER NEAR ORLEANS, NE

LOCATION.--Lat 40°07'53", long 99°30'08", in NE1/4NE1/4 sec.19, T.2 N., R.19 W., Harlan County, Hydrologic Unit 10250009, on right bank 18 ft downstream from bridge on State Highway 89, 200 ft downstream from Burlington Northern Inc. bridge, 2 mi west of Orleans, 2.8 mi upstream from Sappa Creek, and 23 mi upstream from Harlan County Dam.

DRAINAGE AREA.--15,640 mi², approximately, of which about 8,910 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,972.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 2, 1948, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 17 to Feb. 23. Records good except for period of estimated discharge, which is poor. Natural flow affected by irrigation development above station and regulation by upstream reservoirs.

AVERAGE DISCHARGE.--43 years, 277 ft³/s, 200,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,600 ft³/s June 22, 1948, gage height, 11.25 ft, from rating curve extended above 29,000 ft³/s; maximum gage height, 12.60 ft Mar. 22, 1960, backwater from ice; no flow at times in 1952-57, 1963, 1978-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1826 occurred June 1, 1935. Flood of June 23, 1947, reached a stage of 14.00 ft, from floodmark (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,940 ft³/s May 20, gage height, 6.80 ft; minimum daily, 1.2 ft³/s Sept. 28-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	94	110	135	150	175	197	124	282	37	18	22
2	61	95	110	130	145	179	188	120	284	35	55	33
3	60	99	112	130	140	181	183	120	263	22	53	28
4	62	99	110	130	145	182	180	130	246	17	27	17
5	66	99	118	125	155	181	180	129	227	18	26	10
6	71	99	125	125	165	186	178	133	216	25	22	5.5
7	75	101	120	130	160	207	181	133	202	24	20	4.0
8	81	104	116	135	155	242	178	125	190	23	17	3.1
9	82	104	110	135	150	255	179	142	176	20	19	2.7
10	84	104	104	140	160	248	180	140	169	14	17	2.1
11	83	104	100	135	170	235	183	136	159	11	28	1.4
12	78	103	98	135	170	234	190	153	145	19	127	1.6
13	80	105	96	140	160	233	186	147	129	17	274	2.2
14	81	106	94	135	150	229	177	142	115	15	183	2.4
15	82	106	100	135	145	219	181	140	112	15	119	2.4
16	81	107	98	140	135	210	181	147	103	17	78	2.2
17	81	106	100	140	135	203	178	161	96	21	53	2.1
18	82	108	108	135	145	198	176	183	90	18	65	2.6
19	84	108	116	130	155	191	173	188	98	21	47	2.4
20	86	106	125	84	155	187	171	1290	79	21	54	2.6
21	90	104	135	78	160	181	167	572	74	23	126	2.0
22	93	102	140	110	170	181	168	388	77	26	69	1.7
23	98	100	130	145	195	181	166	321	83	24	43	1.5
24	98	104	120	150	198	185	163	283	94	17	31	1.6
25	100	106	106	150	192	186	163	258	62	14	21	1.7
26	99	108	110	150	186	185	158	237	55	23	21	1.6
27	100	110	116	145	180	184	152	220	47	21	24	1.5
28	100	110	125	145	176	186	140	209	51	20	22	1.2
29	98	108	135	145	---	193	135	195	50	27	24	1.2
30	96	108	145	145	---	199	132	210	43	22	25	1.2
31	95	---	150	150	---	203	---	261	---	18	19	---
TOTAL	2592	3117	3582	4137	4502	6239	5164	7137	4017	645	1727	164.5
MEAN	83.6	104	116	133	161	201	172	230	134	20.8	55.7	5.48
MAX	100	110	150	150	198	255	197	1290	284	37	274	33
MIN	60	94	94	78	135	175	132	120	43	11	17	1.2
AC-FT	5140	6180	7100	8210	8930	12380	10240	14160	7970	1280	3430	326

CAL YR 1989 TOTAL 50856 MEAN 139 MAX 1970 MIN 37 AC-FT 100900
WTR YR 1990 TOTAL 43023.5 MEAN 118 MAX 1290 MIN 1.2 AC-FT 85340

KANSAS RIVER BASIN

06844500 REPUBLICAN RIVER NEAR ORLEANS, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT 12...	1700	81	619	8.6	19.0	711	9.1
DEC 01...	1600	109	758	8.1	1.5	--	13.0
JAN 12...	1230	133	593	8.2	1.0	718	12.8
MAR 12...	1200	234	654	8.4	12.0	--	9.2
APR 16...	1500	183	714	8.5	14.5	708	10.0
JUN 13...	1300	129	623	8.4	27.0	626	10.3
JUL 12...	1130	23	627	7.7	20.0	717	9.2
SEP 10...	1330	2.3	754	8.3	28.0	702	7.4

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT 12...	49	19	0.80	38	1.40	0.130
DEC 01...	44	15	0.80	40	2.30	0.130
JAN 12...	42	16	0.70	42	2.80	0.150
MAR 12...	45	14	0.80	39	2.20	0.140
APR 16...	45	17	0.60	42	2.00	0.080
JUN 13...	49	18	0.30	38	<0.100	0.010
JUL 12...	41	18	0.60	32	<0.100	0.040
SEP 10...	56	21	0.90	35	<0.100	0.090

DATE	TIME	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 12...	1700	150	<3	8
DEC 01...	1600	380	7	6
JAN 12...	1230	120	17	5
MAR 12...	1200	130	7	7
APR 16...	1500	140	19	8
JUN 13...	1300	160	25	4
JUL 12...	1130	150	38	64
SEP 10...	1330	170	19	170

KANSAS RIVER BASIN

219

06846500 BEAVER CREEK AT CEDAR BLUFFS, KS

LOCATION.--Lat 39°59'06", long 100°33'35", in NW1/4NE1/4 sec.10, T.1 S., R.29 W., Decatur County, Hydrologic Unit 10250014, on right bank at downstream side of bridge on U.S. Highway 83, 0.2 mi north of Cedar Bluffs, 1.0 mi south of Kansas-Nebraska State line, and at mile 107.4.

DRAINAGE AREA.--1,618 mi², of which 294 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1510: 1947, 1950-51.

GAGE.--Water-stage recorder. Datum of gage is 2,520.33 ft above sea level. Prior to Aug. 19, 1971, at site 0.1 mi upstream at same datum. Aug. 19, 1971, to July 12, 1972, at site 0.8 mi downstream at datum 5.00 ft lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--45 years, 15.3 ft³/s, 11,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,940 ft³/s June 11, 1960, gage height, 18.71 ft at site 0.1 mi upstream at same datum; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1944 reached a stage of 18.16 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 27	0100	*262	*7.56	No peak greater than base discharge.			

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	2.4	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	4.1	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	3.5	.00	.14	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00	1.4	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.61	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.21	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	3.3	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	7.7	.00	25	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	7.5	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	1.0	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	5.7	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	5.6	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.14	12.61	25.19	1.54	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	1.00	.42	.81	.050	.000
MAX	.00	.00	.00	.00	.00	.00	.00	7.7	4.1	25	1.4	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	62	25	50	3.1	.00

CAL YR 1989 TOTAL 2744.66 MEAN 7.52 MAX 817 MIN .00 AC-FT 5440
WTR YR 1990 TOTAL 70.48 MEAN .19 MAX 25 MIN .00 AC-FT 140

KANSAS RIVER BASIN

06847000 BEAVER CREEK NEAR BEAVER CITY, NE

LOCATION.--Lat 40°07'12", Long 99°53'35", in SW1/4SW1/4 sec.23, T.2 N., R.23 W., Furnas County, Hydrologic Unit 10250014, on left bank 400 ft downstream from bridge on U.S. Highway 283, 3.5 mi west of Beaver City, and at mile 24.7.

DRAINAGE AREA.--1,950 mi², approximately, of which about 1,650 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1340: 1937-38(M), 1939, 1940-41(M), 1943(M). WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,162.96 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 13, 1947, nonrecording gages and Aug. 13, 1947, to Nov. 14, 1957, water-stage recorder, at site 400 ft upstream at datum 2.0 ft higher. Nov. 15, 1957, to Sept. 22, 1958, at site 3.6 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 18-23 and June 3 to Aug. 2. Records fair except for periods of estimated record which are poor.

AVERAGE DISCHARGE.--54 years, 21.0 ft³/s, 15,210 acre-ft/yr; median of yearly mean discharges, 11 ft³/s, 7,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,510 ft³/s June 14, 1983, gage height, 15.68 ft; no flow at times in 1937-40, 1946, 1953-57, 1959, 1969-74, 1976, 1978-81, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug 19	0230	*18	*3.58	No peaks greater than base discharge.			

Minimum daily discharge, no flow Sept. 11-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.09	.24	.22	.25	.30	.40	.30	.33	.07	.03	.09
2	.11	.09	.28	.23	.23	.29	.38	.64	1.6	.07	.03	.09
3	.12	.08	.29	.21	.25	.30	.38	.38	.90	.07	.07	.08
4	.14	.08	.32	.21	.25	.31	.40	.32	.70	.07	.16	.05
5	.15	.09	.32	.20	.25	.31	.43	.30	.50	.08	.08	.04
6	.16	.10	.35	.21	.25	.49	.40	.29	.30	.08	.12	.03
7	.17	.10	.32	.21	.25	.85	.46	.30	.30	.07	.11	.03
8	.17	.11	.28	.23	.25	.78	.50	.30	.30	.07	.04	.03
9	.17	.11	.33	.21	.25	.45	.46	.41	.25	.08	.02	.04
10	.17	.13	.34	.22	.26	.31	.44	.33	.25	.07	.02	.02
11	.17	.14	.32	.21	.27	.31	.44	.33	.25	.08	.05	.00
12	.16	.12	.30	.22	.26	.30	.43	.44	.25	.09	.62	.00
13	.14	.16	.32	.24	.25	.30	.42	.66	.20	.09	.21	.00
14	.14	.14	.32	.25	.23	.28	.44	.49	.20	.07	.56	.00
15	.14	.17	.31	.25	.24	.28	.41	.49	.20	.07	.39	.00
16	.13	.15	.30	.25	.24	.27	.41	.44	.20	.07	.25	.00
17	.12	.21	.28	.23	.27	.28	.38	.38	.20	.06	.22	.00
18	.12	.21	.25	.23	.27	.27	.38	.35	.20	.06	.47	.00
19	.11	.23	.25	.23	.25	.28	.39	.40	.20	.06	6.1	.00
20	.11	.23	.25	.29	.26	.31	.39	.36	.20	.06	.60	.00
21	.10	.23	.25	.26	.26	.35	.39	.34	.20	.06	.29	.00
22	.10	.23	.25	.25	.27	.35	.36	.31	.15	.06	.20	.00
23	.10	.23	.25	.25	.28	.36	.34	.29	.15	.07	.15	.00
24	.10	.29	.30	.24	.29	.35	.35	.23	.15	.07	.14	.00
25	.10	.23	.30	.23	.29	.38	.32	.30	.10	.06	.16	.00
26	.09	.21	.30	.24	.29	.38	.31	.28	.10	.05	.13	.00
27	.09	.22	.30	.23	.29	.39	.31	.29	.10	.04	.11	.00
28	.10	.21	.28	.24	.29	.43	.31	.28	.09	.04	.09	.00
29	.09	.26	.24	.24	---	.45	.27	.29	.09	.04	.09	.00
30	.10	.26	.26	.25	---	.39	.28	.31	.08	.04	.08	.00
31	.09	---	.24	.25	---	.37	---	.29	---	.04	.09	---
TOTAL	3.86	5.11	8.94	7.23	7.29	11.47	11.58	11.12	8.74	2.01	11.68	0.50
MEAN	.12	.17	.29	.23	.26	.37	.39	.36	.29	.065	.38	.017
MAX	.17	.29	.35	.29	.29	.85	.50	.66	1.6	.09	6.1	.09
MIN	.09	.08	.24	.20	.23	.27	.27	.23	.08	.04	.02	.00
AC-FT	7.7	10	18	14	14	23	23	22	17	4.0	23	1.0

CAL YR 1989 TOTAL 250.74 MEAN .69 MAX 31 MIN .07 AC-FT 497
WTR YR 1990 TOTAL 89.53 MEAN .25 MAX 6.1 MIN .00 AC-FT 178

KANSAS RIVER BASIN

221

06847500 SAPPA CREEK NEAR STAMFORD, NE

LOCATION.--Lat 40°07'53", long 99°33'15", in NW1/4NW1/4 sec.23, T.2 N., R.20 W., Harlan County, Hydrologic Unit 10250011, on left bank 40 ft south of Burlington Northern Inc. track, 500 ft downstream from bridge on county highway, 2 mi east of Stamford, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--3,740 mi², approximately, of which about 3,280 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1919: 1960. WSP 2119: Drainage area. WDR NE-71-1: Calendar year totals. WRD NE-82-1: 1979(M).

GAGE.--Water-stage recorder. Datum of gage is 1,981.31 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--45 years, 49.6 ft³/s, 35,940 acre-ft/yr; median of yearly mean discharges, 20 ft³/s, 14,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,400 ft³/s June 24, 1966, gage height, 22.13 ft, from floodmark, from contracted opening and flow-over-road measurement of peak flow; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 3	0100	*356	*8.44	No peaks greater than base discharge.			
No flow for many days.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.45	.00	60	.01
2	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	44	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	129	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.7	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.4	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00
8	.00	.00	.00	.00	.00	.58	.00	.00	.00	.00	.31	.00
9	.00	.00	.00	.00	.00	.50	.00	.00	.00	.00	.06	.00
10	.00	.00	.00	.00	.00	.84	.00	.71	.74	.00	.00	.00
11	.00	.00	.00	.00	.00	1.3	.00	1.5	6.4	.00	39	.00
12	.00	.00	.00	.00	.00	2.1	.00	1.9	2.4	.00	11	.00
13	.00	.00	.00	.00	.00	1.5	.00	.89	.60	.00	2.5	.00
14	.00	.00	.00	.00	.00	1.8	.00	.95	.00	.00	50	.00
15	.00	.00	.00	.00	.00	1.8	.00	1.7	.00	.00	54	.00
16	.00	.00	.00	.00	.00	1.4	.36	1.9	.00	.00	15	.00
17	.00	.00	.00	.00	.00	.91	.06	1.1	.00	.00	7.6	.00
18	.00	.00	.00	.00	.00	.48	.00	.43	.00	.00	8.3	.00
19	.00	.00	.00	.00	.00	.06	.00	.02	.00	.00	4.1	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	48	.00
21	.00	.00	.00	.00	.00	.00	.00	.14	2.6	.00	21	.00
22	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	9.5	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.5	.00
24	.00	.00	.00	.00	.00	.00	.00	.48	.00	.00	3.4	.00
25	.00	.00	.00	.00	.00	.00	.00	.63	.00	.00	1.4	.00
26	.00	.00	.00	.00	.00	.00	.00	.58	.00	.00	3.5	.00
27	.00	.00	.00	.00	.00	.00	.00	.42	.00	.00	7.6	.00
28	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	4.1	.00
29	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	1.1	.00
30	.00	.00	.00	.00	.00	.00	.00	.45	.00	.00	.30	.00
31	.00	.00	.00	.00	.00	.00	.00	.39	.00	180	.08	.00
TOTAL	0.00	0.00	0.00	0.00	0.00	13.27	0.42	14.75	13.27	180.00	564.45	0.01
MEAN	.000	.000	.000	.000	.000	.43	.014	.48	.44	5.81	18.2	.000
MAX	.00	.00	.00	.00	.00	2.1	.36	1.9	6.4	180	129	.01
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	26	.8	29	26	357	1120	.02
CAL YR 1989	TOTAL 891.42	MEAN 2.44	MAX 91	MIN .00	AC-FT 1770							
WTR YR 1990	TOTAL 786.17	MEAN 2.15	MAX 180	MIN .00	AC-FT 1560							

KANSAS RIVER BASIN

06848500 PRAIRIE DOG CREEK NEAR WOODRUFF, KS

LOCATION.--Lat 39°59'09", long 99°28'39", in NW1/4NW1/4 sec.9, T.1 S., R.19 W., Phillips County, Hydrologic Unit 10250015, on left bank at downstream side of bridge on U.S. Highway 383, 1.0 mi south of Kansas-Nebraska State line, 2.5 mi west of Woodruff, and at mile 26.5.

DRAINAGE AREA.--1,007 mi².

PERIOD OF RECORD.--October 1928 to September 1932, October 1944 to current year. Monthly discharge only for some periods, published in WSP 1310.

GAGE.--Water-stage recorder. Datum of gage is 2,016.20 ft above sea level. See WSP 1919 for history of changes prior to Oct. 7, 1955.

REMARKS.--Records fair. Flow regulated to some extent since 1964 by Keith Sebelius Lake (station 06847950) 48.4 mi upstream and by irrigation development upstream from station. Satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, (water years 1929-32, 1945-90), 30.2 ft³/s, 21,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s June 23, 1947, gage height, 21.04 ft, site and datum then in use, from rating curve extended above 6,500 ft³/s on basis of contracted-opening measurement of 11,300 ft³/s; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 508 ft³/s Aug. 19, gage height, 11.82 ft; no flow many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.51	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.52	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.59	.00	.02	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.61	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.51	.00	.00	.00	3.1	.00	.00
6	.00	.00	.00	.00	.00	.48	.00	.00	.00	2.1	.00	.00
7	.00	.00	.00	.00	.00	.74	.00	.00	.01	1.4	.00	.00
8	.00	.00	.00	.00	.00	.59	.00	.00	.00	2.5	.00	.00
9	.00	.00	.00	.00	.00	.79	.00	.02	.00	1.7	.00	.00
10	.00	.00	.00	.00	.00	.72	.00	.05	.01	1.4	.00	.00
11	.00	.00	.00	.00	.00	.56	.00	.00	.00	.79	.00	.00
12	.00	.00	.00	.00	.00	.00	12	.18	.01	1.0	36	.00
13	.00	.00	.00	.00	.00	4.7	.00	.03	.00	1.2	25	.00
14	.00	.00	.00	.00	.00	2.2	.00	4.8	.00	2.3	8.8	.00
15	.00	.00	.00	.00	.00	1.2	.00	15	.01	2.9	22	.00
16	.00	.00	.00	.00	.00	.86	.00	30	.00	1.1	15	.00
17	.00	.00	.00	.00	.00	.71	.00	16	.00	.76	34	.00
18	.00	.00	.00	.00	.00	.64	.00	20	.03	.14	16	.00
19	.00	.00	.00	.00	.00	.54	.00	10	.05	.11	199	.00
20	.00	.00	.00	.00	.00	.35	.00	3.1	.01	.05	7.1	.00
21	.00	.00	.00	.00	.00	.18	.00	1.0	.08	.01	.57	.00
22	.00	.00	.00	.00	.00	.09	.00	.42	.00	.00	.19	.00
23	.00	.00	.00	.00	.00	.01	.00	.15	.00	.00	.07	.00
24	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00	.01	.00
25	.00	.00	.00	.00	.27	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.58	.00	.00	.01	.00	.00	.00	.00
28	.00	.00	.00	.00	.56	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.01	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.03	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	1.82	30.10	0.00	100.82	0.21	22.56	363.74	0.00
MEAN	.000	.000	.000	.000	.065	.97	.000	3.25	.007	.73	11.7	.000
MAX	.00	.00	.00	.00	.58	12	.00	30	.08	3.1	199	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	3.6	60	.00	200	.4	45	721	.00

CAL YR 1989 TOTAL 1209.52 MEAN 3.31 MAX 449 MIN .00 AC-FT 2400
WTR YR 1990 TOTAL 519.25 MEAN 1.42 MAX 199 MIN .00 AC-FT 1030

06849000 HARLAN COUNTY LAKE NEAR REPUBLICAN CITY, NE

LOCATION.--Lat 40°04'10", long 99°12'30", in sec.11, T.1 N., R.17 W., Harlan County, Hydrologic Unit 10250009, at left end of spillway on upstream side of Harlan County Dam on Republican River, 2 mi southeast of Republican City and 8 mi southeast of Alma.

DRAINAGE AREA.--20,750 mi², approximately, of which about 13,530 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--November 1952 to current year. Prior to October 1965 published as Harlan County Reservoir near Republican City.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam with gravity-type concrete spillway section; storage began Nov. 14, 1952. Capacity, 327,600 acre-ft between elevations 1,885.0 ft, sill of outlet gates, and 1,946.0 ft, top of storage pool. Top of flood-control pool at elevation 1,973.5 ft, capacity, 825,800 acre-ft. Top of superstorage flood-control pool at elevation 1,975.5 ft, capacity, 872,700 acre-ft. Figures given herein represent total contents. Water used for irrigation is the Bostwick irrigation project.

COOPERATION.--Capacity table furnished by Corps of Engineers (revised Jan. 1, 1982).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 497,700 acre-ft Apr. 6, 1960, elevation, 1,955.67 ft; minimum since operation of reservoir began, 110,300 acre-ft Oct. 22 to Nov. 6, 1953, elevation, 1,922.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 266,900 acre-ft June 22, elevation, 1,941.04 ft; minimum, 188,100 acre-ft Sept. 28-30, elevation, 1,933.33 ft.

Capacity table, (elevation, in feet, and contents, in acre-feet)

1,935	203,900	1,945	314,600
1,940	255,200	1,950	383,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204500	205700	208800	212900	220900	228800	241800	249300	263800	260400	209300	200700
2	204400	205800	208800	213100	221100	229300	241900	249300	264100	258600	209300	199400
3	204200	205800	208900	213400	221400	229400	242300	250600	264300	256300	210000	198300
4	204000	206100	209100	213500	221600	229700	242700	251000	264300	253900	209600	197300
5	204200	206100	209500	213600	221800	229700	243100	251100	264400	251900	208800	196100
6	204200	206300	209700	213800	222100	231600	243300	251300	264600	249400	208000	195400
7	204200	206400	209900	214100	222500	232500	243400	251300	265100	247200	207100	194400
8	204100	206600	210000	214500	222800	232900	243600	251700	265200	244500	206300	193500
9	204200	206600	210400	214600	223200	233500	244300	253000	265300	242800	205100	192700
10	204200	206800	210700	214800	223600	234000	244300	252800	265400	240800	204000	191900
11	204200	206800	210700	214900	223900	234800	244500	253500	265800	238900	203700	191400
12	204200	207000	210900	215100	224400	235200	244800	253800	265900	236700	205000	190900
13	204400	207100	210800	215400	224700	236200	245300	254100	265900	234600	205000	190600
14	204500	207200	210900	215800	224800	236300	245500	254400	265900	232700	206200	190400
15	204600	207300	211000	216100	225000	236700	245800	254800	266000	230400	206200	190200
16	204500	207300	211000	216400	225100	237100	246000	254900	266200	228500	206400	189700
17	204200	207300	211000	216600	225300	237300	246100	255000	266300	226500	206400	189500
18	204200	207300	211300	216800	225400	237600	246300	255300	266500	224300	207000	189600
19	204300	207400	211400	217800	225600	237700	246700	255800	266700	223900	207500	189400
20	204400	207500	211400	218000	226100	238000	247000	257700	266700	222400	208000	189300
21	204400	207800	211400	218100	226500	238400	247400	258800	266800	220500	208200	189300
22	204500	207900	211600	218400	226900	238400	247800	259700	266700	218800	208400	189000
23	204900	207900	211700	218600	227300	239000	248100	260000	266700	217100	208200	188800
24	204900	208200	211700	218700	227500	239000	248600	260700	266500	215400	208100	188700
25	204900	208400	211800	219000	227700	239300	249000	261000	266400	213700	207400	188600
26	205300	208500	212100	219400	228000	239400	249200	261100	266200	213500	206800	188400
27	205500	208700	212100	219700	228200	239700	249400	261500	265300	213300	206000	188200
28	205700	208600	212300	219800	228600	240400	249400	261700	264300	213100	204800	188100
29	206000	208600	212400	220100	---	240600	249400	261800	263200	212600	203900	188100
30	205900	208800	212600	220300	---	241100	249300	262700	261900	211700	202800	188100
31	205900	---	212800	220700	---	241400	---	262900	---	210600	201800	---
MEAN	204600	207300	210900	216600	224700	236000	245900	255900	265400	231100	206600	191500
MAX	206000	208800	212800	220700	228600	241400	249400	262800	266800	260400	210000	200700
MIN	204000	205700	208800	212900	220900	228800	241800	249300	261900	210600	201800	188100
(†)	1935.21	1935.51	1935.92	1936.71	1937.49	1938.72	1939.46	1940.69	1940.60	1935.69	1934.78	1933.33
(‡)	+1400	+2900	+4000	+7900	+7900	+12800	+7900	+13600	-1000	-51300	-8800	-13700
CAL YR 1989	MEAN	236100	MAX	271700	MIN	204000	(†)	-23700				
WTR YR 1990	MEAN	224700	MAX	266800	MIN	188100	(‡)	-16400				

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

06849500 REPUBLICAN RIVER BELOW HARLAN COUNTY DAM, NE

LOCATION.--Lat 40°04'45", long 99°10'05", in SW1/4 sec.6, T.1 N., R.16 W., Franklin County, Hydrologic Unit 10250016, on left bank 1.4 mi west of Naponee, 1.4 mi upstream from Turkey Creek, and 2.8 mi downstream from Harlan County Dam.

DRAINAGE AREA.--20,760 mi², approximately, of which about 13,550 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--December 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,863.38 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--No estimated daily discharges: Records good. Flow completely regulated by Harlan County Lake (station 06849000) and partially regulated by six upstream reservoirs.

AVERAGE DISCHARGE.--37 years (1953-90), 234 ft³/s, 169,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,320 ft³/s June 25, 1957, gage height, 8.65 ft; minimum daily, 0.75 ft³/s May 24, 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1826 occurred June 1, 1935, discharge, about 260,000 ft³/s, from slope-area measurement near Bloomington.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 770 ft³/s July 4, gage height, 3.32 ft; minimum daily, 0.75 ft³/s May 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	3.3	3.6	3.3	2.6	4.9	3.3	2.9	3.1	462	461	318
2	4.1	3.3	3.6	3.0	2.5	5.1	3.1	2.7	2.4	521	485	317
3	4.0	3.3	3.6	3.0	2.7	5.3	2.8	4.5	2.2	649	215	313
4	4.0	3.4	3.6	3.0	2.6	4.8	2.8	7.2	2.2	735	179	281
5	4.0	3.5	3.8	3.0	2.7	3.7	3.1	6.1	2.4	757	334	245
6	4.0	3.6	4.0	3.0	2.3	9.7	3.2	3.5	2.6	754	353	234
7	3.9	4.1	4.4	3.0	1.9	8.5	3.0	3.1	2.7	753	354	231
8	3.6	4.6	4.6	3.1	2.0	6.0	2.5	3.0	2.9	755	376	231
9	3.8	4.8	5.1	3.6	2.1	3.4	2.7	10	2.5	733	394	228
10	4.2	4.9	5.3	3.3	2.7	2.9	3.0	9.4	2.6	705	395	214
11	4.5	4.9	5.3	3.6	3.3	3.2	2.7	3.4	2.6	702	353	123
12	3.6	4.9	5.3	3.1	4.1	3.6	2.7	7.8	2.9	702	230	2.2
13	3.6	4.9	5.3	3.0	4.1	4.9	2.8	6.2	3.0	685	102	1.5
14	3.6	4.9	4.8	3.3	3.6	3.3	3.1	2.3	2.3	678	153	1.3
15	3.5	4.9	4.4	3.3	3.6	3.5	3.1	2.0	77	677	137	1.2
16	4.0	4.6	5.3	3.0	3.5	3.0	3.4	2.2	117	672	82	1.2
17	3.9	4.4	4.9	2.8	3.5	3.0	3.5	1.9	44	671	41	1.4
18	3.9	4.4	4.9	2.8	3.6	3.2	3.3	1.8	1.1	674	56	1.6
19	3.9	4.6	4.9	2.8	3.6	3.3	3.2	13	1.4	672	94	1.5
20	3.7	5.0	4.9	2.8	3.5	3.6	3.3	4.3	6.0	663	37	1.8
21	4.0	5.3	4.9	3.0	3.3	3.7	3.5	1.2	2.0	624	37	2.0
22	3.6	4.3	3.6	2.8	3.7	3.5	3.8	.84	1.6	594	52	2.1
23	4.0	3.8	3.6	2.8	3.7	3.3	4.4	.77	1.5	583	129	2.1
24	3.6	3.6	4.1	2.8	4.1	3.5	4.7	.75	1.9	575	242	2.0
25	3.6	3.6	4.9	2.8	3.8	3.3	5.4	.89	104	578	289	2.1
26	3.4	3.6	4.9	2.8	3.8	3.2	4.6	.98	233	292	310	2.3
27	3.3	3.6	4.8	2.8	4.2	3.0	4.0	1.1	271	82	356	2.5
28	3.3	3.6	4.9	2.6	4.6	3.3	3.9	1.2	339	185	403	2.5
29	3.6	3.6	4.9	2.7	---	3.8	3.8	1.4	410	280	385	2.7
30	3.6	3.6	4.3	2.7	---	3.5	3.5	2.4	452	350	342	2.7
31	3.3	---	4.3	2.7	---	3.3	---	2.2	---	407	316	---
TOTAL	117.5	124.9	140.8	92.3	91.7	126.3	102.2	111.03	2098.9	18170	7692	2771.7
MEAN	3.79	4.16	4.54	2.98	3.27	4.07	3.41	3.58	70.0	586	248	92.4
MAX	4.5	5.3	5.3	3.6	4.6	9.7	5.4	13	452	757	485	318
MIN	3.3	3.3	3.6	2.6	1.9	2.9	2.5	.75	1.1	82	37	1.2
AC-FT	233	248	279	183	182	251	203	220	4160	36040	15260	5500

CAL YR 1989 TOTAL 34483.6 MEAN 94.5 MAX 599 MIN 2.5 AC-FT 68400
WTR YR 1990 TOTAL 31639.33 MEAN 86.7 MAX 757 MIN .75 AC-FT 62760

KANSAS RIVER BASIN

225

06851000 CENTER CREEK AT FRANKLIN, NE

LOCATION.--Lat 40°06'12", long 98°58'45", in NW1/4NE1/4 sec.35, T.2 N., R.15 W., Franklin County, Hydrologic Unit 10250016, on right bank at downstream side of bridge on State Highway 136, 1 mi northwest of Franklin and 3 mi upstream from mouth.

DRAINAGE AREA.--177 mi² approximately, of which about 56 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--April 1948 to September 1956. Annual maximums and occasional low-flow measurements, water years 1961-68. October 1968 to September 1975, October 1977 to current year.

REVISED RECORDS.--WSP 2119: 1963(M), 1965(M), drainage area. WRD NE-83: 1981-82(P).

GAGE.--Water-stage recorder. Datum of gage is 1,858.34 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Dec. 19, 1952, nonrecording gage at site 1.5 mi downstream at datum 30.27 ft lower and Dec. 19, 1952, to Sept. 30, 1956, at present site at datum 0.84 ft higher. Sept. 7, 1961, to Sept. 30, 1968, crest-stage gage and Oct. 1, 1968, to Sept. 30, 1975, recording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 12, 15-24, Feb. 16, and July 17-19. Records good except for periods of estimated record, which are poor. Two small diversions above station for irrigation.

AVERAGE DISCHARGE.--28 years (1948-56, 1968-75, 1978-90) 8.05 ft³/s, 5,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,150 ft³/s Sept. 20, 1950, gage height, 6.8 ft, from floodmark, site and datum then in use, from rating curve extended above 420 ft³/s on basis of slope-area measurement of peak flow; no flow at times during 1948-50.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 26	0300	502	4.55	Aug. 16	0200	304	3.56
Aug. 12	0445	175	2.81	Aug. 19	0330	*670	*5.22

Minimum daily discharge, 2.8 ft³/s July 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	6.3	6.5	6.6	6.7	6.8	7.1	6.1	6.5	6.8	4.8	5.5
2	5.0	6.3	6.1	6.6	6.5	6.6	7.2	6.2	6.7	6.5	12	5.7
3	5.0	6.4	6.2	6.6	6.4	6.7	7.2	7.0	6.5	6.4	11	5.9
4	5.2	6.4	6.5	6.6	6.8	6.4	7.0	6.7	6.5	6.0	5.7	5.9
5	5.3	6.5	6.7	6.7	6.6	6.4	7.2	6.6	6.4	5.9	5.2	6.0
6	5.2	6.4	6.6	6.9	6.5	7.8	7.2	6.4	6.6	5.9	5.0	5.9
7	5.3	6.5	6.5	6.8	6.4	8.2	7.2	6.4	7.8	5.2	5.0	5.7
8	5.3	6.4	6.7	6.8	6.4	7.4	7.1	6.6	6.7	4.6	4.2	6.0
9	5.3	6.4	6.4	6.7	6.5	7.0	7.0	16	6.5	3.9	3.7	6.1
10	5.3	6.4	6.2	6.7	6.3	6.8	6.8	6.1	6.5	3.9	4.0	6.5
11	5.4	6.5	6.7	6.8	6.2	6.7	6.6	6.9	6.6	4.0	4.5	6.2
12	5.7	6.4	6.4	7.1	6.3	6.8	6.8	7.1	6.5	3.7	15	6.2
13	5.9	6.3	6.5	6.9	6.4	7.4	6.7	6.3	6.5	3.3	5.7	6.3
14	6.1	6.3	6.6	6.6	6.7	7.0	6.5	6.3	6.4	3.5	6.1	6.2
15	6.0	6.3	6.4	6.6	6.4	7.0	6.4	6.4	6.6	3.6	5.3	6.2
16	5.7	6.3	6.6	6.6	6.4	7.1	6.6	6.3	7.9	3.5	85	6.1
17	5.8	6.2	6.6	6.7	6.5	7.0	6.5	6.3	7.4	3.4	6.7	6.1
18	5.7	6.6	6.8	6.9	6.4	6.9	6.6	6.6	6.9	2.8	5.6	6.3
19	5.9	6.6	6.8	6.8	6.6	7.1	6.6	6.7	7.1	12	97	6.2
20	6.3	6.7	6.6	6.6	6.4	7.1	6.4	6.2	6.6	6.0	7.3	6.5
21	6.3	6.8	6.6	6.8	6.5	7.1	6.5	6.5	6.7	5.1	6.9	6.2
22	6.4	6.9	6.4	6.7	6.6	7.0	6.6	6.4	6.7	4.9	7.0	6.0
23	6.5	6.8	6.4	6.6	6.6	7.3	6.5	6.3	6.5	7.6	7.4	5.7
24	6.4	6.4	6.8	6.8	6.4	7.1	6.4	6.4	6.5	7.9	11	5.7
25	6.5	6.5	10	6.9	6.7	7.2	6.5	6.3	6.5	13	7.1	5.8
26	7.2	6.7	7.2	6.7	6.8	7.0	6.3	6.3	6.9	153	5.8	5.7
27	6.8	6.6	7.0	6.6	6.6	6.9	6.2	6.3	6.5	20	5.9	5.7
28	6.5	6.8	6.8	6.8	6.6	7.1	6.3	6.2	6.0	4.7	5.8	5.6
29	6.5	6.8	6.7	6.6	---	7.3	6.2	6.3	5.2	4.5	5.8	5.6
30	6.2	6.8	6.4	6.6	---	7.2	6.0	7.4	6.4	4.6	5.7	5.6
31	6.1	---	6.5	6.7	---	7.1	---	6.7	---	4.7	5.5	---
TOTAL	181.9	195.3	207.2	208.4	182.2	218.5	200.2	210.3	199.1	330.9	372.7	179.1
MEAN	5.87	6.51	6.68	6.72	6.51	7.05	6.67	6.78	6.64	10.7	12.0	5.97
MAX	7.2	6.9	10	7.1	6.8	8.2	7.2	16	7.9	153	97	6.5
MIN	5.0	6.2	6.1	6.6	6.2	6.4	6.0	6.1	5.2	2.8	3.7	5.5
AC-FT	361	387	411	413	361	433	397	417	395	656	739	355

CAL YR 1989 TOTAL 3249.1 MEAN 8.90 MAX 570 MIN 3.3 AC-FT 6440
WTR YR 1990 TOTAL 2685.8 MEAN 7.36 MAX 153 MIN 2.8 AC-FT 5330

KANSAS RIVER BASIN

06851500 THOMPSON CREEK AT RIVERTON, NE

LOCATION.--Lat 40°05'21", long 98°45'38", in NW1/4NW1/4 sec.2, T.1 N., R.13 W., Franklin County, Hydrologic Unit 10250016, on left bank at downstream side of bridge on State Highway 136, at west edge of Riverton, 240 ft upstream from Burlington Northern Inc. bridge, and 0.5 mi upstream from mouth.

DRAINAGE AREA.--279 mi², of which about 190 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--April 1948 to September 1956, October 1968 to September 1975. Annual maximums, water years 1962-68 and occasional low-flow measurements, water years 1961-68. October 1977 to current year.

REVISED RECORDS.--WRD Nebr. 1972: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,753.38 ft above National Geodetic Vertical Datum of 1929. Apr. 1 to Oct. 1, 1948, nonrecording gage 240 ft downstream at datum 2.32 ft higher. Oct. 1, 1948, to July 11, 1950, water-stage recorder at present site at datum 1.32 ft higher. July 12, 1950, to Sept. 30, 1956, and Oct. 1, 1968, to Sept. 30, 1975, at present site and datum. Sept. 7, 1961, to Sept. 30, 1968, crest-stage gage at present site and datum. Non-recording gage only, June 27, 1983 to Mar. 29, 1984 at site 240 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Nov. 28, Dec. 3, 11-12, 15-26, Jan. 19-21, and Feb. 16-20. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--28 years (1948-56, 1968-75, 1978-90), 30.7 ft³/s, 22,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft³/s July 9, 1950, gage height, 13.22 ft, present datum, by slope-area measurement; minimum daily, 8.1 ft³/s Dec. 19, 1951.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 9	0315	774	7.60	Aug. 3	0030	*1610	*9.24
June 16	2145	1000	8.10	Aug. 12	0815	936	7.96
July 26	0245	398	6.59	Aug. 19	0345	1130	8.37

Minimum daily discharge, 13 ft³/s July 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	18	18	22	19	20	20	19	20	20	19	18
2	15	19	18	20	19	20	20	19	47	19	93	18
3	15	18	19	20	20	19	19	23	20	18	349	17
4	16	18	20	19	20	20	20	22	20	18	40	17
5	16	18	20	18	20	20	20	20	20	19	29	16
6	16	18	20	18	20	27	20	21	21	19	26	17
7	16	19	19	18	20	30	20	20	30	18	23	16
8	16	19	20	18	20	29	19	21	19	17	22	16
9	16	19	20	19	20	22	21	160	18	16	20	16
10	16	19	20	19	19	21	20	24	18	18	20	16
11	16	19	20	19	18	21	19	19	18	16	41	16
12	17	19	19	18	18	20	19	24	17	15	220	16
13	18	20	20	18	16	21	19	19	17	15	51	15
14	17	19	21	19	16	19	19	18	17	15	68	15
15	17	19	20	19	16	18	19	17	18	14	32	15
16	17	20	19	20	15	17	19	16	111	13	28	14
17	18	19	19	20	15	18	18	15	63	14	26	15
18	18	19	20	19	16	17	19	15	17	14	21	17
19	19	20	20	20	17	17	20	21	20	22	294	16
20	19	19	19	19	19	18	21	17	18	16	40	19
21	19	19	20	20	20	18	22	18	19	14	18	17
22	19	17	20	19	21	18	23	16	20	16	17	16
23	19	17	15	20	21	18	24	16	19	23	17	16
24	19	18	15	20	21	18	23	16	20	20	19	16
25	20	18	25	20	20	18	23	16	19	23	17	16
26	21	19	60	20	20	19	21	15	29	119	17	16
27	22	18	19	19	20	19	21	15	20	26	16	15
28	20	19	20	19	20	20	19	15	20	20	17	16
29	20	18	19	20	---	20	19	15	20	20	17	17
30	19	18	19	20	---	20	19	33	19	19	17	17
31	19	---	20	20	---	20	---	22	---	19	17	---
TOTAL	550	559	643	599	526	622	605	727	754	655	1651	487
MEAN	17.7	18.6	20.7	19.3	18.8	20.1	20.2	23.5	25.1	21.1	53.3	16.2
MAX	22	20	60	22	21	30	24	160	111	119	349	19
MIN	15	17	15	18	15	17	18	15	17	13	16	14
AC-FT	1090	1110	1280	1190	1040	1230	1200	1440	1500	1300	3270	966

CAL YR 1989	TOTAL 10277	MEAN 28.2	MAX 865	MIN 12	AC-FT 20380
WTR YR 1990	TOTAL 8378	MEAN 23.0	MAX 349	MIN 13	AC-FT 16620

06852000 ELM CREEK AT AMBOY, NE

LOCATION.--Lat 40°05'20", long 98°26'07", in NE1/4NW1/4 sec.3, T.1 N., R.10 W., Webster County, Hydrologic Unit 10250016, on left bank at downstream side of bridge on State Highway 136 at east edge of Amboy, 2.5 mi upstream from mouth, and 4.5 mi east of Red Cloud.

DRAINAGE AREA.--39.2 mi².

PERIOD OF RECORD.--April 1948 to December 1953. Annual maximums, water years 1959, 1961-77 and occasional low flow measurements, water years 1954-77. October 1977 to current year.

