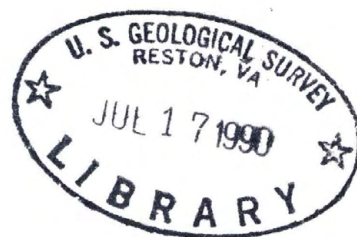


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Water Resources Data Nebraska Water Year 1989



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NE-89-1

Prepared in cooperation with the Nebraska Department of
Water Resources, the Conservation and Survey Division of
the University of Nebraska, the Nebraska Department of
Environmental Control and with other
State and Federal agencies

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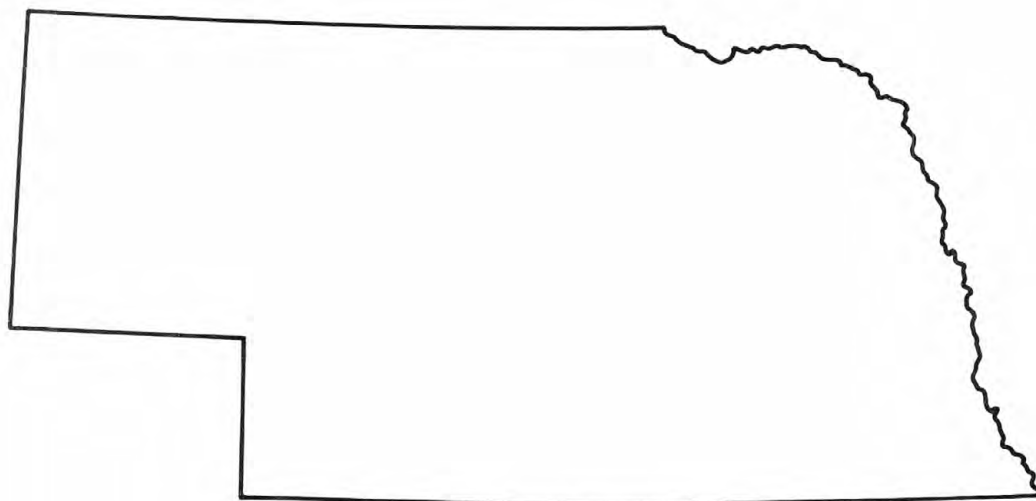
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Water Resources Data Nebraska Water Year 1989

by J.A. Boohar, C.G. Hoy, and M.J. Ellis



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NE-89-1

Prepared in cooperation with the Nebraska Department of Water Resources, the Conservation and Survey Division of the University of Nebraska, the Nebraska Department of Environmental Control, 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:

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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, G.V. Steele, P.A. Bartz, D.E. Schild, R.A. Adams, J.C. Sybrandts, and J.E. McKinney of the District Office.

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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 160 streamflow-gaging stations, for 12 partial-record or miscellaneous streamflow stations, and for 5 crest-stage, partial-record streamflow stations; (2) stage and contents for 11 lakes and reservoirs; (3) water-quality records for 38 streamflow-gaging stations, for 8 ungaged streamsites, and for 157 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-88-1." 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; Nebraska Department of Environmental Control, Dennis Grams, Director; Big Blue River Compact Administration; Central Platte Natural Resources District; Little Blue Natural Resources District; and City of Lincoln.

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 5 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 1989

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 1989 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 distribution of precipitation during water year 1989.

Except for the last quarter of water year 1989, all eight divisions received less-than-normal precipitation. Only one division (North Central) received less-than-normal precipitation during the last quarter. The other seven received greater-than-normal precipitation, especially those in the Southeast, South Central, Central, and East Central Divisions; precipitation in these divisions was 1.27 to 2.44 inches greater than normal.

A comparison of the precipitation for water years 1989 and 1988 with the normal precipitation in the eight divisions is shown in figure 2. The water year totals for each of these divisions during water year 1989 ranged from 64 to 89 percent of normal. However, precipitation in two of these divisions (East Central and Southeast) was greater during water year 1989 than during water year 1988.

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)		
	Water			Water			Water			Water		
	Normal	year 1989	Departure	Normal	year 1989	Departure	Normal	year 1989	Departure	Normal	year 1989	Departure
Panhandle	1.71	0.61	-1.10	1.71	1.48	-0.23	7.91	3.93	-3.98	5.28	5.41	0.13
North Central	2.24	1.05	-1.19	2.17	1.56	-.61	9.16	4.78	-4.38	7.25	6.00	-1.25
Northeast	3.08	1.73	-1.35	3.01	2.28	-.73	10.53	4.80	-5.73	8.69	8.79	.10
Central	2.54	.99	-1.55	2.57	1.75	-.82	9.89	8.40	-1.49	8.08	9.35	1.27
East Central	3.76	2.38	-1.38	3.43	2.07	-1.36	11.11	6.37	-4.74	9.94	12.12	2.18
Southwest	1.95	.82	-1.13	1.95	1.64	-.31	8.28	6.57	-1.71	6.69	7.30	.61
South Central	2.63	.85	-1.78	2.60	1.14	-1.46	9.85	8.06	-1.79	8.55	10.69	2.14
Southeast	4.22	1.86	-2.36	3.75	2.20	-1.55	11.15	7.22	-3.93	11.18	13.62	2.44

Streamflow

Monthly mean discharges during water year 1989 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 1988. The individual graphs demonstrate the varied conditions in the State during the year.

All representative stations show smaller average monthly means compared with the long-term means for most of the water year, with the exception of station 06785000, Middle Loup River at St. Paul. This station is in the sandhills region of the State where the main part of the flow is derived from ground-water discharge.

Streamflow at station 06686000 North Platte River at Lisco was only 34 percent of the long-term mean for April through June 1989. During June 1989, normally the month of largest flow, flow was only 17 percent of the long-term mean, largely due to the fact that snowpack in the North Platte River basin in the Rocky Mountains was much less than average, and the snowmelt runoff and releases from upstream reservoirs were very small.

The most noticeable difference in streamflow for water year 1989 compared with the mean for the period of record can be seen for station 00815000 Big Nemaha River at Falls City. Until the last part of August and beginning of September, flow for this station was at base flow. Snowfall was less than normal in the Southeast Division where the station is located, so there was very little runoff in early spring; all