REVISED RECORDS.--WRD NE-83: 1982(M).

GAGE.--Water-stage recorder. Datum of gage is 1,659.07 ft above National Geodetic Vertical Datum of 1929. Prior to July 17, 1952, nonrecording gage at upstream side of bridge at datum 7.26 ft higher, July 17, 1952, to Jan. 4, 1954, water-stage recorder, present site, at datum 6.26 ft higher, and Sept. 6, 1961, to Sept. 30, 1977, crest-stage gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 14-25. Records good except for periods of estimated record, which are fair. Natural flow affected by pump irrigation development above station.

AVERAGE DISCHARGE.--18 years (water years 1949-53, 1978-90), 21.4 ft³/s, 15,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,800 ft³/s Sept. 29, 1983, gage height, 16.96 ft, from floodmark, from rating curve extended above 6,400 ft³/s on basis of velocity-area study; maximum gage height, 17.05 ft July 4, 1959; minimum daily discharge, 6.2 ft³/s Aug. 28, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 9	2230	218	10.77	Aug. 3	1800	1180	13.54
June 17	0755	1710	14.09	Aug. 12	2400	*2150	*14.44

Minimum daily discharge, 6.2 ft³/s Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	12	12	14	14	15	13	16	13	9.2	8.0
2	11	12	12	12	13	15	14	13	16	12	8.8	8.3
3	11	12	12	12	13	14	14	15	15	10	652	8.1
4	12	12	13	12	14	15	14	17	14	11	142	8.2
5	12	13	13	12	14	15	14	14	14	11	27	7.7
6	12	12	14	12	14	19	14	14	22	12	16	8.1
7	12	12	13	12	13	26	14	13	72	12	13	7.9
8	12	12	13	12	14	22	15	12	40	12	12	8.4
9	12	13	13	12	13	18	15	123	25	12	11	9.3
10	12	13	13	12	13	18	14	102	19	12	11	10
11	12	13	13	13	14	19	14	23	18	11	13	11
12	12	13	13	13	14	18	14	17	16	11	756	10
13	12	13	13	13	14	18	15	15	15	11	602	10
14	13	13	12	13	13	96	15	15	14	12	54	10
15	13	12	11	13	14	32	16	15	15	12	37	10
16	12	12	11	13	14	19	15	13	49	12	18	11
17	12	12	10	13	14	17	14	13	579	12	12	11
18	11	12	11	12	14	15	15	13	50	11	17	13
19	11	12	14	13	14	14	15	14	24	11	47	12
20	11	13	12	13	14	14	16	12	16	13	63	23
21	12	12	11	13	15	14	15	21	18	12	11	13
22	12	12	10	13	15	13	15	20	41	11	8.1	11
23	12	12	10	13	15	12	15	13	23	11	7.4	11
24	12	12	10	13	15	12	15	12	17	12	7.3	11
25	13	12	11	13	14	12	15	12	15	34	7.0	11
26	13	12	12	14	14	13	17	12	14	26	7.0	11
27	14	12	12	14	15	13	15	12	14	13	6.6	11
28	13	12	12	13	15	14	14	12	14	12	6.2	11
29	13	12	12	14	---	15	13	12	13	11	7.3	11
30	12	12	12	14	---	14	13	23	13	10	7.6	11
31	12	---	12	14	---	15	---	19	---	9.8	7.7	---
TOTAL	374	368	372	397	392	585	439	654	1231	394.8	2604.2	317.0
MEAN	12.1	12.3	12.0	12.8	14.0	18.9	14.6	21.1	41.0	12.7	84.0	10.6
MAX	14	13	14	14	15	96	17	123	579	34	756	23
MIN	11	12	10	12	13	12	13	12	13	9.8	6.2	7.7
AC-FT	742	730	738	787	778	1160	871	1300	2440	783	5170	629

CAL YR 1989 TOTAL 7311.2 MEAN 20.0 MAX 1370 MIN 9.2 AC-FT 14500
WTR YR 1990 TOTAL 8128.0 MEAN 22.3 MAX 756 MIN 6.2 AC-FT 16120

LOCATION.--Lat 40°00'15", long 98°07'55", in SW1/4SE1/4 sec.32, T.1 N., R.7 W., Nuckolls County, Nebraska, Hydrologic Unit 10250016, on left bank 0.2 mi upstream from Nebraska-Kansas State line and 3.5 mi southwest of Superior, NE.

GAGE.--Water-stage recorder and concrete Parshall flume. Datum of gage is 1,612.46 ft above National Geodetic Vertical Datum of 1929.

AVERAGE DISCHARGE.--36 years, 78.8 ft³/s, 57,100 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 462 ft³/s July 10; no flow for many days.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	.00	.00	.00	.00	79	.00	51	79	240	295	198
2	54	.00	.00	.00	.00	81	.00	66	78	265	337	195
3	4.2	.00	.00	.00	.00	81	.00	70	76	286	356	196
4	.00	.00	.00	.00	.00	81	.00	77	77	310	348	196
5	.00	.00	.00	.00	.00	81	.00	77	78	358	342	199
6	.00	.00	.00	.00	.00	83	.00	77	79	433	292	199
7	.00	.00	.00	.00	.00	141	.00	76	84	454	293	205
8	.00	.00	.00	.00	.00	184	.00	75	80	443	278	237
9	.00	.00	.00	.00	.00	184	.00	84	81	453	268	262
10	.00	.00	.00	.00	.00	148	.00	92	80	462	266	263
11	.00	.00	.00	.00	.00	126	.00	131	73	459	284	251
12	.00	.00	.00	.00	.00	119	.00	131	78	449	305	206
13	.00	.00	.00	.00	60	114	.00	129	71	448	263	194
14	.00	.00	.00	.00	46	154	.00	129	72	447	258	191
15	.00	.00	.00	.00	31	190	.00	119	69	444	252	172
16	.00	.00	.00	.00	40	139	.00	44	78	435	254	157
17	.00	.00	.00	.00	34	119	.00	16	109	428	264	137
18	.00	.00	.00	.00	.30	112	.00	19	80	418	258	126
19	.00	.00	.00	.00	.00	95	.00	59	84	417	264	121
20	.00	.00	.00	.00	.00	8.0	.00	60	82	422	255	121
21	.00	.00	.00	.00	1.2	.00	.00	62	84	401	258	136
22	.00	.00	.00	.00	109	.00	.00	76	83	384	254	115
23	.00	.00	.00	.00	88	.00	.00	75	83	378	207	104
24	.00	.00	.00	.00	82	.00	.00	75	84	363	166	100
25	.00	.00	.00	.00	79	.00	.00	75	83	365	188	99
26	.00	.00	.00	.00	78	.00	.00	73	83	407	218	94
27	.00	.00	.00	.00	78	.00	.00	73	90	333	222	89
28	.00	.00	.00	.00	80	.00	.00	73	86	223	226	84
29	.00	.00	.00	.00	---	.00	.00	73	150	219	242	83
30	.00	.00	.00	.00	---	.00	.00	79	218	236	254	88
31	.00	---	.00	.00	---	.00	---	80	---	260	222	---
TOTAL	122.20	0.00	0.00	0.00	806.50	2319.00	0.00	2396	2632	11640	8189	4818
MEAN	3.94	.0000	.0000	.0000	28.8	74.8	.0000	77.3	87.7	375	264	161
MAX	64	.00	.00	.00	109	190	.00	131	218	462	356	263
MIN	.00	.00	.00	.00	.00	.00	.00	16	69	219	166	83
AC-FT	242	.00	.00	.00	1600	4600	.00	4750	5220	23090	16240	9560
CAL YR 1989	TOTAL	28482.80	MEAN	78.0	MAX	410	MIN	.00	AC-FT	56500		
WTR YR 1990	TOTAL	32922.70	MEAN	90.2	MAX	462	MIN	.00	AC-FT	65300		

KANSAS RIVER BASIN

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06853020 REPUBLICAN RIVER AT GUIDE ROCK, NE

LOCATION.--Lat 40°03'49", long 98°19'53", in NE1/4SE1/4 sec.9, T.1 N., R.9 W., Webster County, Hydrologic Unit 10250016, on left downstream bank at Nebraska State Highway 78 bridge, 0.2 mi downstream from Minnie Creek and 0.5 mi south of Guide Rock. Station is 3.1 river miles downstream from station 06853000, Republican River near Guide Rock, previous site.

DRAINAGE AREA.--22,090 mi², approximately, of which about 14,600 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1950 to current year. August 1950 to September 1984 published as Republican River near Guide Rock (06853000).

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,616.15 ft above National Geodetic Vertical Datum of 1929, levels by U.S. Corps of Engineers. Prior to Oct. 1, 1959, at datum 12.98 ft higher, and Oct. 1, 1959 to Nov. 28, 1984, at datum 7.98 ft higher, both at site 3.1 miles upstream.

REMARKS.--Estimated daily discharges: Nov. 28-30, Dec. 7-9, 11-29, Jan. 19-21, and Feb. 1-5, 14-16. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station, by regulation of upstream reservoirs, and since Nov. 14, 1952, by storage in Harlan County Lake (station 06849000).

AVERAGE DISCHARGE.--40 years, 309 ft³/s, 223,900 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft³/s June 16, 1957, gage height, 20.73 ft, at site and datum then in use; minimum daily, 0.1 ft³/s May 26, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1826 occurred June 1 or 2, 1935, discharge, about 250,000 ft³/s, from slope-area measurements near Bloomington and Hardy.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,830 ft³/s Aug. 3, gage height, 10.83 ft; minimum daily, 2.8 ft³/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	79	79	151	84	8.0	120	23	81	52	96	41
2	25	79	81	144	64	7.6	114	19	56	42	44	40
3	55	79	71	147	64	7.3	109	23	79	20	2100	46
4	59	82	73	151	80	7.2	109	59	39	14	1590	48
5	66	82	99	148	100	7.6	109	57	21	43	150	49
6	57	79	86	140	98	11	108	48	70	90	48	52
7	62	79	80	142	96	15	110	35	295	72	39	47
8	67	79	74	137	93	12	110	25	327	63	23	27
9	88	79	78	102	92	10	112	611	154	71	16	29
10	72	80	81	103	87	9.1	112	642	86	75	15	34
11	70	80	60	109	88	9.0	104	193	61	56	86	65
12	69	78	64	86	75	8.4	103	106	53	33	1800	98
13	60	78	60	73	59	8.9	106	98	42	43	2390	21
14	69	77	52	89	53	31	111	75	34	54	417	6.9
15	72	75	53	103	53	10	109	73	32	48	373	5.7
16	89	74	56	102	90	9.0	107	84	135	47	189	5.2
17	77	77	60	97	123	8.5	102	68	1950	30	1060	5.1
18	77	78	68	90	118	8.1	102	59	494	10	221	5.1
19	77	80	70	82	103	56	105	77	195	14	785	5.1
20	78	79	64	62	103	106	111	75	135	60	1120	12
21	80	75	52	66	73	106	113	111	100	121	226	13
22	81	75	54	95	17	103	114	72	145	119	69	5.3
23	80	73	56	109	12	97	111	39	81	86	31	4.8
24	81	74	48	119	11	99	109	32	46	78	51	4.8
25	83	79	62	94	10	103	117	29	25	53	48	5.1
26	83	78	82	90	9.9	108	139	23	21	961	48	4.1
27	91	76	100	95	9.3	108	117	18	28	2550	26	3.7
28	93	70	122	86	8.5	108	124	17	23	553	40	3.6
29	90	64	166	84	---	114	113	16	64	202	27	3.4
30	81	66	164	89	---	117	72	70	55	113	17	3.4
31	79	---	159	89	---	123	---	132	---	104	68	---
TOTAL	2213.8	2303	2474	3274	1873.7	1535.7	3302	3009	4927	5877	13213	693.3
MEAN	71.4	76.8	79.8	106	66.9	49.5	110	97.1	164	190	426	23.1
MAX	93	82	166	151	123	123	139	642	1950	2550	2390	98
MIN	2.8	64	48	62	8.5	7.2	72	16	21	10	15	3.4
AC-FT	4390	4570	4910	6490	3720	3050	6550	5970	9770	11660	26210	1380

CAL YR 1989 TOTAL 35246.6 MEAN 96.6 MAX 4930 MIN 1.6 AC-FT 69910
WTR YR 1990 TOTAL 44695.5 MEAN 122 MAX 2550 MIN 2.8 AC-FT 88650

KANSAS RIVER BASIN

06853500 REPUBLICAN RIVER NEAR HARDY, NE

LOCATION.--Lat 39°59'33", long 97°55'53", in NE1/4NE1/4SE1/4 sec.1, T.1 S., R.6 W., in Kansas, Republic County, Hydrologic Unit 10250016, on right bank at upstream side of highway bridge, 1.2 mi southwest of Hardy and at mile 141.2.

DRAINAGE AREA.--22,401 mi², of which about 7,500 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--June 1904 to September 1915 (no winter records), April 1931 to current year. Prior to May 1932, published as "at Bostwick." Records for June 1896 to November 1903 published as "near Superior" in 18th to 22nd Ann. Repts., inclusive, Pt. 4, and WSP 75, 84, and 99, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 806: Drainage area. WSP 1006: 1941. WSP 1340: 1905(M), 1907-09, 1912, 1914-15, 1931. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,501.46 ft above sea level. Prior to May 19, 1932, nonrecording gage at site at Bostwick, 20 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Natural flow affected by irrigation development upstream from station and by storage in reservoirs in Colorado, Kansas, and Nebraska. Considerable regulation since 1952 by Harlan County Lake (station 06849000).

AVERAGE DISCHARGE.--21 years (water years 1914, 1933-52), 882 ft³/s, 639,000 acre-ft/yr; 33 years (water years 1958-90, since conservation pool at Harlan County Lake was first filled), 358 ft³/s, 259,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 225,000 ft³/s June 2, 1935, gage height, 19.4 ft, based on records for stations upstream; no flow Aug. 9-19, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1895, that of June 2, 1935, and 17.00 ft June 24, 1947, discharge, 100,000 ft³/s, based on records for upstream stations.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,030 ft³/s June 17, gage height, 8.98 ft; minimum discharge, 19 ft³/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	101	100	e100	110	50	148	116	156	e75	178	101
2	20	101	107	e120	107	50	144	81	127	e35	160	119
3	21	102	106	e160	99	49	138	84	98	e30	165	118
4	55	106	109	e140	106	49	134	110	99	e27	2160	127
5	79	108	108	e120	134	49	136	116	88	e25	808	133
6	86	107	122	e120	130	59	134	107	79	e45	274	122
7	82	107	118	e120	124	96	134	97	120	e100	155	111
8	91	107	111	e130	120	94	134	85	407	e90	130	100
9	91	107	109	e160	116	77	136	117	341	e75	117	91
10	97	107	108	e140	113	69	136	753	206	e80	106	76
11	95	108	77	e130	112	66	132	467	137	82	306	72
12	91	108	e100	e125	115	e63	131	242	107	72	592	75
13	90	107	e90	e125	104	62	136	166	89	62	2960	90
14	85	106	e70	e125	63	62	137	143	78	68	1460	96
15	86	104	e55	140	56	64	136	127	74	75	509	62
16	88	102	e50	149	e60	67	133	112	72	73	437	50
17	97	102	e55	136	e80	58	129	117	2220	68	440	48
18	95	105	e65	128	105	55	126	107	1980	61	780	50
19	93	108	e75	119	135	54	129	112	596	51	324	47
20	95	111	e70	121	136	66	132	115	356	57	1010	45
21	99	111	e50	92	124	114	139	118	242	82	648	50
22	102	108	e45	100	104	122	135	136	229	150	295	66
23	103	108	e45	119	69	124	133	120	253	161	178	47
24	103	109	e50	140	60	127	129	113	169	122	133	43
25	104	111	e55	138	56	129	133	93	136	104	126	40
26	103	113	e70	122	53	131	137	87	116	166	123	38
27	108	111	e90	118	52	132	149	79	e100	1200	114	37
28	111	105	e101	118	51	135	140	74	e80	1530	102	35
29	113	98	e120	113	---	142	139	70	e75	510	90	34
30	109	98	e110	113	---	146	133	92	e70	291	100	35
31	105	---	e100	115	---	149	---	112	---	203	93	---
TOTAL	2718	3186	2641	3896	2694	2710	4062	4468	8900	5770	15073	2158
MEAN	87.7	106	85.2	126	96.2	87.4	135	144	297	186	486	71.9
MAX	113	113	122	160	136	149	149	753	2220	1530	2960	133
MIN	20	98	45	92	51	49	126	70	70	25	90	34
AC-FT	5390	6320	5240	7730	5340	5380	8060	8860	17650	11440	29900	4280

CAL YR 1989 TOTAL 48916 MEAN 134 MAX 3820 MIN 20 AC-FT 97020
WTR YR 1990 TOTAL 58276 MEAN 160 MAX 2960 MIN 20 AC-FT 115600

e Estimated

KANSAS RIVER BASIN

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06879900 BIG BLUE RIVER AT SURPRISE, NE

LOCATION.--Lat 41°06'05", long 97°18'35", in NW1/4NW1/4 sec.15, T.13 N., R.1 E., Butler County, Hydrologic Unit 10270201, on left bank 50 ft downstream from bridge on county road at south edge of Surprise.

DRAINAGE AREA.--345 mi².

PERIOD OF RECORD.--April 1964 to current year. Prior to October 1965, published as North Branch Big Blue River at Surprise.

GAGE.--Water-stage recorder and concrete broad-crested weir control. Elevation of gage is 1,522.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 28 to Jan. 12, Feb. 2-5, Mar. 31 to Apr. 4, July 13-16, 21-24, and Aug. 6-14. Records good except for periods of estimated record and those below 5 ft³/s which are poor.

AVERAGE DISCHARGE.--26 years, 27.8 ft³/s, 20,140 acre-ft/yr; median of yearly mean discharges, 25 ft³/s, 18,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s July 19, 1965, gage height, 11.52 ft; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 18	2100	299	3.21	July 29	0526	*1870	*8.60

Minimum daily discharge, 0.13 ft³/s Oct. 19, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	2.1	1.1	.88	1.2	1.6	2.5	1.2	2.8	3.4	134	1.6
2	1.9	2.1	1.2	.92	1.1	1.6	2.6	1.4	2.8	2.9	51	2.1
3	.58	2.1	1.1	.94	1.0	1.6	2.6	1.8	3.4	3.0	42	2.6
4	.16	2.0	1.2	.94	1.0	1.6	2.8	1.9	6.8	3.8	166	2.1
5	.56	1.5	1.7	.89	1.1	1.7	3.1	2.0	3.7	1.5	106	2.8
6	1.5	1.2	1.6	.96	1.2	1.6	2.9	2.0	2.5	3.0	70	3.1
7	1.8	1.2	1.4	1.0	1.4	1.7	3.0	2.2	3.1	6.2	150	3.0
8	1.6	1.1	1.2	1.1	1.8	2.7	3.5	2.3	3.0	2.4	35	2.2
9	.65	.84	1.3	1.2	1.8	5.2	5.2	2.5	2.8	1.8	15	1.8
10	.68	.73	1.4	1.3	1.8	4.5	1.7	2.7	2.6	2.9	12	1.3
11	.84	.81	1.3	1.4	1.8	3.7	1.5	2.9	2.3	3.4	10	1.1
12	.49	.89	1.2	1.3	1.9	2.9	1.4	3.0	1.9	3.2	9.0	1.3
13	.59	.89	.94	1.2	1.9	7.4	1.6	3.2	1.9	3.3	9.0	.73
14	.99	.89	.60	1.1	2.0	53	2.0	3.4	1.3	3.5	9.0	.36
15	1.5	.74	.54	1.5	1.7	12	2.3	3.4	1.8	4.0	9.3	.78
16	1.3	.58	.52	1.2	1.4	5.7	2.1	3.4	4.7	4.4	7.1	.46
17	.53	.58	.64	1.1	.75	3.9	2.2	3.4	6.4	4.9	4.4	.23
18	.33	.58	.70	1.1	1.1	3.3	1.5	3.6	44	3.7	4.1	.15
19	.13	.72	.80	1.1	1.4	2.6	1.8	3.7	64	4.4	3.4	.35
20	.15	.73	.78	1.1	1.5	2.5	1.8	3.7	17	11	3.0	.46
21	.60	.73	.70	1.1	1.4	2.7	2.1	3.7	40	14	2.7	.96
22	.90	.73	.60	1.1	1.7	2.8	2.8	3.7	93	14	2.6	.78
23	.17	.91	.45	1.1	1.9	2.7	2.8	3.7	59	15	2.4	.32
24	.53	1.1	.50	1.1	2.1	2.5	2.6	4.1	34	15	2.3	.43
25	1.0	1.1	.64	1.1	2.1	2.4	6.1	25	29	78	1.8	.73
26	1.1	1.2	.80	1.1	1.9	2.3	13	35	21	609	3.0	.44
27	1.2	1.2	.84	1.1	1.8	2.5	18	16	12	820	2.9	.60
28	.41	1.1	.96	1.1	1.8	2.4	19	9.8	7.5	1260	2.8	.17
29	.32	1.0	1.0	1.1	---	2.5	2.8	7.7	5.2	1690	3.2	.15
30	.32	1.1	1.0	1.2	---	2.4	1.3	4.8	4.1	1030	3.5	.13
31	1.7	---	.94	1.2	---	2.5	---	3.2	---	411	1.5	---
TOTAL	25.50	32.45	29.65	34.53	43.55	148.5	118.6	170.4	483.6	6032.7	878.0	33.23
MEAN	.82	1.08	.96	1.11	1.56	4.79	3.95	5.50	16.1	195	28.3	1.11
MAX	1.9	2.1	1.7	1.5	2.1	53	19	35	93	1690	166	3.1
MIN	.13	.58	.45	.88	.75	1.6	1.3	1.2	1.3	1.5	1.5	.13
AC-FT	51	64	59	68	86	295	235	338	959	11970	1740	66

CAL YR 1989 TOTAL 6030.24 MEAN 16.5 MAX 1080 MIN .13 AC-FT 11960
WTR YR 1990 TOTAL 8030.71 MEAN 22.0 MAX 1690 MIN .13 AC-FT 15930

KANSAS RIVER BASIN

06880000 LINCOLN CREEK NEAR SEWARD, NE

LOCATION.--Lat 40°54'57", long 97°08'43", in NW1/4NE1/4 sec.24, T.11 N., R.2 E., Seward County, Hydrologic Unit 10270201, on left bank at downstream side of county road bridge, 2 mi west of Seward, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--446 mi².

PERIOD OF RECORD.--October 1953 to September 1973, March 1974 to current year. Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 2119: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,429.27 ft above National Geodetic Vertical Datum of 1929. June 27, 1984 to June 2, 1985 at temporary site upstream from county road at same datum.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 9, Jan. 13-15, 21-23, Feb. 2-4, 14-21, and July 19-26. Records good except for periods of estimated record, which are poor. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--36 years, (1953-73, 1975-90) 52.8 ft³/s, 38,250 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s June 17, 1957, gage height, 20.53 ft; minimum daily, 1.3 ft³/s July 31, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 29	2400	*1770	*16.17	Aug. 3	1804	1570	15.61

Minimum daily discharge, 14 ft³/s Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	20	18	21	19	20	23	22	23	87	633	25
2	21	20	17	22	18	20	22	22	23	99	285	27
3	20	29	19	22	17	20	22	22	22	46	1320	29
4	20	24	19	21	19	20	22	24	21	32	827	31
5	21	22	17	21	20	20	22	23	21	28	618	29
6	21	19	18	21	20	20	22	23	21	29	325	28
7	20	18	18	23	19	23	22	23	23	31	180	28
8	20	18	17	24	19	23	22	22	23	31	85	24
9	21	17	17	25	20	22	22	31	22	30	59	23
10	20	16	17	26	20	22	22	30	21	33	47	24
11	20	16	21	19	20	22	22	46	21	33	49	23
12	20	16	21	19	20	22	22	37	21	30	89	22
13	19	16	20	19	20	21	23	28	21	33	59	21
14	19	16	19	19	19	22	23	26	21	36	42	19
15	20	16	18	19	16	131	23	26	26	34	33	19
16	19	16	16	18	16	68	22	25	29	35	32	18
17	19	19	15	18	17	35	22	25	31	32	30	18
18	19	18	16	19	19	27	22	26	154	34	28	18
19	19	16	17	19	20	24	22	34	204	98	31	18
20	19	16	17	19	20	23	23	30	135	112	28	18
21	19	16	16	16	20	23	23	32	122	74	26	18
22	19	16	14	17	20	22	23	31	153	60	27	17
23	18	17	15	19	20	22	23	27	99	84	26	16
24	18	16	17	19	20	22	22	29	53	82	26	16
25	18	16	19	19	20	22	22	29	87	86	26	16
26	18	17	22	19	20	22	22	26	86	1110	26	16
27	18	17	27	19	20	22	23	26	60	1390	25	16
28	18	18	28	19	20	22	22	26	45	1450	25	16
29	19	18	27	20	---	23	22	25	37	1640	27	16
30	18	18	25	19	---	23	22	24	33	1700	27	15
31	21	---	24	21	---	23	---	23	---	1330	27	---
TOTAL	602	537	591	621	538	851	669	843	1658	9929	5088	624
MEAN	19.4	17.9	19.1	20.0	19.2	27.5	22.3	27.2	55.3	320	164	20.8
MAX	21	29	28	26	20	131	23	46	204	1700	1320	31
MIN	18	16	14	16	16	20	22	22	21	28	25	15
AC-FT	1190	1070	1170	1230	1070	1690	1330	1670	3290	19690	10090	1240

CAL YR 1989 TOTAL 21743 MEAN 59.6 MAX 2660 MIN 13 AC-FT 43130
WTR YR 1990 TOTAL 22551 MEAN 61.8 MAX 1700 MIN 14 AC-FT 44730

KANSAS RIVER BASIN

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06880500 BIG BLUE RIVER AT SEWARD, NE

LOCATION.--Lat 40°54'10", long 97°06'40", in SE1/4SW1/4 sec.20, T.11 N., R.3 E., Seward County, Hydrologic Unit 10270201, at downstream end of right abutment of bridge on U.S. Highway 34 at west edge of Seward, 1.7 mi upstream from Plum Creek and 0.2 mi downstream from Lincoln Creek.

DRAINAGE AREA.--1,099 mi².

PERIOD OF RECORD.--October 1953 to current year. Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 1919: Drainage area. WDR NE-80-1: 1979(M).

GAGE.--Water-stage recorder. Datum of gage is 1,421.49 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1969, at present site and datum. Dec. 19, 1969 to Nov. 7, 1983 at site 1.2 mi downstream at datum 6.33 ft lower.

REMARKS.--Estimated daily discharges: Dec. 11-24, Jan. 17 to Feb. 14, and July 29-30. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--37 years, 131 ft³/s, 94,910 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s June 18, 1957, gage height, 22.34 ft; maximum gage height, 22.83 ft June 16, 1967; from stage readings during 1967 flood, gage height at downstream site and datum was approximately 25.66 ft; no flow July 30, 31, 1955, result of irrigation pumping.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 27	0330	*2450	*15.18	Aug. 3	2230	1580	11.63

Minimum daily discharge, 20 ft³/s Sept. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	35	31	32	41	36	46	41	70	104	2010	29
2	28	32	28	29	40	35	46	41	58	141	743	27
3	28	42	26	31	39	36	45	43	50	77	1380	30
4	27	39	32	32	38	36	43	46	47	46	1140	36
5	28	38	32	32	38	36	42	45	45	39	775	36
6	28	37	32	33	39	36	41	43	44	39	586	36
7	28	35	32	33	41	42	40	43	48	41	318	36
8	28	33	32	33	42	44	40	43	49	43	184	34
9	28	32	32	35	42	45	41	63	49	40	137	31
10	29	31	33	36	41	48	41	65	103	44	103	33
11	29	30	27	36	40	49	41	79	70	48	99	33
12	29	30	25	41	39	49	41	83	55	40	147	31
13	28	30	25	30	38	45	42	64	52	75	321	28
14	26	30	25	43	36	46	43	60	50	72	462	25
15	26	30	22	41	35	115	43	58	64	51	149	24
16	26	28	23	41	35	126	44	58	67	47	92	23
17	26	28	24	40	35	69	46	55	82	42	82	23
18	26	28	25	39	35	49	46	54	212	41	68	23
19	26	31	26	39	33	43	46	70	272	133	63	23
20	27	31	26	39	33	40	46	67	504	152	56	23
21	27	31	25	38	33	39	46	63	265	100	51	23
22	28	31	24	37	33	37	46	62	275	82	50	22
23	28	29	23	39	33	37	46	57	251	115	47	21
24	28	30	26	41	34	39	45	56	211	112	45	21
25	28	31	29	41	34	39	45	57	197	117	43	21
26	28	31	30	42	33	40	47	143	182	1720	40	21
27	28	30	33	42	34	40	46	161	147	2320	38	21
28	28	26	33	43	35	40	44	164	116	2040	35	21
29	44	28	34	43	---	43	42	216	90	2100	35	20
30	39	32	35	42	---	44	41	148	67	2280	35	20
31	35	---	34	42	---	44	---	92	---	2390	32	---
TOTAL	891	949	884	1165	1029	1467	1311	2340	3792	14691	9366	795
MEAN	28.7	31.6	28.5	37.6	36.7	47.3	43.7	75.5	126	474	302	26.5
MAX	44	42	35	43	42	126	47	216	504	2390	2010	36
MIN	26	26	22	29	33	35	40	41	44	39	32	20
AC-FT	1770	1880	1750	2310	2040	2910	2600	4640	7520	29140	18580	1580

CAL YR 1989 TOTAL 37734.8 MEAN 103 MAX 4000 MIN 9.8 AC-FT 74850
WTR YR 1990 TOTAL 38680 MEAN 106 MAX 2390 MIN 20 AC-FT 76720

KANSAS RIVER BASIN

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE
(National water-quality assessment station)

LOCATION.--Lat 40°43'52", long 97°10'38", in SW1/4SW1/4 sec.23, T.9 N., R.2 E., Seward County, Hydrologic Unit 10270203, on right bank 60 ft downstream from bridge on county road, 6.2 mi northwest of Dorchester, and 19 mi upstream from mouth.

DRAINAGE AREA.--1,206 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1919: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,403.48 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 14, 1970, on bridge pier 60 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 4, Jan. 19-22, and Feb. 1-4, 13-21. Records good except for periods of estimated record, which are poor. Some diversion by pumping for irrigation above station. Natural flow of stream affected by ground-water withdrawals for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--32 years, 185 ft³/s, 134,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s July 1, 1986, gage height, 22.62 ft; minimum daily, 12 ft³/s Dec. 31, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1950, reached a stage of 24.8 ft, present datum, from floodmarks, discharge, 49,400 ft³/s, from contracted-opening and flow-over-road measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 18	1100	2070	12.72	July 28	1534	3550	16.62
July 22	2133	*6810	*20.58	Aug. 4	1830	3070	15.70
July 26	0833	2190	13.41	Aug. 7	1531	2380	14.03

Minimum daily discharge, 39 ft³/s Jan. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	64	63	60	72	54	72	57	75	252	480	109
2	65	61	64	62	62	54	69	57	72	156	358	108
3	62	63	70	64	64	54	68	60	71	128	808	110
4	62	63	59	52	66	54	65	68	70	113	2530	105
5	66	60	61	53	74	54	65	69	75	108	2000	100
6	62	60	64	58	73	55	64	69	74	115	1530	94
7	66	58	63	58	76	71	64	62	84	126	2220	91
8	70	55	60	57	79	71	65	61	108	157	1260	87
9	63	57	60	45	78	78	65	135	88	143	357	83
10	62	55	59	39	78	69	64	131	79	120	206	84
11	62	56	56	43	80	75	62	151	78	122	151	81
12	60	53	54	45	79	78	64	169	75	137	146	78
13	61	56	64	53	64	80	67	142	70	129	147	73
14	62	53	62	55	64	76	68	123	66	130	148	69
15	64	53	52	54	60	154	69	97	652	144	176	65
16	69	54	47	62	58	307	67	79	1310	154	254	64
17	71	56	48	64	52	169	64	71	1700	147	225	65
18	69	56	52	64	56	116	64	72	2030	155	165	66
19	68	57	52	64	58	97	64	253	1070	182	132	65
20	66	58	48	66	62	89	64	226	408	405	115	63
21	67	59	45	64	56	83	64	310	553	1010	107	64
22	65	62	43	72	57	80	64	238	478	4820	110	61
23	63	62	42	75	57	76	63	172	417	5720	110	61
24	61	64	45	74	57	74	62	136	392	3620	167	62
25	64	65	50	74	57	69	61	117	308	2280	139	61
26	64	66	52	74	57	71	61	104	234	2050	120	61
27	66	67	56	72	56	69	60	94	229	2320	114	66
28	70	63	60	75	56	69	58	85	774	3370	127	63
29	69	62	64	75	---	74	57	80	732	3050	127	59
30	64	67	68	73	---	73	57	77	397	2670	115	58
31	61	---	62	73	---	75	---	76	---	1240	110	---
TOTAL	2010	1785	1745	1919	1808	2668	1921	3641	12769	35273	14754	2276
MEAN	64.8	59.5	56.3	61.9	64.6	86.1	64.0	117	426	1138	476	75.9
MAX	71	67	70	75	80	307	72	310	2030	5720	2530	110
MIN	60	53	42	39	52	54	57	57	66	108	107	58
AC-FT	3990	3540	3460	3810	3590	5290	3810	7220	25330	69960	29260	4510

CAL YR 1989 TOTAL 65452 MEAN 179 MAX 2940 MIN 42 AC-FT 129800
WTR YR 1990 TOTAL 82569 MEAN 226 MAX 5720 MIN 39 AC-FT 163800

KANSAS RIVER BASIN

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06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-70, 1973 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: May 1988 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 9,760 mg/L June 15, 1990; minimum daily, 4 mg/L

Nov. 3, 1989.

SEDIMENT LOADS: Maximum daily, 22,100 tons July 22, 1990; minimum daily, 0.68 tons Nov.3,

Dec. 23, 1989.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 9,760 mg/L June 15; minimum daily, 4 mg/L Nov. 3.

SEDIMENT LOADS: Maximum daily, 22,100 tons July 22; minimum daily, 0.68 tons Nov. 3, Dec. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 31...	1330	64	572	7.9	6.5	725	4.2	12.1	240	--	71
NOV 28...	1000	66	665	8.1	0.0	735	4.5	15.4	240	0	76
DEC 18...	1135	45	--	7.5	0.0	730	2.5	12.1	250	--	78
JAN 17...	1130	64	648	8.2	4.0	726	6.2	13.5	240	2	73
FEB 12...	1400	82	622	8.3	8.0	712	7.4	16.0	230	17	72
MAR 26...	1000	71	560	8.3	5.0	738	25	13.4	210	20	66
APR 17...	1545	64	--	8.4	12.0	735	11	14.9	240	8	74
JUN 27...	1200	170	329	8.1	27.5	725	280	6.8	130	--	38
JUL 26...	0930	2190	117	7.4	20.5	724	500	6.4	33	0	9.4

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT 31...	15	35	1	7.5	--	--	--	60	22	0.30	18
NOV 28...	13	36	1	7.8	248	0	303	59	20	0.30	24
DEC 18...	14	40	1	7.7	--	--	--	66	23	0.30	31
JAN 17...	13	36	1	8.1	234	0	286	59	21	0.30	28
FEB 12...	13	39	1	7.6	216	0	264	60	22	0.30	26
MAR 26...	12	30	0.9	10	194	0	237	51	15	0.20	29
APR 17...	13	37	1	7.5	230	5	271	53	22	0.30	23
JUN 27...	7.8	18	0.7	12	--	--	--	33	17	0.40	23
JUL 26...	2.4	4.3	0.3	11	62	0	76	8.8	4.2	0.20	12

KANSAS RIVER BASIN

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 31...	367	374	0.50	63.4	0.830	0.010	0.840	0.020	0.70	0.430	0.320
NOV 28...	371	396	0.50	66.1	1.98	0.020	2.00	0.020	0.70	0.510	0.370
DEC 18...	420	423	0.57	51.0	3.08	0.020	3.10	0.470	0.70	0.600	0.360
JAN 17...	404	395	0.55	69.8	2.75	0.050	2.80	0.750	1.4	0.710	0.630
FEB 12...	396	370	0.54	87.7	--	0.050	2.80	0.260	0.50	0.620	0.550
MAR 26...	356	342	0.48	68.2	2.26	0.040	2.30	0.070	0.60	0.620	0.510
APR 17...	377	378	0.51	65.1	1.68	0.020	1.70	0.010	0.90	0.470	0.370
JUN 27...	225	236	0.31	103	2.46	0.040	2.50	0.090	2.6	0.830	0.490
JUL 26...	158	102	0.21	934	2.03	0.070	2.10	0.140	2.4	0.800	0.450

DATE	TIME	ALUM- INIUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BROMIDE DIS- SOLVED (UG/L AS BR) (71870)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 31...	1330	<10	5	190	<0.5	0.070	1.0	1	<3	<1	11
NOV 28...	1000	<10	4	170	<0.5	--	<1.0	<1	<3	5	18
DEC 18...	1135	<10	5	180	<0.5	--	<1.0	1	<3	2	12
JAN 17...	1130	10	4	160	<0.5	0.070	<1.0	1	<3	7	9
FEB 12...	1400	20	4	150	<0.5	--	<1.0	1	<3	2	7
MAR 26...	1000	20	5	150	<0.5	--	1.0	<5*	<3	<10*	14
APR 17...	1545	<10	5	160	<0.5	0.050	<1.0	2	<3	3	8
JUN 27...	1200	<10	5	150	<0.5	--	2.0	2	<3	7	42
JUL 26...	0930	480	5	60	<0.5	0.090	1.0	2	<3	13	350

*Minimum reporting level differs due to methodology.

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 31...	<1	22	140	<0.1	<10	2	4	<1.0	370	<6	11
NOV 28...	1	26	200	<0.1	<10	2	4	<1.0	370	<6	12
DEC 18...	<1	24	240	<0.1	<10	2	5	<1.0	390	<6	8
JAN 17...	1	21	190	<0.1	<10	3	5	<1.0	350	<6	11
FEB 12...	1	21	200	0.1	<10	3	4	1.0	350	<6	<3
MAR 26...	<10*	18	170	<0.1	<10	10*	4	<1.0	330	<6	<3
APR 17...	1	20	220	<0.1	10	3	6	<1.0	350	7	<3
JUN 27...	1	17	21	0.2	<10	3	3	<1.0	200	10	22
JUL 26...	3	5	20	0.1	<10	5	<1	<1.0	56	7	30

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[illegible]

KANSAS RIVER BASIN

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	69	12	7	1.2	e460	78	e30	4.9	e20	3.9	21	3.1
2	52	9.1	5	.82	e82	14	e30	4.0	e24	4.0	18	2.6
3	35	5.9	4	.68	113	21	e35	6.0	e23	4.0	20	2.9
4	28	4.7	7	1.2	370	59	e40	5.6	e25	4.5	24	3.5
5	37	6.6	130	21	78	13	41	5.9	e25	5.0	38	5.5
6	41	6.9	78	13	e20	3.5	22	3.4	25	4.9	e192	29
7	e35	6.2	13	2.0	e15	2.6	214	34	25	5.1	e105	20
8	29	5.5	31	4.6	e12	1.8	78	12	e33	7.0	73	14
9	32	5.4	e33	5.1	e12	1.9	28	3.4	20	4.2	53	11
10	59	9.9	18	2.7	e12	1.9	34	3.6	23	4.8	45	8.4
11	38	6.4	18	2.7	e10	1.5	98	11	34	7.3	55	11
12	32	5.2	e18	2.6	e10	1.5	227	28	38	8.1	80	17
13	35	5.8	6	.91	e16	2.8	45	6.4	e34	5.9	e70	15
14	38	6.4	12	1.7	e14	2.3	22	3.3	e34	5.9	61	13
15	42	7.3	10	1.4	e12	1.7	25	3.6	e40	6.5	780	324
16	28	5.2	e9	1.3	e12	1.5	28	4.7	e30	4.7	2420	2010
17	18	3.5	8	1.2	e10	1.3	28	4.8	e30	4.2	1800	821
18	12	2.2	12	1.8	e10	1.4	21	3.6	e28	4.2	1200	376
19	9	1.7	12	1.8	e8	1.1	e20	3.5	e25	3.9	790	207
20	12	2.1	12	1.9	e10	1.3	e30	5.3	22	3.7	560	135
21	13	2.4	e14	2.2	e8	.97	e50	8.6	17	2.6	375	84
22	16	2.8	15	2.5	e8	.93	e40	7.8	30	4.6	262	57
23	17	2.9	14	2.3	e6	.68	e25	5.1	50	7.7	e220	45
24	14	2.3	18	3.1	e50	6.1	e22	4.4	28	4.3	e137	27
25	12	2.1	17	3.0	e40	5.4	19	3.8	21	3.2	70	13
26	14	2.4	22	3.9	e20	2.8	18	3.6	21	3.2	46	8.8
27	17	3.0	e93	17	e15	2.3	32	6.2	37	5.6	53	9.9
28	15	2.8	97	16	e15	2.4	e28	5.7	28	4.2	e54	10
29	15	2.8	e480	80	e18	3.1	e22	4.5	---	---	54	11
30	8	1.4	1240	224	e20	3.7	e21	4.1	---	---	57	11.7
31	9	1.5	---	---	e25	4.2	e20	3.9	---	---	48	9.7
TOTAL	---	144.4	---	423.61	---	245.78	---	215.7	---	137.2	---	4315.4

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO OCTOBER 1990

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	66	13	55	8.5	368	75	1500	1020	920	1190	280	82
2	82	15	71	11	354	69	1070	451	e1910	1850	250	73
3	62	11	74	12	278	53	800	276	3500	7640	178	53
4	65	11	e62	11	258	49	640	195	1500	10200	221	63
5	55	9.7	87	16	222	45	520	152	1220	6590	249	67
6	33	5.7	98	18	171	34	e540	168	1400	5780	168	43
7	27	4.7	159	27	391	89	560	191	900	5390	120	29
8	46	8.1	208	34	1520	443	680	288	900	3060	185	43
9	e88	15	2350	857	532	126	660	255	780	752	218	49
10	88	15	1220	432	400	85	620	201	492	274	186	42
11	59	9.9	920	375	376	79	580	191	350	143	e178	39
12	e34	5.9	1150	525	328	66	600	222	384	151	122	26
13	25	4.5	1250	479	216	41	500	174	320	127	100	20
14	40	7.3	1130	375	198	35	480	168	298	119	95	18
15	78	15	1050	275	9760	17200	490	191	333	158	88	15
16	75	14	820	175	5050	17900	580	241	341	234	80	14
17	47	8.1	700	134	4000	18400	630	250	605	368	e78	14
18	73	13	860	167	2100	11500	e630	264	430	192	77	14
19	65	11	4440	3030	1950	5630	620	305	380	135	73	13
20	53	9.2	2400	1460	1660	1830	2000	2190	313	97	100	17
21	56	9.7	3200	2680	4750	7090	3060	8340	e285	82	86	15
22	57	9.8	2100	1350	2500	3230	1700	22100	306	91	80	13
23	68	12	1800	836	1950	2200	860	13300	e298	89	69	11
24	58	9.7	1450	532	2000	2120	820	8010	e307	138	65	11
25	55	9.1	1050	332	1580	1310	1050	6460	390	146	78	13
26	63	10	750	211	1110	701	1970	10900	400	130	80	13
27	87	14	e650	165	1010	624	1500	9400	352	108	79	14
28	55	8.6	580	133	3740	7820	1000	9100	352	121	92	16
29	40	6.2	540	117	2980	5890	800	6590	324	111	70	11
30	35	5.4	455	95	2340	2510	660	4760	336	104	55	8.6
31	---	---	400	82	---	---	800	2680	335	99	---	---
TOTAL	---	300.6	---	14954.5	---	107244	---	109033	---	45669	---	859.6
YEAR	283542.79											

e Estimated

06881000 BIG BLUE RIVER NEAR CRETE, NE

LOCATION.--Lat 40°35'47", long 96°57'33", in SW1/4SE1/4 sec.3, T.7 N., R.4 E., Saline County, Hydrologic Unit 10270202, on right bank near downstream side of county road bridge, 1.8 mi south of Missouri Pacific Railroad station in Crete, 3.3 mi downstream from Walnut Creek, and 3.6 mi upstream from Squaw Creek.