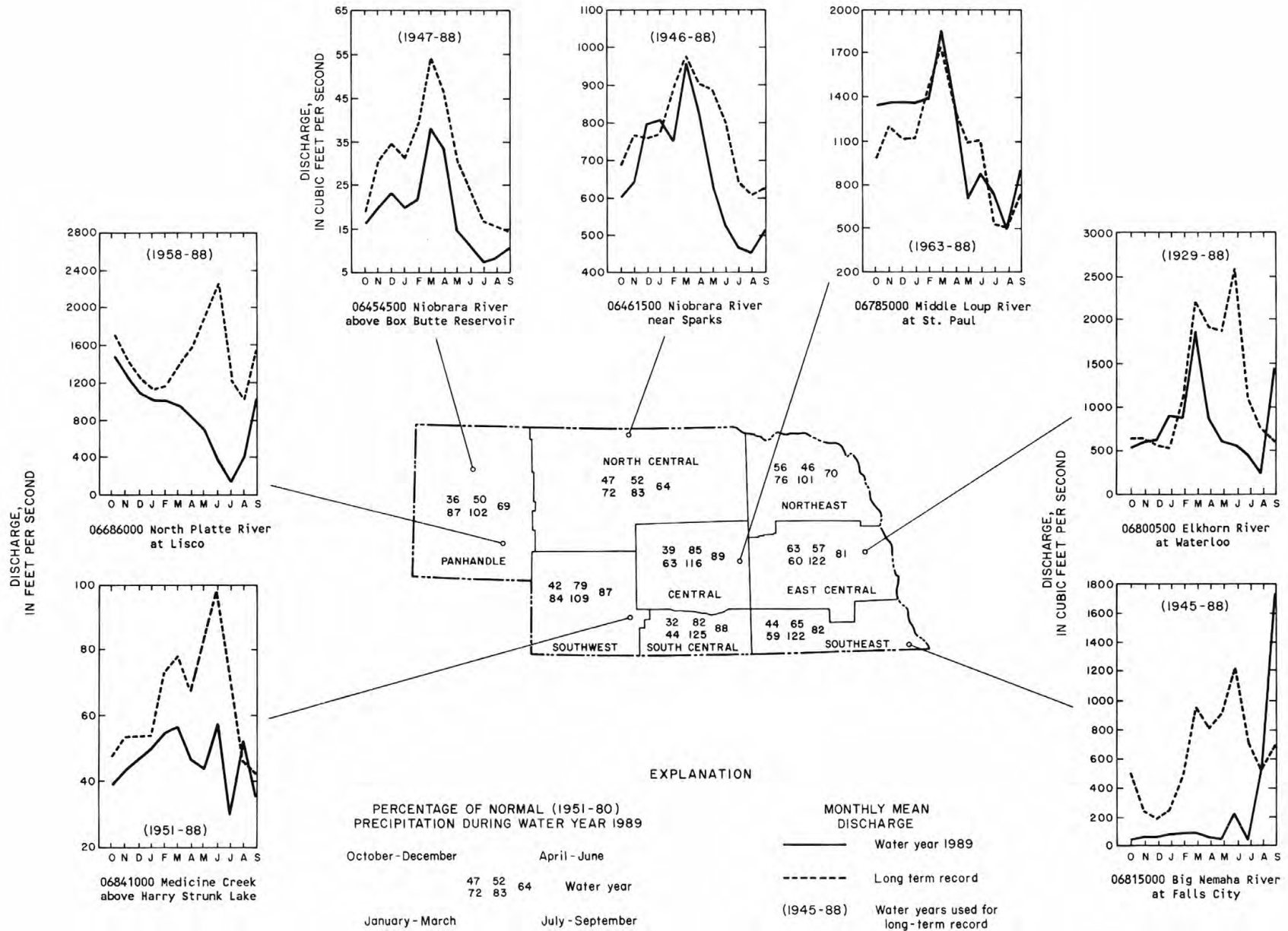


Figure 1.--Comparison of precipitation and streamflow during water year 1989 to long-term means.