DRAINAGE AREA.--2,716 mi².

PERIOD OF RECORD.--March 1945 to current year. Prior to Oct. 1, 1953, discharge published only for stages above 12.0 ft because of variable backwater from dam downstream until 1952 and diurnal fluctuation from powerplant upstream in 1952-53.

REVISED RECORDS.--WSP 1919: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,311.7 ft above National Geodetic Vertical Datum of 1929. Prior Jan. 20, 1954, nonrecording gage and Jan. 21, 1954 to Mar. 27, 1986, recording gage on right bank at downstream side of county road bridge at present datum. Mar. 28, 1986 to May 11, 1988 at temporary location, on right bank 250 ft downstream from bridge at present datum.

REMARKS.--Estimated daily discharges: Dec. 14-24, Jan. 1-6, and Jan. 13-15. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by ground-water and surface-water withdrawals for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--37 years (1953-90), 397 ft³/s, 287,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,600 ft³/s July 10, 1950, gage height, 28.74 ft; maximum gage height, 29.86 ft July 3, 1986, from floodmark; minimum daily discharge, 6.0 ft³/s Aug. 1, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 24	1400	5790	21.80	Aug. 5	1300	3880	18.86
July 29	1900	*5920	*21.96				

Minimum daily discharge, 90 ft³/s Dec.16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	137	122	125	129	124	162	127	240	469	3530	190
2	197	136	122	110	95	125	158	127	215	338	2580	185
3	188	135	95	115	105	124	153	136	196	317	1530	182
4	179	136	129	120	134	125	148	152	184	252	2750	181
5	175	144	125	110	147	125	144	149	178	201	3780	174
6	169	139	120	115	128	128	141	145	177	178	2610	169
7	163	139	120	131	133	145	138	143	184	170	2380	162
8	159	137	119	132	123	156	136	136	190	178	2500	155
9	154	134	120	135	122	162	135	274	225	207	1200	150
10	148	132	118	144	123	167	139	374	203	199	675	147
11	143	131	115	142	122	161	139	280	224	186	535	143
12	138	130	93	123	123	162	139	275	224	191	486	139
13	137	129	113	110	125	167	146	290	195	206	568	137
14	136	130	110	115	112	175	147	261	182	194	665	132
15	134	129	98	120	104	163	149	237	286	218	786	125
16	133	127	90	143	114	264	147	211	1460	212	514	119
17	134	126	94	140	120	476	146	193	1760	207	504	116
18	134	124	98	137	134	308	143	180	1790	189	441	122
19	132	125	110	134	128	221	142	250	1900	182	361	116
20	132	124	100	125	131	187	142	577	1000	288	315	116
21	131	126	98	124	132	170	141	398	1020	626	288	113
22	130	125	94	143	128	160	140	415	1160	1340	261	113
23	131	123	90	149	125	159	139	345	834	3540	254	110
24	133	121	92	140	125	156	139	288	723	5560	247	109
25	133	120	93	132	126	151	135	273	632	4180	294	110
26	134	120	110	137	126	149	135	271	542	3730	270	108
27	134	120	115	138	125	147	134	312	455	4570	243	107
28	132	114	126	126	123	148	133	309	477	5350	219	109
29	131	113	135	131	---	159	133	317	889	5810	216	107
30	131	120	136	135	---	160	130	324	703	5640	213	104
31	151	---	135	127	---	163	---	309	---	5190	198	---
TOTAL	4560	3846	3435	4008	3462	5387	4253	8078	18448	50118	31413	4050
MEAN	147	128	111	129	124	174	142	261	615	1617	1013	135
MAX	204	144	136	149	147	476	162	577	1900	5810	3780	190
MIN	130	113	90	110	95	124	130	127	177	170	198	104
AC-FT	9040	7630	6810	7950	6870	10690	8440	16020	36590	99410	62310	8030

CAL YR 1989 TOTAL 129701 MEAN 355 MAX 7210 MIN 81 AC-FT 257300
WTR YR 1990 TOTAL 141058 MEAN 386 MAX 5810 MIN 90 AC-FT 279800

KANSAS RIVER BASIN

06881200 TURKEY CREEK NEAR WILBER, NE

LOCATION.--Lat 40°28'48", long 97°00'43", in NE1/4NE1/4 sec.19, T.6 N., R.4 E., Saline County, Hydrologic Unit 10270204, on left bank near downstream side of bridge on State Highway 41, 2.8 mi west of Wilber.

DRAINAGE AREA.--460 mi².

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 1919: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,322.00 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1970, at site 0.2 mile downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 28-30, Dec. 2-4, 10-26, Jan. 12, and Feb. 1-2, 14-18. Records good except for periods of estimated record, which are poor. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--31 years, 94.3 ft³/s, 68,320 acre-ft/yr; median of yearly mean discharges, 62.4 ft³/s, 45,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s June 13, 1984, gage height, 21.43 ft, from highwater mark; no flow Sept. 20, 21, 24, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 18	0900	*2790	*14.45	Aug. 5	2000	1260	11.72

Minimum daily discharge, 0.59 ft³/s Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	14	7.0	13	9.6	12	20	13	17	75	47	3.5
2	7.9	12	7.0	12	8.8	14	18	13	16	51	37	1.8
3	7.9	11	6.3	10	8.3	13	17	13	15	36	31	4.0
4	7.9	9.9	7.1	12	7.3	12	15	16	14	35	513	3.7
5	8.3	8.6	8.0	14	11	12	14	19	14	31	1160	3.1
6	7.8	8.4	12	12	10	13	14	21	14	29	691	1.9
7	6.9	8.4	11	12	9.9	18	13	17	15	29	158	2.2
8	7.4	7.4	7.3	13	11	26	13	16	16	29	91	1.8
9	7.0	7.7	9.7	12	9.8	30	13	82	17	24	62	1.4
10	7.1	7.3	11	12	10	22	13	285	17	21	46	2.5
11	7.7	7.1	10	10	14	21	13	255	16	18	36	1.5
12	8.8	6.5	8.5	8.8	13	19	14	146	15	15	37	1.0
13	7.4	6.4	7.6	7.2	12	19	14	79	16	17	34	.78
14	8.2	6.5	7.2	7.6	11	20	14	55	16	19	29	.64
15	8.8	7.8	7.0	7.6	8.0	18	15	39	310	13	22	.68
16	8.9	5.9	6.6	9.9	8.0	17	15	32	1300	17	22	.59
17	8.1	5.6	7.0	8.5	7.8	15	14	27	2060	17	20	.61
18	8.6	5.6	6.5	7.2	9.6	14	14	21	2540	13	15	.69
19	10	5.7	6.0	7.1	11	12	14	34	911	9.0	12	.65
20	13	6.4	5.8	9.9	13	12	14	238	263	14	9.4	.65
21	13	6.2	5.6	12	12	12	15	92	134	19	8.6	.71
22	13	5.8	5.6	10	13	12	15	71	99	19	8.9	.84
23	14	5.8	5.4	9.9	13	12	15	82	77	51	8.9	1.0
24	13	5.7	6.4	12	13	12	15	88	63	25	7.7	1.2
25	13	7.2	7.5	15	11	13	14	59	54	23	6.0	1.8
26	13	6.8	8.0	9.9	11	13	14	39	48	68	4.2	2.0
27	13	7.3	10	11	12	13	14	29	44	223	8.0	2.4
28	13	6.2	12	13	12	13	14	23	150	328	8.0	2.6
29	15	5.8	13	8.9	---	16	14	20	180	282	8.4	2.3
30	13	7.4	15	12	---	19	13	19	136	106	8.9	2.3
31	13	---	14	8.0	---	24	---	18	---	77	6.6	---
TOTAL	312.0	222.4	261.1	327.5	300.1	498	434	1961	8587	1733.0	3156.6	50.84
MEAN	10.1	7.41	8.42	10.6	10.7	16.1	14.5	63.3	286	55.9	102	1.69
MAX	15	14	15	15	14	30	20	285	2540	328	1160	4.0
MIN	6.9	5.6	5.4	7.1	7.3	12	13	13	14	9.0	4.2	.59
AC-FT	619	441	518	650	595	988	861	3890	17030	3440	6260	101

CAL YR 1989 TOTAL 21212.8 MEAN 58.1 MAX 1930 MIN 5.0 AC-FT 42080
WTR YR 1990 TOTAL 17843.54 MEAN 48.9 MAX 2540 MIN .59 AC-FT 35390

06881500 BIG BLUE RIVER AT BEATRICE, NE

LOCATION.--Lat 40°15'22", long 96°44'47", in SW1/4NW1/4 sec.3, T.3 N., R.6 E., Gage County, Hydrologic Unit 10270202, at left upstream corner of 6th Street and U.S. Highway 77 bridge in Beatrice, 0.7 mi south of the intersection of U.S. Highways 136 and 77, 1.2 mi downstream from Indian Creek, and 3.1 mi upstream from Bear Creek.

DRAINAGE AREA.--3,900 mi², of which about 3,830 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--October 1910 to September 1915, (monthly discharge only for some periods, published in WSP 1310), 1954, 1960-65, 1967-69, 1971-74 (discharge measurements only), October 1974 to current year.
Gage-height records collected 1905-10, 1916-74, are in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 1,219.90 ft above National Geodetic Vertical Datum of 1929.
October 1910 to September 1915, non-recording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 4, Dec. 12 to Jan. 9, Jan. 12, 15, and Feb. 3-21. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--21 years (water years 1911-15, 1975-90), 757 ft³/s, 548,400 acre-ft/yr; median of yearly mean discharges, 605 ft³/s, 438,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,100 ft³/s June 14, 1984, gage height, 31.27 ft; minimum daily, 20 ft³/s Aug. 15, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1902, 55,100 ft³/s June 14, 1984; maximum gage height, 33.02 ft Oct. 12, 1973, from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	1900	*11200	*18.78	July 31	1513	6260	11.90
July 26	0140	5540	11.04	Aug. 6	1415	5540	11.04

Minimum daily discharge, 120 ft³/s Dec.12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	279	190	157	220	214	195	249	176	413	993	5980	215
2	259	203	166	220	207	191	242	173	340	664	4490	197
3	254	194	154	210	170	193	237	185	291	486	2990	196
4	246	194	150	220	175	192	232	195	263	388	1920	189
5	243	187	151	210	185	194	224	211	249	347	3700	187
6	237	190	175	210	200	201	218	217	242	318	5350	189
7	232	194	166	215	220	230	214	215	253	281	3510	186
8	228	190	160	220	210	247	212	207	257	244	2790	187
9	226	187	166	220	205	257	219	230	249	228	2760	184
10	220	184	163	225	200	269	215	305	270	247	1540	192
11	218	181	124	232	195	272	206	736	271	258	887	204
12	214	178	120	220	205	262	204	661	262	236	702	193
13	210	181	140	221	190	265	211	524	285	230	865	183
14	209	178	150	208	185	279	216	452	294	241	878	181
15	206	178	140	185	175	292	219	590	6750	245	760	172
16	203	172	135	168	160	288	219	497	8100	248	873	168
17	200	175	150	216	150	259	216	353	7130	253	617	167
18	192	172	180	211	160	502	211	308	5370	247	543	170
19	190	169	200	210	180	431	207	302	4730	234	539	167
20	189	166	190	223	190	323	212	305	3300	226	530	162
21	187	166	180	205	195	270	210	807	1810	312	352	159
22	185	172	160	238	221	244	210	632	1480	801	325	154
23	186	172	150	215	216	230	207	572	1560	1360	294	150
24	187	175	150	225	208	221	201	549	1190	3470	278	148
25	187	178	180	223	203	216	201	482	1010	5120	264	150
26	185	175	210	212	198	212	195	410	870	5320	278	152
27	189	178	220	215	194	210	188	380	872	4890	283	155
28	188	166	225	221	197	218	184	389	735	5400	253	156
29	194	160	230	212	---	224	180	386	680	5860	241	144
30	187	160	235	206	---	236	179	401	1150	6150	225	145
31	187	---	225	220	---	243	---	392	---	6190	223	---
TOTAL	6517	5365	5302	6656	5408	7866	6338	12242	50676	51487	45240	5202
MEAN	210	179	171	215	193	254	211	395	1689	1661	1459	173
MAX	279	203	235	238	221	502	249	807	8100	6190	5980	215
MIN	185	160	120	168	150	191	179	173	242	226	223	144
AC-FT	12930	10640	10520	13200	10730	15600	12570	24280	100500	102100	89730	10320

CAL YR 1989 TOTAL 196276 MEAN 538 MAX 7950 MIN 110 AC-FT 389300
WTR YR 1990 TOTAL 208299 MEAN 571 MAX 8100 MIN 120 AC-FT 413200

KANSAS RIVER BASIN

06882000 BIG BLUE RIVER AT BARNESTON, NE
(National stream-quality accounting network station)
(National water-quality assessment station)

LOCATION.--Lat 40°02'40", long 96°35'12", in NE1/4NW1/4 sec.24, T.1 N., R.7 E., Gage County, Hydrologic Unit 10270202, on right bank at right downstream end of bridge on State Highway 8, 0.6 mi southwest of Barneston, 1.3 mi upstream from Plum Creek, and 4.3 mi upstream from Nebraska-Kansas State line.

DRAINAGE AREA.--4,447 mi², of which about 4,370 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1932 to current year.

REVISED RECORDS.--WSP 896: 1932, 1935. WSP 1919: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,162.2 ft above National Geodetic Vertical Datum of 1929. Prior to June 9, 1941, water-stage recorder at site 0.3 mi downstream at datum 1.56 ft higher. June 9 to Nov. 17, 1941, nonrecording gage and Nov. 18, 1941, to Sept. 30, 1979, water-stage recorder at site 0.7 mi upstream at datum 2.0 ft higher.

REMARKS.--Estimated daily discharges: Dec. 18, Dec. 20 to Jan. 2, and May 26 to June 17. Records fair except for periods of estimated record, which are poor. Low flow regulated by dam at unused powerplant 0.7 mi upstream. No large tributaries between station and Nebraska-Kansas State line. Some pump diversions for irrigation above station. Natural flow of stream affected by ground-water withdrawals for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--58 years, 839 ft³/s, 607,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,700 ft³/s June 9, 1941, gage height, 34.3 ft; minimum daily, 1 ft³/s Nov. 30, 1945.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 16	unknown	*16900	*a20.62	No other peak greater than base discharge.			

a From floodmark.

Minimum daily discharge, 140 ft³/s Dec. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291	190	210	240	226	208	308	203	460	1360	5570	219
2	266	197	209	230	205	209	301	199	450	1030	4870	214
3	250	208	207	232	182	205	290	207	400	798	3550	202
4	245	205	208	241	188	208	280	237	390	619	2280	198
5	245	216	220	232	207	207	266	231	290	526	2990	192
6	239	206	224	232	224	207	245	244	290	473	4870	192
7	231	208	200	231	247	249	230	244	300	427	4210	192
8	230	211	190	234	241	283	228	236	310	359	2950	189
9	228	208	200	247	227	286	232	257	300	322	3010	185
10	223	206	210	256	224	291	240	261	310	376	2040	186
11	231	206	160	264	223	295	223	576	320	344	1100	190
12	235	201	140	246	225	301	219	811	310	330	949	196
13	236	211	150	230	218	284	229	651	310	297	1090	196
14	235	204	160	227	207	327	234	540	3000	289	1160	186
15	241	206	150	239	200	328	239	2310	6000	301	876	178
16	218	200	150	255	184	325	238	2100	12000	306	980	176
17	211	190	170	248	164	306	237	915	9600	310	797	173
18	199	204	200	246	182	351	233	531	8100	299	608	181
19	194	202	210	241	203	521	233	435	8030	295	561	168
20	193	199	220	260	222	420	234	378	5930	291	636	182
21	198	205	210	253	221	333	230	592	3950	319	489	181
22	205	207	180	218	227	285	232	838	2690	652	387	168
23	208	202	160	229	227	261	233	620	2490	1170	345	156
24	214	209	180	249	220	258	231	620	1900	2810	301	153
25	225	207	210	254	212	249	227	587	1500	4540	278	152
26	237	208	220	246	209	247	227	450	1330	5040	264	148
27	239	213	240	234	205	241	220	420	1350	4520	290	148
28	244	204	240	230	203	247	211	420	1160	4850	276	149
29	240	196	250	232	---	272	208	460	929	5250	253	147
30	209	202	250	220	---	287	202	470	1230	5570	244	146
31	193	---	250	218	---	308	---	450	---	5670	228	---
TOTAL	7053	6131	6178	7414	5823	8799	7160	17493	75629	49743	48452	5343
MEAN	228	204	199	239	212	284	239	564	2521	1605	1563	178
MAX	291	216	250	264	247	521	308	2310	12000	5670	5570	219
MIN	193	190	140	218	164	205	202	199	290	289	228	146
AC-FT	13990	12160	12250	14710	11750	17450	14200	34700	150000	98670	96100	10600

CAL YR 1989 TOTAL 218062 MEAN 597 MAX 7630 MIN 109 AC-FT 432500
WTR YR 1990 TOTAL 245318 MEAN 672 MAX 12000 MIN 140 AC-FT 486600

KANSAS RIVER BASIN

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06882000 BIG BLUE RIVER AT BARNESTON, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967-69, October 1980 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1966 to September 1969.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 29.0°C on several days in summer periods; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV										
29...	1030	203	788	8.5	2.0	742	4.7	17.2	<10	K6
DEC										
19...	0920	180	939	8.2	0.0	742	3.4	16.7	--	--
JAN										
18...	1000	246	767	8.2	0.5	741	3.3	17.9	K40	K64
FEB										
13...	1030	226	784	8.2	4.0	728	5.5	14.7	--	--
MAR										
21...	0945	338	708	8.7	9.5	730	20	12.6	K29	K58
APR										
18...	1000	233	680	8.6	11.0	739	19	13.0	--	--
MAY										
17...	1350	849	378	7.9	18.0	735	200	9.7	6100	13000
JUL										
26...	1400	5100	148	7.6	20.5	731	500	8.4	3500	9600
SEP										
04...	1100	195	632	8.3	26.5	739	50	8.4	K270	K380

K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD CO3 (00452)
NOV									
29...	260	8	78	16	61	2	8.2	254	7
DEC									
19...	290	16	86	18	68	2	8.9	273	0
JAN									
18...	240	22	73	15	53	1	7.1	222	0
FEB									
13...	260	27	77	16	56	2	6.6	232	0
MAR									
21...	260	22	78	16	51	1	7.5	239	13
APR									
18...	220	17	61	16	59	2	7.2	202	13
MAY									
17...	130	0	35	9.2	25	1	12	135	0
JUL									
26...	42	0	12	2.8	5.5	0.4	12	49	0
SEP									
04...	200	8	58	13	48	1	11	190	0

KANSAS RIVER BASIN

06882000 BIG BLUE RIVER AT BARNESTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV 29...	295	70	51	0.30	19	464	464	0.63	254
DEC 19...	333	86	58	0.30	24	539	532	0.73	262
JAN 18...	271	69	43	0.20	24	457	434	0.62	304
FEB 13...	283	74	46	0.30	21	471	437	0.64	287
MAR 21...	265	69	35	0.30	16	443	428	0.60	404
APR 18...	220	68	47	0.20	7.8	405	392	0.55	255
MAY 17...	165	28	14	0.20	12	236	228	0.32	541
JUL 26...	60	12	5.4	0.20	13	106	106	0.14	1460
SEP 04...	232	50	41	<0.10	24	348	371	0.47	183

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 29...	1.47	0.030	1.50	0.030	0.020	0.87	0.90	0.480	0.360
DEC 19...	3.54	0.060	3.60	--	0.610	--	1.5	0.750	0.570
JAN 18...	3.06	0.040	3.10	0.430	0.460	0.47	0.90	0.590	0.560
FEB 13...	--	0.040	2.90	--	0.010	--	0.80	0.620	0.490
MAR 21...	2.17	0.030	2.20	0.020	0.020	0.68	0.70	0.650	0.460
APR 18...	0.670	0.030	0.700	--	0.040	--	2.0	0.590	0.150
MAY 17...	1.89	0.110	2.00	0.500	0.480	2.4	2.9	0.680	0.260
JUL 26...	2.70	0.100	2.80	0.050	<0.010	3.0	3.1	0.710	0.230
SEP 04...	2.27	0.030	2.30	--	0.080	--	1.3	0.690	0.580

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT 23...	1600	20	5	170	<0.5	0.050	<1.0	1	<3	1
NOV 29...	1030	10	4	150	<0.5	--	1.0	1	<3	2
DEC 19...	0920	<10	5	170	<0.5	--	<1.0	1	<3	3
JAN 18...	1000	<10	4	130	<0.5	0.040	<1.0	<1	<3	4
FEB 13...	1030	10	4	140	<0.5	--	<1.0	<1	<3	4
MAR 21...	0945	20	5	140	<0.5	--	<1.0	<5*	<3	<10*
APR 18...	1000	10	5	110	<0.5	0.030	<1.0	2	<3	6
MAY 17...	1350	290	3	120	<0.5	--	<1.0	<1	<3	16
JUL 26...	1400	280	4	72	<0.5	--	<1.0	<1	<3	6
SEP 04...	1100	--	--	--	--	--	--	--	--	--

*Minimum reporting level differs due to methodology.

KANSAS RIVER BASIN

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06882000 BIG BLUE RIVER AT BARNESTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)
OCT 23...	17	<1	21	6	<0.1	<10	3	3	<1.0	370
NOV 29...	7	<1	26	130	<0.1	<10	3	3	<1.0	410
DEC 19...	6	<1	29	220	<0.1	<10	3	4	<1.0	460
JAN 18...	8	<1	22	130	<0.1	<10	2	4	<1.0	370
FEB 13...	9	<1	22	90	0.1	<10	2	4	<1.0	390
MAR 21...	14	<10*	20	140	<0.1	<10	10*	4	<1.0	380
APR 18...	18	1	22	91	<0.1	<10	3	4	<1.0	350
MAY 17...	200	1	10	21	<0.1	<10	5	1	<1.0	220
JUL 26...	270	1	6	13	<0.1	<10	4	<1	<1.0	72
SEP 04...	--	--	--	--	--	--	--	--	--	--

DATE	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)
OCT 23...	6	8	1	5.9	--	--	--	--	--	--
NOV 29...	<6	4	--	4.1	3.4	<0.10	<0.10	<0.1	1.0	<0.1
DEC 19...	<6	4	--	3.8	1.1	<0.10	<0.10	<0.1	<0.10	<0.1
JAN 18...	<6	11	<1	3.1	0.5	<0.10	<0.10	<0.1	0.10	<0.1
FEB 13...	<6	<3	--	3.3	1.9	<0.10	<0.10	<0.1	0.10	<0.1
MAR 21...	<6	<3	--	4.7	4.5	--	--	--	--	--
APR 18...	8	<3	<1	4.4	4.0	--	--	--	--	--
MAY 17...	7	12	--	13	2.9	--	--	--	--	--
JUL 26...	9	16	--	--	--	--	--	--	--	--
SEP 04...	--	--	--	--	--	--	--	--	--	--

DATE	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT. REC (UG/L) (82612)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 23...	--	--	--	--	--	--	--	33	20	96
NOV 29...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	15	8.2	88
DEC 19...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	10	4.9	90
JAN 18...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	44	29	24
FEB 13...	<0.1	0.10	<0.10	<0.10	<0.10	<0.1	<0.1	60	37	92
MAR 21...	--	--	--	--	--	--	--	64	58	93
APR 18...	--	--	--	--	--	--	--	50	31	94
MAY 17...	--	--	--	--	--	--	--	522	1200	100
JUL 26...	--	--	--	--	--	--	--	1830	25200	98
SEP 04...	--	--	--	--	--	--	--	141	74	97

KANSAS RIVER BASIN

06883000 LITTLE BLUE RIVER NEAR DEWEESE, NE

LOCATION.--Lat 40°19'58", long 98°04'00", in SW1/4NW1/4 sec.12, T.4 N., R.7 W., Nuckolls County, Hydrologic Unit 10270206, on right bank 10 ft downstream from bridge on State Highway 14, 1 mi upstream from Walnut Creek, 3.2 mi southeast of Deweese, and 6 mi northwest of Angus.

DRAINAGE AREA.--979 mi².

PERIOD OF RECORD.--February 1953 to September 1972, October 1974 to current year.

REVISED RECORDS.--WSP 1919: Drainage area.

GAGE.--Water-stage recorder and peak-stage indicator gage.. Datum of gage is 1,632.67 ft above National Geodetic Vertical Datum of 1929. Prior to May 16, 1957, non-recording gage and Oct. 1, 1974, to Mar. 24, 1981, recording gage at present site and datum; May 16, 1957, to Sept. 30, 1972, and Mar. 25, 1981 to Mar. 24, 1982, at site 1,500 ft upstream from bridge at present datum.

REMARKS.--Estimated daily discharges: Nov. 23, 29, Dec. 11 to Jan. 5, Jan. 20, and Feb. 2-5, 15-19. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--35 years (water years 1954-72, 1975-90), 146 ft³/s, 105,800 acre-ft/yr; median of yearly mean discharges, 132 ft³/s, 95,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,100 ft³/s Aug. 31, 1969, gage height, 18.57 ft; minimum daily, 3.2 ft³/s Aug. 11, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 26, 1951, reached a stage of 14.9 ft, from information by local residents, discharge, 16,000 ft³/s, based on records for former station at Angus.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 3	0933	*2270	*6.73	No other peak above base discharge.			
Minimum daily discharge, 32 ft ³ /s July 24.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	48	53	52	61	61	69	72	116	72	52	75
2	52	48	53	49	58	62	67	73	136	69	58	72
3	52	50	53	52	56	62	67	82	211	62	1530	67
4	51	51	53	56	58	63	68	98	178	57	1070	63
5	52	51	54	60	60	63	68	92	137	58	351	58
6	51	50	54	62	61	69	67	86	120	94	166	51
7	50	51	52	61	61	84	68	83	154	85	96	47
8	50	50	51	60	62	76	69	81	129	63	80	45
9	50	50	53	61	62	71	69	431	113	54	68	45
10	48	50	52	60	63	69	68	544	118	49	63	51
11	49	50	52	60	63	68	66	268	122	51	159	47
12	48	50	49	59	63	67	66	188	105	51	461	45
13	48	51	47	64	62	72	68	208	99	53	887	43
14	49	50	43	63	61	88	69	181	96	58	535	42
15	49	49	37	62	60	77	68	150	106	58	304	44
16	47	49	34	62	56	72	67	132	117	51	189	44
17	47	51	37	62	50	67	67	117	284	45	129	44
18	46	50	40	61	52	65	67	109	163	43	103	46
19	47	51	46	61	56	64	68	149	359	45	589	46
20	48	52	42	60	56	65	73	131	287	63	466	49
21	50	51	37	63	58	66	71	268	149	63	263	48
22	49	51	42	62	60	66	72	213	124	56	147	47
23	49	50	36	63	60	65	72	159	115	41	121	45
24	49	52	33	63	59	66	73	134	130	32	107	46
25	50	53	34	62	58	65	75	122	112	66	100	47
26	50	53	39	62	59	66	76	113	102	276	95	45
27	53	52	43	62	59	66	76	107	99	151	89	45
28	51	53	52	61	59	68	74	103	94	78	84	45
29	50	52	60	62	---	70	73	100	86	66	82	46
30	49	53	56	63	---	70	72	122	78	58	78	47
31	48	---	52	62	---	70	---	135	---	53	73	---
TOTAL	1537	1522	1439	1872	1653	2123	2093	4851	4239	2121	8595	1485
MEAN	49.6	50.7	46.4	60.4	59.0	68.5	69.8	156	141	68.4	277	49.5
MAX	55	53	60	64	63	88	76	544	359	276	1530	75
MIN	46	48	33	49	50	61	66	72	78	32	52	42
AC-FT	3050	3020	2850	3710	3280	4210	4150	9620	8410	4210	17050	2950

CAL YR 1989 TOTAL 53175 MEAN 146 MAX 5400 MIN 33 AC-FT 105500
WTR YR 1990 TOTAL 33530 MEAN 91.9 MAX 1530 MIN 32 AC-FT 66510

KANSAS RIVER BASIN

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06883570 LITTLE BLUE RIVER NEAR ALEXANDRIA, NE

LOCATION.--Lat 40°12'25", long 97°23'18", in SE1/4SE1/4 sec.23, T.3 N., R.1 W., Thayer County, Hydrologic Unit 10270206, on left bank 10 ft upstream from bridge on State Highway 53, 2.7 mi south of Alexandria, 9.8 mi downstream from Dry Creek, and 5.7 mi upstream from Big Sandy Creek.

DRAINAGE AREA.--1,557 mi².

PERIOD OF RECORD.--July 1959 to September 1972 (published as "near Gilead"), April 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,359.29 ft above National Geodetic Vertical Datum of 1929. July 1959 to Sept. 30, 1972, at site 2.3 mi upstream at datum 12.0 ft higher. Apr. 23, 1974 to Aug. 7, 1984, at site 750 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 16-19, 22-25, Nov. 27 to Dec. 6, Dec. 9 to Jan. 21, and Feb. 2-5, 14-21. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--29 years (water years 1960-72, 1975-90), 244 ft³/s, 176,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft³/s Mar. 28, 1960, gage height, 17.30 ft, site and datum then in use; maximum gage height, 19.15 ft Aug. 5, 1985; minimum daily discharge, 2.9 ft³/s Aug. 9, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 17	2100	*2540	*11.07	No other peak above base discharge.			

Minimum daily discharge, 30 ft³/s Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	67	56	84	85	85	108	84	172	106	88	87
2	61	66	60	80	70	84	99	83	159	93	88	77
3	60	66	62	88	58	83	95	93	142	85	110	79
4	60	69	62	92	66	84	95	126	183	70	945	73
5	61	72	74	90	92	84	95	140	217	59	931	66
6	61	69	90	92	102	91	92	149	185	277	518	61
7	61	70	79	92	101	129	91	125	195	234	349	53
8	62	69	77	92	92	137	92	108	213	152	241	47
9	63	69	74	92	87	139	92	132	250	112	171	41
10	62	69	66	92	87	131	93	518	476	81	137	42
11	61	70	64	98	87	124	90	706	1370	72	224	41
12	60	73	60	110	87	114	91	483	528	65	537	43
13	62	73	56	106	84	115	98	307	249	67	1130	41
14	62	71	52	98	78	223	97	273	179	73	1080	37
15	64	69	48	98	72	155	95	264	739	80	740	36
16	63	62	43	94	58	135	92	210	402	80	469	35
17	67	60	54	84	52	116	92	178	1170	76	321	34
18	62	64	66	80	54	104	94	156	1780	68	234	39
19	61	74	74	74	70	94	93	162	1420	61	178	31
20	63	72	60	70	88	90	92	141	612	64	347	39
21	65	66	46	66	100	88	93	185	537	86	562	42
22	68	64	52	82	107	87	95	219	398	110	401	47
23	70	62	45	91	110	89	94	282	321	100	270	61
24	71	64	38	105	98	94	90	226	305	83	201	43
25	72	68	50	92	91	93	91	181	255	65	174	36
26	68	70	70	89	89	92	94	154	980	83	149	33
27	72	60	88	91	87	90	91	134	340	231	125	33
28	76	40	86	84	88	92	94	121	171	311	114	30
29	74	35	92	82	---	106	90	115	116	206	102	31
30	72	44	100	84	---	107	86	119	90	143	94	34
31	70	---	86	87	---	117	---	121	---	106	91	---
TOTAL	2019	1947	2030	2759	2340	3372	2804	6295	14154	3499	11121	1392
MEAN	65.1	64.9	65.5	89.0	83.6	109	93.5	203	472	113	359	46.4
MAX	76	74	100	110	110	223	108	706	1780	311	1130	87
MIN	60	35	38	66	52	83	86	83	90	59	88	30
AC-FT	4000	3860	4030	5470	4640	6690	5560	12490	28070	6940	22060	2760

CAL YR 1989 TOTAL 74695 MEAN 205 MAX 4940 MIN 35 AC-FT 148200
WTR YR 1990 TOTAL 53732 MEAN 147 MAX 1780 MIN 30 AC-FT 106600

KANSAS RIVER BASIN

06883940 BIG SANDY CREEK AT ALEXANDRIA, NE

LOCATION.--Lat 40°14'06", long 97°23'20", in SE1/4SE1/4 sec.11, T.3 N., R.1 W., Thayer County, Hydrologic Unit 10270206, on right bank 15 ft upstream from bridge on State Highway 53, 0.8 mi south of Alexandria.

DRAINAGE AREA.--607 mi².

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

REVISED RECORDS.--WRD NE-82-1: 1981(M).

GAGE.--Water stage recorder. Elevation of gage is 1,395 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 15-17, 19, 21-24. Records good except for periods of estimated record, which are fair. Natural flow of stream affected by ground-water withdrawals and return flow from irrigated areas.

AVERAGE DISCHARGE.--11 years, 107 ft³/s, 77,520 acre-ft/yr; median of yearly mean discharges, 87 ft³/s, 63,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,900 ft³/s June 13, 1984, gage height, 16.71 ft; minimum daily, 16 ft³/s Apr. 6, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	1530	*4200	*11.94	Aug. 3	1000	950	6.71
June 17	0830	2470	9.53	Aug. 12	1930	1190	7.28

Minimum daily discharge, 18 ft³/s Dec.23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	23	23	21	24	23	24	26	29	39	53	53
2	25	23	23	21	24	22	23	26	29	38	71	53
3	24	23	23	22	24	21	22	30	28	40	747	48
4	25	23	23	22	24	22	23	29	29	47	442	40
5	25	24	23	23	24	22	22	29	28	48	189	34
6	24	23	23	23	24	23	21	27	28	57	98	35
7	23	23	23	23	23	27	22	27	28	64	73	36
8	24	23	24	24	23	25	23	26	28	63	61	35
9	24	23	24	23	23	24	23	41	27	66	52	34
10	24	23	24	23	23	25	23	193	46	63	47	32
11	24	23	23	23	23	25	23	130	58	60	112	31
12	24	22	23	24	23	25	23	88	61	64	551	29
13	24	22	23	24	22	28	25	74	45	70	578	29
14	24	22	23	24	22	70	25	57	36	76	182	27
15	23	22	20	24	21	32	24	52	1940	80	95	28
16	23	21	20	24	21	28	24	46	1390	70	74	28
17	25	21	20	24	21	26	24	41	2040	65	76	28
18	25	21	22	24	21	25	24	38	1090	60	61	29
19	25	22	22	25	21	24	24	39	516	57	50	28
20	25	22	22	26	21	24	24	35	259	73	43	30
21	26	22	22	25	21	24	24	57	158	83	39	31
22	25	22	20	24	21	24	25	89	103	83	38	30
23	25	21	18	25	22	23	25	82	80	74	40	29
24	25	22	19	25	23	23	25	59	64	66	77	29
25	26	23	22	25	23	24	25	47	54	64	95	29
26	24	22	22	25	23	23	25	40	193	78	92	29
27	25	22	21	25	23	23	25	36	140	123	88	29
28	25	22	21	25	23	23	26	33	85	176	73	29
29	24	22	22	25	---	26	26	32	58	147	62	29
30	23	22	22	24	---	24	26	31	46	108	60	29
31	23	---	22	24	---	25	---	30	---	68	54	---
TOTAL	756	669	682	739	631	803	718	1590	8716	2270	4373	980
MEAN	24.4	22.3	22.0	23.8	22.5	25.9	23.9	51.3	291	73.2	141	32.7
MAX	26	24	24	26	24	70	26	193	2040	176	747	53
MIN	23	21	18	21	21	21	21	26	27	38	38	27
AC-FT	1500	1330	1350	1470	1250	1590	1420	3150	17290	4500	8670	1940

CAL YR 1989 TOTAL 22495 MEAN 61.6 MAX 1990 MIN 18 AC-FT 44620
WTR YR 1990 TOTAL 22927 MEAN 62.8 MAX 2040 MIN 18 AC-FT 45480

KANSAS RIVER BASIN

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06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NE

LOCATION.--Lat 40°06'54", long 97°10'13", in NW1/4NE1/4 sec.26, T.2 N., R.2 E., Jefferson County, Hydrologic Unit 10270207, at right downstream wingwall of bridge on State Highway 15, 0.8 mi south of Fairbury, and 5.2 mi upstream from Rose Creek.

DRAINAGE AREA.--2,350 mi².

PERIOD OF RECORD.--May 1908 to September 1915, October 1928 to September 1956 (published as "near Endicott"), October 1956 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1086: 1941(M). WSP 1390: 1908(M), 1912, 1915, 1935, 1939, 1945(M). WSP 1510: 1947 (calendar year figures only). WSP 1919: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,282.19 ft above National Geodetic Vertical Datum of 1929. May 23, 1908, to Sept. 30, 1915, nonrecording gage at present site at different datum. Apr. 26, 1929 to Sept. 24, 1957, nonrecording gage or water-stage recorder at site 3.5 mi downstream at various datums.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 4, Dec. 10-28, Dec. 31 to Jan. 7, Jan. 11-15, 20-22, 28-29, and Feb. 1-7, 13-21. Records good except for periods of estimated record, which are poor. Some regulation at low stage by thermoelectric plant above station. Natural flow of stream affected by irrigation development above station.

AVERAGE DISCHARGE.--69 years, 380 ft³/s, 275,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,900 ft³/s June 13, 1984, gage height, 16.98 ft; maximum gage height, 18.96 ft Oct. 12, 1973; minimum daily discharge, 14 ft³/s Nov. 22, 1929, discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	1148	*12100	*12.02	June 18	0014	5230	8.27

Minimum daily discharge, 54 ft³/s Dec. 11, Dec. 24, Feb. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	105	104	102	100	118	167	118	186	126	160	122
2	119	92	98	106	74	117	158	118	213	112	143	116
3	116	98	88	112	70	114	152	132	192	98	700	109
4	116	100	104	112	88	115	148	169	182	91	1590	109
5	118	101	118	112	110	114	146	170	242	103	2220	103
6	133	102	122	112	130	124	145	184	242	133	978	97
7	111	103	124	114	140	182	139	169	237	397	541	93
8	114	103	113	118	144	192	138	156	241	162	353	90
9	121	103	113	129	136	185	136	183	262	148	249	85
10	98	102	80	143	131	181	140	397	278	126	197	83
11	100	101	54	143	130	176	135	1270	1480	113	282	79
12	107	102	64	120	128	166	136	888	895	107	1000	102
13	108	106	70	116	110	175	136	526	401	113	2600	67
14	107	107	62	112	70	294	137	378	452	120	2140	68
15	107	106	58	130	54	279	137	376	6840	134	1240	71
16	108	106	56	140	54	204	133	315	5210	137	739	70
17	124	111	86	148	54	178	133	255	3650	128	492	67
18	110	105	104	142	80	158	126	222	4110	120	359	77
19	105	112	86	137	100	144	126	235	2590	113	271	82
20	104	117	74	114	120	135	129	211	1250	119	224	94
21	103	118	60	106	150	141	134	228	835	157	716	97
22	103	122	66	128	149	140	134	264	522	172	462	92
23	103	118	60	146	141	141	133	379	337	173	336	94
24	103	118	54	136	138	144	130	335	253	158	252	98
25	103	116	70	141	131	146	128	277	215	139	241	88
26	104	116	86	134	124	144	132	232	935	160	221	79
27	104	116	100	131	124	144	129	204	893	216	190	80
28	110	76	106	125	118	147	128	185	293	501	168	76
29	113	86	111	120	---	156	126	173	192	431	144	74
30	109	94	111	125	---	163	124	173	144	311	128	74
31	107	---	118	124	---	166	---	175	---	217	122	---
TOTAL	3414	3162	2720	3878	3098	4983	4095	9097	33772	5335	19458	2636
MEAN	110	105	87.7	125	111	161	136	293	1126	172	628	87.9
MAX	133	122	124	148	150	294	167	1270	6840	501	2600	122
MIN	98	76	54	102	54	114	124	118	144	91	122	67
AC-FT	6770	6270	5400	7690	6140	9880	8120	18040	66990	10580	38590	5230

CAL YR 1989 TOTAL 109762 MEAN 301 MAX 5920 MIN 54 AC-FT 217700
WTR YR 1990 TOTAL 95648 MEAN 262 MAX 6840 MIN 54 AC-FT 189700

KANSAS RIVER BASIN

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS
(National water-quality assessment station)

LOCATION.--Lat 39°58'48", long 97°00'16", NE1/4SW1/4 sec.8, T.1 S., R.4 E., Washington County, Hydrologic Unit 10270207, on right bank and 2 ft downstream from bridge on county road, 0.6 mi west of Hollenberg, and 1.75 mi downstream from Nebraska-Kansas State line.

DRAINAGE AREA.--2,752 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1973 to February 1974 (discharge measurements only), March 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,216.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-10, Nov. 28 to Dec. 5, Dec. 10 to Jan. 17, Jan. 20-22, and Feb. 1-7, 14-20. Records good except for periods of estimated record, which are poor. Discharge measurements made prior to 1974 water year are published in table of miscellaneous sites in WDR NE-73.

AVERAGE DISCHARGE.--16 years, 522 ft³/s, 378,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s June 13, 1984, gage height, 21.00 ft; minimum daily, 39 ft³/s June 28, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 12, 1973, reached a stage of 23.07 ft, present datum, from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 15	2030	*14300	*15.15	Aug. 13	1100	4080	8.03
June 18	0700	5830	9.67				

Minimum daily discharge, 64 ft³/s Dec. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	130	110	122	160	152	188	136	209	257	219	173
2	135	126	120	130	125	153	187	132	233	226	177	170
3	130	112	118	130	105	152	185	140	228	204	285	167
4	130	122	116	135	110	152	177	181	206	188	1030	155
5	135	124	150	135	135	152	172	194	218	173	2250	140
6	145	124	146	140	150	164	165	189	383	258	1210	143
7	135	126	158	145	175	209	161	192	751	975	692	119
8	130	125	153	150	175	242	156	169	580	454	500	103
9	135	123	151	150	172	226	157	223	393	293	346	104
10	125	121	140	150	160	212	158	273	369	257	248	101
11	109	121	102	145	160	208	152	849	691	262	924	85
12	118	124	96	150	160	199	155	979	1180	230	1540	87
13	119	127	110	145	159	199	169	634	623	221	3340	108
14	119	131	98	140	160	248	170	447	540	219	2620	80
15	119	131	86	155	120	347	162	1370	8290	195	1590	81
16	121	130	76	170	92	333	158	694	9540	228	1080	86
17	126	130	100	190	80	289	155	383	4540	220	775	86
18	136	130	104	194	110	217	154	354	5170	188	593	99
19	121	132	74	179	150	214	157	312	4310	167	479	104
20	119	134	68	170	180	176	153	310	2450	175	425	109
21	118	135	70	150	196	168	150	299	1280	311	519	133
22	114	134	72	150	192	162	150	306	755	465	585	119
23	117	132	68	178	180	159	153	361	565	296	438	113
24	122	132	64	181	179	174	152	436	459	280	376	123
25	124	130	90	178	160	178	153	356	394	231	310	121
26	127	127	102	168	152	180	158	301	773	218	275	109
27	134	127	112	162	151	176	155	294	1710	256	242	103
28	149	120	122	160	151	174	153	254	768	409	222	98
29	144	95	130	153	---	193	147	234	424	552	228	94
30	138	104	125	157	---	191	143	228	317	416	222	95
31	135	---	130	160	---	192	---	205	---	308	188	---
TOTAL	3969	3759	3361	4822	4199	6191	4805	11435	48349	9132	23928	3408
MEAN	128	125	108	156	150	200	160	369	1612	295	772	114
MAX	149	135	158	194	196	347	188	1370	9540	975	3340	173
MIN	109	95	64	122	80	152	143	132	206	167	177	80
AC-FT	7870	7460	6670	9560	8330	12280	9530	22680	95900	18110	47460	6760

CAL YR 1989 TOTAL 128240 MEAN 351 MAX 5590 MIN 64 AC-FT 254400
WTR YR 1990 TOTAL 127358 MEAN 349 MAX 9540 MIN 64 AC-FT 252600

KANSAS RIVER BASIN

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06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to April 1990 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 23...	1430	119	548	8.2	11.0	734	3.9	13.7	190	--	60
NOV 28...	1530	120	595	8.1	1.0	741	8.0	16.1	200	21	64
DEC 19...	1150	74	660	7.8	0.0	742	2.0	14.0	220	3	70
JAN 18...	1300	196	548	8.2	1.5	741	25	16.5	180	7	59
FEB 13...	1300	159	584	8.1	4.0	729	18	14.8	190	18	62
MAR 21...	1230	168	568	8.4	13.0	728	45	12.8	200	21	63
APR 18...	1230	155	526	8.4	10.0	737	10	13.2	200	4	62

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT 23...	9.9	42	1	5.9	--	--	--	35	42	0.30	25
NOV 28...	10	43	1	7.0	180	0	220	36	43	0.30	27
DEC 19...	11	47	1	6.4	217	0	265	43	46	0.30	31
JAN 18...	8.9	34	1	5.8	177	0	216	33	35	0.20	25
FEB 13...	9.6	39	1	6.0	177	0	216	36	39	0.30	24
MAR 21...	10	39	1	6.7	178	1	215	36	40	0.20	25
APR 18...	9.8	40	1	5.5	191	5	223	35	38	0.30	17

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 23...	332	339	0.45	107	1.09	0.010	1.10	0.030	0.40	0.310	0.260
NOV 28...	337	347	0.46	109	--	<0.010	1.50	0.130	0.70	0.310	0.240
DEC 19...	391	396	0.53	78.1	--	<0.010	2.20	0.110	0.40	0.270	0.240
JAN 18...	327	316	0.44	173	1.58	0.020	1.60	0.140	0.60	0.310	0.240
FEB 13...	348	323	0.47	149	--	0.020	1.40	0.090	0.50	0.290	0.220
MAR 21...	349	335	0.47	158	1.48	0.020	1.50	0.070	0.40	0.350	0.260
APR 18...	329	327	0.45	138	0.790	0.010	0.800	0.010	0.60	0.280	0.160

KANSAS RIVER BASIN

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01003)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT 23...	1430	20	4	160	<0.5	0.060	<1.0	1	<3	1
NOV 28...	1530	<10	4	170	<0.5	--	<1.0	2	<3	3
DEC 19...	1150	<10	3	200	<0.5	--	<1.0	2	<3	1
JAN 18...	1300	20	3	140	<0.5	0.040	<1.0	2	<3	2
FEB 13...	1300	20	4	160	<0.5	--	<1.0	<1	<3	1
MAR 21...	1230	10	4	160	<0.5	--	<1.0	<5*	<3	<10*
APR 18...	1230	10	4	150	<0.5	0.060	<1.0	2	<3	2

*Minimum reporting level differs due to methodology.

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)
OCT 23...	9	<1	17	29	<0.1	<10	1	2	<1.0	320
NOV 28...	10	<1	17	54	<0.1	<10	5	2	<1.0	330
DEC 19...	12	<1	21	71	<0.1	<10	1	3	<1.0	360
JAN 18...	12	<1	16	25	<0.1	<10	1	2	<1.0	290
FEB 13...	11	<1	18	18	0.1	<10	1	2	<1.0	310
MAR 21...	10	<10*	16	17	<0.1	<10	10*	2	<1.0	310
APR 18...	7	<1	19	16	<0.1	<10	1	1	<1.0	310

DATE	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)
OCT 23...	<6	7	1	4.9	0.8	<0.10	<0.10	<0.1	<0.10	0.1
NOV 28...	<6	<3	--	2.2	1.8	<0.10	<0.10	<0.1	<0.10	<0.1
DEC 19...	<6	7	--	2.8	1.5	<0.10	<0.10	<0.1	<0.10	<0.1
JAN 18...	<6	13	<1	2.0	1.5	<0.10	<0.10	<0.1	<0.10	<0.1
FEB 13...	<6	<3	--	--	0.8	<0.10	<0.10	<0.1	<0.10	<0.1
MAR 21...	<6	<3	--	3.7	3.0	--	--	--	--	--
APR 18...	<6	<3	<1	2.4	0.7	--	--	--	--	--

DATE	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT REC (UG/L) (82612)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN 0.62 MM (70331)
OCT 23...	<0.1	0.30	<0.10	<0.10	<0.10	<0.1	<0.1	18	5.8	92
NOV 28...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	16	5.2	69
DEC 19...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	15	3.0	93
JAN 18...	<0.1	0.10	<0.10	<0.10	<0.10	<0.1	<0.1	77	41	92
FEB 13...	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1	61	26	95
MAR 21...	--	--	--	--	--	--	--	380	172	100
APR 18...	--	--	--	--	--	--	--	409	171	44

DISCHARGE AT PARTIAL RECORD STATIONS AND MISCELLANEOUS SITES

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The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest stage partial record stations during water year 1990

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Kansas River basin							
06838200	Coon Creek at Indianola, NE	Lat 40°14'03", long 100°25'37", in NW1/4NE1/4 sec.13, T.3 N., R.28 W., Red Willow County, at bridge on U.S. Highways 6 and 34, 0.5 mile west of Indianola.	a69	1961-90	--	--	0
06838550	Dry Creek at Bartley, NE	Lat 40°15'02", long 100°19'02", in SW1/4SE1/4 sec.1, T.3 N., R.27 W., Red Willow County, at bridge on U.S. Highway 6 and 34, 0.5 mile west of Bartley.	a42	1961-90	--	--	0

a Approximate.

DISCHARGE AT PARTIAL RECORD STATIONS AND MISCELLANEOUS SITES

Measurements of streamflow at points other than gaging stations are given in the following table. Some measurements were made during periods of base flow when streamflow is primarily from ground-water storage and may be correlated with the simultaneous discharge of a nearby stream where continuous records are available to give a picture of the low-flow potentiality of the stream.

Discharge measurements made at miscellaneous sites during water year 1990

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Niobrara River basin						
Eagle Creek (06465050) ¹	Niobrara River	Lat 42°38'01", long 98°46'21", in SW1/4NW1/4 sec.30, T.31 N., R.12 W., Holt County, at county road bridge 4.3 miles south and 6 miles west of Midway.	--	1969-89	11-16-89 05-18-90	18 16
East Branch Eagle Creek (06465100) ¹	Eagle Creek	Lat 42°37'35", long 98°45'49", in SW1/4SE1/4 sec.30, T.31 N., R.12 W., Holt County, at county road bridge 5 miles south and 5.4 miles west of Midway.	--	1969-89	11-16-89 05-18-90	8.1 7.4
Redbird Creek (06465398) ¹	Niobrara River	Lat 42°39'33", long 98°33'31", in NE1/4SE1/4 sec.14, T.31 N., R.11 W., Holt County, at site 3.2 miles east and 2.7 miles south of Meek.	--	1969-89	11-16-89 05-17-90	13 19
Blackbird Creek (06465420) ¹	Redbird Creek	Lat 42°39'46", long 98°34'24", in SW1/4NW1/4 sec.14, T.31 N., R.11 W., Holt County, at county road bridge 2.4 miles east and 2.3 miles south of Meek.	--	1969-89	11-16-89 05-17-90	14 9.0
Platte River basin						
Middle Loup River (06778500)	Loup River	Lat 41°28'49", long 99°12'43", in NW1/4 sec.6, T.17 N., R.16 W., Custer County, on county line highway bridge, 0.8 mile below part of river known as "Narrows" and 5.5 miles southeast of Comstock, Nebr.	4960	1937a, 1969-71	10-02-89 10-20-89 11-02-89 11-14-89 03-13-90 03-27-90 04-10-90 04-24-90 05-07-90 05-24-90	1030 1020 885 1130 1260 1060 1210 71 559 775
Dane Creek (06788495) ¹	North Loup River	Lat 41°36'31", long 98°56'36", in NE1/4NE1/4 sec.20, T.19 N., R.14 W., Valley County, at bridge on State Highway 11 at northwest edge of Ord.	--	1962b 1977-89	11-20-89 05-24-90	.72 8.8
Mira Creek (06788990) ¹	North Loup River	Lat 41°29'54", long 98°46'46", in SE1/4SW1/4 sec.26, T.18 N., R.13 W., Valley County, at bridge on State Highway 11 at west edge of North Loup.	--	1977-89	11-20-89 05-24-90	.85 1.2
Kansas River basin						
Republican River (06851090)	Kansas River	Lat 40°05'26", long 98°46'03", in SE1/4SE1/4 sec.34, T.2 N., R.13 W., Franklin County, at bridge on county road 0.5 mile west of Riverton.	21300	1963-67, 1970-78, 1980, 1983,1985, 1989	06-05-90 07-24-90	45 537

¹ Also published with additional data elsewhere in this report.

a Operated as a continuous-record station.

b Gage heights, or gage heights and discharge measurements only.

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
06465050 EAGLE CREEK NEAR MIDWAY NEBR (LAT 42 38 02N LONG 098 46 29W)									
NOV 1989									
16...	1300	18	331	8.6	0.5	4	120	40	5.6
MAY 1990									
18...	0910	16	328	8.4	12.0	12	130	44	5.8
06465100 EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)									
NOV 1989									
16...	1420	8.1	279	8.4	3.0	3	110	39	4.1
MAY 1990									
18...	1200	7.4	289	8.7	17.5	12	130	45	4.6
06465398 REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)									
NOV 1989									
16...	0920	13	217	8.2	0.5	3	78	26	3.1
MAY 1990									
17...	1420	19	214	8.5	20.0	25	86	29	3.4
06465420 BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)									
NOV 1989									
16...	1130	14	286	8.4	0.5	13	120	39	4.3
MAY 1990									
17...	1530	9.0	293	8.4	20.5	12	130	43	4.7

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
06465050 EAGLE CREEK NEAR MIDWAY NEBR (LAT 42 38 02N LONG 098 46 29W)								
NOV 1989								
16...	9.2	0.4	5.8	105	12	4.4	0.20	41
MAY 1990								
18...	9.6	0.4	4.9	120	13	6.7	<0.10	40
06465100 EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)								
NOV 1989								
16...	6.8	0.3	4.9	130	4.0	1.3	0.30	53
MAY 1990								
18...	6.8	0.3	4.9	144	3.9	3.7	0.20	46
06465398 REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)								
NOV 1989								
16...	6.9	0.3	4.8	83	9.0	2.0	0.20	47
MAY 1990								
17...	7.0	0.3	3.7	90	7.8	1.5	0.20	40
06465420 BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)								
NOV 1989								
16...	8.2	0.3	5.6	117	9.0	2.4	0.30	53
MAY 1990								
17...	8.4	0.3	4.8	133	9.0	4.3	0.10	45

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO ₂ +NO ₃ DIS-SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS-SOLVED (UG/L AS MN) (01056)
06465050	EAGLE CREEK NEAR MIDWAY NEBR (LAT 42 38 02N LONG 098 46 29W)							
NOV 1989 16...	220	0.30	10.7	8.70	0.070	30	16	8
MAY 1990 18...	226	0.31	9.77	6.80	0.050	30	10	5
06465100	EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)							
NOV 1989 16...	198	0.27	4.32	1.40	0.030	20	15	9
MAY 1990 18...	205	0.28	4.10	0.800	<0.010	20	14	10
06465398	REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)							
NOV 1989 16...	159	0.22	5.58	2.30	0.060	20	33	8
MAY 1990 17...	153	0.21	7.84	1.40	0.040	20	47	11
06465420	BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)							
NOV 1989 16...	202	0.27	7.63	2.20	0.060	20	42	33
MAY 1990 17...	206	0.28	5.01	1.60	0.060	20	27	17

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L CACO3) (00900)	CALCIUM DIS- SOLVED AS CA (00915)	MAGNE- SIUM, DIS- SOLVED AS MG (00925)
06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)									
NOV 1989									
20...	1300	0.72	820	7.9	6.5	15	390	120	21
MAY 1990									
24...	1110	8.8	195	8.0	20.0	55	82	26	4.1
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)									
NOV 1989									
20...	1115	0.85	713	8.0	5.5	15	310	87	22
MAY 1990									
24...	0920	1.2	341	7.8	18.5	45	140	41	9.3

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)
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06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)								
NOV 1989								
20...	25	0.6	15	372	43	13	0.30	45
MAY 1990								
24...	7.7	0.4	6.9	93	5.3	3.2	<0.10	29
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)								
NOV 1989								
20...	21	0.5	13	351	24	6.1	0.30	37
MAY 1990								
24...	12	0.4	9.3	155	13	4.9	0.30	35

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
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06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)								
NOV 1989								
20...	518	0.70	1.01	2.70	0.280	90	22	170
MAY 1990								
24...	139	0.19	3.30	0.200	0.190	30	85	87
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)								
NOV 1989								
20...	423	0.57	0.97	0.310	0.290	90	15	430
MAY 1990								
24...	218	0.30	0.71	<0.100	0.250	70	9	530

MISCELLANEOUS STATION ANALYSES (HERBICIDE RECONNAISSANCE -- WATER YEARS 1989-90)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N)	TRIA- ZINE DIS- SOLVED (UG/L)	ATRA- ZINE DIS- SOLVED (UG/L)	DES- ETHYL- ATRA- ZINE DIS- SOLVED (UG/L)	METO- LA- CHLOR DIS- SOLVED (UG/L)	ALA- CHLOR DIS- SOLVED (UG/L)
06478518 BOW CREEK NR ST. JAMES, NEBR. (LAT 42 43 48N LONG 097 08 53W)											
APR 1989											
05...	1530	48	696	8.4	15.0	2.50	<0.2	--	--	--	--
JUN											
26...	1400	45	580	8.3	26.0	1.30	<0.2	0.20	<0.05	0.12	0.08
OCT											
18...	1415	30	666	8.3	10.0	1.80	<0.2	<0.05	<0.05	<0.05	<0.05
06783500 MUD CREEK NEAR SWEETWATER, NE (LAT 41 02 15N LONG 098 59 35W)											
APR 1989											
11...	1010	21	576	8.5	5.0	0.180	<0.2	--	--	--	--
JUN											
25...	1110	28	434	8.1	19.5	1.10	1.9	1.70	0.22	0.20	0.29
OCT											
23...	1030	15	584	8.1	8.0	<0.100	<0.2	<0.05	<0.05	<0.05	<0.05
06788988 MIRA CREEK NR NORTH LOUP, NE (LAT 41 30 08N LONG 098 47 47W)											
APR 1989											
11...	1430	0.70	708	8.4	11.0	<0.100	<0.2	0.27	<0.05	<0.05	<0.05
JUN											
25...	1015	0.71	544	7.9	19.0	<0.100	<0.2	0.15	0.07	<0.05	<0.05
OCT											
20...	1020	0.23	585	7.7	4.0	<0.100	0.7	0.47	<0.05	<0.05	<0.05
06795500 SHELL CREEK NEAR COLUMBUS, NEBR. (LAT 41 31 33N LONG 097 16 55W)											
APR 1989											
05...	1030	18	605	8.4	9.0	0.570	<0.2	--	--	--	--
JUN											
26...	1200	137	300	7.3	23.0	4.50	>5	13.90	2.50	0.74	4.70
OCT											
19...	1000	14	696	8.1	3.0	0.250	0.5	0.28	0.10	<0.05	<0.05
06796973 ELKHORN RIVER NR ATKINSON, NE (LAT 42 29 12N LONG 098 54 42W)											
APR 1989											
05...	1650	43	231	8.4	12.0	1.50	<0.2	--	--	--	--
JUN											
26...	1630	22	211	8.9	28.0	1.00	0.2	--	--	--	--
OCT											
23...	0940	12	254	8.3	9.5	2.00	1.9	1.20	<0.05	2.20	<0.05
06798300 CLEARWATER C NR CLEARWATER NEBR (LAT 42 08 20N LONG 098 12 10W)											
APR 1989											
05...	1315	300	316	8.2	12.0	0.160	<0.2	--	--	--	--
JUN											
26...	1105	E13	307	8.2	26.5	0.120	<0.2	0.20	<0.05	<0.05	0.06
OCT											
18...	1730	22	285	8.3	8.0	<0.100	<0.2	<0.05	<0.05	<0.05	<0.05
06800000 MAPLE CREEK NEAR NICKERSON, NE (LAT 41 32 45N LONG 096 30 05W)											
APR 1989											
05...	1750	15	588	8.5	15.0	0.650	<0.2	0.07	<0.05	<0.05	<0.05
JUN											
26...	1105	333	269	7.6	21.5	2.80	>5	8.70	0.97	0.50	4.30
OCT											
19...	1230	13	556	8.1	6.0	0.380	<0.2	0.08	<0.05	<0.05	<0.05
06803000 SALT CREEK AT ROCA, NEBR. (LAT 40 39 29N LONG 096 39 55W)											
APR 1989											
06...	1515	10	735	8.8	10.0	<0.100	<0.2	--	--	--	--
JUN											
26...	1000	E53	497	7.7	20.0	1.80	>5	13.30	2.30	1.40	1.00
OCT											
31...	1615	10	990	7.6	6.0	0.600	2.5	1.70	0.56	0.11	<0.05

E Estimated value.

DATE	TIME	AME- TRYN DIS- SOLVED (UG/L)	CYANA- ZINE DIS- SOLVED (UG/L)	DESISO- PROPYL DIS- SOLVED (UG/L)	METRI- BUZIN DIS- SOLVED (UG/L)	PROM- ETON DIS- SOLVED (UG/L)	PROP- AZINE DIS- SOLVED (UG/L)	PROME- TRYN DIS- SOLVED (UG/L)	SIMA- ZINE DIS- SOLVED (UG/L)	TERBU- TRYN DIS- SOLVED (UG/L)
06478518 BOW CREEK NR ST. JAMES, NEBR. (LAT 42 43 48N LONG 097 08 53W)										
APR 1989										
05...	1530	--	--	--	--	--	--	--	--	--
JUN 26...	1400	<0.05	0.27	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OCT 18...	1415	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06783500 MUD CREEK NEAR SWEETWATER, NE (LAT 41 02 15N LONG 098 59 35W)										
APR 1989										
11...	1010	--	--	--	--	--	--	--	--	--
JUN 25...	1110	<0.05	<0.2	<0.05	<0.05	0.41	<0.05	<0.05	<0.05	<0.05
OCT 23...	1030	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06788988 MIRA CREEK NR NORTH LOUP, NE (LAT 41 30 08N LONG 098 47 47W)										
APR 1989										
11...	1430	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
JUN 25...	1015	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OCT 20...	1020	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06795500 SHELL CREEK NEAR COLUMBUS, NEBR. (LAT 41 31 33N LONG 097 16 55W)										
APR 1989										
05...	1030	--	--	--	--	--	--	--	--	--
JUN 26...	1200	<0.05	6.20	1.80	0.30	0.20	0.18	<0.05	0.33	<0.05
OCT 19...	1000	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06796973 ELKHORN RIVER NR ATKINSON, NE (LAT 42 29 12N LONG 098 54 42W)										
APR 1989										
05...	1650	--	--	--	--	--	--	--	--	--
JUN 26...	1630	--	--	--	--	--	--	--	--	--
OCT 23...	0940	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06798300 CLEARWATER C NR CLEARWATER NEBR (LAT 42 08 20N LONG 098 12 10W)										
APR 1989										
05...	1315	--	--	--	--	--	--	--	--	--
JUN 26...	1105	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OCT 18...	1730	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06800000 MAPLE CREEK NEAR NICKERSON, NE (LAT 41 32 45N LONG 096 30 05W)										
APR 1989										
05...	1750	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
JUN 26...	1105	<0.05	1.3	1.4	0.35	<0.05	0.16	<0.05	0.27	<0.05
OCT 19...	1230	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
06803000 SALT CREEK AT ROCA, NEBR. (LAT 40 39 29N LONG 096 39 55W)										
APR 1989										
06...	1515	--	--	--	--	--	--	--	--	--
JUN 26...	1000	<0.05	<0.2	1.40	0.46	<0.05	0.14	<0.05	0.15	<0.05
OCT 31...	1615	<0.05	<0.2	<0.05	<0.05	0.24	<0.05	<0.05	<0.05	<0.05

MISCELLANEOUS STATION ANALYSES (HERBICIDE RECONNAISSANCE -- WATER YEARS 1989-90)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	TRIA- ZINE DIS- SOLVED (UG/L)	ATRA- ZINE DIS- SOLVED (UG/L)	DES- ETHYL- ATRA- ZINE DIS- SOLVED (UG/L)	METO- LA- CHLOR DIS- SOLVED (UG/L)	ALA- CHLOR DIS- SOLVED (UG/L)
06804000 WAHOO CREEK AT ITHACA, NEBR. (LAT 41 08 40N LONG 096 32 10W)											
APR 1989											
04...	1305	40	821	8.3	11.0	1.10	<0.2	<0.05	<0.05	<0.05	<0.05
JUN 08...	1015	161	248	7.5	14.0	2.30	>5	52.00	1.90	7.30	2.10
OCT 19...	1500	26	812	8.1	7.0	1.20	<0.2	<0.05	<0.05	<0.05	<0.05
06811500 LITTLE NEMAHA RIVER AT AUBURN, NE (LAT 40 23 33N LONG 095 48 46W)											
APR 1989											
06...	0915	57	586	8.4	10.0	0.360	<0.2	--	--	--	--
JUN 26...	1450	E696	217	7.6	23.5	1.20	>5	10.20	1.30	1.10	0.62
OCT 24...	1100	53	612	8.2	10.5	0.120	0.2	0.24	<0.05	<0.05	<0.05
06815000 BIG NEMAHA RIVER AT FALLS CITY, NEBR. (LAT 40 02 00N LONG 095 35 30W)											
APR 1989											
06...	1025	56	668	8.4	9.5	<0.100	0.2	--	--	--	--
JUN 26...	1320	E656	291	7.9	24.5	1.40	>5	19.80	2.20	2.90	2.10
OCT 24...	0845	56	746	8.2	10.0	<0.100	0.5	0.54	0.12	0.10	0.07
06844000 MUDDY CREEK AT ARAPAHOE, NEBR. (LAT 40 18 20N LONG 099 54 40W)											
MAR 1989											
31...	1320	6.7	552	8.4	12.0	1.5	<0.2	--	--	--	--
JUN 25...	2030	4160	101	7.8	18.0	0.810	4.2	6.60	1.20	1.30	1.40
NOV 07...	1500	5.6	595	8.0	9.0	2.00	<0.2	0.11	0.09	0.10	<0.05
06879900 BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)											
APR 1989											
05...	0910	3.5	570	8.4	9.5	1.10	0.2	--	--	--	--
JUN 26...	1000	71	375	7.5	23.5	1.20	>5	16.60	1.70	3.80	3.10
OCT 31...	1200	3.0	475	7.5	7.0	0.230	1.3	0.70	0.44	<0.05	0.11
06880800 WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)											
APR 1989											
04...	0955	70	632	8.1	7.0	1.60	<0.2	0.16	<0.05	<0.05	<0.05
JUN 27...	1035	1830	130	8.8	20.5	--	>5	22.60	2.80	0.83	1.70
OCT 31...	1335	56	572	7.9	6.5	0.840	0.5	0.34	0.14	<0.05	<0.05
06882000 BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)											
APR 1989											
06...	1200	226	696	8.9	12.5	2.00	2.1	0.91	0.05	<0.05	<0.05
JUN 27...	1255	3380	310	7.9	21.5	2.10	>5	15.80	2.10	1.30	1.20
OCT 23...	1605	579	684	8.9	9.0	0.550	0.9	0.51	0.19	<0.05	<0.05
06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)											
APR 1989											
05...	1400	116	493	8.5	12.0	0.940	<0.2	--	--	--	--
JUN 26...	1400	6590	162	7.5	20.0	0.690	>5	22.00	3.70	1.60	2.30
OCT 30...	1000	106	438	7.9	7.0	1.10	0.4	0.31	0.12	<0.05	<0.05

E Estimated value.

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[illegible]

MISCELLANEOUS STATION ANALYSES (INDIAN RESERVATION RECONNAISSANCE -- WATER YEARS 1989-90)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
06466500 BAZILE CREEK NEAR NIOBRARA, NE (LAT 42 45 26N LONG 097 56 50W)												
APR 1990 23...	1400	39	54	8.6	19.5	719	14	9.3	K160	520	250	72
06600900 SOUTH OMAHA CREEK AT WALTHILL, NEBR. (LAT 42 08 54N LONG 096 28 58W)												
APR 1990 23...	1115	3.1	60	8.3	20.0	720	17	11.0	400	610	300	77
06799450 LOGAN CREEK AT PENDER NE (LAT 42 06 40N LONG 096 42 00W)												
APR 1990 24...	1550	56	76	8.5	22.0	715	22	8.6	K150	450	360	100
420056096300800 LOGAN CR SOUTH OF ROSALIE, NE (LAT 42 00 56N LONG 096 30 08W)												
APR 1990 24...	1750	66	70	8.3	22.0	714	28	8.2	K170000	K74000	330	93
24...	1750	66	70	8.3	22.0	714	28	8.2	K170000	K74000	330	93
420617096204000 SOUTH BLACKBIRD CR NR MACY, NE (LAT 42 06 17N LONG 096 20 40W)												
APR 1990 23...	1500	5.7	--	8.5	24.5	724	17	10.6	K80	230	250	58
420637096201600 N BLACKBIRD CR NR MACY, NE (LAT 42 06 37N LONG 096 20 16W)												
APR 1990 23...	1400	6.1	54	8.4	24.5	724	17	10.2	2700	550	270	67
420730096292600 COW CR NR WALTHILL, NE (LAT 42 07 30N LONG 096 29 26W)												
APR 1990 23...	1000	1.7	58	8.5	20.0	720	25	11.5	370	450	290	69
420925096422400 MIDDLE CR NR THURSTON, NE (LAT 42 09 25N LONG 096 42 24W)												
APR 1990 24...	1135	2.9	82	8.2	19.0	718	22	6.5	K140	680	340	81
421017096285500 NORTH OMAHA CR NR WALTHILL, NE (LAT 42 10 17N LONG 096 28 55W)												
APR 1990 23...	1210	4.0	60	8.2	20.0	720	25	12.4	730	510	300	77
421330096490900 LOGAN CR NR WAKEFIELD, NE (LAT 42 13 30N LONG 096 49 09W)												
APR 1990 24...	1020	52	78	8.3	17.0	714	12	8.2	E600	1100	390	110
421634096290700 OMAHA CR NORTH OF WINNEBAGO, NE (LAT 42 16 34N LONG 096 29 07W)												
APR 1990 23...	1300	11	65	8.4	24.5	722	18	11.8	K93	370	320	82
423700097524100 BAZILE CR AT CENTER, NE (LAT 42 37 00N LONG 097 52 41W)												
APR 1990 23...	1125	35	51	8.5	16.5	722	14	10.0	370	400	250	72
424008097522500 HOWE CR NR CENTER, NE (LAT 42 40 08N LONG 097 52 25W)												
APR 1990 23...	1245	6.8	--	8.5	18.0	721	14	9.7	270	210	260	76

K Results based on colony count outside the acceptable range (non-ideal colony count).
E Estimated value.

MISCELLANEOUS STATION ANALYSES (INDIAN RESERVATION RECONNAISSANCE -- WATER YEARS 1989-90)

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DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
	06466500 BAZILE CREEK NEAR NIOBRARA, NE (LAT 42 45 26N LONG 097 56 50W)										
APR 1990 23...	17	17	0.5	7.2	193	8.4	67	0.30	25	339	0.46
	06600900 SOUTH OMAHA CREEK AT WALTHILL, NEBR. (LAT 42 08 54N LONG 096 28 58W)										
APR 1990 23...	27	17	0.4	4.8	304	8.4	22	0.10	5.7	350	0.48
	06799450 LOGAN CREEK AT PENDER NE (LAT 42 06 40N LONG 096 42 00W)										
APR 1990 24...	27	26	0.6	6.6	263	8.6	130	0.10	19	480	0.65
	420056096300800 LOGAN CR SOUTH OF ROSALIE, NE (LAT 42 00 56N LONG 096 30 08W)										
APR 1990 24...	24	24	0.6	9.0	255	10	120	<0.10	17	455	0.62
24...	24	24	0.6	9.0	255	10	120	<0.10	17	455	0.62
	420617096204000 SOUTH BLACKBIRD CR NR MACY, NE (LAT 42 06 17N LONG 096 20 40W)										
APR 1990 23...	25	15	0.4	3.9	245	7.2	23	0.10	5.9	289	0.39
	420637096201600 N BLACKBIRD CR NR MACY, NE (LAT 42 06 37N LONG 096 20 16W)										
APR 1990 23...	26	14	0.4	4.4	255	7.4	18	0.10	10	309	0.42
	420730096292600 COW CR NR WALTHILL, NE (LAT 42 07 30N LONG 096 29 26W)										
APR 1990 23...	28	18	0.5	4.9	289	9.6	38	0.30	5.1	350	0.48
	420925096422400 MIDDLE CR NR THURSTON, NE (LAT 42 09 25N LONG 096 42 24W)										
APR 1990 24...	34	48	1	9.4	323	34	48	0.10	2.1	451	0.61
	421017096285500 NORTH OMAHA CR NR WALTHILL, NE (LAT 42 10 17N LONG 096 28 55W)										
APR 1990 23...	27	16	0.4	5.7	306	8.6	26	0.40	8.5	358	0.49
	421330096490900 LOGAN CR NR WAKEFIELD, NE (LAT 42 13 30N LONG 096 49 09W)										
APR 1990 24...	27	25	0.6	6.3	281	9.6	130	<0.10	20	503	0.68
	421634096290700 OMAHA CR NORTH OF WINNEBAGO, NE (LAT 42 16 34N LONG 096 29 07W)										
APR 1990 23...	29	20	0.5	5.7	306	12	24	0.30	7.1	368	0.50
	423700097524100 BAZILE CR AT CENTER, NE (LAT 42 37 00N LONG 097 52 41W)										
APR 1990 23...	16	16	0.4	6.5	215	8.6	42	0.30	26	329	0.45
	424008097522500 HOWE CR NR CENTER, NE (LAT 42 40 08N LONG 097 52 25W)										
APR 1990 23...	17	16	0.4	7.1	209	7.4	62	0.30	25	347	0.47

MISCELLANEOUS STATION ANALYSES (INDIAN RESERVATION RECONNAISSANCE -- WATER YEARS 1989-90)

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	PRO- PAZINE TOTAL (UG/L) (39024)
	06466500 BAZILE CREEK NEAR NIOBRARA, NE (LAT 42 45 26N LONG 097 56 50W)										
APR 1990 23...	35.7	2.20	0.070	0.030	5	60	<3	14	11	7	<0.10
	06600900 SOUTH OMAHA CREEK AT WALTHILL, NEBR. (LAT 42 08 54N LONG 096 28 58W)										
APR 1990 23...	2.93	1.10	0.090	0.060	4	50	25	420	10	7	<0.10
	06799450 LOGAN CREEK AT PENDER NE (LAT 42 06 40N LONG 096 42 00W)										
APR 1990 24...	72.6	1.10	0.120	0.100	4	90	6	100	12	<3	<0.10
	420056096300800 LOGAN CR SOUTH OF ROSALIE, NE (LAT 42 00 56N LONG 096 30 08W)										
APR 1990 24...	81.0	1.00	0.290	0.230	5	80	7	120	11	13	<0.10
24...	81.0	1.00	0.290	0.230	5	80	7	120	11	13	<0.10
	420617096204000 SOUTH BLACKBIRD CR NR MACY, NE (LAT 42 06 17N LONG 096 20 40W)										
APR 1990 23...	4.45	0.900	0.050	0.030	4	50	64	300	5	4	<0.10
	420637096201600 N BLACKBIRD CR NR MACY, NE (LAT 42 06 37N LONG 096 20 16W)										
APR 1990 23...	5.09	2.10	0.040	0.020	3	60	42	60	6	4	<0.10
	420730096292600 COW CR NR WALTHILL, NE (LAT 42 07 30N LONG 096 29 26W)										
APR 1990 23...	1.61	0.700	0.070	0.050	5	70	24	450	12	8	<0.10
	420925096422400 MIDDLE CR NR THURSTON, NE (LAT 42 09 25N LONG 096 42 24W)										
APR 1990 24...	3.53	<0.100	0.330	0.280	15	140	34	400	8	7	<0.10
	421017096285500 NORTH OMAHA CR NR WALTHILL, NE (LAT 42 10 17N LONG 096 28 55W)										
APR 1990 23...	3.86	0.900	0.080	0.050	5	70	37	910	11	13	<0.10
	421330096490900 LOGAN CR NR WAKEFIELD, NE (LAT 42 13 30N LONG 096 49 09W)										
APR 1990 24...	70.6	1.40	0.130	0.110	3	90	6	120	13	4	<0.10
	421634096290700 OMAHA CR NORTH OF WINNEBAGO, NE (LAT 42 16 34N LONG 096 29 07W)										
APR 1990 23...	10.9	0.900	0.090	0.070	4	80	17	710	11	6	<0.10
	423700097524100 BAZILE CR AT CENTER, NE (LAT 42 37 00N LONG 097 52 41W)										
APR 1990 23...	31.1	2.90	0.110	0.030	5	50	24	42	10	12	<0.10
	424008097522500 HOWE CR NR CENTER, NE (LAT 42 40 08N LONG 097 52 25W)										
APR 1990 23...	6.37	2.40	0.080	0.030	5	60	<3	14	11	<3	<0.10

MISCELLANEOUS STATION ANALYSES (INDIAN RESERVATION RECONNAISSANCE -- WATER YEARS 1989-90)

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DATE	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT. REC (UG/L) (82612)
	06466500 BAZILE CREEK NEAR NIOBRARA, NE (LAT 42 45 26N LONG 097 56 50W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	06600900 SOUTH OMAHA CREEK AT WALTHILL, NEBR. (LAT 42 08 54N LONG 096 28 58W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	0.1
	06799450 LOGAN CREEK AT PENDER NE (LAT 42 06 40N LONG 096 42 00W)										
APR 1990 24...	<0.10	<0.1	<0.10	<0.1	<0.1	0.10	<0.10	0.20	<0.10	<0.1	0.1
	420056096300800 LOGAN CR SOUTH OF ROSALIE, NE (LAT 42 00 56N LONG 096 30 08W)										
APR 1990 24...	<0.10	<0.1	<0.10	<0.1	<0.1	0.30	0.20	0.90	<0.10	<0.1	0.3
24...	<0.10	<0.1	<0.10	<0.1	<0.1	0.30	0.20	0.90	<0.10	<0.1	0.3
	420617096204000 SOUTH BLACKBIRD CR NR MACY, NE (LAT 42 06 17N LONG 096 20 40W)										
APR 1990 23...	<0.10	<0.1	0.40	<0.1	<0.1	<0.10	<0.10	0.10	<0.10	<0.1	<0.1
	420637096201600 N BLACKBIRD CR NR MACY, NE (LAT 42 06 37N LONG 096 20 16W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	420730096292600 COW CR NR WALTHILL, NE (LAT 42 07 30N LONG 096 29 26W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	420925096422400 MIDDLE CR NR THURSTON, NE (LAT 42 09 25N LONG 096 42 24W)										
APR 1990 24...	<0.10	<0.1	<0.10	<0.1	<0.1	0.10	<0.10	0.30	<0.10	<0.1	0.1
	421017096285500 NORTH OMAHA CR NR WALTHILL, NE (LAT 42 10 17N LONG 096 28 55W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	421330096490900 LOGAN CR NR WAKEFIELD, NE (LAT 42 13 30N LONG 096 49 09W)										
APR 1990 24...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	421634096290700 OMAHA CR NORTH OF WINNEBAGO, NE (LAT 42 16 34N LONG 096 29 07W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	0.1
	423700097524100 BAZILE CR AT CENTER, NE (LAT 42 37 00N LONG 097 52 41W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
	424008097522500 HOWE CR NR CENTER, NE (LAT 42 40 08N LONG 097 52 25W)										
APR 1990 23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1

MISCELLANEOUS STATION ANALYSES (INDIAN RESERVATION RECONNAISSANCE -- WATER YEARS 1989-90)

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML) (31625)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
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424125097525100 BAZILE CR BELOW HOWE CR NR CENTER, NE (LAT 42 41 25N LONG 097 52 51W)

APR 1990	23...	1315	42	--	8.4	18.5	721	14	9.3	K150	160	300	85
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424559097551200 LOST CR NR NIOBRARA, NE (LAT 42 45 59N LONG 097 55 12W)

APR 1990	23...	1500	1.8	139	8.2	22.0	719	24	9.2	1700	2900	760	220
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K Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CAC03) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE, DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
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424125097525100 BAZILE CR BELOW HOWE CR NR CENTER, NE (LAT 42 41 25N LONG 097 52 51W)

APR 1990	23...	21	18	0.5	7.6	238	8.3	70	0.20	26	391	0.53
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424559097551200 LOST CR NR NIOBRARA, NE (LAT 42 45 59N LONG 097 55 12W)

APR 1990	23...	50	33	0.5	13	180	17	550	0.40	17	1010	1.37
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DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	PRO-PAZINE TOTAL (UG/L) (39024)
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424125097525100 BAZILE CR BELOW HOWE CR NR CENTER, NE (LAT 42 41 25N LONG 097 52 51W)

APR 1990	23...	44.4	2.80	0.060	0.040	4	70	<3	72	11	6	<0.10
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424559097551200 LOST CR NR NIOBRARA, NE (LAT 42 45 59N LONG 097 55 12W)

APR 1990	23...	4.90	<0.100	0.010	<0.010	1	170	5	290	6	6	<0.10
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DATE	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)	SIME-TRYNE TOTAL (UG/L) (39054)	SIMA-ZINE TOTAL (UG/L) (39055)	PROME-TONE TOTAL (UG/L) (39056)	PROME-TRYNE TOTAL (UG/L) (39057)	ATRA-ZINE TOTAL (UG/L) (39630)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN-AZINE TOTAL (UG/L) (81757)	AME-TRYNE TOTAL (UG/L) (82184)	METRI-BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	METOLA-CHLOR WATER WHOLE TOT.REC (UG/L) (82612)
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424125097525100 BAZILE CR BELOW HOWE CR NR CENTER, NE (LAT 42 41 25N LONG 097 52 51W)

APR 1990	23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1
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424559097551200 LOST CR NR NIOBRARA, NE (LAT 42 45 59N LONG 097 55 12W)

APR 1990	23...	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1
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LOW-FLOW INVESTIGATIONS

267

KANSAS RIVER BASIN

Low-flow investigations were made in the Big Blue and Little Blue River basins in Nebraska during water year 1990 to obtain data on ground-water/surface-water relationships.