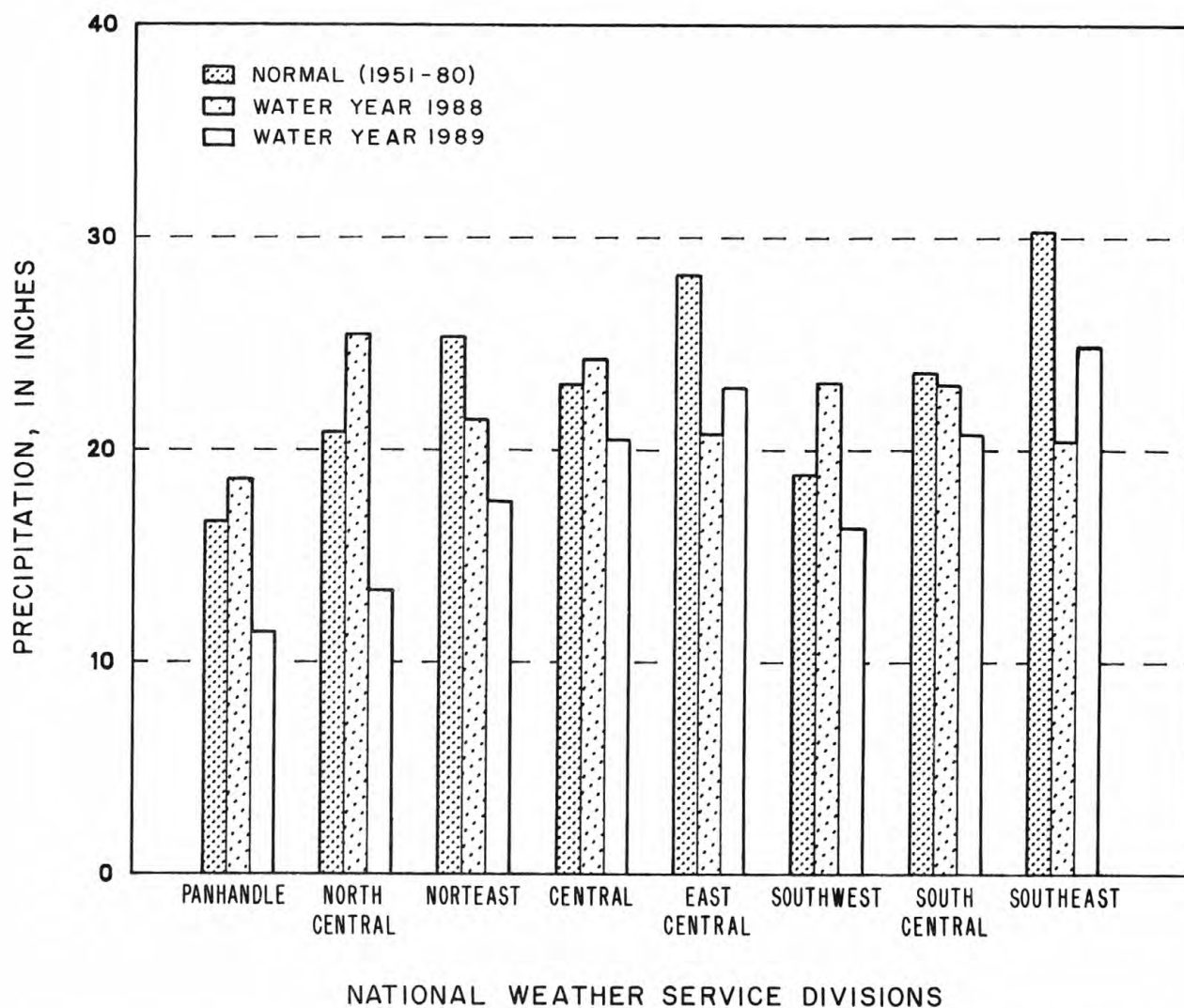


Figure 2.--Comparison of precipitation for water years 1989 and 1988 with normal precipitation for the eight National Weather Service Divisions in Nebraska.

precipitation averaged 59 percent of normal for the first three quarters of the water year. However, precipitation in the fourth quarter was 122 percent of normal, and the average discharge for September was 14 times greater than the average flow during the previous 11 months.

The normal to greater-than-normal precipitation during the last quarter of the water year in seven of the eight divisions is reflected in the graphs for the representative stations, except for station 06841000 Medicine Creek above Harry Strunk Lake, which had an increase in flow in August but a decrease in September.

Due to the dry conditions during water year 1989, new minimum daily discharges were recorded at five gaging stations. These stations are listed in table 2.

In spite of the dry conditions, one station (06803520, Stevens Creek near Lincoln) recorded a new maximum discharge for the period of record: 12,900 ft³/s on September 8, gage height, 19.42 ft, supplanting the previous maximum of 4,620 ft³/s on June 13, 1984. Road overflow was very extensive. This discharge was a result of a series of storms that produced more than 7 inches of precipitation in a 5-day period.

Other streams in southeastern Nebraska had very low discharges during water year 1989, although they did not have record lows. There generally was a large difference in discharge between water year 1987 and water years 1988 and 1989. Water year 1987 was a high-runoff year, whereas both water years 1988 and 1989 were considered dry years. A comparison of minimum discharges during water years 1989, 1988, 1987, and the period of record for selected gaging stations in southeastern Nebraska is shown in table 3.

Table 2.--Minimum daily discharges during water year 1989 and period of record

Station identification	Water year 1989 minimum discharge		Previous minimum discharge		Number of years of record
	Discharge (cubic feet per second)	Date	Discharge (cubic feet per second)	Date	
06478518 Bow Creek near St. James	6.1	8/18-19	7.4	01/15/79	11
06764880 So. Platte River at Roscoe	.50	7/28	3.9	08/24/86	7
06796973 Elkhorn River near Atkinson	4.4	8/11	5.8	12/30/82	7
06799100 No. Fk. Elkhorn R. near Pierce	2.7	7/29	3.8	07/24/76	29
06838000 Red Willow Creek near Red Willow	.26	9/2	.33	09/08/71	51

Table 3.--Comparison of minimum daily discharge for water years 1989, 1988, 1987, and period of record for selected stations in southeastern Nebraska

Station identification	Minimum daily discharge (cubic feet per second)			Period of record (year occurred)
	1989	1988	1987	
06811500 Little Nemaha River at Auburn	4.6	24	128	0.87 (1977)
068145 N.F. Big Nemaha River at Humboldt	8.0	12	56	.07 (1977)
068150 Big Nemaha River at Falls City	12	24	151	3.0 (1977)
06853020 Republican River at Guide Rock	1.86	2.8	16	.1 (1964)
068799 Big Blue River at Surprise	.44	.50	3.3	No flow most years
068808 W.F. Big Blue R. near Dorchester	44	31	79	12 (1977)
068810 Big Blue River near Crete	81	57	150	6.0 (1980)
068812 Turkey Creek near Wilber	3.8	.25	21	No flow (1976)
068815 Big Blue River at Beatrice	110	51	275	20 (1976)
068830 Little Blue River near Deweese	35	3.2	43	6.3 (1978)
06883575 Little Blue R. near Alexandria	32	11	62	2.9 (1980)
068840 Little Blue River at Fairbury	60	38	120	14 (1929)
06884025 Little Blue R. at Hollenberg, Kansas	74	39	186	40 (1975)

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 at or near the point at which the stream leaves Nebraska.