BIG BLUE RIVER BASIN

Location	Observation of zero flow or measured discharge in cubic feet per second October 19-20, 1989
Big Blue River 1.5 miles north of DeWitt in SW1/4NE1/4 sec. 12, T.5 N., R.4 E.-----	147
Clatonia Creek 1 mile northeast of DeWitt in NW1/4NW1/4 sec. 17, T.5 N., R.5 E.-----	.15
Turkey Creek 1.5 miles west of DeWitt in SE1/4NW1/4 sec. 15, T.5 N., R.4 E.-----	18
Turkey Creek 0.5 miles south of DeWitt in SE1/4NW1/4 sec. 24, T.5 N., R.4 E.-----	19
Turkey Creek 1.5 miles southeast of DeWitt in NW1/4SW1/4 sec. 29, T.5 N., R.5 E.-----	18
Big Blue River 2.5 miles southeast of DeWitt in NW1/4NE1/4 sec. 33, T.5 N., R.5 E.-----	166
Soap Creek 3.5 miles southeast of DeWitt in SE1/4SW1/4 sec. 27, T.5 N., R.5 E.-----	.08
Unnamed tributary to Big Blue River 1 mile north of Hoag in NW1/4NE1/4 sec. 10, T.4 N., R.5 E.-----	0
Snake Creek 2 miles northeast of Hoag in NW1/4NW1/4 sec. 1, T.4 N., R.5 E.-----	0
Big Blue River 1 mile east of Hoag in NE1/4NW1/4 sec. 13, T.4 N., R.5 E.-----	187
Cub Creek 2 miles south of Hoag in SW1/4SW1/4 sec. 24, T.4 N., R.5 E.-----	1.2
Bottle Creek 1.5 miles northwest of Beatrice in NW1/4SW1/4 sec. 30, T.4 N., R.6 E.-----	.06
Unnamed tributary to Big Blue River 0.5 miles northwest of Beatrice in SW1/4SW1/4 sec. 29, T.4 N., R.6 E.---	.14
Indian Creek at Beatrice in SE1/4SE1/4 sec. 28, T.4 N., R.6 E.-----	1.3
Big Blue River at Beatrice in SW1/4NW1/4 sec. 3, T.3 N., R.6 E. (Gage)-----	190

LITTLE BLUE RIVER BASIN

Little Blue River 2.7 miles south of Alexandria in SE1/4SE1/4 sec. 23, T.3 N., R.1 W. (Gage)-----	61
Big Sandy Creek 0.8 miles south of Alexandria in SE1/4SE1/4 sec. 11, T.3 N., R.1 W. (Gage)-----	26
Big Sandy Creek 1.2 miles west of Powell in SE1/4SE1/4 sec. 16, T.3 N., R.1 E.-----	30
Little Blue River 1.2 miles southwest of Powell in SE1/4SE1/4 sec. 22, T.3 N., R.1 E.-----	93
Little Sandy Creek 2.0 miles east of Powell in NW1/4NE1/4 sec. 19, T.3 N., R.2 E.-----	.98
Whiskey Creek 2.1 miles northwest of Fairbury in SW1/4SE1/4 sec. 33, T.3 N., R.2 E.-----	.10
Little Blue River 1.3 miles northwest of Fairbury in NW1/4NE1/4 sec. 9, T.2 N., R.2 E.-----	102
Trib. to Little Blue River 0.8 miles southwest of Fairbury in NE1/4SW1/4 sec. 22, T.2 N., R.2 E.-----	.20
Little Blue River 0.8 miles south of Fairbury in NW1/4NE1/4 sec. 26, T.2 N., R.2 E. (Gage)-----	105
Brawner Creek 0.4 miles southeast of Fairbury in SE1/4NE1/4 sec. 23, T.2 N., R.2 E.-----	.01
Rose Creek 4.0 miles southwest of Endicott in NW1/4NW1/4 sec. 12, T.1 N., R.2 E.-----	9.0
Smith Creek 0.2 miles northwest of Endicott in NW1/4SE1/4 sec. 5, T.1 N., R.3 E.-----	.15
Little Blue River 0.3 miles south of Endicott in SE1/4SW1/4 sec. 4, T.1 N., R.3 E.-----	113
Rock Creek 0.3 miles southeast of Endicott in SE1/4SE1/4 sec. 4, T.1 N., R.3 E.-----	.35
Coon Creek 2.6 miles northwest of Steele City in NW1/4NE1/4 sec. 15, T.1 N., R.3 E.-----	.01
Little Blue River 0.5 miles south of Steele City in NW1/4NW1/4 sec. 30, T.1 N., R.4 E.-----	136
Little Blue River 0.6 miles west of Hollenberg in NE1/4SW1/4 sec. 8, T.1 S., R.4 E. (Gage)-----	121

LOW-FLOW INVESTIGATIONS

PLATTE RIVER BASIN

Wahoo Creek Basin

Discharge measurements were made during water year 1990 at numerous locations within the Wahoo Creek basin in Saunders County, Nebraska near the Nebraska Ordnance Plant (NOP) to determine ground-water/surface-water relationships.

Location	Discharge in cubic feet per second on indicated dates.			
	March 23	June 26	July 11	August 30
Wahoo Creek at SW corner of NOP NW1/4 NW1/4 sec. 2, T.13 N., R.8 E.	37	37	32	23
Wahoo Cr below confluence with Silver Creek NE1/4 NW1/4 sec. 20, T.13 N., R.9 E.	50	50	39	32
Wahoo Creek at Ashland (Gage site 06804700) SE1/4 NE1/4 sec. 35, T.13 N., R.9 E.	52	54	40	31
Silver Creek near Ashland NW1/4 NE1/4 sec. 35, T.13 N., R.9 E.	.77	.70	.62	.80
Johnson Creek north of NOP SW1/4 SW1/4 sec. 5, T.14 N., R.9 E.	.02	.13	.02	.10
Johnson Creek below dam outlet SW1/4 SE1/4 sec. 16, T.14 N., R.9 E.	0	0	0	0
Johnson Creek near Memphis (1 mi above Clear Creek) (Gage site 06804900) NW1/4 NW1/4 sec. 35, T.14 N., R.9 E.	1.5	2.1	--	1.2
Clear Creek 1 mi below Johnson Creek NW1/4 NW1/4 sec. 11, T.13 N., R.9 E.	10	20	--	--
Clear Creek near Memphis NW1/4 NW1/4 sec. 14, T.13 N., R.9 E.	--	--	7.5	8.1

PLATTE RIVER BASIN

Wahoo Creek Basin--continued

Location	Date	Observation of zero flow or measured discharge in cubic feet per second per centimeter	Specific conductance in microsiemens
Wahoo Creek at Ithaca (gage)	7-18	20	---
NW1/4 NW1/4 sec. 33, T.14 N., R.8 E.	9-20	11	
Wahoo Creek at SW corner of NOP	7-18	22	1083
NW1/4 NW1/4 sec. 2, T.13 N., R.8 E.	9-20	24	
Mosquito Creek near Memphis	7-18	.07	556
NW1/4 SW1/4 sec. 23, T.13 N., R.8 E.	9-20	.05	
Mosquito Creek near Memphis	7-18	.03	502
NW1/4 NW1/4 sec. 19, T.14 N., R.9 E.	9-20	.02	
Wahoo Creek above confluence with Silver Creek	7-18	26	1282
NW1/4 NE1/4 sec. 18, T.13 N., R.9 E.	9-20	26	
Silver Creek near Ithaca	7-18	5.3	601
NW1/4 NW1/4 sec. 34, T.13 N., R.8 E.	9-20	5.9	
Silver Creek tributary near Ithaca	7-18	0	---
NE1/4 NE1/4 sec. 34, T.14 N., R.8 E.	9-20	0	
Silver Creek near south boundary of NOP	7-18	4.8	592
SW1/4 SW1/4 sec. 36, T.14 N., R.8 E.	9-20	5.1	
Silver Creek near Memphis	7-18	3.8	571
NW1/4 NE1/4 sec. 18, T.13 N., R.9 E.	9-20	5.4	
Wahoo Creek below confluence with Silver Creek	7-18	27	986
NE1/4 NW1/4 sec. 20, T.13 N., R.9 E.	9-20	32	
Wahoo Creek near Ashland	7-18	28	1239
NW1/4 NE1/4 sec. 34, T.13 N., R.9 E.	9-20	35	
Wahoo Creek at Ashland	7-18	29	1238
SW1/4 NW1/4 sec. 36, T.13 N., R.9 E.	9-20	34	
Silver Creek below Memphis Lake	7-18	.21	463
SW1/4 SE1/4 sec. 17, T.13 N., R.9 E.	9-20	.04	
Silver Creek near Memphis	7-18	.68	646
NW1/4 NW1/4 sec. 27, T.13 N., R.9 E.	9-20	.24	
Silver Creek near Ashland	7-18	.51	772
NW1/4 NE1/4 sec. 35, T.13 N., R.9 E.	9-20	.36	
Clear Creek northeast of NOP	7-18	2.6	631
NE1/4 NW1/4 sec. 13, T.14 N., R.9 E.	9-20	2.4	
Clear Creek tributary northeast of NOP	7-18	.16	885
NE1/4 NE1/4 sec. 17, T.14 N., R.9 E.	9-20	.01	
Clear Creek east of NOP	7-18	3.4	656
NE1/4 NE1/4 sec. 26, T.14 N., R.9 E.	9-20	2.8	
Clear Creek above Johnson Creek	7-18	3.0	691
SW1/4 SW1/4 sec. 35, T.14 N., R.9 E.	9-20	1.9	
Johnson Creek north of NOP	7-18	.03	1230
NW1/4 NE1/4 sec. 6, T.14 N., R.9 E.	9-20	.03	
Johnson Creek tributary north of NOP	7-18	0	---
SW1/4 SW1/4 sec. 5, T.14 N., R.9 E.	9-20	0	

LOW-FLOW INVESTIGATIONS

PLATTE RIVER BASIN

Wahoo Creek Basin--continued

Location	Date	Observation of zero flow or measured discharge in cubic feet per second per centimeter	Specific conductance in microsiemens
Johnson Creek north of NOP	7-18	.05	1160
SW1/4 SW1/4 sec. 5, T.14 N., R.9 E.	9-20	.02	
Johnson Creek tributary north of NOP	7-18	0	---
NE1/4 NE1/4 sec. 7, T.14 N., R.9 E.	9-20	0	
Johnson Creek tributary north of NOP	7-18	0	---
SW1/4 NW1/4 sec. 8, T.14 N., R.9 E.	9-20	0	
Johnson Creek east of National Guard Training	7-18	.01	1030
SE1/4 SE1/4 sec. 8, T.14 N., R.9 E.	9-20	.01	
Johnson Creek tributary east of National Guard Training	7-18	0	---
SW1/4 SW1/4 sec. 9, T.14 N., R.9 E.	9-20	0	
Johnson Creek below dam outlet	7-18	0	---
SW1/4 SE1/4 sec. 16, T.14 N., R.9 E.	9-20	0	
Johnson Creek tributary at NE corner of NOP	7-18	0	---
NW1/4 NW1/4 sec. 21, T.14 N., R.9 E.	9-20	0	
Johnson Creek tributary at NE corner of NOP	7-18	0	---
SE1/4 NE1/4 sec. 21, T.14 N., R.9 E.	9-20	0	
Johnson Creek east of NOP	7-18	<.05	---
NE1/4 NE1/4 sec. 27, T.14 N., R.9 E.	9-20	0	
Drain from swampy area to Johnson Creek	7-18	.51	549
SE1/4 SE1/4 sec. 27, T.14 N., R.9 E.	9-20	--	
Clear Creek below confluence with Johnson Creek	7-18	5.5	592
NE1/4 NE1/4 sec. 3, T.13 N., R.9 E.	9-20	--	
Clear Creek tributary near SE corner of NOP	7-18	0	---
NW1/4 SW1/4 sec. 33, T.13 N., R.9 E.	9-20	0	
Clear Creek tributary near SE corner of NOP	7-18	.05	380
NW1/4 NE1/4 sec. 3, T.13 N., R.9 E.	9-20	0	
Clear Creek 1 mi below Johnson Creek	7-18	6.7	579
NW1/4 NW1/4 sec. 11, T.13 N., R.9 E.	9-20	6.3	
Clear Creek tributary SE of NOP	7-18	0	---
NE1/4 NW1/4 sec. 11, T.13 N., R.9 E.	9-20	0	
Clear Creek tributary near Memphis	7-18	6.6	580
NW1/4 NW1/4 sec. 14, T.13 N., R.9 E.	9-20	6.3	
Clear Creek near Memphis	7-18	6.2	634
NE1/4 NW1/4 sec. 23, T.13 N., R.9 E.	9-20	6.4	
Clear Creek near Ashland	7-18	7.4	621
NE1/4 NE1/4 sec. 26, T.13 N., R.9 E.	9-20	6.5	
Clear Creek near Ashland	7-18	7.7	631
NE1/4 NE1/4 sec. 35, T.13 N., R.9 E.	9-20	6.9	

GROUND-WATER LEVELS

BOONE COUNTY

413323098074501. Local number 18N-7W-4CA.

LOCATION.--Lat 41°33'23", long 98°07'45", NE1/4SW1/4 sec.4, T.18 N., R.7 W., Hydrologic Unit 10210010, at junction of State Highways 52 and 56 approximately 1 mi east of Cedar Rapids. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

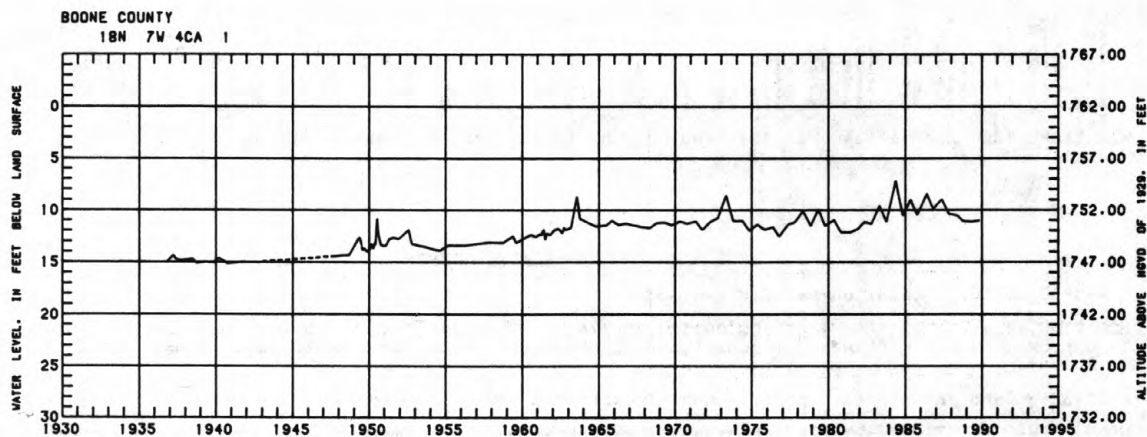
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 22 ft, screened 20 to 22 ft.

DATUM.--Altitude of land-surface datum is 1,762 ft. Measuring point: Top of casing 2.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1936 to October 1942; April 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.15 ft below land-surface datum, May 17, 1984; lowest, 15.17 ft below land-surface datum, Oct. 26, 1940.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	11.04								



GROUND-WATER LEVELS

273

BOX BUTTE COUNTY

420945102551501. Local number 25N-48W-4DDD.

LOCATION.--Lat 42°09'45", long 102°55'15", SE1/4SE1/4SE1/4 sec.4, T.25 N., R.48 W., Hydrologic Unit 10150003, approximately 3.6 mi south and 2.8 mi east of Berea. Owner: U.S. Geological Survey.

AQUIFER.--Marsland Formation of Miocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 204 ft, screened 190 to 193 ft.

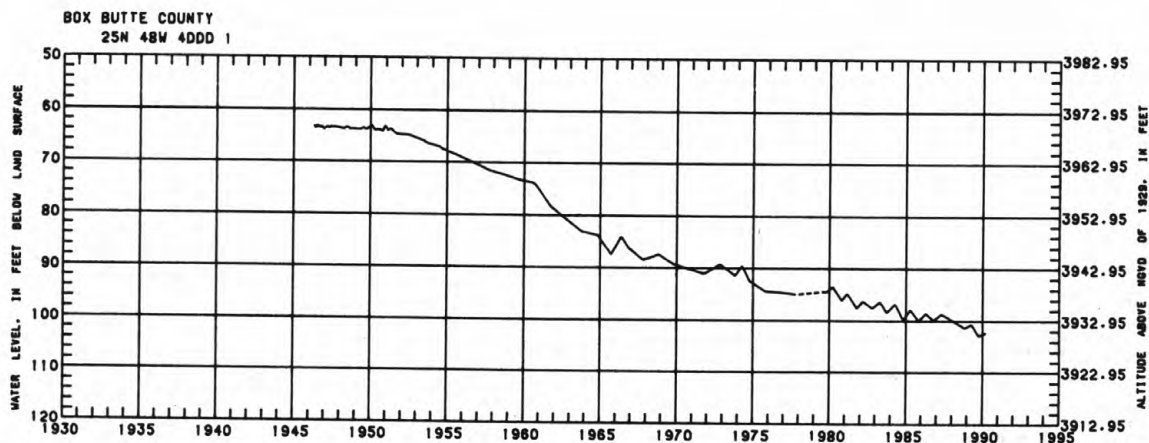
DATUM.--Altitude of land-surface datum is 4,032.95 ft. Measuring point: Top of pipe 2.00 ft above land-surface datum.

REMARKS.--Water levels in vicinity of well are affected by large withdrawals of ground water for irrigation use. Casing was broken off below the land surface during the summer of 1986. Well was cleaned and repaired during the spring of 1988.

PERIOD OF RECORD.--April 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.14 ft below land-surface datum, Jan. 25, 1950; lowest, 102.89 ft below land-surface datum, Oct. 11, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	102.89	MAR 19	102.29						



GROUND-WATER LEVELS

BROWN COUNTY

423307099494501. Local number 30N-21W-19CC.

LOCATION.--Lat 42°33'07", long 99°49'45", SW1/4SW1/4 sec.19, T.30 N., R.21 W., Hydrologic Unit 10150004, 1.2 mi east of junction of U.S. Highway 20 and Route 7 in Ainsworth. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 52 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 2,511.44 ft. Measuring point: Top of casing 0.20 ft above land-surface datum.

REMARKS.--Water levels in well are affected by pumpage of ground water for irrigation and seepage losses from nearby irrigation project.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.91 ft below land-surface datum, Nov. 3, 1988; lowest, 40.96 ft below land-surface datum, Sept. 7, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	33.36	33.51	33.70	33.95	34.17	34.32	34.49	34.71	34.81	35.02	35.30	35.16
10	33.37	33.51	33.76	34.00	34.20	34.35	34.52	34.75	34.83	35.13	35.30	35.25
15	33.41	33.56	33.77	34.02	34.24	34.36	34.53	34.78	34.84	35.16	35.28	35.29
20	33.38	33.59	33.82	34.05	34.29	34.39	34.57	34.81	34.85	35.23	35.28	35.30
25	33.41	33.61	33.84	34.09	34.34	34.42	34.62	34.82	34.88	35.25	35.20	35.21
EOM	33.47	33.67	33.90	34.14	34.32	34.45	34.68	34.83	34.93	35.28	35.13	35.11

WTR YEAR 1990 MAX 33.26 OCT 1, 1989 MIN 35.31 AUG 1, 1990

BUFFALO COUNTY

404618098504401. Local number 9N-14W-1DC.

LOCATION.--Lat 40°46'18", long 98°50'44", SW1/4SE1/4 sec.1, T.9 N., R.14 W., Hydrologic Unit 10200102, 1.3 mi north of the intersection of Route 30 and the North-South range-line road on the east side of Gibbon, then 0.5 mi west on section-line road. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 38 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 2,060.43 ft. Measuring point: Top of casing 0.80 ft above land-surface datum.

REMARKS.--Water levels in well are affected by pumpage from nearby irrigation wells.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.36 ft below land-surface datum, June 11, 1952; lowest, 29.22 ft below land-surface datum, Aug. 10, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	21.55	21.19	20.85	20.74	20.54	20.42	20.29	20.09	19.75	21.42	22.42	22.33
10	21.48	21.12	20.92	20.73	20.50	20.38	20.33	20.07	19.75	21.14	22.85	22.04
15	21.40	21.12	20.89	20.65	20.50	20.35	20.23	19.97	19.66	21.92	22.27	21.94
20	21.33	21.04	20.88	20.64	20.55	20.40	20.17	19.95	19.66	22.44	21.91	21.89
25	21.26	20.98	20.77	20.66	20.52	20.39	20.12	19.85	19.56	22.74	21.66	21.82
EOM	21.21	21.02	20.77	20.59	20.53	20.27	20.21	19.81	20.39	22.11	22.56	21.81

WTR YEAR 1990 MAX 19.49 JUN 28, 1990 MIN 22.85 AUG 10 AND 11, 1990

BUFFALO COUNTY

404345098560001. Local number 9N-14W-19DD.

LOCATION.--Lat 40°43'45", long 98°56'00", SE1/4SE1/4 sec.19, T.9 N., R.14 W., Hydrologic Unit 10200102, 4.7 mi west-southwest of Gibbon on U.S. Highway 30. Owner: Robert D. Lewis.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 24 in, depth 54 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 2,102.16 ft. Measuring point: Hole in pump base 0.70 ft above land-surface datum.

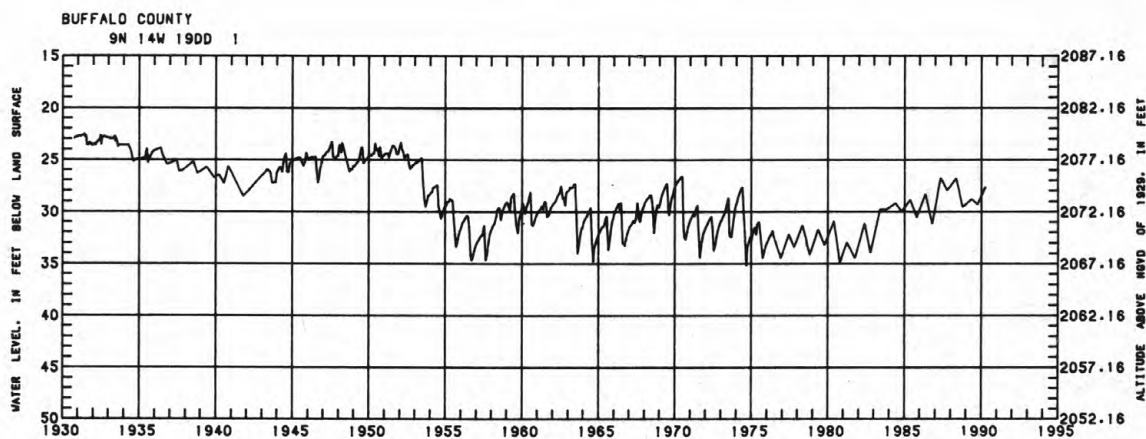
REMARKS.--Water levels in well are affected by pumping of well and of nearby wells for irrigation supplies.

PERIOD OF RECORD.--October 1930 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.55 ft below land-surface datum, June 9, 1931; lowest, 35.20 ft below land-surface datum, Aug. 30, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	29.29	APR 5	27.61								



BUTLER COUNTY

411420097173002. Local number 15N-1E-27DD2.

LOCATION.--Lat 41°14'20", long 97°17'30", SE1/4SE1/4 sec.27, T.15 N., R.1 E., Hydrologic Unit 10270201, 2 mi north of the northeast corner of Rising City. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5 in, depth 210.0 ft, perforated 199 to 210 ft.

DATUM.--Altitude of land-surface datum is 1,618 ft. Measuring point: Top of platform, at land-surface datum.

REMARKS.--Replacement for 411420097173001, local number 15N-1E-27DD, period of record June 1958 to January 1977. Water levels in well affected by pumping from nearby wells during irrigation season.

PERIOD OF RECORD.--February 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 96.49 ft below land-surface datum, May 10, 1988; lowest, 174.50 ft below land-surface datum, Aug. 3, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	.....	106.34	102.98	102.00	101.53	101.13	100.89	.....	100.53	127.89H	.....	.....
10	111.15	104.86	102.89	101.85	101.43	101.03	100.90	101.47	100.56	.....	.....	.....
15	109.49	104.45	102.74	101.85	101.42	100.77	100.84	101.02	100.85	.....	.....	.....
20	108.51	.....	102.62	101.78	101.48	101.08	100.79	100.70	.....	.....	.....	.....
25	107.32	.....	102.41	101.57	101.40	101.15	100.61	100.63	.....	127.90	.....	.....
EOY	106.29	.....	102.09	101.52	101.42	100.90	100.77	100.59	.....	.....	.....	.....

WTR YEAR 1990 MAX 100.38 JUN 13, 1990 MIN 154.33 JUL 18, 1990

H TAPE MEASUREMENT

GROUND-WATER LEVELS

CHASE COUNTY

403220101384001. Local number 7N-38W-28CC.

LOCATION.--Lat 40°32'20", long 101°38'40", SW1/4SW1/4 sec.28, T.7 N., R.38 W., Hydrologic Unit 10250005, about 0.5 mi north of Imperial. Owner: Roy Hust.

AQUIFER.--Ogallala Formation of Pliocene age.

WELL CHARACTERISTICS.--Drilled unused observation water-table well, diameter 18 in, depth 143 ft, casing perforated below water table.

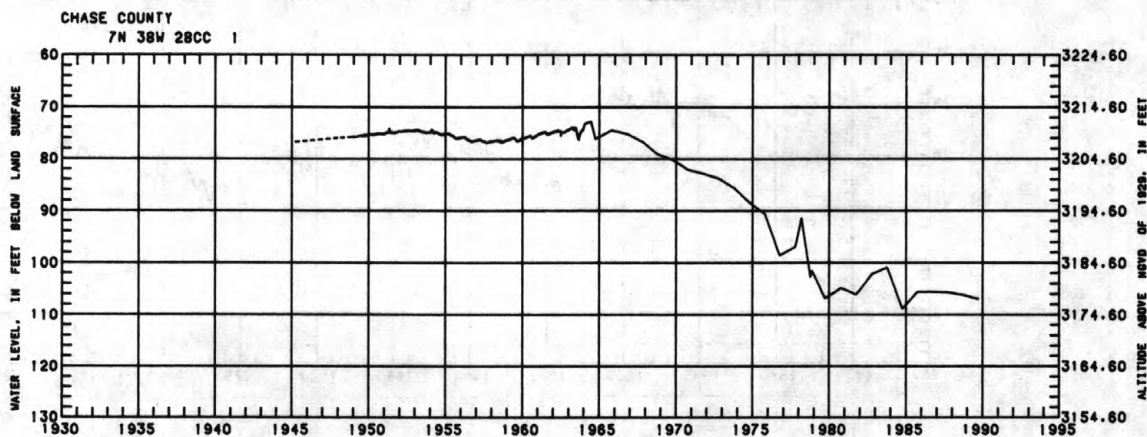
DATUM.--Altitude of land-surface datum is 3,284.6 ft. Measuring point: Top of casing 0.30 ft above land-surface datum.

REMARKS.--Recording gage was installed on this well from December 1948 to December 1963. Water levels in well are affected by irrigation pumpage in area.

PERIOD OF RECORD.--December 1944; December 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 72.82 ft below land-surface datum, June 29, 1964; lowest measured, 108.91 ft below land-surface datum, Oct. 3, 1984.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	107.03								



GROUND-WATER LEVELS

277

CHASE COUNTY

403235101395501. Local number 7N-38W-29CBB.

LOCATION.--Lat 40°32'35", long 101°39'55", NW1/4NW1/4SW1/4 sec.29, T.7 N., R.38 W., Hydrologic Unit 10250005, 0.5 mi north and 1 mi west of Imperial on U.S. Highway 6, then 0.5 mi north on gravel road. Owner: U.S. Geological Survey.

AQUIFER.--Ogallala Formation of Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5.50 in, depth 230 ft, perforated 190 to 230 ft.

DATUM.--Altitude of land-surface datum is 3,290.30 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

REMARKS.--Water levels in well are affected by irrigation pumpage in area.

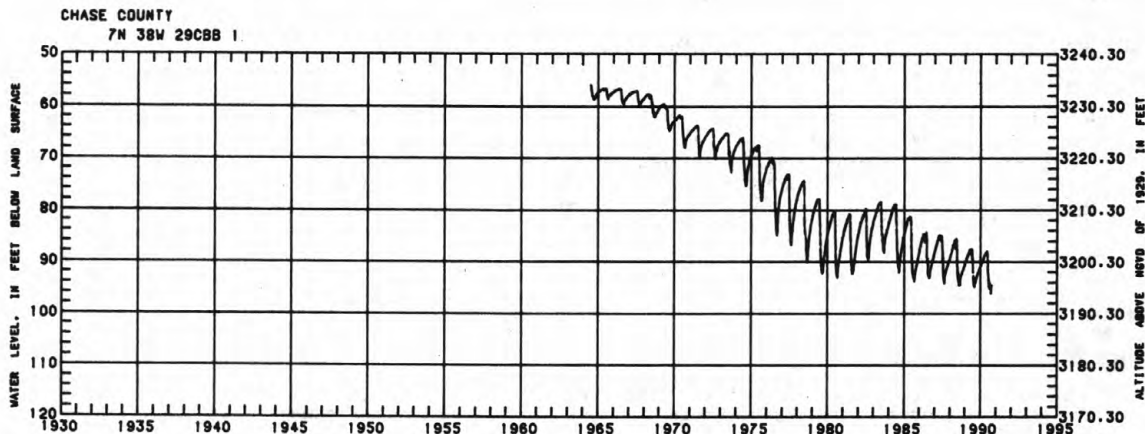
PERIOD OF RECORD.--June 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 55.87 ft below land-surface datum, July 4, 1964; lowest, 96.15 ft below land-surface datum, Sept. 5, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	92.86	92.13	91.40	90.80	90.11	89.48	88.83	88.23	87.88	93.44	94.29	96.15
10	92.77	92.00	91.43	90.67	90.01	89.41	88.84	88.32	88.29	93.49	94.70	95.23
15	92.69	91.97	91.36	90.55	89.83	89.30	88.60	88.09	88.25	94.47	95.21	94.91
20	92.40	91.87	91.27	90.40	89.85	89.14	88.59	88.08	90.42	94.94	94.74	94.75
25	92.34	91.73	91.00	90.42	89.71	89.06	88.43	88.17	91.71	95.05	94.76	94.61
EOY	92.22	91.59	90.90	90.24	89.73	88.87	88.44	88.02	92.41	93.99	95.23	94.57

WTR YEAR 1990 MAX 87.67 MAY 18, 1990 MIN 96.15 SEP 5, 1990



GROUND-WATER LEVELS

CHERRY COUNTY

423205100321501. Local number 30N-28W-36AAA.

LOCATION.--Lat 42°32'05", long 100°32'15", NE1/4NE1/4NE1/4 sec.36, T.30 N., R.28 W., Hydrologic Unit 10150004, 8 mi south of the intersection of U.S. Highway 83 and State Highway 483, south of Valentine. Owner: U.S. Geological Survey.

AQUIFER.--Sand deposits of Pleistocene age.

WELL CHARACTERISTICS.--Bored observation water-table well, diameter 1.25 in, depth 12 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 2,897.26 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

REMARKS.--Water levels affected by evapotranspiration.

PERIOD OF RECORD.--October 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.30 ft above land-surface datum, Feb. 6, 1985. Lowest, 1.99 ft below land-surface datum, Oct. 4, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 2	1.00
AUG 17	1.40

CLAY COUNTY

402940098154001. Local number 6N-8W-17BB.

LOCATION.--Lat 40°29'40", long 98°15'40", NW1/4NW1/4 sec.17, T.6 N., R.8 W., Hydrologic Unit 10270206, 0.7 mi south of Glenville. Owner: Willard W. Kissinger.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 18 in, depth 151 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,846 ft. Measuring point: Hole in turbine base at land-surface datum.

REMARKS.--Water levels affected by pumping during irrigation season.

PERIOD OF RECORD.--October 1952; June 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 95.53 ft below land-surface datum, June 24, 1954; lowest, 109.75 ft below land-surface datum, Oct. 18, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
NOV 9	109.64
APR 9	105.50

COLFAX COUNTY

412810097054501. Local number 17N-3E-4CC.

LOCATION.--Lat 41°28'10", long 97°05'45", SW1/4SW1/4 sec.4, T.17 N., R.3 E., Hydrologic Unit 10200201, 2 mi west and 1 mi north of intersection of U.S. Highway 30 and State Highway 15 in Schuyler. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in, depth 16 ft, screened 14 to 16 ft.

DATUM.--Altitude of land-surface datum is 1,370.58 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.15 ft below land-surface datum, Apr. 1, 1952; lowest, 10.68 ft below land-surface datum, Oct. 29, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 13	8.77

DAWES COUNTY

424100103243501. Local number 31N-52W-3DC.

LOCATION.--Lat 42°41'00", long 103°24'35", SW1/4SE1/4 sec.3, T.31 N., R.52 W., Hydrologic Unit 10140201, behind house at 312 Annin Street in Crawford. Owner: T. P. Moody.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

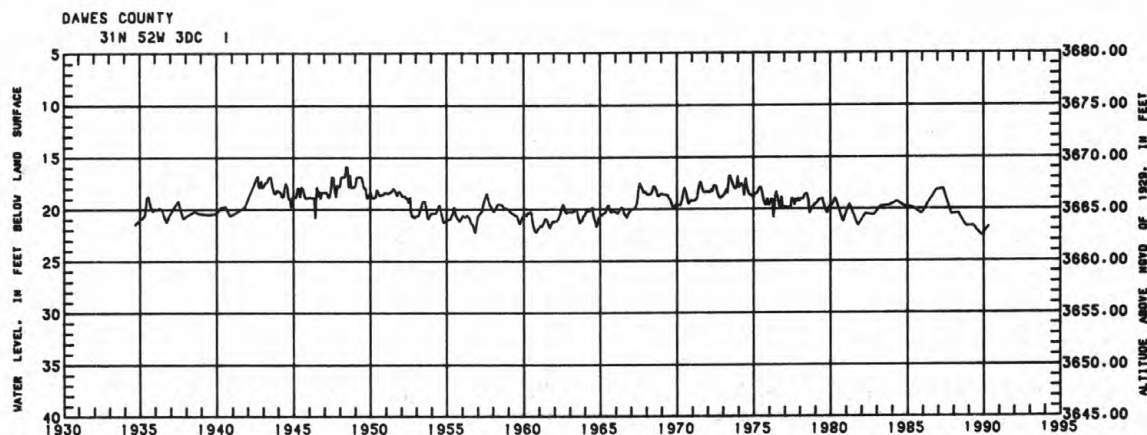
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 39 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 3,685 ft. Measuring point: Edge of iron plate 1.07 ft above land-surface datum.

PERIOD OF RECORD.--August 1934 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.87 ft below land-surface datum, May 30, 1948; lowest, 22.60 ft below land-surface datum, Nov. 5, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
NOV 5	22.60
APR 27	21.73



DAWSON COUNTY

405250099445501. Local number 10N-21W-18DDD.

LOCATION.--Lat 40°52'50", long 99°44'55", SE1/4SE1/4 sec.18, T.10 N., R.21 W., Hydrologic Unit 10200101, 3.5 mi north of the intersection of Route 21 and U.S. Highway 30 in Lexington. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 120 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 2,420.58 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

REMARKS.--Water levels in well affected by pumpage from nearby irrigation wells and by seepage from irrigation canals.

PERIOD OF RECORD.--July 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.06 ft below land-surface datum, June 18, 1984; lowest, 21.50 ft below land-surface datum, July 16, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	10.11	10.75	11.12	11.53	11.72	12.03	11.91	12.05	11.35	15.93	16.08	11.09
10	10.28	10.83	11.30	11.54	11.80	12.01	11.95	12.10	11.22	16.67	16.29	10.97
15	10.40	10.98	11.35	11.56	11.87	11.97	11.91	12.08	11.07	16.46	10.46	10.99
20	10.39	11.00	11.42	11.59	11.99	11.93	11.95	12.13	11.06	16.23	10.37	11.04
25	10.52	11.06	11.40	11.64	12.05	11.93	11.98	11.98	11.05	15.89	10.48	11.13
EOM	10.69	11.12	11.48	11.64	12.06	11.86	12.06	11.63	11.93	15.61	10.63	11.24

WTR YEAR 1990 MAX 9.91 OCT 1, 1989 MIN 16.79 JUL 11 AND 12, 1990

GROUND-WATER LEVELS

DAWSON COUNTY

404850099503501. Local number 10N-22W-29AA.

LOCATION.--Lat 40°48'50", long 99°50'35", NE1/4NE1/4 sec.29, T.10 N., R.22 W., Hydrologic Unit 10200101, 2 mi east of Dorr. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 12 ft, screened 10 to 12 ft.

DATUM.--Altitude of land-surface datum is 2,435.14 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

REMARKS.--Water levels in well affected by pumping from nearby wells during irrigation season. No well reading was made in 1983 water year.

PERIOD OF RECORD.--October 1931 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.52 ft below land-surface datum, July 12, 1947; lowest, 8.88 ft below land-surface datum, Oct. 19, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990											
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 13	4.80										

DUNDY COUNTY

400155101521302. Local number 1N-40W-29BB2.

LOCATION.--Lat 40°01'55", long 101°52'13", NW1/4NW1/4 sec.29, T.1 N., R.40 W., Hydrologic Unit 10250002, 3.5 mi east of Haigler on U.S. Highway 34 and 0.5 mi north. Well is within 0.5 mi of Republican River. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 48.8 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 3,205 ft. Measuring point: South side of casing 1.6 ft above land-surface datum.

REMARKS.--Replacement for well 400155101521301, local number 1N-40W-29BB1 with period of record from May 1946 to June 1975. Water levels in well are affected by pumping from nearby irrigation wells, evapotranspiration, and changes in stage of Republican River.

PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.41 ft below land-surface datum, June 21, 1984; lowest, 20.97 ft below land-surface datum, Sept. 12, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990												
LOWEST WATER LEVEL FOR THE DAY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	19.19	18.71	18.28	17.93	17.66	17.47	17.28	17.11	17.21	17.98	18.76	19.35
10	19.33	18.62	18.22	17.89	17.63	17.44	17.26	17.09	17.16	18.16	18.87	19.46
15	19.42	18.55	18.17	17.83	17.59	17.40	17.22	17.06	17.13	18.30	18.97	19.54
20	19.10	18.47	18.11	17.79	17.57	17.38	17.19	17.04	17.36	18.44	18.88	19.32
25	18.94	18.40	18.05	17.75	17.54	17.35	17.16	17.17	17.60	18.54	19.11	19.54
EOM	18.81	18.35	17.99	17.69	17.53	17.31	17.15	17.36	17.79	18.67	19.26	19.52

WTR YEAR 1990 MAX 17.02 MAY 22, 23, AND 24, 1990 MIN 19.60 SEP 29, 1990

GROUND-WATER LEVELS

281

FILLMORE COUNTY

402504097432201. Local number 5N-4W-12BDC.

LOCATION.--Lat 40°25'04", long 97°43'22", SW1/4SE1/4NW1/4 sec.12, T.5 N., R.4 W., Hydrologic Unit 10270206, one-half block south of fire station on principal north-south street in Shickley. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5 in, depth 260.0 ft, perforated 100 to 260 ft.

DATUM.--Altitude of land-surface datum is 1651 ft. Measuring point: Top of casing 1.5 ft above land-surface datum.

REMARKS.--Replacement for 402450097434001, local number 5N-4W-12BC, period of record October 1956 to September 1977. Water levels in well affected by pumping from nearby municipal and irrigation wells.

PERIOD OF RECORD.--June 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 90.85 ft below land-surface datum, June 8, 1978; lowest, 99.00 ft below land-surface datum, Sept. 28, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	97.44	97.25	97.27	96.85	96.57	96.38	96.17	95.88	95.63	96.07	97.99	.....
10	97.41	97.17	97.16	96.88	96.50	96.23	96.22	95.85	95.59	96.41	98.03	.....
15	97.39	96.96	97.23	96.75	96.44	96.27	96.09	95.75	95.53	96.87	97.98	98.92
20	97.08	97.25	97.13	96.76	96.45	96.10	95.98	95.78	95.57	97.30	98.21	98.86
25	97.27	97.21	96.86	96.65	96.43	96.14	95.97	95.72	95.50	97.66	98.41	98.86
EOM	97.17	97.21	96.89	96.52	96.43	96.05	96.04	95.63	95.62	97.80	98.52	98.80

WTR YEAR 1990 MAX 95.13 JUN 27, 1990 MIN 99.00 SEP 28, 1990

FILLMORE COUNTY

403800097300701. Local number 8N-2W-26AD.

LOCATION.--Lat 40°38'00", long 97°30'07", SE1/4NE1/4 sec.26, T.8 N., R.2 W., Hydrologic Unit 10270203, 2.5 mi west on Route 6 from the principal street of Exeter, then 0.4 mi south. Owner: U.S. Geological Survey.

AQUIFER.--Loess of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 40 ft, perforated 25 to 40 ft.

DATUM.--Altitude of land-surface datum is 1,610 ft. Measuring point: Top of casing at land-surface datum.

REMARKS.--Perched aquifer, water levels affected by infiltration and deep percolation of applied irrigation water pumped from deeper aquifer.

PERIOD OF RECORD.--October 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.03 ft below land-surface datum, Mar. 24, 1987; lowest, 24.16 ft below land-surface datum, July 10, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	8.60	9.05	9.40	9.96	10.31	10.62	10.19	9.97	8.08	6.90	5.03	7.47
10	8.71	9.16	9.58	9.99	10.33	10.60	10.07	9.40	8.16	7.03	5.80	7.86
15	8.79	9.31	9.72	10.05	10.44	10.49	10.07	8.94	8.18	7.15	6.00	8.25
20	8.92	9.35	9.78	10.12	10.59	10.65	10.07	8.43	6.32	7.33	6.33	8.37
25	8.96	9.34	9.75	10.19	10.66	10.66	10.13	8.13	6.45	7.23	6.60	8.50
EOM	9.04	9.52	9.88	10.22	10.70	10.45	10.05	8.09	6.66	6.59	7.08	8.76

WTR YEAR 1990 MAX 3.66 AUG 3, 1990 MIN 10.70 FEB 28, 1990

GROUND-WATER LEVELS

FURNAS COUNTY

401718099491001. Local number 4N-22W-29AD.

LOCATION.--Lat 40°17'18", long 99°49'10", SE1/4NE1/4 sec.29, T.4 N., R.22 W., Hydrologic Unit 10250009, 2 mi west and 0.5 mi north of Edison. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 23 ft, screened 21 to 23 ft.

DATUM.--Altitude of land-surface datum is 2,134 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.60 ft below land surface datum, Aug. 22, 1978; lowest, 17.69 ft below land-surface datum, Feb. 8, 1946.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	9.50										

GARDEN COUNTY

414124102230101. Local number 20N-44W-22CB.

LOCATION.--Lat 41°41'24", long 102°23'01", NW1/4SW1/4 sec.22, T.20 N., R.44 W., Hydrologic Unit 10180009, 5.8 mi southeast of refuge headquarters. Owner: Crescent Lake Migratory Bird Refuge.

AQUIFER.--Sand deposits of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.50 in, depth 22.1 ft below land-surface datum.

DATUM.--Altitude of land-surface datum is 3783.16 ft. Measuring point: Top of casing 1.61 ft above land-surface datum.

PERIOD OF RECORD.--August 1934-39; 1943 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.57 ft below land-surface datum, Oct. 7, 1934; lowest, 20.92 ft below land-surface datum, Mar. 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 19	18.68	APR 23	18.72	JUL 13	18.64						

GROUND-WATER LEVELS

HALL COUNTY

405315098304302. Local number 11N-11W-25CC2.

LOCATION.--Lat 40°53'15", long 98°30'43", SW1/4SW1/4 sec.25, T.11 N., R.11 W., Hydrologic Unit 10200103, 1.0 mi north and 2.0 mi west of Alda. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 65 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,924.0 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

REMARKS.--Replacement for 405315098304301, local number 11N-11W-25CC, period of record October 1946 to November 1977. Water levels in wells affected by pumping from nearby wells during irrigation season.

PERIOD OF RECORD.-- April 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.83 ft below land-surface datum, June 27, 1987; lowest, 25.98 ft below land-surface datum, Aug. 31, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	17.77	17.60	17.46	17.45	17.40	17.38	17.34	17.33	17.16	17.18	.....	19.11
10	17.72	17.56	17.51	17.44	17.37	17.35	17.39	17.31	17.17	17.25	.....	19.22
15	17.69	17.60	17.51	17.42	17.39	17.35	17.33	17.24	17.13	17.30	.....	19.25
20	17.66	17.55	17.50	17.41	17.46	17.39	17.32	17.30	17.11	17.50	.....	19.25
25	17.62	17.52	17.43	17.42	17.47	17.38	17.31	17.21	17.08	.....	18.77	19.21
EOM	17.61	17.57	17.45	17.39	17.48	17.31	17.38	17.18	17.08	.....	18.95	19.22

WTR YEAR 1990 MAX 17.03 JUN 28 AND 29, AND JUL 2, 1990 MIN 19.27 SEP 16, 17, 22, AND 24, 1990

HAMILTON COUNTY

404836097584101 Local number 10N-6W-27ACAA.

LOCATION.--Lat 40°48'36", long 97°58'41", SE1/4NE1/4 sec.27, T.10 N., R.6 W., Hydrologic Unit 10270203, 4.0 mi south of junction of Route 14 and U.S. Highway 34 in Aurora, then 1.0 mi east and 0.3 mi south. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of the Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 170 ft, casing perforated below water-table.

DATUM.--Altitude of land surface datum is 1791.3 ft. Measuring point: Top of casing 1.5 ft above land surface datum.

REMARKS.--Replacement for well 404825097583301. Local number 10N-6W-26BC with period of record March 1956 to March 1982 located across the county road to the east.

PERIOD OF RECORD.--October 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.31 ft below land-surface datum, June 5, 1988; lowest, 107.40 ft below land-surface datum, Aug. 24, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	98.75	98.18	97.52	97.01	96.46	96.09	95.70	95.30	94.91	95.02	97.11	98.48
10	98.63	98.00	97.51	96.93	96.36	95.97	95.67	95.25	94.92	96.36	97.03	98.45
15	98.60	97.93	97.35	96.80	96.25	95.95	95.57	95.08	94.84	96.83	96.91	98.37
20	98.35	97.86	97.36	96.73	96.27	95.84	95.46	94.99	94.82	97.50	96.84	98.26
25	98.29	97.73	97.16	96.65	96.24	95.82	95.40	94.98	94.76	97.36	97.70	98.12
EOM	98.24	97.59	97.10	96.56	96.20	95.65	95.45	94.94	94.79	97.21	98.52	97.99

WTR YEAR 1990 MAX 94.59 JUN 18, 1990 MIN 98.94 OCT 1, 1989

GROUND-WATER LEVELS

285

HAMILTON COUNTY

405514097573901. Local number 11N-6W-13CB.

LOCATION.--Lat 40°55'14", long 97°57'39", NW1/4SW1/4 sec.13, T.11 N., R.6 W., Hydrologic Unit 10270201, 2 mi east and 3.5 mi north of Aurora. Owner: O. S. Swedberg.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 24 in, depth 194 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,812.2 ft. Measuring point: Hole in south side turbine base at land-surface datum.

REMARKS.--Water levels affected by pumping during irrigation season.

PERIOD OF RECORD.--September 1934 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 90.04 ft below land-surface datum, Sept. 29, 1934; lowest, 117.18 ft below land-surface datum, Nov. 15, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990											
WATER		WATER		WATER		WATER		WATER		WATER	
DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL
NOV 3	100.74	APR 19	97.52								

HARLAN COUNTY

400920099215501. Local number 2N-18W-9BCC.

LOCATION.--Lat 40°09'20", long 99°21'55", SW1/4SW1/4NW1/4 sec.9, T.2 N., R.18 W., Hydrologic Unit 10250009, 3.5 mi north of the junction of Route 3 and U.S. Highway 183 in Alma. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5.50 in, depth 170 ft, perforated from 140 to 170 ft.

DATUM.--Altitude of land-surface datum is 2,120 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

REMARKS.--Water levels affected by pumping from nearby wells during irrigation season.

PERIOD OF RECORD.--June 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 84.39 ft below land-surface datum, May 11, 1966; lowest, 109.96 ft below land-surface datum, Sept. 15, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
 LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	92.85	91.67	91.68	91.26	90.97	92.61	90.77	90.67	90.42	103.84	95.23	95.84
10	92.85	91.89	91.88	91.26	90.97	92.72	90.83	90.66	90.53	105.01	98.68	95.17
15	92.72	92.15	92.14	91.11	90.93	92.62	90.68	90.56	91.36	104.97	93.40	93.31
20	91.80	91.96	92.06	91.09	91.01	91.27	90.68	90.53	91.37	103.95	92.85	92.90
25	91.81	91.68	91.31	91.14	92.06	91.22	90.65	90.53	90.52	104.43	92.57	92.71
EOM	91.72	91.77	91.30	91.04	92.40	90.77	90.77	90.47	98.36	105.34	99.71	92.70

WTR YEAR 1990 MAX 90.30 JUN 17, 1990 MIN 105.34 JUL 31, 1990

GROUND-WATER LEVELS

HARLAN COUNTY

400620099274001. Local number 2N-19W-28DD.

LOCATION.--Lat 40°06'20", long 99°27'40", SE1/4SE1/4 sec.28, T.2 N., R.19 W., Hydrologic Unit 10250009, 1.8 mi south of Orleans. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

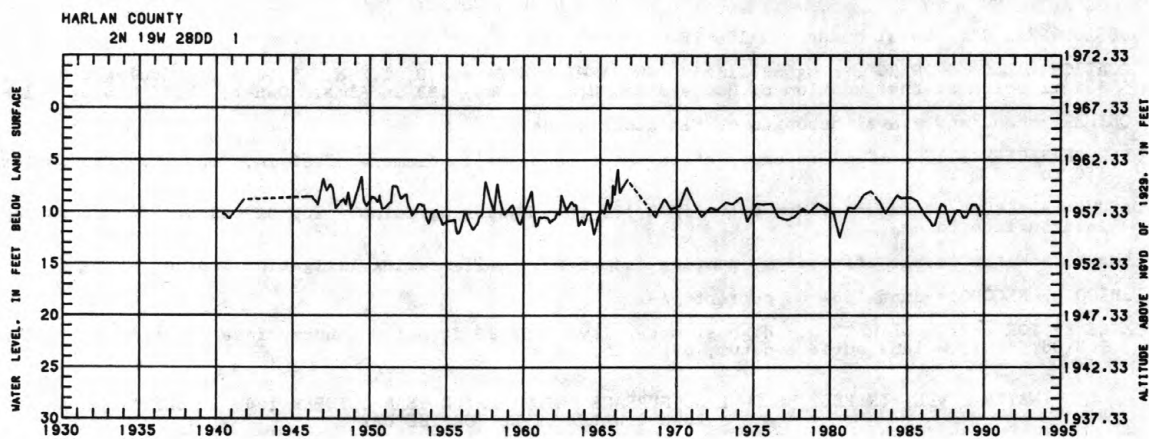
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 22 ft, screened 20 to 22 ft.

DATUM.--Altitude of land-surface datum is 1,967.53 ft. Measuring point: Top of casing 1.20 ft above land-surface datum.

PERIOD OF RECORD.--May 1940 to October 1941; March 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.90 ft below land-surface datum, Feb. 15, 1966; lowest, 12.50 ft below land-surface datum, Aug. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	10.40								



HOLT COUNTY

421605098203001. Local number 27N-9W-34DA.

LOCATION.--Lat 42°16'05", long 98°20'30", NE1/4SE1/4 sec.34, T.27 N., R.9 W., Hydrologic Unit 10220001, 0.5 mi north of Ewing. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 17 ft, screened 15 to 17 ft.

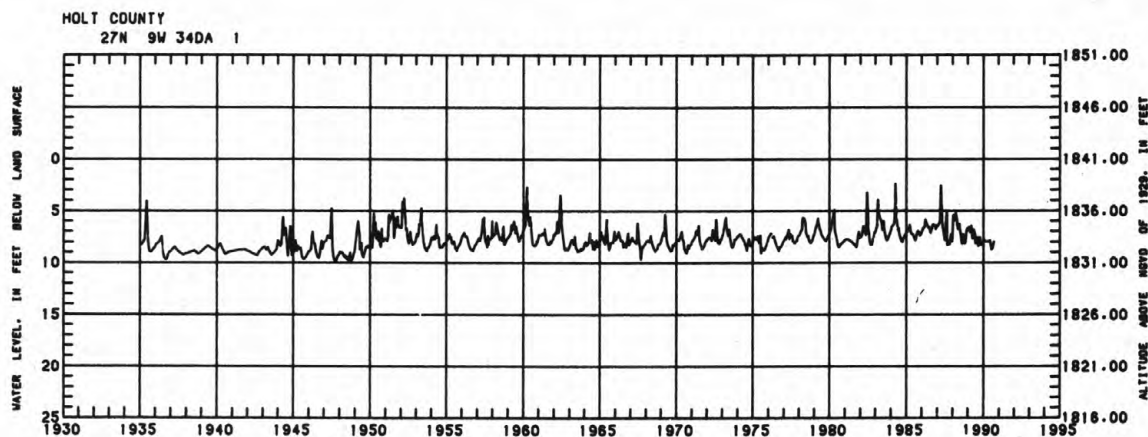
DATUM.--Altitude of land-surface datum is 1,841 ft. Measuring point: Top of casing 1.10 ft above land-surface datum.

PERIOD OF RECORD.--December 1934 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.34 ft below land-surface datum, Apr. 9, 1984; lowest, 9.90 ft below land-surface datum, Sept. 1, 1948.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	7.54	NOV 21	8.22	JAN 9	7.80	APR 30	7.96	JUN 6	7.84	AUG 8	8.67
OCT 31	8.32	DEC 6	8.16	FEB 7	7.96	MAY 1	7.98	JUL 6	8.80	SEP 5	8.02



HOLT COUNTY

423148098300601. Local number 30N-10W-32DAA.

LOCATION.--Lat 42°31'48", long 98°30'06", NE1/4NE1/4SE1/4 sec.32, T.30 N., R.10 W., Hydrologic Unit 10150007, 2 mi east on paved road from O'Neill, then 2 mi north, 4 mi east, 2 mi north, 2 mi east, and 0.5 mi north. Owner: William J. Murphy.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 85 ft, perforated 25.5 to 85 ft.

DATUM.--Altitude of land-surface datum is 1,952 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

REMARKS.--Water levels in this well affected by withdrawals by nearby irrigation wells completed in this aquifer and withdrawals from a deeper aquifer which has resulted in water movement from the upper aquifer to the deeper aquifer.

PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 35.41 ft below land-surface datum, Oct. 21, 1966; lowest, 53.73 ft below land-surface datum, Sept. 17, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	46.93	47.14	47.22	47.32	47.32	47.29	47.29	47.28	47.19	47.38	48.16	48.78
10	46.96	47.15	47.30	47.32	47.28	47.26	47.30	47.24	47.22	47.50	48.28	48.87
15	47.01	47.21	47.32	47.30	47.29	47.26	47.26	47.22	47.19	47.60	48.40	48.95
20	47.00	47.23	47.33	47.29	47.33	47.29	47.26	47.23	47.19	47.72	48.52	49.01
25	47.06	47.21	47.27	47.31	47.35	47.31	47.23	47.21	47.19	47.84	48.61	49.04
EOM	47.12	47.25	47.30	47.30	47.36	47.25	47.29	47.21	47.27	48.01	48.70	49.08

WTR YEAR 1990 MAX 46.82 OCT 1, 1989

MIN 49.08 SEP 29 AND 30, 1990

GROUND-WATER LEVELS

HOLT COUNTY

423730098560001. Local number 31N-14W-27DDD.

LOCATION.--Lat 42°37'30", long 98°56'00", SE1/4SE1/4SE1/4 sec.27, T.31 N., R.14 W., Hydrologic Unit 10150007, 6 mi north from Atkinson on Route 11, then 2 mi east. Owner: Elmer Goldfuss.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 72 ft, perforated 32 to 72 ft.

DATUM.--Altitude of land-surface datum is 2,080 ft. Measuring point: Top of casing at land-surface datum.

REMARKS.--Water levels in well affected by pumping of nearby wells during irrigation season.

PERIOD OF RECORD.--July 1966 to current year.

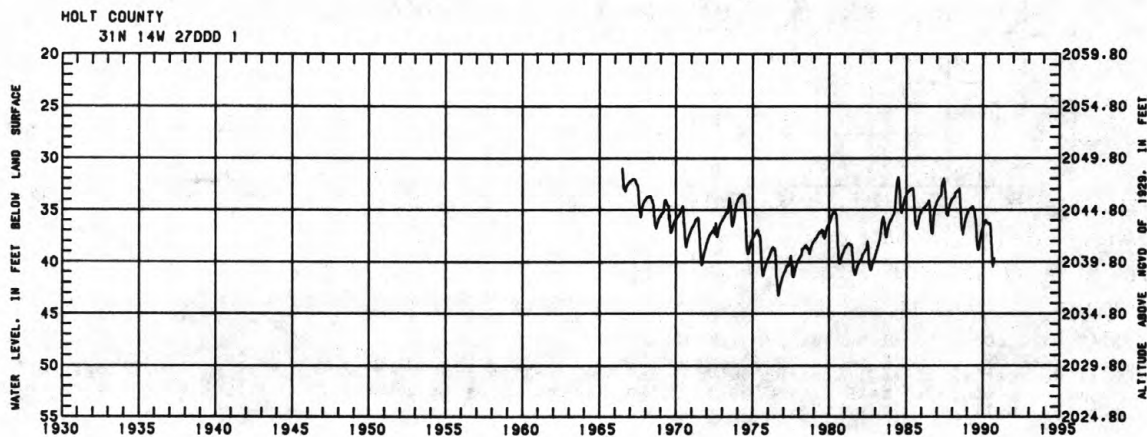
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.91 ft below land-surface datum, July 7, 1966; lowest, 43.30 ft below land-surface datum, Sept. 10, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	38.39	37.61	37.06	36.65	36.33	36.02	36.22	36.28	36.32	37.05	39.39	40.17
10	38.28	37.50	36.99	36.60	36.29	36.01	36.26	36.27	36.34	37.49	39.84	40.19
15	38.16	37.41	36.93	36.53	36.27	36.07	36.24	36.26	36.32	37.68	40.11	40.10
20	38.02	37.31	36.86	36.49	36.24	36.16	36.25	36.40	36.30	38.11	40.42	40.01
25	37.89	37.21	36.79	36.43	36.17	36.20	36.23	36.37	36.30	38.47	40.52	39.83
EOC	37.74	37.15	36.71	36.38	36.12	36.19	36.27	36.35	36.59	39.13	40.31	39.66

WTR YEAR 1990 MAX 35.97 MAR 8 AND 9, 1990

MIN 40.54 AUG 23 AND 24, 1990



GROUND-WATER LEVELS

289

KEARNEY COUNTY

402625098594501. Local number 6N-15W-34DC.

LOCATION.--Lat 40°26'25", long 98°59'45", SW1/4SE1/4 sec.34, T.6 N., R.15 W., Hydrologic Unit 10270206, 4.5 mi south and 2.5 mi west of the junction of Route 10 and U.S. Highway 34 near Minden. Owner: Conservation and Survey Division, University of Nebraska-Lincoln.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 210 ft, cased with steel, perforated 190 to 210 ft.

DATUM.--Altitude of land-surface datum is 2,210 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

REMARKS.--Replacement for 402615099000001, local number 5N-15W-3BA1, period of record August 1947 to September 1967. Water levels in well affected by seepage losses from nearby canals and by pumping of nearby wells during irrigation season.

PERIOD OF RECORD.--October 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 70.91 ft below land-surface datum, June 8, 1988; lowest, 119.43 ft below land-surface datum, Aug. 27, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	78.18	76.77	75.64	75.13	74.40	73.92	73.51	73.25	72.61	115.55	86.79	97.50
10	77.87	76.71	75.79	74.98	74.23	74.05	73.65	73.09	72.84	116.12	100.58	85.81
15	77.67	76.75	75.79	74.75	74.24	73.88	73.29	72.89	72.51	108.81	82.84	82.42
20	77.85	76.47	75.65	74.62	74.48	74.20	73.22	72.91	72.57	117.60	81.28	81.12
25	77.56	76.07	75.28	74.64	74.63	74.00	73.00	72.82	84.87	116.36	87.72	80.15
EOY	77.46	76.33	75.16	74.43	74.68	73.46	73.57	72.80	108.25	111.65	114.90	80.06

WTR YEAR 1990 MAX 72.33 JUN 12, 13, AND 16, 1990 MIN 117.79 JUL 18, 1990

KEARNEY COUNTY

403354098553702. Local number 7N-14W-20BA2.

LOCATION.--Lat 40°33'54", long 98°55'37", NE1/4NW1/4 sec.20, T.7 N., R.14 W., Hydrologic Unit 10270206, 1.4 mi east and 4.5 mi north of intersection of U.S. Highway 6 and State Highway 10 in Minden. Owner: Gary Dornhoff.

AQUIFER.--Sand deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in, depth 214 ft.

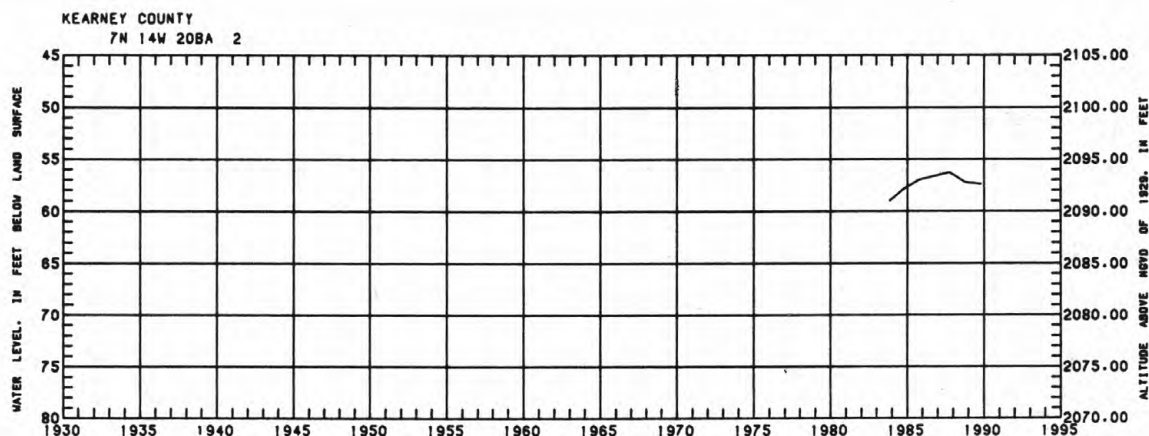
DATUM.--Altitude of land-surface datum is 2,150 ft. Measuring point: 0.30 ft above land-surface datum.

PERIOD OF RECORD.--October 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.27 ft below land-surface datum, Oct. 2, 1987; lowest, 59.06 ft below land surface datum, Oct. 24, 1983.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	57.37										



GROUND-WATER LEVELS

KIMBALL COUNTY

411416103361101. Local number 15N-55W-26CCC.

LOCATION.--Lat 41°14'18", long 103°36'15", SW1/4SW1/4SW1/4 sec.26, T.15 N., R.55 W., Hydrologic Unit 10190016, east of intersection of U.S. Highway 30 and State Highway 71 in Kimball. Owner: Henry Meier.

AQUIFER.--Ogallala Formation of Pliocene age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 24 in, depth 124 ft, casing perforated below water table.

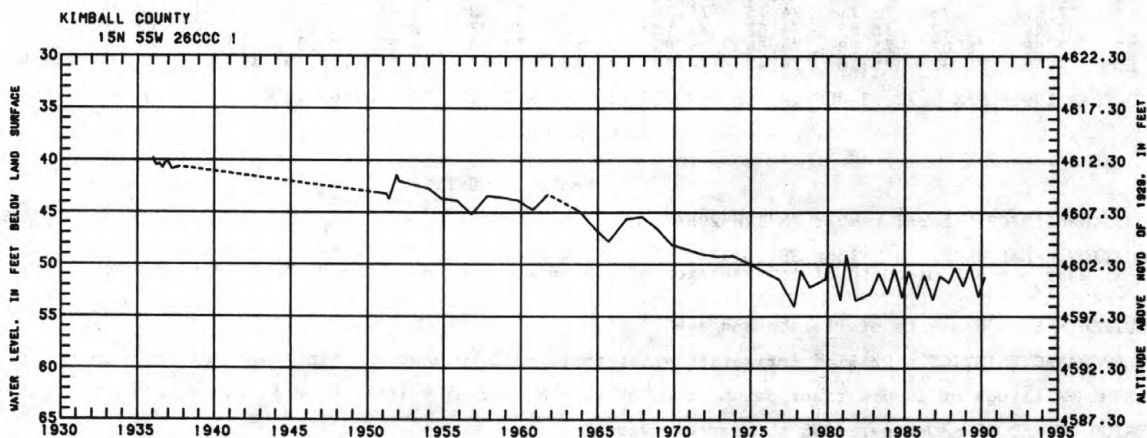
DATUM.--Altitude of land-surface datum is 4,652.3 ft. Measuring point: Top of casing 0.00 ft above land-surface datum.

REMARKS.--Local well number formerly listed as 15N-55W-26CC. Replacement for 411600103393501, local number 15N-55W-17CC1, period of record January 1935 to November 1942; June 1950 to October 1975.

PERIOD OF RECORD.--January 1936 to October 1937; January 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.82 ft below land-surface datum, Jan. 2, 1936; lowest, 54.07 ft below land-surface datum, Oct. 18, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
NOV 3	53.12
MAR 21	51.19



LANCASTER COUNTY

403929096401001. Local number 8N-7E-18DDB.

LOCATION.--Lat 40°39'29", long 96°40'10", NW1/4SE1/4SE1/4 sec.18, T.8 N., R.7 E., Hydrologic Unit 10200203, 0.6 mi west of Roca. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 41 ft, perforated 36 to 41 ft.

DATUM.--Altitude of land-surface datum is 1,215 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

REMARKS.--Water level not measured during 1984 water year.

PERIOD OF RECORD.--June 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.63 ft below land-surface datum, Aug. 25, 1954; lowest, 13.24 ft below land-surface datum, Nov. 9, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 3	10.68

GROUND-WATER LEVELS

LANCASTER COUNTY

404706096413001. Local number 10N-6E-36CDD.

LOCATION.--Lat 40°47'06", long 96°41'30", SE1/4SE1/4SW1/4 sec.36, T.10 N., R.6 E., Hydrologic Unit 10200203, in Irvingdale Park on the north side of Van Dorn Street between 18th and 20th Streets in Lincoln. Owner: City of Lincoln.

AQUIFER.--Dakota Formation of Lower Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in, depth 170 ft, casing perforated below water table.

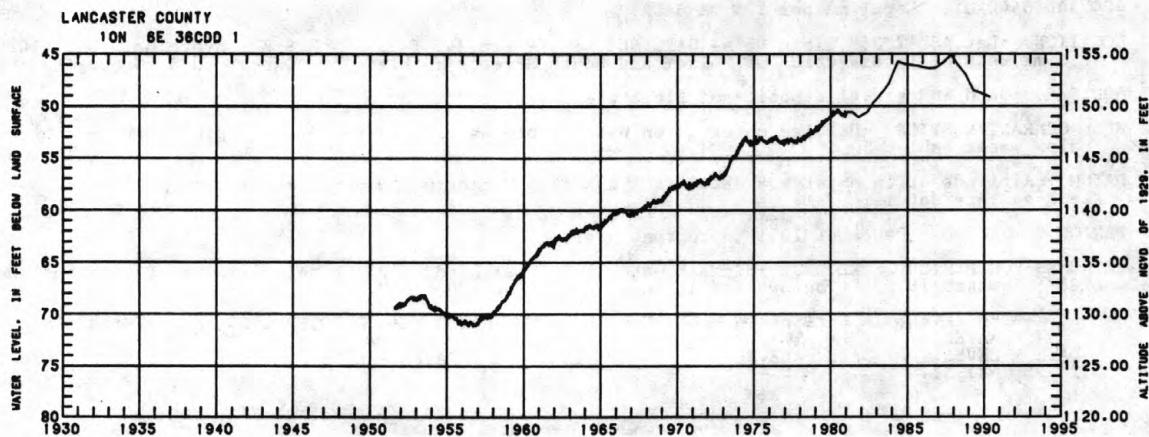
DATUM.--Altitude of land-surface datum is 1,200 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

REMARKS.--Recorder removed in January 1983. Well measured in spring and fall thereafter.

PERIOD OF RECORD.--August 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 45.07 ft below land-surface datum, Oct. 26, 1987; lowest 71.19 ft below land-surface datum, Sept. 5, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	48.74	MAY 10	49.12						



GROUND-WATER LEVELS

293

MERRICK COUNTY

410143098090301. Local number 12N-7W-7AA.

LOCATION.--Lat 41°01'43", long 98°09'03", NE1/4NE1/4 sec.7, T.12 N., R.7 W., Hydrologic Unit 10200103, 0.5 mi north and 0.5 mi west of Chapman. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 13 ft, screened 11 to 13 ft.

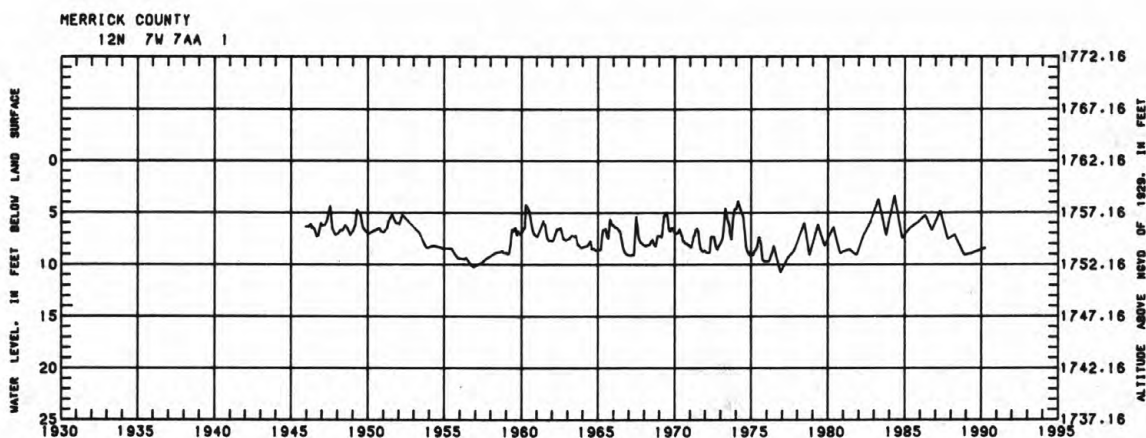
DATUM.--Altitude of land-surface datum is 1,762.16 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

REMARKS.--Water levels in well affected by pumping of nearby wells during irrigation season and by evapotranspiration.

PERIOD OF RECORD.--December 1945 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.31 ft below land-surface datum, May 4, 1984; lowest, 10.75 ft below land-surface datum, Dec. 3, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990			
DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	8.69	MAR 29	8.40



MORRILL COUNTY

414058103054001. Local number 20N-50W-28BBC.

LOCATION.--Lat 41°40'58", long 103°05'40", SW1/4NW1/4NW1/4 sec.28, T.20 N., R.50 W., Hydrologic unit 10180009, 0.1 mi west of Northport. Owner: Fred Smith.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 1.25 in, depth 28 ft, screened 25 to 28 ft.

DATUM.--Altitude of land-surface datum is 3,675 ft. Measuring point: Top of casing 2.0 ft above land-surface datum.

REMARKS.--Replacement for well 414107103054501, local number 20N-50W-28BB with period of record September 1934 to November 1942; November 1944 to November 1980.

PERIOD OF RECORD.--October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.88 ft below land-surface datum, May 10, 1983; lowest, 15.68 ft below land-surface datum, Mar. 18, 1982, and Mar. 22, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990			
DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	15.29	APR 10	15.39

GROUND-WATER LEVELS

NUCKOLLS COUNTY

400240098111301. Local number 1N-8W-23AB.

LOCATION.--Lat 40°02'40", long 98°11'13", NW1/4NE1/4 sec.23, T.1 N., R.8 W., Hydrologic Unit 10250016, 0.5 mi south and 0.5 mi west of Bostwick. Owner: U.S. Geological Survey.

AQUIFER.--Loess of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 18 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,598.15 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

PERIOD OF RECORD.--April 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.02 ft below land-surface datum, July 29, 1951; lowest, 7.91 ft below land-surface datum, July 8, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 19	4.72
MAY 15	4.12

PHELPS COUNTY

403123099261501. Local number 6N-19W-2AA.

LOCATION.--Lat 40°31'23", long 99°26'15", NE1/4NE1/4 sec.2, T.6 N., R.19 W., Hydrologic Unit 10200101, 10 mi east of Bertrand. Owner: Central Nebraska Public Power and Irrigation District.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 151 ft, screened 149 to 151 ft.

DATUM.--Altitude of land-surface datum is 2,360.81 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

REMARKS.--Water levels in well affected by seepage losses from nearby irrigation canal.

PERIOD OF RECORD.--March 1945 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.86 ft below land-surface datum, Oct. 13, 1989; lowest, 123.70 ft below land-surface datum, Mar. 9, 1945.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 13	37.86
NOV 14	38.52
JAN 8	39.23
MAR 5	40.25
MAY 2	41.02
JUL 9	55.03
SEP 6	45.23

PLATTE COUNTY

412955097192001. Local number 18N-1E-28CD.

LOCATION.--Lat 41°29'55", long 97°19'20", SE1/4SW1/4 sec.28, T.18 N., R.1 E., Hydrologic Unit 10200201, 3 mi south and 8.5 mi east of Platte Center. Owner: Loup River Public Power District.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in, depth 99 ft, screened 97 to 99 ft.

DATUM.--Altitude of land-surface datum is 1,511.8 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--November 1935 to August 1940; March 1942 to November 1953; November 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.30 ft below land-surface datum, Mar. 27, 1940; lowest, 72.81 ft below land-surface datum, Oct. 9, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 20	67.79

GROUND-WATER LEVELS

295

SALINE COUNTY

403855097072501. Local number 8N-3E-19ADA.

LOCATION.--Lat 40°38'55", long 97°07'25", NE1/4SE1/4NE1/4 sec.19, T.8 N., R.3 E., Hydrologic Unit 10270202, west edge of Dorchester, on west side of Route 15 between U.S. Highway and Route 33. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5 in, depth 151 ft, perforated 142 to 151 ft.

DATUM.--Altitude of land-surface datum is 1,496 ft. Measuring point: Top of casing at land-surface datum.

REMARKS.--Water levels in well affected by pumping of nearby wells during irrigation season.

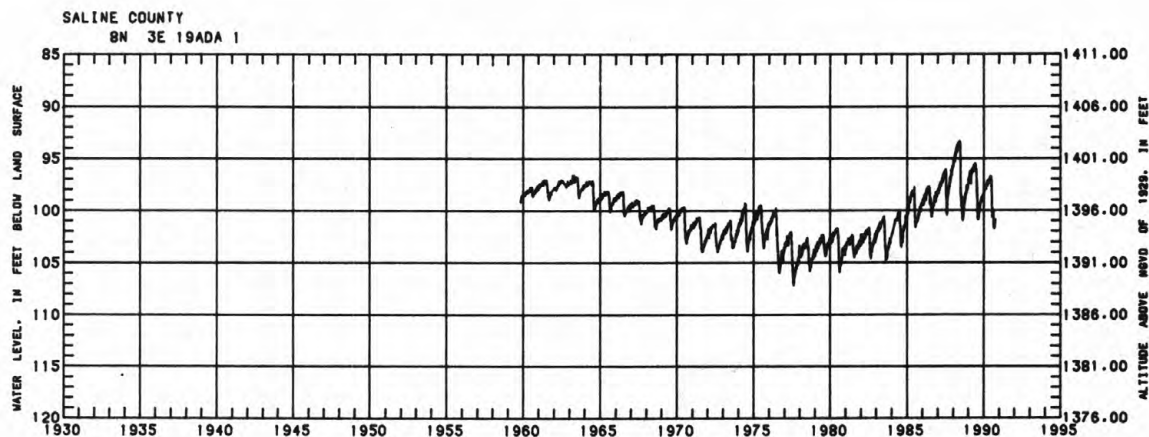
PERIOD OF RECORD.--October 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 93.32 ft below land-surface datum, May 31, 1988; lowest, 107.15 ft below land-surface datum, Aug. 25, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	99.35	98.97	.....	98.26	97.71	.....	97.30	97.15	96.70	98.97	100.35	101.78
10	99.41	99.02	.....	98.23	97.66	97.37	97.52	97.20	97.02	99.60	100.00	101.70
15	99.24	99.11	.....	97.93	97.71	97.44	97.20	97.00	96.80	100.05	99.91	101.44
20	99.13	98.89	.....	97.70	97.98	97.70	97.08	97.04	96.80	100.70	101.65	101.19
25	99.14	98.63	.....	97.99	97.98	97.52	97.05	96.84	96.68	100.38	101.45	100.85
EOM	99.14	98.79	.....	97.91	97.84	97.14	97.44	96.91	97.10	100.33	101.67	101.13

WTR YEAR 1990 MAX 96.47 JUN 2, 1990 MIN 101.91 SEP 2, 1990



GROUND-WATER LEVELS

SAUNDERS COUNTY

410426096220401. Local number 13N-9E-24CC.

LOCATION.--Lat 41°04'26", long 96°22'04", SW1/4SW1/4 sec.24, T.13 N., R.9 E., Hydrologic Unit 10200202, 2 mi north of Ashland. Owner: City of Lincoln.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 12 ft, screened 10 to 12 ft.

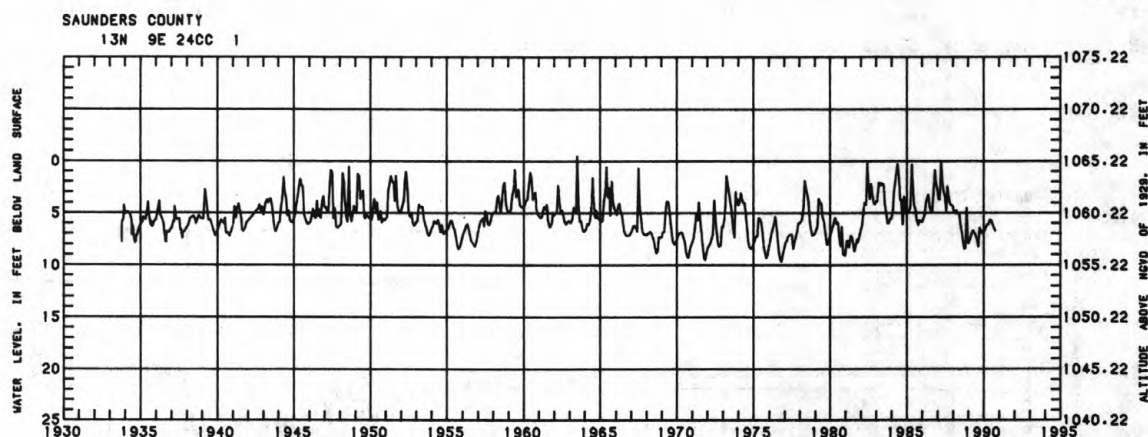
DATUM.--Altitude of land-surface datum is 1,065.22 ft. Measuring point: Top of casing 4.50 ft above land-surface datum.