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 1989 with those for the period of record. To determine whether there is any statistical difference between the median specific conductance for water year 1989 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 1989 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 seen in table 4, the median specific conductances for all five sampling stations do not differ significantly from the medians of their corresponding periods of record. However, station 06815000 Big Nemaha River at Falls City, does show a computed P-value of 0.08, which may be considered borderline. This station is located in the Southeast Division, which had the lowest percentage of normal precipitation for the first three quarters of the water year of any division. The mean flow for water year 1989 was 40 percent of the long-term mean. All National Weather Service Divisions measured less-than-normal precipitation during the water year. 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. Median specific conductance at station 06853020 Republican River at Guide Rock, was statistically different than the long-term median each year since water year 1982. However, although precipitation and streamflow were less than normal in water year 1989, there was no statistical difference between the median specific conductance for water year 1989 and the median for the period of record.

Table 4.--Comparison of the mean and median specific conductance for water year 1989 with those for the period of record for streamflow leaving Nebraska

[Specific conductance, in microsiemens per centimeter at 25 degrees Celsius; P-value = probability; ND = no difference]

Station identification	Specific conductance							P-value	Statistical comparison of medians
	Water year 1989			Period of record					
	Number of values	Mean	Median	Number of values	Mean	Median	Water years		
06465500 Niobrara River near Verdel	11	273	270	183	273	268	1973-88	0.77	ND
06805500 Platte River at Louisville	11	645	627	161	697	655	1972-88	.43	ND
06815000 Big Nemaha River at Falls City	14	678	712	187	623	658	1973-88	.08	ND
06853020 Republican River at Guide Rock	11	628	627	348	601	600	1962-88	.37	ND
06884025 Little Blue River at Hollenberg, Kansas	16	493	530	204	478	538	1973-88	.95	ND

Ground-Water Levels

Water-level changes during water year 1989 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 92 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 1989 were the 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 drought conditions that occurred throughout most of the water year. The lack of precipitation not only resulted in less-than-normal amounts of recharge to the aquifers, but also in greater-than-normal amounts of ground water being withdrawn for irrigation and municipal supplies. Application of irrigation water generally began about 6 weeks earlier than normal and ended about 4 weeks later than normal. At the end of water year 1989, water levels measured in more than 80 percent of the observation wells in Nebraska were lower than they were at the end of water year 1988.

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 1988 and 1989. The water level in the Seward County well was higher at the beginning of water year 1988 than at the beginning of any of the previous 29 water years. However, at the end of water year 1988, the water level in the Seward County well was 1.61 feet lower than at the beginning of water year 1988. And at the end of water year 1989, the water level was 1.10 feet lower than at the end of water year 1988.

Throughout much of the central and south-central parts of Nebraska, precipitation during the growing season generally was near normal or slightly above normal, and water levels measured in observation wells in these parts of Nebraska generally were slightly higher at the end of water year 1989 than they were at the end of water year 1988. As shown on the hydrograph for the Buffalo County well, water levels in these parts of Nebraska generally did not rise as much during the 1988-89 dormant season as they did during the 1987-88 dormant season, but declines during the 1989 growing season were less than they were during the 1988 growing season. At the end of water year 1989, the water level in the Buffalo County well was 0.88 foot higher than at the end of water year 1988.

In the southwestern part of the State, where precipitation during most of the water year was below normal, most of the water levels measured in the 275 observation wells ranged from 1.0 to 2.0 feet lower at the end of water year 1989 than they were at the end of water year 1988. Most of the water-level declines occurred in the areas where large amounts of ground water used for irrigation usually exceed the amounts of water the aquifer receives from recharge. Water levels in these areas generally do 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 1988 and 1989. The hydrograph shows that although the lowest water level during water year 1989 irrigation season was 0.21 foot higher than the lowest level during water year 1988 irrigation season, the water level at the end of water year 1989 was 0.46 foot lower than at the end of water year 1988.

Precipitation in north-central and northeastern Nebraska was significantly below normal throughout most of water year 1989. Total precipitation for the water year generally ranged from 30 to 36 percent below normal. Because less-than-normal amounts of water were available for recharge in the area and greater-than-normal amounts of water were pumped for irrigation, most of the water levels measured in observation wells at the end of water year 1989 were between 1.0 and 2.0 feet lower than they were at the end of water year 1988. The hydrograph for an observation well in Holt County is representative of water-level fluctuations that occurred in this part of the State during water years 1988 and 1989. The water level in the well at the end of water year 1988 was 1.70 feet lower than at the end of water year 1987, and the water level at the end of water year 1989 was 1.70 feet lower than at the end of water year 1988.