REMARKS.--Water levels affected by pumping of nearby wells in City of Lincoln well field and high water in the Platte River.

PERIOD OF RECORD.--October 1933 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.30 ft above land-surface datum, Apr. 25, 1985; lowest, 9.65 ft below land-surface datum, Oct. 18, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990											
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	6.97	JAN 25	6.71	MAR 25	6.10	MAY 25	5.69	JUN 25	5.65	SEP 25	6.73
DEC 25	6.88	FEB 25	6.43	APR 25	6.13						



SAUNDERS COUNTY

411005096281502. Local number 14N-8E-24ACD2.

LOCATION.--Lat 41°10'05", long 96°28'15", SE1/4SW1/4NE1/4 sec.24, T.14 N., R.8 E., Hydrologic Unit 10200203, 4 mi south from the intersection of Routes 92 and 692 near Mead then 0.65 mi east and 0.4 mi south to the south end of load line 2 of the Mead Field Station. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 80 ft, screened 60 to 80 ft.

DATUM.--Altitude of land-surface datum is 1,171 ft. Measuring point: Top of casing 0.5 ft above land-surface datum.

REMARKS.--Replacement for well 411005096281501, local number 14N-8E-24ACD1, with period of record July 1964 to November 1970. Water levels in well affected by pumping of nearby wells during irrigation season.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 39.26 ft below land-surface datum, Apr. 4, 1988; lowest, 46.98 ft below land-surface datum, Sept. 25, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	41.10	41.63	41.38	41.61	41.35	.....	41.52	41.53	41.60	41.90	.....	41.96
10	41.30	41.67	41.80	41.52	41.34	41.37	41.70	41.62	41.83	41.81	41.71	42.02
15	41.51	41.77	41.82	41.40	41.58	41.23	41.50	41.57	41.91	41.56	41.70	42.12
20	41.40	41.79	42.05	41.37	41.40	41.71	41.43	41.83	41.76	41.77	41.77	42.28
25	41.43	41.60	41.56	41.36	41.63	41.60	41.34	41.50	41.75	41.94	41.79	42.14
EOM	41.53	41.76	41.64	41.45	41.65	41.32	41.63	41.63	41.81	41.85	41.89	42.52

WTR YEAR 1990 MAX 40.63 MAR 13, 1990 MIN 42.53 SEP 29, 1990

GROUND-WATER LEVELS

297

SCOTTS BLUFF COUNTY

415325103392801. Local number 22N-55W-11DDC.

LOCATION.--Lat 41°53'25", long 103°39'28", SW1/4NE1/4NE1/4 sec.11, T.22 N., R.55 W., Hydrologic Unit 10180009, 0.5 mi north of the west intersection of Routes 71 and 26 in Scottsbluff, then 0.8 mi east.
Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 32 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 3,953 ft. Measuring point: Top of casing 0.00 ft above land-surface datum.

REMARKS.--Recorder removed in January 1984. Well measured monthly thereafter.

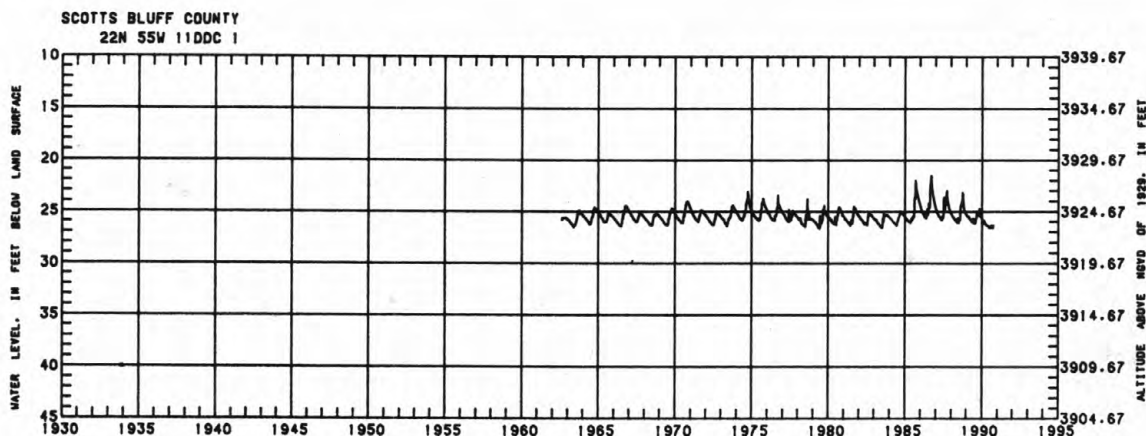
PERIOD OF RECORD.--August 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 21.27 ft below land-surface datum, Sept. 9, 1986;
lowest, 26.72 ft below land-surface datum, May 31, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	25.56	25.82	.....	.....	.....	26.34	26.41	26.62	26.42	.....
10	25.40	25.54	25.94	.....	.....	.....	26.37	.....	26.60	26.37	26.65
15	25.44	25.55	26.07	.....	.....	26.31	26.37	.....	26.56	26.31	26.60
20	25.56	26.20	.....	.....	26.32	26.38	.....	26.53	.....	26.53
25	25.57	.....	.....	.....	26.32	26.39	.....	26.43	.....	26.44
EOY	25.68	.....	.....	.....	26.33	26.40	.....	26.43	.....	26.37

WTR YEAR 1990 MAX 25.36 NOV 4, 1989 MIN 26.67 SEP 6, 1990



GROUND-WATER LEVELS

SCOTTS BLUFF COUNTY

420000103511501. Local number 23N-56W-6ABAB.

LOCATION.--Lat 42°00'01", Long 103°51'51", NW1/4NE1/4NW1/4NE1/4 sec.6, T.23 N., R.56 W., Hydrologic Unit 10180009, 4 mi north and 2 mi west of intersection of U.S. Highway 26 and State Highway 29 in Mitchell. Owner: Carl Gompert.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 6 in, depth 118 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 4,087.7 ft. Measuring point: Hole in pump base 0.7 ft above land-surface datum.

REMARKS.--Local number formerly listed as 23N-56W-6AA. Water levels affected by withdrawals during irrigation season.

PERIOD OF RECORD.--November 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.24 ft below land-surface datum, Oct. 26, 1949; lowest, 44.48 ft below land-surface datum, Mar. 8, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 30	40.04
MAR 8	44.48

SEWARD COUNTY

405406097115001. Local number 11N-2E-21DD.

LOCATION.--Lat 40°54'06", Long 97°11'50", SE1/4SE1/4 sec.21, T.11 N., R.2 E., Hydrologic Unit 10270201, 4.5 mi west of Seward. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5 in, depth 123 ft, perforated 112 to 123 ft.

DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 0.00 ft above land-surface datum.

REMARKS.--Water levels in well affected by withdrawals from nearby irrigation wells.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 73.25 ft below land-surface datum, May 31 1988; lowest, 90.17 ft below land-surface datum, Aug. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	80.02	78.71	78.23	77.95	77.74	77.27	77.13	77.26	76.94	79.75	80.76	81.93
10	79.80	78.75	78.23	77.80	77.50	77.29	77.23	77.14	77.00	80.96	80.35	81.88
15	79.49	78.81	78.38	77.73	77.65	77.01	77.05	77.10	76.83	81.42	80.20	81.92
20	79.77	78.74	78.28	77.87	77.87	77.59	77.06	76.96	76.82	82.37	79.88	81.54
25	79.31	78.36	78.07	77.63	77.82	77.65	76.81	76.91	76.87	81.71	80.77	81.00
EOY	79.13	78.79	77.90	77.62	77.84	77.15	77.08	76.97	78.08	81.28	81.66	80.89

WTR YEAR 1990 MAX 76.74 JUN 13, 1990 MIN 82.37 JUL 19 AND 20, 1990

GROUND-WATER LEVELS

299

SHERIDAN COUNTY

423034102415001. Local number 29N-46W-10AA.

LOCATION.--Lat 42°30'34", long 102°41'50", NE1/4NE1/4 sec.10, T.29 N., R.46 W., Hydrologic Unit 10150003, at Mirage Flats project headquarters, 11.5 mi south of Hay Springs. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 100 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 3,794.5 ft. Measuring point: Top of casing 1.5 ft above land-surface datum.

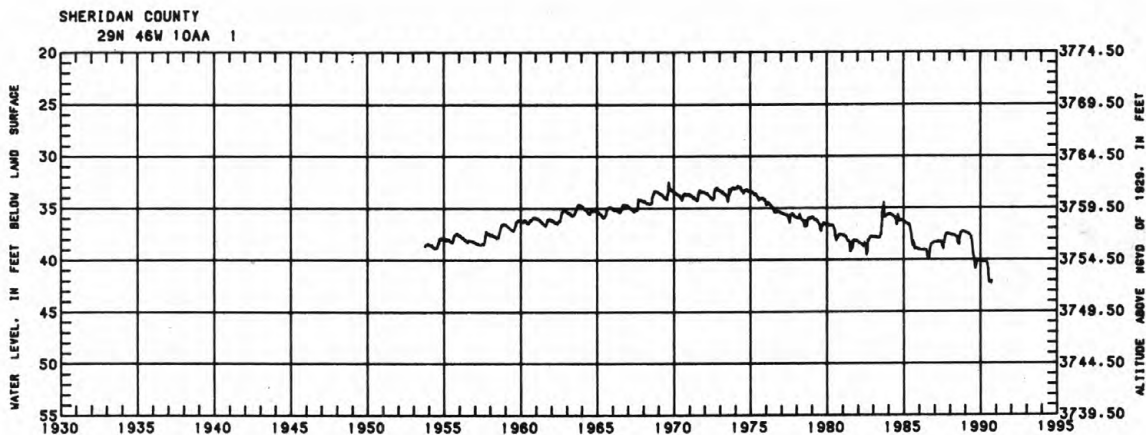
REMARKS.--Water levels affected by seepage losses from nearby irrigation canal and laterals and by withdrawals from nearby irrigation wells.

PERIOD OF RECORD.--September 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 32.47 ft below land-surface datum, Aug. 25, 1969; lowest, 42.41 ft below land-surface datum, Aug. 4, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	40.06	.....	40.14	40.16	.....	.....	40.27	40.97	.....	.....
10	40.08	.....	40.16	40.17	.....	.....	40.31	41.35	.....	42.24
15	40.08	.....	40.16	40.21	40.22	.....	.....	41.73	.....	42.30
20	40.07	40.10	.....	40.20	.....	.....	40.23	.....	41.89	.....	42.07
25	40.05	40.08	40.11	40.20	.....	.....	40.24	.....	42.18	.....	42.10
EOM	40.08	40.07	40.12	40.20	.....	.....	40.27	.....	.....	.....	42.10
WTR YEAR 1990	MAX	39.99	NOV 11, 1989			MIN	42.41	AUG 4, 1990				



GROUND-WATER LEVELS

THOMAS COUNTY

415845100334001. Local number 23N-28W-9DA.

LOCATION.--Lat 41°58'45", long 100°33'40", NE1/4SE1/4 sec.9, T.23 N., R.28 W., Hydrologic Unit 10210001, 1 mi east of courthouse in Thedford. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

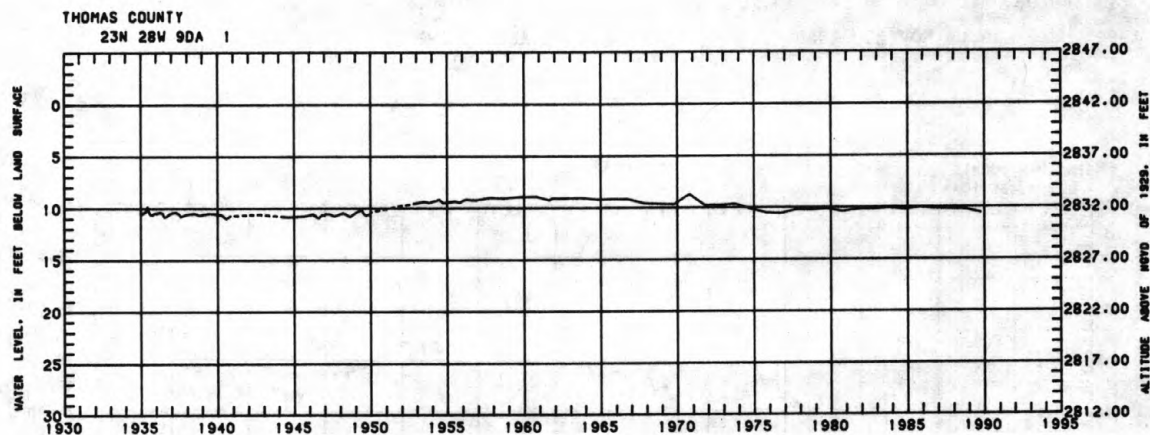
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 15 ft, screened from 13 to 15 ft.

DATUM.--Altitude of land-surface datum is 2,842 ft. Measuring point: Top of pipe 2.3 ft above land-surface datum.

PERIOD OF RECORD.--December 1934 to November 1942; August 1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.73 ft below land-surface datum, Oct. 16, 1970; lowest, 10.98 ft below land-surface datum, July 23, 1940.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	10.57								



GROUND-WATER LEVELS

301

VALLEY COUNTY

412955099123201. Local number 18N-16W-30CC.

LOCATION.--Lat 41°29'55", long 99°12'32", SW1/4SW1/4 sec.30, T.18 N., R.16 W., Hydrologic Unit 10210003, 4 mi west and 5 mi north of Arcadia. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 0.75 in, depth 15 ft, screened from 13 to 15 ft.

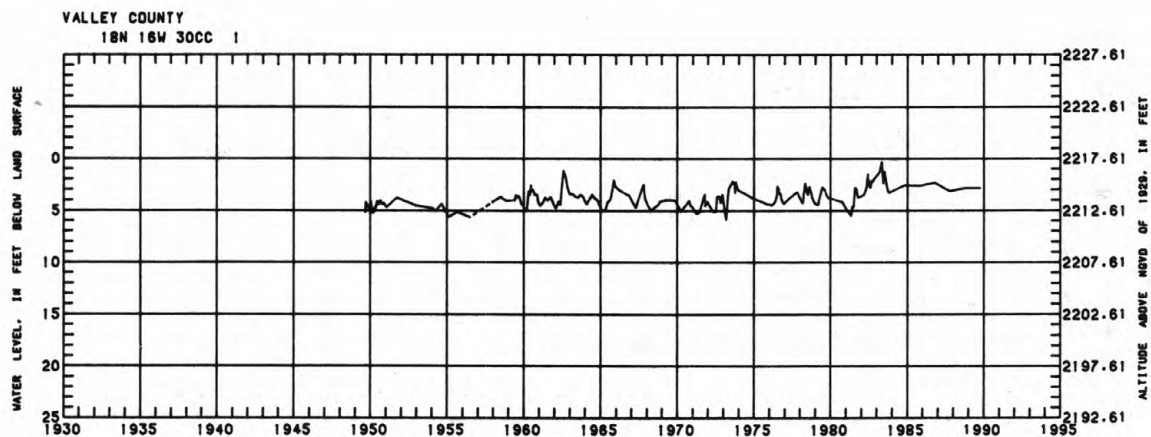
DATUM.--Altitude of land-surface datum is 2,217.61 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

REMARKS.--Water levels in well affected by evapotranspiration.

PERIOD OF RECORD.--August 1949 to June 1956; June 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.25 ft below land-surface datum, May 3, 1983; lowest, 5.90 ft below land-surface datum, Mar. 1, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	2.85								



GROUND-WATER LEVELS

WEBSTER COUNTY

400423098314001. Local number 1N-11W-11AB.

LOCATION.--Lat 40°04'23", long 98°31'40", NW1/4NE1/4 sec.11, T.1 N., R.11 W., Hydrologic Unit 10250016, 1 mi south and 0.25 mi west of intersection of U.S. Highways 136 and 281 in Red Cloud. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 16.9 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,686 ft. Measuring point: Top of casing 1.1 ft above land-surface datum.

PERIOD OF RECORD.--May 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.34 ft below land-surface datum, July 11, 1951; lowest, 10.56 ft below land-surface datum, Apr. 5, 1957.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990	
DATE	WATER LEVEL
OCT 19	6.30
MAY 15	5.75

YORK COUNTY

404618097482201. Local number 9N-4W-5CCC.

LOCATION.--Lat 40°46'18", long 97°48'22", SW1/4SW1/4 sec.5, T.9 N., R.4 W., Hydrologic Unit 10270203, 0.5 mi south of Henderson. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 5 in, depth 170 ft, casing perforated below water table.

DATUM.--Altitude of land-surface datum is 1,708 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

REMARKS.--Replacement for well 404620097482501, local number 9N-4W-6DD with period of record May 1959 to September 1981 located on east side of highway across from old well.

PERIOD OF RECORD.--April 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.74 ft below land-surface datum, May 18, 1988; lowest, 87.52 ft below land-surface datum, Aug. 20, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	82.30	81.85	81.19	80.78	80.31	80.03	79.81	79.47	79.22	79.49	80.17	80.88
10	82.23	81.80	81.33	80.70	80.27	79.92	79.84	79.52	79.20	79.51	80.17	80.96
15	82.23	81.68	81.18	80.60	80.15	79.98	79.67	79.30	79.20	79.87	79.94	80.88
20	81.81	81.59	81.18	80.55	80.11	79.80	79.61	79.41	79.18	80.24	80.02	80.73
25	81.93	81.49	80.88	80.51	80.15	79.84	79.55	79.27	79.08	80.22	80.36	80.65
EOM	81.83	81.27	80.88	80.43	80.11	79.69	79.66	79.19	79.10	80.22	80.92	80.62

WTR YEAR 1990 MAX 78.81 JUN 19, 1990 MIN 82.52 OCT 2, 1989

GROUND-WATER LEVELS

303

YORK COUNTY

405305097351503. Local number 11N-2W-31BA3.

LOCATION.--Lat 40°53'05", long 97°35'15", NE1/4NW1/4 sec.31, T.11 N., R.2 W., Hydrologic Unit 10270203, south edge of York County Fairgrounds on the north side of York. Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 165 ft, perforated below water table.

DATUM.--Altitude of land-surface datum is 1,659 ft. Measuring point: Top of casing 1.6 ft above land-surface datum.

REMARKS.--Replacement for well 405305097351501, local number 11N-2W-31BA1, with period of record October 1957 to January 1969. Water levels in well affected by withdrawals from nearby municipal well and by withdrawals from nearby irrigation wells.

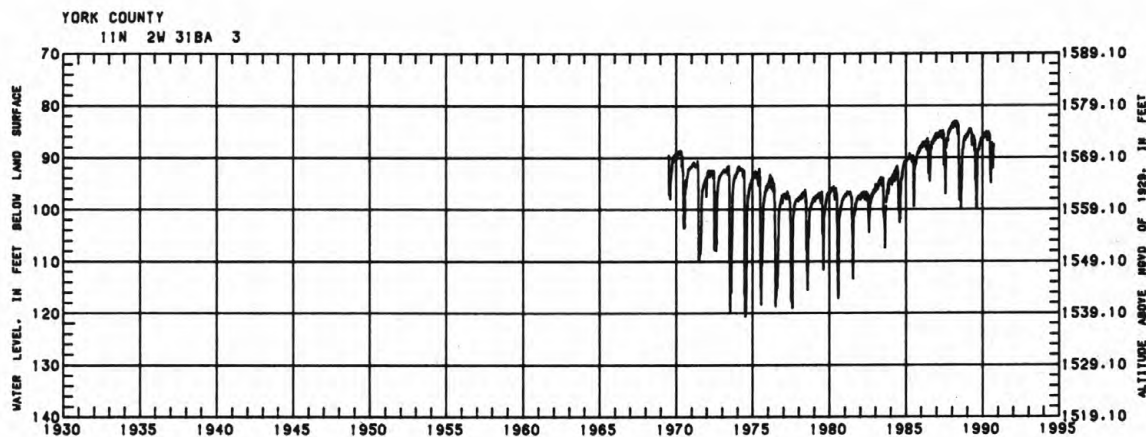
PERIOD OF RECORD.--May 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 83.00 ft below land-surface datum, Apr. 10, 1988; lowest, 120.81 ft below land-surface datum, July 15, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	88.18	87.08	86.60	86.46	86.32	85.36	85.23	86.02	85.42	93.41	87.81	90.82
10	88.68	87.76	86.34	85.86	85.56	85.35	85.25	85.62	85.62	91.16	87.63	89.05
15	88.06	86.97	86.74	85.87	85.61	85.35	85.26	85.35	85.80	94.72	87.24	88.18
20	87.53	86.56	86.20	85.78	85.51	85.41	85.25	85.15	85.67	95.06	88.12	87.85
25	88.10	86.44	86.67	85.85	85.58	85.21	86.53	85.21	85.54	89.93	90.34	88.25
EOM	87.32	86.38	86.47	85.60	86.19	85.10	86.95	85.12	88.72	87.82	92.29	87.61

WTR YEAR 1990 MAX 84.95 APR 19 AND 20, 1990 MIN 97.05 JUL 19, 1990



CHEMICAL ANALYSES OF GROUND WATER

(Local identifier: indicates location by township, range, and section. Geologic unit: 110 QRNR Quaternary system; 110 SDGV, Quaternary sand and gravel deposits, undifferentiated; 112 PLSC, Pleistocene Series; 112 SDGV, Pleistocene sand and gravel deposits; 121 OGLL, Pliocene Ogallala Formation; 211 DKOT, Cretaceous Dakota Formation)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)
BUFFALO COUNTY								
404446098503601	9N 14W13DB	1	40 44 46 N	098 50 36 W	112SDGV	07-10-90	1145	55.00
405137098443501	10N 13W 2DD	1	40 51 37 N	098 44 35 W	112SDGV	07-10-90	1405	75.00
405506098465201	11N 13W16DD	1	40 55 06 N	098 46 52 W	112SDGV	07-11-90	1100	120.00
CUMING COUNTY								
420444096392601	24N 7E 6CADD1		42 04 44 N	096 39 26 W	112PLSC	07-16-90	1545	75.00
420220096334001	24N 7E24ACDC1		42 02 20 N	096 33 40 W	112PLSC	07-16-90	1910	74.00
420151096354901	24N 7E27ABBA1		42 01 51 N	096 35 49 W	112PLSC	07-16-90	1800	56.00
420016096341601	24N 7E36CCBD1		42 00 16 N	096 34 16 W	112PLSC	07-18-90	1300	220.00
HALL COUNTY								
404557098352501	9N 11W 7AD	1	40 45 57 N	098 35 25 W	112SDGV	07-10-90	1000	--
404643098435201	9N 13W 1X	1	40 46 43 N	098 43 52 W	112SDGV	07-10-90	1330	61.00
404321098441801	9N 13W25BC	1	40 43 21 N	098 44 18 W	112SDGV	07-10-90	1030	--
405201098281501	10N 10W 5BC	1	40 52 01 N	098 28 15 W	112SDGV	07-11-90	1430	--
404832098283301	10N 10W30AD	1	40 48 32 N	098 28 33 W	112SDGV	07-11-90	1510	65.00
404925098355901	10N 11W19BD	1	40 49 25 N	098 35 59 W	112SDGV	07-10-90	1540	212.00
405530098255702	11N 10W15BC	2	40 55 30 N	098 25 57 W	112SDGV	07-13-90	1315	100.00
405254098314202	11N 11W35BC	2	40 52 54 N	098 31 42 W	112SDGV	07-11-90	1255	61.00
405452098363401	11N 12W24AA	1	40 54 52 N	098 36 34 W	112SDGV	07-11-90	1150	150.00
405255098394301	11N 12W34BC	1	40 52 55 N	098 39 43 W	112SDGV	07-10-90	1450	140.00
405820098325001	12N 11W34BB	1	40 58 20 N	098 32 50 W	112SDGV	07-11-90	0915	50.00
410005098365102	12N 12W24AB	2	41 00 05 N	098 36 51 W	112SDGV	07-11-90	0830	125.00
405821098390801	12N 12W34AB	1	40 58 21 N	098 39 08 W	112SDGV	07-11-90	1000	204.00
HOLT COUNTY								
422524098222101	28N 9W 4CDCC1		42 25 24 N	098 22 21 W	112SDGV	08-16-90	1220	119.00
422925098244201	29N 9W18AC	1	42 29 25 N	098 24 42 W	112SDGV	08-16-90	1035	104.00
422723098290101	29N 10W28DA	1	42 27 23 N	098 29 01 W	112SDGV	08-16-90	1050	45.00
422944098360801	29N 11W 9DC	1	42 29 44 N	098 36 08 W	112SDGV	08-16-90	0800	36.00
423049098421801	29N 12W 3CA	1	42 30 49 N	098 42 18 W	112SDGV	08-15-90	1515	250.00
422917098405101	29N 12W14AC	1	42 29 17 N	098 40 51 W	121OGLL	08-15-90	1745	297.00
422825098395901	29N 12W24BD	1	42 28 25 N	098 39 59 W	121OGLL	08-16-90	1445	322.00
423042098503601	29N 13W 4CO	1	42 30 42 N	098 50 36 W	112SDGV	08-15-90	0830	312.00
423510098250501	30N 9W 7CO	1	42 35 10 N	098 25 05 W	121OGLL	08-17-90	0920	250.00
423550098271101	30N 10W 2CDD	1	42 35 50 N	098 27 11 W	112SDGV	10-19-89	1445	100.00
					112SDGV	11-15-89	0925	100.00
					112SDGV	01-11-90	1245	100.00
					112SDGV	02-06-90	1210	100.00
423614098274401	30N 10W 3ADDD1		42 36 14 N	098 27 44 W	112SDGV	10-19-89	1400	100.00
					112SDGV	11-14-89	1625	100.00
					112SDGV	01-11-90	1430	100.00
					112SDGV	02-06-90	1300	100.00
423541098274401	30N 10W10AAAD1		42 35 41 N	098 27 44 W	112SDGV	10-19-89	1250	100.00
					112SDGV	11-15-89	1025	100.00
					112SDGV	01-11-90	1330	100.00
					112SDGV	02-06-90	1005	100.00
423519098274401	30N 10W10DAAA1		42 35 19 N	098 27 44 W	112SDGV	10-18-89	1740	100.00
					112SDGV	11-14-89	1520	100.00
					112SDGV	01-11-90	1535	100.00
					112SDGV	02-06-90	1345	100.00
423519098274402	30N 10W10DAAA2					10-18-89	1645	--
						11-15-89	1115	--
						01-05-90	1400	--
						01-11-90	1520	--
						02-06-90	1430	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
BUFFALO COUNTY											
07-10-90	1120	7.3	14.5	--	450	--	140	25	56	1	12
07-10-90	619	7.3	15.5	--	300	--	100	12	9.0	0.2	4.9
07-11-90	453	7.5	16.5	--	230	--	76	8.6	6.3	0.2	3.4
CUMING COUNTY											
07-16-90	--	7.3	14.5	0.2	290	--	86	19	16	0.4	4.2
07-16-90	--	7.5	12.5	0.1	230	--	66	15	20	0.6	3.1
07-16-90	--	7.3	12.5	0.4	520	--	140	41	28	0.5	3.8
07-18-90	--	7.4	11.5	5.2	310	--	88	22	21	0.5	3.3
HALL COUNTY											
07-10-90	977	7.4	20.5	--	310	--	84	25	82	2	7.8
07-10-90	1510	7.1	15.0	--	620	--	190	35	73	1	24
07-10-90	1090	7.4	17.5	--	430	--	130	26	72	2	6.9
07-11-90	609	7.6	15.5	--	260	--	82	14	18	0.5	12
07-11-90	1130	7.5	15.5	--	340	--	98	22	110	3	6.3
07-10-90	507	--	15.0	--	220	--	65	14	20	0.6	8.5
07-13-90	434	7.4	15.0	--	180	--	56	9.7	15	0.5	7.9
07-11-90	843	7.5	15.5	--	320	--	100	18	43	1	13
07-11-90	553	7.7	15.0	--	260	--	78	17	11	0.3	6.3
07-10-90	684	7.4	15.0	--	320	--	100	18	12	0.3	8.5
07-11-90	1360	7.4	15.0	--	620	--	200	29	59	1	15
07-11-90	627	7.3	14.0	--	270	--	87	14	22	0.6	10
07-11-90	612	7.4	15.0	--	300	--	99	12	12	0.3	5.1
HOLT COUNTY											
08-16-90	367	7.3	12.0	--	150	--	47	6.8	15	0.5	3.9
08-16-90	352	6.7	14.0	--	130	--	40	7.9	8.7	0.3	3.4
08-16-90	171	6.6	15.0	--	59	--	18	3.3	6.4	0.4	2.1
08-16-90	184	8.0	15.0	--	75	--	25	3.0	5.2	0.3	4.3
08-15-90	417	7.0	16.0	--	160	--	50	9.2	8.7	0.3	6.0
08-15-90	415	7.6	15.0	--	170	--	54	8.6	8.0	0.3	6.0
08-16-90	275	7.8	14.0	--	120	--	39	4.9	8.6	0.3	4.6
08-15-90	344	7.6	14.0	--	160	--	51	6.9	6.4	0.2	5.3
08-17-90	161	7.3	13.0	--	54	--	17	2.9	7.5	0.4	2.6
10-19-89	172	7.1	12.5	10.0	65	--	20	3.6	9.7	0.5	2.2
11-15-89	89	7.5	10.0	11.1	58	--	18	3.2	9.5	0.5	2.9
01-11-90	158	6.7	11.0	10.9	58	--	18	3.2	8.6	0.5	3.6
02-06-90	155	--	11.5	--	58	--	18	3.1	8.9	0.5	2.7
10-19-89	346	7.1	12.0	10.3	130	--	40	7.4	14	0.5	3.5
11-14-89	--	7.3	11.5	10.8	75	--	22	4.8	10	0.5	3.0
01-11-90	163	6.8	11.5	10.5	65	16	19	4.2	8.6	0.5	2.4
02-06-90	--	--	11.5	11.2	--	--	18	4.1	8.0	--	2.2
10-19-89	386	6.6	12.5	9.4	150	--	46	9.1	13	0.5	4.5
11-15-89	154	7.3	11.0	11.1	54	--	16	3.4	8.4	0.5	2.9
01-11-90	156	6.7	11.0	8.7	59	--	18	3.5	8.7	0.5	3.0
02-06-90	177	6.5	11.0	7.5	--	--	18	3.4	8.7	--	2.7
10-18-89	585	6.6	11.0	9.6	260	--	80	14	20	0.5	4.4
11-14-89	--	7.1	11.0	11.6	58	--	18	3.1	9.1	0.5	2.8
01-11-90	154	6.9	8.5	10.1	58	--	17	3.7	8.7	0.5	2.7
02-06-90	140	6.4	9.5	10.8	55	--	16	3.6	8.4	0.5	2.4
10-18-89	135	7.1	11.5	9.4	58	--	18	3.1	8.7	0.5	2.5
11-15-89	--	7.2	9.5	11.7	54	--	16	3.5	9.4	0.6	2.5
01-05-90	158	--	10.0	10.7	--	--	--	--	--	--	--
01-11-90	160	7.2	8.5	10.8	58	11	18	3.1	8.7	0.5	3.1
02-06-90	--	7.0	11.5	12.7	--	--	18	3.1	8.6	--	2.8

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINIT LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
BUFFALO COUNTY											
07-10-90	--	--	--	245	240	58	0.40	53	--	811	1.10
07-10-90	--	--	--	251	42	24	0.30	50	--	396	0.54
07-11-90	--	--	--	227	7.2	7.6	<0.10	52	--	300	0.41
CUMING COUNTY											
07-16-90	--	--	--	296	38	8.9	0.20	27	--	380	0.52
07-16-90	--	--	--	266	15	3.8	0.20	24	--	309	0.42
07-16-90	--	--	--	362	160	24	0.40	21	--	639	0.87
07-18-90	--	--	--	326	22	5.6	0.20	27	--	397	0.54
HALL COUNTY											
07-10-90	--	--	--	197	270	39	0.50	21	--	649	0.88
07-10-90	--	--	--	332	360	58	0.40	28	--	982	1.34
07-10-90	--	--	--	244	280	29	0.40	27	--	735	1.00
07-11-90	--	--	--	221	53	16	0.40	19	--	373	0.51
07-11-90	--	--	--	241	290	66	0.40	20	--	770	1.05
07-10-90	--	--	--	249	23	6.8	0.40	54	--	341	0.46
07-13-90	--	--	--	187	29	7.4	0.40	41	--	283	0.38
07-11-90	--	--	--	266	76	14	0.40	24	--	537	0.73
07-11-90	--	--	--	257	25	12	0.30	49	--	353	0.48
07-10-90	--	--	--	272	74	11	0.40	52	--	452	0.62
07-11-90	--	--	--	399	350	34	0.30	23	--	950	1.29
07-11-90	--	--	--	266	55	14	0.40	47	--	410	0.56
07-11-90	--	--	--	262	17	41	0.30	51	--	420	0.57
HOLT COUNTY											
08-16-90	--	--	--	112	6.8	3.5	0.20	46	--	267	0.36
08-16-90	--	--	--	31	14	7.8	0.20	30	--	250	0.34
08-16-90	--	--	--	20	4.6	3.2	<0.10	28	--	135	0.18
08-16-90	--	--	--	90	1.2	1.8	<0.10	61	--	159	0.22
08-15-90	--	--	--	69	13	9.9	<0.10	39	--	292	0.40
08-15-90	--	--	--	101	9.6	7.0	0.30	47	--	298	0.41
08-16-90	--	--	--	121	4.0	2.7	0.40	58	--	211	0.29
08-15-90	--	--	--	133	4.2	4.6	0.20	60	--	257	0.35
08-17-90	--	--	--	45	6.4	2.7	<0.10	35	--	126	0.17
10-19-89	--	--	--	46	10	2.9	0.10	29	141	139	0.19
11-15-89	--	--	--	47	10	2.1	0.20	37	131	135	0.18
01-11-90	--	--	--	47	10	2.2	0.20	35	142	133	0.18
02-06-90	--	--	--	47	10	2.2	0.20	35	127	134	0.18
10-19-89	--	--	--	53	15	6.5	0.10	28	267	248	0.34
11-14-89	--	--	--	57	11	2.6	0.10	24	150	151	0.20
01-11-90	48	0	59	52	10	2.1	0.10	25	129	123	0.17
02-06-90	--	--	--	49	10	2.0	0.10	25	107	--	--
10-19-89	--	--	--	41	22	8.2	0.10	24	303	280	0.38
11-15-89	--	--	--	45	10	2.1	0.10	32	123	126	0.17
01-11-90	--	--	--	46	10	2.2	0.10	34	141	132	0.18
02-06-90	--	--	--	46	10	2.1	0.10	34	132	--	--
10-18-89	--	--	--	53	26	14	<0.10	25	496	445	0.61
11-14-89	--	--	--	47	<10	<2.1	<0.20	35	126	--	--
01-11-90	--	--	--	45	10	2.2	0.20	31	128	127	0.17
02-06-90	--	--	--	44	10	2.0	0.20	30	132	123	0.17
10-18-89	--	--	--	47	10	2.1	0.20	33	133	129	0.18
11-15-89	--	--	--	42	10	2.0	0.10	27	109	120	0.16
01-05-90	--	--	--	--	--	--	--	--	121	--	--
01-11-90	47	0	57	47	10	2.1	0.20	35	106	133	0.18
02-06-90	--	--	--	47	10	2.0	0.20	35	132	--	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)
BUFFALO COUNTY										
07-10-90	--	--	18.0	--	--	--	--	--	--	--
07-10-90	--	--	0.800	--	--	--	--	--	--	--
07-11-90	--	--	0.700	--	--	--	--	--	--	--
CUMING COUNTY										
07-16-90	--	--	<0.100	--	--	--	--	--	0.020	--
07-16-90	--	--	0.100	--	--	--	--	--	0.660	--
07-16-90	--	--	<0.100	--	--	--	--	--	0.200	--
07-18-90	--	--	2.90	--	--	--	--	--	0.180	--
HALL COUNTY										
07-10-90	--	--	<0.100	--	--	--	--	--	--	--
07-10-90	--	--	3.30	--	--	--	--	--	--	--
07-10-90	--	--	4.00	--	--	--	--	--	--	--
07-11-90	--	--	5.90	--	--	--	--	--	--	--
07-11-90	--	--	2.80	--	--	--	--	--	--	--
07-10-90	--	--	<0.100	--	--	--	--	--	--	--
07-13-90	--	--	1.00	--	--	--	--	--	--	--
07-11-90	--	--	20.0	--	--	--	--	--	--	--
07-11-90	--	--	<0.100	--	--	--	--	--	--	--
07-10-90	--	--	3.00	--	--	--	--	--	--	--
07-11-90	--	--	0.100	--	--	--	--	--	--	--
07-11-90	--	--	<0.100	--	--	--	--	--	--	--
07-11-90	--	--	5.70	--	--	--	--	--	--	--
HOLT COUNTY										
08-16-90	--	--	16.0	--	--	--	--	--	--	--
08-16-90	--	--	27.0	--	--	--	--	--	--	--
08-16-90	--	--	13.0	--	--	--	--	--	--	--
08-16-90	--	--	0.700	--	--	--	--	--	--	--
08-15-90	--	--	26.0	--	--	--	--	--	--	--
08-15-90	--	--	22.0	--	--	--	--	--	--	--
08-16-90	--	--	3.70	--	--	--	--	--	--	--
08-15-90	--	--	8.80	--	--	--	--	--	--	--
08-17-90	--	--	5.60	--	--	--	--	--	--	--
10-19-89	181	8.10	7.60	0.020	0.48	0.50	8.6	0.080	--	1400
11-15-89	--	5.10	5.40	0.090	0.51	0.60	5.7	--	--	--
01-11-90	164	5.80	5.40	0.010	--	<0.20	--	0.060	--	1100
02-06-90	144	5.30	5.70	<0.010	--	<0.20	--	0.060	--	130
10-19-89	278	26.0	23.0	0.020	--	<0.20	--	0.060	--	550
11-14-89	165	8.90	8.80	<0.010	--	0.30	9.2	0.040	--	250
01-11-90	155	5.60	5.20	0.020	--	<0.20	--	0.050	--	970
02-06-90	128	5.30	5.60	<0.010	--	0.30	5.6	0.040	--	150
10-19-89	348	27.0	29.0	0.030	--	<0.20	--	0.060	--	2500
11-15-89	131	5.40	5.50	<0.010	--	0.50	5.9	0.070	--	450
01-11-90	135	5.90	5.60	<0.010	--	<0.20	--	0.090	--	60
02-06-90	134	5.50	5.70	<0.010	--	<0.20	--	0.060	--	70
10-18-89	558	61.0	52.0	0.030	--	<0.20	--	0.050	--	480
11-14-89	140	5.40	5.30	<0.010	--	0.50	5.9	0.060	--	90
01-11-90	141	5.70	5.50	<0.010	--	0.60	6.3	0.110	--	40
02-06-90	121	5.40	5.40	<0.010	--	<0.20	--	0.100	--	10
10-18-89	126	5.90	5.20	0.020	--	<0.20	--	0.070	--	80
11-15-89	125	5.30	5.40	<0.010	--	0.30	5.6	0.070	--	<10
01-05-90	144	5.60	--	<0.010	--	0.30	5.9	0.070	--	--
01-11-90	131	--	5.50	<0.010	--	0.30	--	0.060	--	<10
02-06-90	142	5.50	5.70	<0.010	--	<0.20	--	0.060	--	<10

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
BUFFALO COUNTY										
07-10-90	--	--	--	--	--	100	--	--	--	4
07-10-90	--	--	--	--	--	40	--	--	--	<3
07-11-90	--	--	--	--	--	40	--	--	--	<3
CUMING COUNTY										
07-16-90	--	--	<1	--	--	50	--	--	--	2100
07-16-90	--	--	8	--	--	70	--	--	--	580
07-16-90	--	--	1	--	--	70	--	--	--	1700
07-18-90	--	--	3	--	--	60	--	--	--	13
HALL COUNTY										
07-10-90	--	--	--	--	--	100	--	--	--	190
07-10-90	--	--	--	--	--	90	--	--	--	<3
07-10-90	--	--	--	--	--	90	--	--	--	<3
07-11-90	--	--	--	--	--	150	--	--	--	<3
07-11-90	--	--	--	--	--	100	--	--	--	<3
07-10-90	--	--	--	--	--	50	--	--	--	5
07-13-90	--	--	--	--	--	100	--	--	--	<3
07-11-90	--	--	--	--	--	80	--	--	--	<3
07-11-90	--	--	--	--	--	50	--	--	--	37
07-10-90	--	--	--	--	--	40	--	--	--	<3
07-11-90	--	--	--	--	--	100	--	--	--	27
07-11-90	--	--	--	--	--	60	--	--	--	270
07-11-90	--	--	--	--	--	50	--	--	--	<3
HOLT COUNTY										
08-16-90	--	--	--	--	--	20	--	--	--	<3
08-16-90	--	--	--	--	--	<10	--	--	--	<3
08-16-90	--	--	--	--	--	<10	--	--	--	6
08-16-90	--	--	--	--	--	20	--	--	--	<3
08-15-90	--	--	--	--	--	30	--	--	--	<3
08-15-90	--	--	--	--	--	30	--	--	--	8
08-16-90	--	--	--	--	--	30	--	--	--	7
08-15-90	--	--	--	--	--	20	--	--	--	6
08-17-90	--	--	--	--	--	30	--	--	--	<3
10-19-89	10	1	--	<100	<10	--	<1	1	1	9
11-15-89	--	2	--	<100	<10	--	<1	--	--	--
01-11-90	20	3	--	<100	<10	--	<1	1	2	15
02-06-90	20	3	--	200	<10	--	<1	<1	2	9
10-19-89	10	<1	--	200	<10	--	<1	1	1	10
11-14-89	10	<1	--	<100	<10	--	<1	--	1	12
01-11-90	20	2	--	<100	<10	--	<1	3	2	39
02-06-90	20	1	--	200	<10	--	<1	2	2	9
10-19-89	20	<1	--	<100	<10	--	<1	3	2	12
11-15-89	<10	1	--	<100	<10	--	<1	--	1	10
01-11-90	<10	2	--	<100	<10	--	<1	1	1	12
02-06-90	10	2	--	200	<10	--	<1	1	1	7
10-18-89	10	<1	--	500	<10	--	<1	<1	1	7
11-14-89	10	3	--	<100	<10	--	<1	--	<1	7
01-11-90	<10	2	--	<100	<10	--	<1	1	1	6
02-06-90	20	2	--	300	<10	--	<1	1	1	6
10-18-89	10	4	--	<100	<10	--	<1	<1	1	6
11-15-89	<10	1	--	<100	<10	--	<1	--	1	6
01-05-90	--	--	--	--	--	--	--	--	--	--
01-11-90	<10	3	--	<100	<10	--	<1	<1	1	6
02-06-90	10	3	--	200	<10	--	<1	2	2	6

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)
BUFFALO COUNTY										
07-10-90	--	59	--	--	--	--	--	--	--	--
07-10-90	--	4	--	--	--	--	--	--	--	--
07-11-90	--	4	--	--	--	--	--	--	--	--
CUMING COUNTY										
07-16-90	--	1200	--	--	--	<1	--	--	--	--
07-16-90	--	850	--	--	--	<1	--	--	--	--
07-16-90	--	2200	--	--	--	<1	--	--	--	--
07-18-90	--	2	--	--	--	6	--	--	--	--
HALL COUNTY										
07-10-90	--	1200	--	--	--	--	--	--	--	--
07-10-90	--	59	--	--	--	--	--	--	--	--
07-10-90	--	23	--	--	--	--	--	--	--	--
07-11-90	--	150	--	--	--	--	--	--	--	--
07-11-90	--	<1	--	--	--	--	--	--	--	--
07-10-90	--	21	--	--	--	--	--	--	--	--
07-13-90	--	<1	--	--	--	--	--	--	--	--
07-11-90	--	5	--	--	--	--	--	--	--	--
07-11-90	--	590	--	--	--	--	--	--	--	--
07-10-90	--	<1	--	--	--	--	--	--	--	--
07-11-90	--	59	--	--	--	--	--	--	--	--
07-11-90	--	380	--	--	--	--	--	--	--	--
07-11-90	--	29	--	--	--	--	--	--	--	--
HOLT COUNTY										
08-16-90	--	<1	--	--	--	--	--	--	--	--
08-16-90	--	<1	--	--	--	--	--	--	--	--
08-16-90	--	2	--	--	--	--	--	--	--	--
08-16-90	--	<1	--	--	--	--	--	--	--	--
08-15-90	--	1	--	--	--	--	--	--	--	--
08-15-90	--	<1	--	--	--	--	--	--	--	--
08-16-90	--	<1	--	--	--	--	--	--	--	--
08-15-90	--	2	--	--	--	--	--	--	--	--
08-17-90	--	2	--	--	--	--	--	--	--	--
10-19-89	2	<1	<0.10	1	<1	--	40	0.8	<0.10	<0.10
11-15-89	--	--	<0.10	--	<1	--	--	--	<0.10	<0.10
01-11-90	2	<1	<0.10	1	<1	--	10	0.6	<0.10	<0.10
02-06-90	<1	<1	<0.10	3	<1	--	10	0.6	<0.10	<0.10
10-19-89	1	<1	<0.10	3	<1	--	50	1.0	<0.10	<0.10
11-14-89	<1	<1	<0.10	2	<1	--	30	1.0	<0.10	<0.10
01-11-90	2	2	<0.10	2	<1	--	20	0.8	<0.10	<0.10
02-06-90	1	<1	<0.10	1	<1	--	<10	0.6	<0.10	<0.10
10-19-89	2	2	<0.10	4	<1	--	50	1.5	<0.10	<0.10
11-15-89	<1	<1	<0.10	2	<1	--	<10	0.6	<0.10	<0.10
01-11-90	2	<1	<0.10	<1	<1	--	<10	0.5	<0.10	<0.10
02-06-90	1	<1	<0.10	<1	<1	--	<10	0.6	<0.10	<0.10
10-18-89	2	2	<0.10	2	<1	--	120	1.5	<0.10	<0.10
11-14-89	<1	<1	<0.10	<1	<1	--	<10	1.2	<0.10	<0.10
01-11-90	1	<1	<0.10	1	<1	--	<10	0.5	<0.10	<0.10
02-06-90	<1	<1	<0.10	<1	<1	--	<10	0.6	<0.10	<0.10
10-18-89	2	<1	<0.10	1	<1	--	<10	0.6	<0.10	<0.10
11-15-89	<1	<1	<0.10	2	<1	--	<10	0.8	<0.10	<0.10
01-05-90	--	--	--	--	--	--	--	0.7	--	--
01-11-90	<1	<1	<0.10	<1	<1	--	<10	0.6	<0.10	<0.10
02-06-90	1	<1	<0.10	1	<1	--	<10	0.6	<0.10	<0.10

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)
BUFFALO COUNTY										
07-10-90	--	--	--	--	--	--	--	--	--	--
07-10-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
CUMING COUNTY										
07-16-90	--	--	--	--	--	--	--	--	--	--
07-16-90	--	--	--	--	--	--	--	--	--	--
07-16-90	--	--	--	--	--	--	--	--	--	--
07-18-90	--	--	--	--	--	--	--	--	--	--
HALL COUNTY										
07-10-90	--	--	--	--	--	--	--	--	--	--
07-10-90	--	--	--	--	--	--	--	--	--	--
07-10-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-10-90	--	--	--	--	--	--	--	--	--	--
07-13-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-10-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
07-11-90	--	--	--	--	--	--	--	--	--	--
HOLT COUNTY										
08-16-90	--	--	--	--	--	--	--	--	--	--
08-16-90	--	--	--	--	--	--	--	--	--	--
08-16-90	--	--	--	--	--	--	--	--	--	--
08-16-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-16-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-17-90	--	--	--	--	--	--	--	--	--	--
10-19-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
11-15-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
10-19-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
10-18-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
11-15-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
01-05-90	--	--	--	--	--	--	--	--	--	--
01-11-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)
HOLT COUNTY								
423440098275201	30N 10W14B	1	42 34 40 N	098 27 52 W	112SDGV	10-18-89	1530	284.00
					112SDGV	11-14-89	1710	284.00
					112SDGV	01-11-90	1630	284.00
					112SDGV	02-06-90	1100	284.00
423415098302001	30N 10W17D	1	42 34 15 N	098 30 20 W	121OGLL	08-16-90	0855	254.00
423404098471401	30N 13W13CD	1	42 34 04 N	098 47 14 W	110QRNR	08-15-90	1615	80.00
423553098561201	30N 14W 3DD	1	42 35 53 N	098 56 12 W	112SDGV	10-12-89	1200	92.00
					112SDGV	11-14-89	1330	92.00
					112SDGV	01-11-90	0830	92.00
					110SDGV	02-06-90	1545	92.00
423437098000401	30N 14W18BO	1	42 34 37 N	098 00 04 W	112SDGV	08-15-90	1005	--
423801098412601	31N 12W26BC	1	42 38 01 N	098 41 26 W	110SDGV	08-15-90	1320	150.00
423722098460501	31N 12W31BA	1	42 37 22 N	098 46 05 W	112SDGV	08-15-90	1215	85.00
424011098515401	31N 13W 8CC	1	42 40 11 N	098 51 54 W	112SDGV	08-15-90	1115	156.00
423954098580701	31N 14W16BB	1	42 39 54 N	098 58 07 W	112SDGV	08-16-90	1615	132.00
423717098553601	31N 14W35BBC	1	42 37 17 N	098 55 36 W	112SDGV	10-13-89	1000	100.00
					112SDGV	11-14-89	0840	100.00
					112SDGV	01-11-90	1745	100.00
					112SDGV	02-06-90	1515	100.00
423703098553801	31N 14W35BCCC1		42 37 03 N	098 55 38 W	112SDGV	10-13-89	1130	100.00
					112SDGV	11-14-89	0940	100.00
					112SDGV	01-11-90	1000	100.00
					112SDGV	02-06-90	1345	100.00
423659098550701	31N 14W35CAAAA1		42 36 59 N	098 55 07 W	112SDGV	10-13-89	1215	100.00
					112SDGV	11-14-89	1040	100.00
					112SDGV	01-11-90	1050	100.00
423659098550702	31N 14W35CAAA2				112SDGV	02-06-90	1245	100.00
						10-13-89	1230	--
						11-14-89	1130	--
						01-05-90	1000	--
						01-11-90	1035	--
						02-06-90	1200	--
423637098553801	31N 14W35CCCC1		42 36 37 N	098 55 38 W	112SDGV	10-12-89	1700	100.00
					112SDGV	11-14-89	1245	100.00
					112SDGV	01-11-90	0915	100.00
					112SDGV	02-06-90	1415	100.00
KEYA PAHA COUNTY								
425050099494101	33N 21W 7AD	1	42 50 50 N	099 49 41 W	112SDGV	08-14-90	1445	80.00
KNOX COUNTY								
422702098160301	29N 8W32AAA	1	42 27 02 N	098 16 03 W	121OGLL	08-16-90	1330	--
423634097422701	30N 3W 6ABDD1		42 36 34 N	097 42 27 W	112PLSC	07-30-90	1710	325.00
423814097451101	31N 4W26BDBB1		42 38 14 N	097 45 11 W	112PLSC	07-30-90	1449	170.00
423644097524501	31N 5W34DDDC1		42 36 44 N	097 52 45 W	112PLSC	07-30-90	1316	55.00
424344097480701	32N 4W20DDCC1		42 43 44 N	097 48 07 W	112PLSC	07-31-90	1330	122.00
424458097555401	32N 5W17CBAA1		42 44 58 N	097 55 54 W	112PLSC	07-31-90	0900	40.00
					112PLSC	07-31-90	0905	40.00
424405097514801	32N 5W23DBAA1		42 44 05 N	097 51 48 W	112PLSC	07-31-90	1510	25.00
MONONA COUNTY (IOWA)								
420318096130001	24N 11E18ACAC1		42 03 18 N	096 13 00 W	112PLSC	07-17-90	1653	100.00

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
HOLT COUNTY											
10-18-89	166	7.0	11.5	10.7	58	--	18	3.1	8.7	0.5	2.5
11-14-89	--	6.9	11.0	11.5	58	--	18	3.1	9.0	0.5	2.9
01-11-90	158	6.7	11.5	--	58	13	18	3.2	8.7	0.5	3.0
02-06-90	194	7.1	12.0	10.6	--	--	18	3.2	8.7	--	2.8
08-16-90	344	7.5	15.0	--	130	--	41	7.3	9.8	0.4	3.8
08-15-90	338	7.9	14.0	--	140	--	46	5.1	7.7	0.3	4.9
10-12-89	410	6.9	11.0	1.0	140	--	45	6.8	12	0.4	4.7
11-14-89	382	6.5	10.5	8.1	160	--	51	7.7	12	0.4	5.4
01-11-90	412	6.4	10.5	8.9	160	--	51	7.8	12	0.4	6.2
02-06-90	417	6.6	11.5	7.7	160	--	50	8.3	12	0.4	5.7
08-15-90	327	6.7	12.0	--	120	--	39	6.0	10	0.4	5.1
08-15-90	248	7.6	19.5	--	110	--	38	4.1	5.5	0.2	4.6
08-15-90	298	7.5	14.5	--	130	--	43	6.1	7.0	0.3	5.3
08-15-90	629	6.4	12.0	--	240	--	74	14	11	0.3	4.6
08-16-90	396	6.9	15.0	--	170	--	54	8.2	8.8	0.3	4.8
10-13-89	467	6.6	11.5	8.8	190	--	58	11	13	0.4	4.5
11-14-89	--	6.5	10.5	8.3	160	--	50	8.1	12	0.4	5.5
01-11-90	411	6.4	10.0	8.2	160	--	51	7.9	12	0.4	6.2
02-06-90	418	6.6	10.5	8.7	160	--	51	8.4	12	0.4	5.7
10-13-89	570	6.7	11.0	7.0	230	--	71	12	15	0.4	5.3
11-14-89	592	6.4	11.5	8.6	250	--	80	13	15	0.4	5.6
01-11-90	435	6.4	11.0	9.0	170	--	53	8.8	12	0.4	5.3
02-06-90	427	6.6	12.0	9.4	160	--	51	9.1	12	0.4	4.7
10-13-89	--	6.9	11.5	9.6	200	--	63	9.6	9.8	0.3	5.0
11-14-89	386	6.8	11.0	10.2	160	--	51	8.0	12	0.4	5.6
01-11-90	413	6.6	10.0	7.8	160	--	51	7.9	12	0.4	6.2
02-06-90	415	6.7	10.5	9.2	160	--	50	8.3	11	0.4	5.5
10-13-89	384	6.8	11.0	8.5	150	--	48	7.3	13	0.5	4.9
11-14-89	384	6.6	11.0	9.7	160	--	50	7.5	11	0.4	5.6
01-05-90	--	7.5	9.0	11.3	--	--	--	--	--	--	--
01-11-90	414	6.7	8.0	8.9	160	--	51	7.7	12	0.4	6.1
02-06-90	416	6.6	10.5	10.0	160	--	50	8.3	12	0.4	5.6
10-12-89	--	6.7	11.0	1.1	180	--	59	9.1	14	0.4	8.9
11-14-89	386	6.3	10.0	7.3	160	--	50	7.7	13	0.5	5.8
01-11-90	408	6.5	11.0	8.0	160	--	51	7.7	12	0.4	6.5
02-06-90	415	6.5	11.5	8.8	160	--	50	8.3	12	0.4	5.6
KEYA PAHA COUNTY											
08-14-90	184	7.2	15.0	--	63	--	20	3.1	5.3	0.3	7.3
KNOX COUNTY											
08-16-90	442	7.7	14.0	--	180	--	62	7.2	20	0.6	5.4
07-30-90	--	7.1	12.5	7.1	260	--	77	16	12	0.3	5.0
07-30-90	--	7.5	12.0	10.4	270	--	77	18	14	0.4	4.6
07-30-90	--	7.1	12.0	6.2	520	--	170	23	25	0.5	8.1
07-31-90	473	7.6	13.5	1.8	280	--	84	16	6.3	0.2	4.5
07-31-90	--	7.1	11.0	1.0	590	--	170	41	37	0.7	14
07-31-90	--	7.1	11.0	1.0	620	--	180	42	38	0.7	14
07-31-90	--	7.3	14.0	2.1	300	--	77	25	35	0.9	9.4
MONONA COUNTY (IOWA)											
07-17-90	--	7.3	12.0	0.3	590	--	160	46	57	1	7.0

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
HOLT COUNTY											
10-18-89	--	--	--	46	10	2.1	0.20	34	126	130	0.18
11-14-89	--	--	--	47	10	2.0	0.20	35	129	132	0.18
01-11-90	45	0	55	49	10	2.0	0.20	36	138	133	0.18
02-06-90	--	--	--	47	10	2.1	0.20	36	133	--	--
08-16-90	--	--	--	55	15	7.8	<0.10	36	--	242	0.33
08-15-90	--	--	--	92	--	7.1	<0.10	58	--	--	--
10-12-89	--	--	--	58	19	9.2	1.2	37	271	276	0.38
11-14-89	--	--	--	57	20	10	0.10	38	285	293	0.40
01-11-90	--	--	--	59	20	9.6	0.10	38	342	300	0.41
02-06-90	--	--	--	58	19	10	0.10	38	327	293	0.40
08-15-90	--	--	--	75	15	8.0	0.20	41	--	236	0.32
08-15-90	--	--	--	126	1.8	2.2	<0.10	57	--	193	0.26
08-15-90	--	--	--	149	2.7	2.7	<0.10	57	--	219	0.30
08-15-90	--	--	--	47	20	18	<0.10	28	--	424	0.58
08-16-90	--	--	--	55	14	8.4	0.10	40	--	304	0.41
10-13-89	--	--	--	60	25	14	0.10	27	294	330	0.45
11-14-89	--	--	--	52	20	9.9	<0.10	37	307	289	0.39
01-11-90	--	--	--	59	19	9.4	0.10	38	328	290	0.39
02-06-90	--	--	--	58	19	10	0.10	37	323	298	0.40
10-13-89	--	--	--	57	28	19	0.10	31	421	402	0.55
11-14-89	--	--	--	53	34	24	0.10	27	463	434	0.59
01-11-90	--	--	--	52	22	12	0.10	27	337	300	0.41
02-06-90	--	--	--	52	21	10	0.10	27	333	286	0.39
10-13-89	--	--	--	53	25	15	0.10	27	332	341	0.46
11-14-89	--	--	--	58	21	10	0.10	37	310	303	0.41
01-11-90	--	--	--	60	20	9.4	0.10	38	342	296	0.40
02-06-90	--	--	--	58	19	9.2	0.10	36	312	293	0.40
10-13-89	--	--	--	57	20	9.5	0.10	37	287	289	0.39
11-14-89	--	--	--	57	20	10	0.10	37	312	299	0.41
01-05-90	--	--	--	--	--	--	--	--	334	--	--
01-11-90	--	--	--	59	20	9.4	0.10	38	322	290	0.39
02-06-90	--	--	--	58	19	9.3	0.10	37	322	296	0.40
10-12-89	--	--	--	49	24	15	0.10	30	315	349	0.47
11-14-89	--	--	--	56	21	10	0.10	35	306	291	0.40
01-11-90	--	--	--	58	20	9.6	0.10	37	336	294	0.40
02-06-90	--	--	--	58	19	9.4	0.10	37	318	296	0.40
KEYA PAHA COUNTY											
08-14-90	--	--	--	47	5.8	2.5	<0.10	71	--	175	0.24
KNOX COUNTY											
08-16-90	--	--	--	182	7.9	4.3	0.30	56	--	317	0.43
07-30-90	--	--	--	257	29	2.9	0.30	38	--	339	0.46
07-30-90	--	--	--	259	14	5.0	0.20	44	--	366	0.50
07-30-90	--	--	--	370	200	17	0.20	25	--	694	0.94
07-31-90	--	--	--	150	37	4.6	0.30	27	--	272	0.37
07-31-90	--	--	--	306	410	12	0.20	25	--	893	1.21
07-31-90	--	--	--	368	400	12	0.30	25	--	933	1.27
07-31-90	--	--	--	346	37	3.1	0.80	61	--	459	0.62
MONONA COUNTY (IOWA)											
07-17-90	--	--	--	498	120	7.8	0.30	29	--	733	1.0

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L) AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L) AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	NITRO- GEN, TOTAL (MG/L) AS N) (00600)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00666)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) AS AL) (01105)
HOLT COUNTY										
10-18-89	133	5.90	5.30	0.020	--	<0.20	--	0.070	--	60
11-14-89	139	5.10	5.40	<0.010	--	0.70	5.8	0.060	--	<10
01-11-90	138	5.80	5.70	<0.010	--	0.20	6.0	0.060	--	<10
02-06-90	133	5.40	5.70	<0.010	--	<0.20	--	0.060	--	<10
08-16-90	--	--	20.0	--	--	--	--	--	--	--
08-15-90	--	--	6.00	--	--	--	--	--	--	--
10-12-89	290	25.0	24.0	<0.010	--	<0.20	--	0.120	--	<10
11-14-89	317	25.0	26.0	<0.010	--	<0.20	--	0.110	--	<10
01-11-90	326	25.0	27.0	<0.010	--	0.50	26	0.110	--	<10
02-06-90	339	26.0	26.0	<0.010	--	0.30	26	0.110	--	<10
08-15-90	--	--	15.0	--	--	--	--	--	--	--
08-15-90	--	--	1.00	--	--	--	--	--	--	--
08-15-90	--	--	1.40	--	--	--	--	--	--	--
08-15-90	--	--	51.0	--	--	--	--	--	--	--
08-16-90	--	--	30.0	--	--	--	--	--	--	--
10-13-89	380	32.0	32.0	0.010	--	<0.20	--	0.060	--	50
11-14-89	337	27.0	26.0	<0.010	--	0.70	28	0.100	--	60
01-11-90	324	26.0	25.0	<0.010	--	0.60	27	0.100	--	70
02-06-90	318	26.0	27.0	<0.010	--	<0.20	--	0.110	--	10
10-13-89	425	43.0	42.0	0.010	0.29	0.30	43	0.070	--	10
11-14-89	503	48.0	46.0	0.020	0.98	1.0	49	0.050	--	210
01-11-90	348	28.0	29.0	0.020	0.48	0.50	29	0.130	--	870
02-06-90	343	28.0	27.0	0.010	--	<0.20	--	0.100	--	800
10-13-89	379	34.0	35.0	0.010	0.39	0.40	34	0.050	--	60
11-14-89	340	25.0	28.0	<0.010	--	<0.20	--	0.120	--	540
01-11-90	352	26.0	26.0	0.020	0.58	0.60	27	0.100	--	150
02-06-90	315	26.0	27.0	<0.010	--	<0.20	--	0.100	--	110
10-13-89	331	25.0	26.0	<0.010	--	0.30	25	0.120	--	20
11-14-89	320	26.0	28.0	<0.010	--	0.40	26	0.100	--	<10
01-05-90	398	27.0	--	0.020	2.6	2.6	30	0.250	--	--
01-11-90	338	25.0	25.0	<0.010	--	0.70	26	0.110	--	150
02-06-90	313	26.0	27.0	<0.010	--	0.70	27	0.100	--	<10
10-12-89	404	34.0	36.0	0.020	0.38	0.40	34	0.070	--	20
11-14-89	338	27.0	26.0	0.020	--	<0.20	--	0.100	--	100
01-11-90	334	26.0	26.0	0.020	0.68	0.70	27	0.110	--	90
02-06-90	325	25.0	27.0	<0.010	--	0.30	25	0.110	--	140
KEYA PAHA COUNTY										
08-14-90	--	--	7.10	--	--	--	--	--	--	--
KNOX COUNTY										
08-16-90	--	--	10.0	--	--	--	--	--	--	--
07-30-90	--	--	1.00	--	--	--	--	--	0.110	--
07-30-90	--	--	7.70	--	--	--	--	--	0.040	--
07-30-90	--	--	<0.100	--	--	--	--	--	0.030	--
07-31-90	--	--	<0.100	--	--	--	--	--	0.080	--
07-31-90	--	--	0.100	--	--	--	--	--	0.010	--
07-31-90	--	--	0.100	--	--	--	--	--	0.020	--
07-31-90	--	--	0.800	--	--	--	--	--	0.030	--
MONONA COUNTY (IOWA)										
07-17-90	--	--	<0.100	--	--	--	--	--	<0.010	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
HOLT COUNTY										
10-18-89	<10	3	--	<100	<10	--	<1	<1	1	8
11-14-89	10	3	--	<100	<10	--	<1	--	2	5
01-11-90	<10	3	--	<100	<10	--	<1	1	2	3
02-06-90	20	3	--	200	<10	--	<1	1	2	10
08-16-90	--	--	--	--	--	30	--	--	--	14
08-15-90	--	--	--	--	--	30	--	--	--	9
10-12-89	10	2	--	<100	10	--	<1	<1	2	6
11-14-89	10	2	--	200	<10	--	<1	--	1	4
01-11-90	<10	2	--	<100	<10	--	<1	<1	1	6
02-06-90	<10	2	--	400	<10	--	<1	<1	2	<3
08-15-90	--	--	--	--	--	10	--	--	--	<3
08-15-90	--	--	--	--	--	30	--	--	--	<3
08-15-90	--	--	--	--	--	20	--	--	--	<3
08-15-90	--	--	--	--	--	40	--	--	--	13
08-16-90	--	--	--	--	--	20	--	--	--	4
10-13-89	10	<1	--	400	10	--	<1	<1	2	12
11-14-89	<10	2	--	200	<10	--	<1	--	2	18
01-11-90	<10	2	--	<100	<10	--	<1	2	3	35
02-06-90	20	2	--	400	10	--	<1	1	2	20
10-13-89	10	1	--	400	10	--	<1	<1	2	3
11-14-89	<10	<1	--	500	<10	--	<1	--	4	25
01-11-90	<10	1	--	200	<10	--	<1	3	3	62
02-06-90	20	1	--	400	<10	--	<1	2	7	27
10-13-89	10	<1	--	200	20	--	<1	<1	2	5
11-14-89	<10	2	--	200	<10	--	<1	--	2	14
01-11-90	<10	2	--	200	<10	--	<1	2	2	83
02-06-90	20	2	--	400	<10	--	<1	1	3	67
10-13-89	10	2	--	200	10	--	<1	<1	2	9
11-14-89	10	1	--	<100	<10	--	<1	--	2	7
01-03-90	--	--	--	--	--	--	--	--	--	--
01-11-90	<10	2	--	200	<10	--	<1	1	2	6
02-06-90	10	2	--	300	<10	--	<1	<1	2	13
10-12-89	10	1	--	400	10	--	<1	<1	2	7
11-14-89	<10	2	--	200	<10	--	<1	--	3	61
01-11-90	<10	2	--	200	<10	--	<1	1	5	170
02-06-90	<10	2	--	500	<10	--	<1	3	3	34
KEYA PAHA COUNTY										
08-14-90	--	--	--	--	--	10	--	--	--	<3
KNOX COUNTY										
08-16-90	--	--	--	--	--	50	--	--	--	<3
07-30-90	--	--	<1	--	--	50	--	--	--	<3
07-30-90	--	--	6	--	--	40	--	--	--	<3
07-30-90	--	--	2	--	--	140	--	--	--	820
07-31-90	--	--	<1	--	--	20	--	--	--	1500
07-31-90	--	--	<1	--	--	150	--	--	--	8
07-31-90	--	--	4	--	--	150	--	--	--	9
07-31-90	--	--	2	--	--	80	--	--	--	<3
MONONA COUNTY (IOWA)										
07-17-90	--	--	12	--	--	130	--	--	--	6200

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)
HOLT COUNTY										
10-18-89	1	<1	<0.10	<1	<1	--	10	0.5	<0.10	<0.10
11-14-89	<1	<1	<0.10	<1	<1	--	<10	0.7	<0.10	<0.10
01-11-90	1	<1	<0.10	1	<1	--	<10	0.6	<0.10	<0.10
02-06-90	<1	<1	<0.10	<1	<1	--	<10	0.6	<0.10	<0.10
08-16-90	--	2	--	--	--	--	--	--	--	--
08-15-90	--	1	--	--	--	--	--	--	--	--
10-12-89	1	1	<0.10	1	<1	--	<10	1.2	<0.10	<0.10
11-14-89	<1	1	<0.10	2	<1	--	<10	1.5	<0.10	<0.10
01-11-90	<1	<1	<0.10	2	<1	--	<10	1.4	<0.10	<0.10
02-06-90	<1	<1	<0.10	2	<1	--	<10	1.3	<0.10	<0.10
08-15-90	--	<1	--	--	--	--	--	--	--	--
08-15-90	--	<1	--	--	--	--	--	--	--	--
08-15-90	--	2	--	--	--	--	--	--	--	--
08-15-90	--	4	--	--	--	--	--	--	--	--
08-16-90	--	1	--	--	--	--	--	--	--	--
10-13-89	1	<1	<0.10	2	<1	--	10	1.6	<0.10	<0.10
11-14-89	<1	11	<0.10	3	1	--	20	1.7	<0.10	<0.10
01-11-90	1	<1	<0.10	3	<1	--	20	1.5	<0.10	<0.10
02-06-90	1	<1	<0.10	3	<1	--	<10	1.2	<0.10	<0.10
10-13-89	<1	<1	<0.10	2	<1	--	20	2.2	<0.10	<0.10
11-14-89	2	3	<0.10	6	<1	--	30	3.1	<0.10	<0.10
01-11-90	3	2	<0.10	5	<1	--	20	2.8	<0.10	<0.10
02-06-90	2	2	<0.10	4	<1	--	20	1.7	<0.10	<0.10
10-13-89	<1	1	<0.10	1	<1	--	20	1.6	<0.10	<0.10
11-14-89	<1	2	<0.10	2	1	--	<10	1.7	<0.10	<0.10
01-11-90	1	2	<0.10	1	<1	--	10	1.4	<0.10	<0.10
02-06-90	2	1	<0.10	2	<1	--	10	1.2	<0.10	<0.10
10-13-89	<1	<1	<0.10	2	<1	--	<10	1.4	<0.10	<0.10
11-14-89	<1	<1	<0.10	2	1	--	<10	1.4	<0.10	<0.10
01-05-90	--	--	--	--	--	--	--	5.8	--	--
01-11-90	1	1	<0.10	2	<1	--	10	1.5	<0.10	<0.10
02-06-90	<1	<1	<0.10	1	<1	--	<10	1.3	<0.10	<0.10
10-12-89	1	3	<0.10	2	<1	--	20	1.8	<0.10	<0.10
11-14-89	1	140	<0.10	3	<1	--	70	1.8	<0.10	<0.10
01-11-90	2	3	<0.10	2	<1	--	130	1.5	<0.10	<0.10
02-06-90	2	<1	<0.10	3	<1	--	20	1.3	<0.10	<0.10
KEYA PAHA COUNTY										
08-14-90	--	7	--	--	--	--	--	--	--	--
KNOX COUNTY										
08-16-90	--	<1	--	--	--	--	--	--	--	--
07-30-90	--	3	--	--	--	6	--	--	--	--
07-30-90	--	20	--	--	--	5	--	--	<0.10	<0.10
07-30-90	--	2800	--	--	--	9	--	--	--	--
07-31-90	--	610	--	--	--	<1	--	--	--	--
07-31-90	--	5	--	--	--	3	--	--	<0.10	<0.10
07-31-90	--	5	--	--	--	3	--	--	--	--
07-31-90	--	10	--	--	--	6	--	--	<0.10	<0.10
MONONA COUNTY (IOWA)										
07-17-90	--	490	--	--	--	<1	--	--	--	--

DATE	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT. REC (UG/L) (82612)
HOLT COUNTY										
10-18-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
08-16-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
10-12-89	<0.1	<0.10	<0.1	<0.1	0.60	<0.10	<0.10	<0.10	<0.1	0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
08-15-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-15-90	--	--	--	--	--	--	--	--	--	--
08-16-90	--	--	--	--	--	--	--	--	--	--
10-13-89	<0.1	<0.10	<0.1	<0.1	0.60	<0.10	<0.10	<0.10	<0.1	<0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	0.10	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
10-13-89	<0.1	<0.10	<0.1	<0.1	0.40	<0.10	<0.10	<0.10	<0.1	<0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	0.60	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	0.40	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	0.30	<0.10	<0.10	<0.10	<0.1	<0.1
10-13-89	<0.1	<0.10	<0.1	<0.1	1.2	<0.10	<0.10	<0.10	<0.1	<0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
01-11-90	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
02-06-90	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
10-13-89	<0.1	<0.10	<0.1	<0.1	0.60	<0.10	<0.10	<0.10	<0.1	0.1
11-14-89	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10	<0.10	<0.1	<0.1
01-05-90	--	--	--	--	--	--	--	--	--	--
01-11-90	<0.1	<0.10	<0.1	<0.1	0.10	<0.10	<0.10	<0.10	<0.1	<

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)
THURSTON COUNTY								
420151096313601	24N	8E28ABBA1	42 01 51 N	096 31 36 W	112PLSC	07-19-90	1200	100.00
420519096273201	24N	9E 6BBAB1	42 05 19 N	096 27 32 W	112PLSC	07-17-90	0920	25.00
420519096273202	24N	9E 6BBAB2			211DKOT	07-17-90	1115	300.00
420151096255501	24N	9E29ABAB1	42 01 51 N	096 25 55 W	211DKOT	07-19-90	1100	226.00
420845096434501	25N	6E16AACC1	42 08 45 N	096 43 45 W	112PLSC	07-18-90	1435	202.00
420543096431401	25N	6E34CBDD1	42 05 43 N	096 43 14 W	112PLSC	07-18-90	1130	100.00
420817096284101	25N	8E13CCAA1	42 08 17 N	096 28 41 W	211DKOT	07-18-90	1606	240.00
421028096222501	25N	9E 2ABBA1	42 10 28 N	096 22 25 W	112PLSC	07-17-90	1025	82.00
421028096273101	25N	9E 6ABBB1	42 10 28 N	096 27 31 W	112PLSC	07-17-90	0915	119.00
420848096274901	25N	9E 7CCCC1	42 08 48 N	096 27 49 W	211DKOT	07-18-90	1747	240.00
420848096245101	25N	9E 9DCCC1	42 08 48 N	096 24 51 W	112PLSC	07-17-90	1156	100.00
420907096222901	25N	9E11DBBC1	42 09 07 N	096 22 29 W	211DKOT	07-17-90	1530	170.00
421102096482301	26N	5E35DABC1	42 11 02 N	096 48 23 W	112PLSC	07-18-90	1945	--
421422096460801	26N	6E 7DBDD1	42 14 22 N	096 46 08 W	112PLSC	07-18-90	1730	180.00
421435096414301	26N	6E11ACCC1	42 14 35 N	096 41 43 W	112PLSC	07-19-90	0830	133.00
421101096423501	26N	6E34DABC1	42 11 01 N	096 42 35 W	112PLSC	07-18-90	1535	--
421505096294701	26N	8E 2CDCB1	42 15 05 N	096 29 47 W	211DKOT	07-19-90	1415	52.00
421517096212301	26N	9E 1BDDD1	42 15 17 N	096 21 23 W	112PLSC	07-18-90	1208	100.00
421317096262401	26N	9E17CCAA1	42 13 17 N	096 26 24 W	112PLSC	07-17-90	1640	37.00
421350096271301	26N	9E18ABCB1	42 13 50 N	096 27 13 W	211DKOT	07-17-90	1345	325.00
421304096242501	26N	9E21AAAB1	42 13 04 N	096 24 25 W	211DKOT	07-18-90	0840	432.00
421212096250001	26N	9E28BAAB1	42 12 12 N	096 25 00 W	211DKOT	07-18-90	1020	166.00
421639096433201	27N	6E33AAAD1	42 16 39 N	096 43 32 W	112PLSC	07-18-90	0820	100.00
421553096234001	27N	9E34DCBB1	42 15 53 N	096 23 40 W	211DKOT	07-18-90	1943	438.00
WOODBURY COUNTY (IOWA)								
421348096185301	26N	10E17ABCB1	42 13 48 N	096 18 53 W	112PLSC	07-19-90	0825	96.00

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)
THURSTON COUNTY										
07-19-90	502	7.3	11.5	0.7	230	--	69	15	17	0.5
07-17-90	460	7.2	14.5	5.0	--	--	--	--	--	--
07-17-90	258	7.2	14.0	0.0	340	--	100	22	22	0.5
07-19-90	--	7.3	13.5	0.3	350	--	97	27	27	0.6
07-18-90	--	7.7	11.0	0.2	300	--	85	22	16	0.4
07-18-90	--	7.3	12.0	8.7	340	--	96	25	22	0.5
07-18-90	--	7.3	12.0	1.3	370	--	110	22	26	0.6
07-17-90	794	7.5	14.5	6.6	340	--	100	21	26	0.6
07-17-90	807	7.2	13.0	6.2	400	--	110	31	12	0.3
07-18-90	--	7.3	13.0	0.1	390	--	120	23	30	0.7
07-17-90	739	7.2	13.0	2.0	350	--	93	28	11	0.3
07-17-90	--	7.3	12.5	0.6	390	--	120	23	32	0.7
07-18-90	--	7.6	11.5	7.1	320	--	94	21	31	0.8
07-18-90	--	7.4	12.5	--	400	--	110	30	26	0.6
07-19-90	--	7.3	11.5	0.4	330	--	94	24	24	0.6
07-18-90	--	7.2	12.0	0.5	560	--	150	46	23	0.4
07-19-90	639	7.3	13.0	1.7	370	--	100	28	11	0.3
07-18-90	1350	7.1	12.0	0.2	640	64	170	52	56	1
07-17-90	--	7.1	12.0	1.2	480	--	130	37	16	0.3
07-17-90	--	7.2	13.5	1.4	650	--	200	36	130	2
07-18-90	1060	7.3	13.0	0.1	460	--	140	26	56	1
07-18-90	1160	7.2	14.5	0.2	580	--	160	45	26	0.5
07-18-90	--	7.2	12.0	0.8	430	--	120	32	31	0.6
07-18-90	--	6.7	12.5	0.1	550	--	160	37	16	0.3
WOODBURY COUNTY (IOWA)										
07-19-90	1050	7.2	11.5	0.2	570	0	150	47	64	1

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
THURSTON COUNTY										
07-19-90	2.6	--	--	--	260	21	3.7	0.20	28	316
07-17-90	--	--	--	--	--	--	--	--	--	--
07-17-90	6.2	--	--	--	286	64	4.2	0.30	20	411
07-19-90	6.7	--	--	--	--	63	3.8	0.30	27	--
07-18-90	4.7	--	--	--	313	34	5.8	0.20	29	388
07-18-90	3.8	--	--	--	319	53	6.0	0.20	28	452
07-18-90	9.4	--	--	--	349	63	8.8	0.80	17	468
07-17-90	9.3	--	--	--	314	63	11	1.3	17	437
07-17-90	4.9	--	--	--	366	21	11	0.20	39	484
07-18-90	12	--	--	--	--	110	20	0.80	14	--
07-17-90	2.3	--	--	--	305	45	4.5	0.30	24	416
07-17-90	10	--	--	--	299	110	18	0.70	15	509
07-18-90	4.6	--	--	--	332	63	5.1	0.20	27	447
07-18-90	7.3	--	--	--	314	62	7.5	0.30	25	510
07-19-90	4.2	--	--	--	307	84	7.6	<0.10	22	446
07-18-90	6.9	--	--	--	493	130	<0.10	0.20	39	--
07-19-90	2.3	--	--	--	328	17	9.5	0.20	18	403
07-18-90	11	574	0	701	545	190	15	0.70	27	873
07-17-90	5.4	--	--	--	469	42	<0.10	0.20	31	--
07-17-90	20	--	--	--	238	560	110	1.5	10	1210
07-18-90	14	--	--	--	307	220	38	1.1	13	694
07-18-90	7.8	--	--	--	358	300	3.6	0.20	47	804
07-18-90	6.8	--	--	--	367	140	10	0.30	33	595
07-18-90	6.2	--	--	--	366	230	4.2	0.30	17	693

WOODBURY COUNTY (IOWA)

07-19-90	11	579	0	706	--	160	13	0.40	29	828
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CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)
THURSTON COUNTY										
07-19-90	0.43	0.200	1.10	9	60	1600	970	2	--	--
07-17-90	--	11.0	--	--	--	--	--	--	--	--
07-17-90	0.56	<0.100	<0.010	<1	140	950	220	<1	--	--
07-19-90	--	<0.100	0.010	3	220	290	270	<1	<0.10	<0.10
07-18-90	0.53	<0.100	0.050	1	70	2200	1200	<1	--	--
07-18-90	0.61	5.90	0.130	2	70	7	4	33	--	--
07-18-90	0.64	<0.100	<0.010	1	190	1200	260	<1	--	--
07-17-90	0.59	<0.100	0.010	<1	200	13	23	<1	--	--
07-17-90	0.66	8.10	0.120	2	50	<3	4	6	--	--
07-18-90	--	<0.100	0.010	1	250	3400	170	<1	--	--
07-17-90	0.57	5.70	0.090	1	50	7	6	16	<0.10	<0.10
07-17-90	0.69	<0.100	<0.010	<1	200	1100	170	<1	--	--
07-18-90	0.61	0.400	0.130	3	90	110	240	11	--	--
07-18-90	0.69	12.0	0.090	1	80	16	370	2	<0.10	<0.10
07-19-90	0.61	0.300	0.100	3	60	330	440	1	--	--
07-18-90	--	<0.100	0.070	3	190	14	370	4	--	--
07-19-90	0.55	4.60	0.020	<1	50	3	4	8	--	--
07-18-90	1.19	<0.100	<0.010	13	220	6200	540	<1	<0.10	<0.10
07-17-90	--	0.500	0.030	<1	70	6	2	8	--	--
07-17-90	1.65	<0.100	0.020	<1	380	1900	180	<1	<0.10	<0.10
07-18-90	0.94	<0.100	<0.010	<1	260	980	170	<1	--	--
07-18-90	1.09	<0.100	0.040	3	210	14	8	5	--	--
07-18-90	0.81	0.300	0.200	7	130	99	660	<1	--	--
07-18-90	0.94	<0.100	<0.010	<1	110	2400	360	<1	--	--
WOODBURY COUNTY (IOWA)										
07-19-90	1.13	<0.100	0.020	14	180	5800	460	<1	--	--

[illegible]

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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