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 when recharge from precipitation exceeds discharge by seepage to streams and by evapotranspiration; they decline during the spring and summer 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. Because of less-than-normal precipitation during water year 1989, the water-level rise during the fall and winter months was less than normal, and the water-level decline during the spring and summer months was greater than normal.

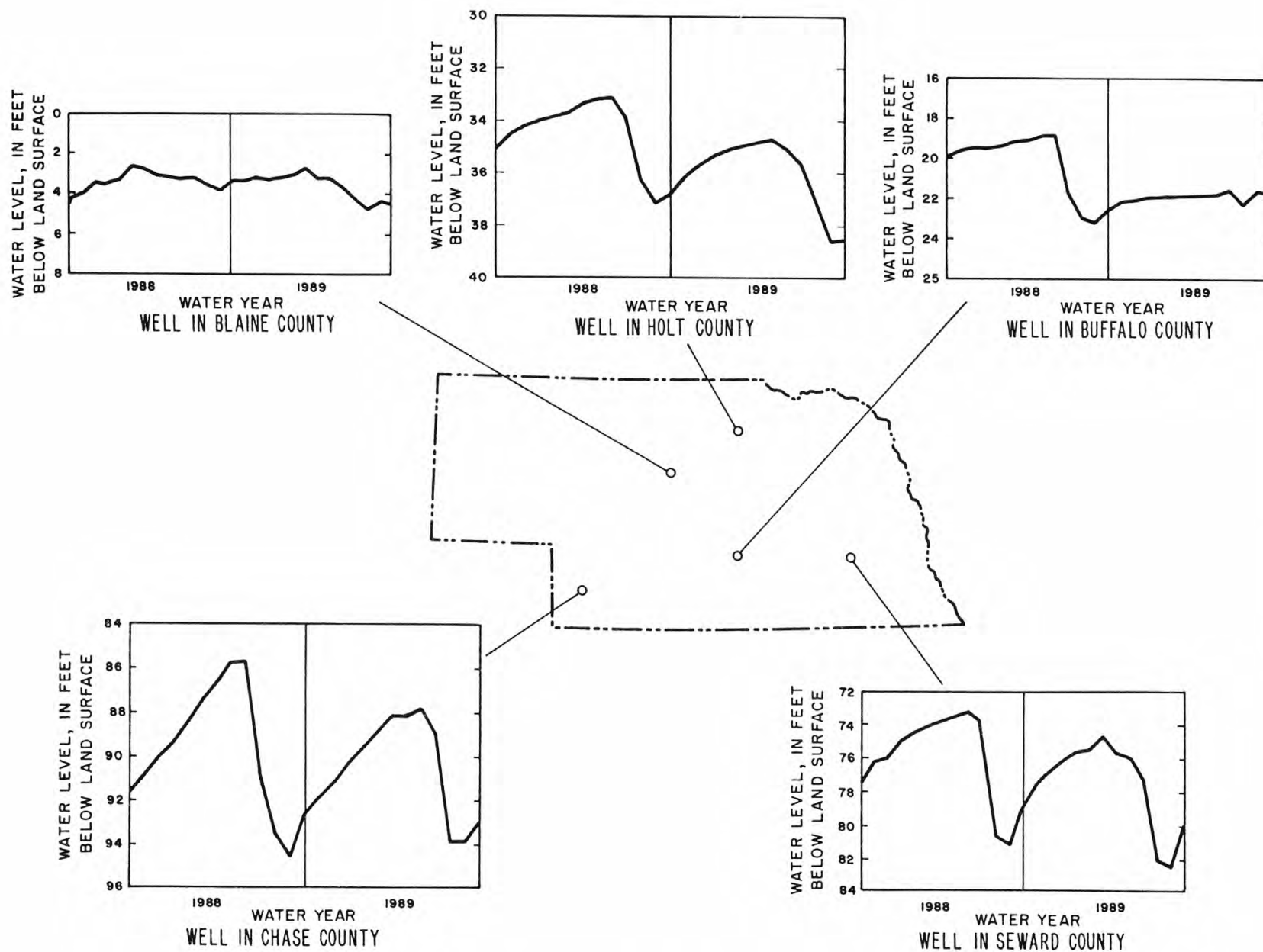


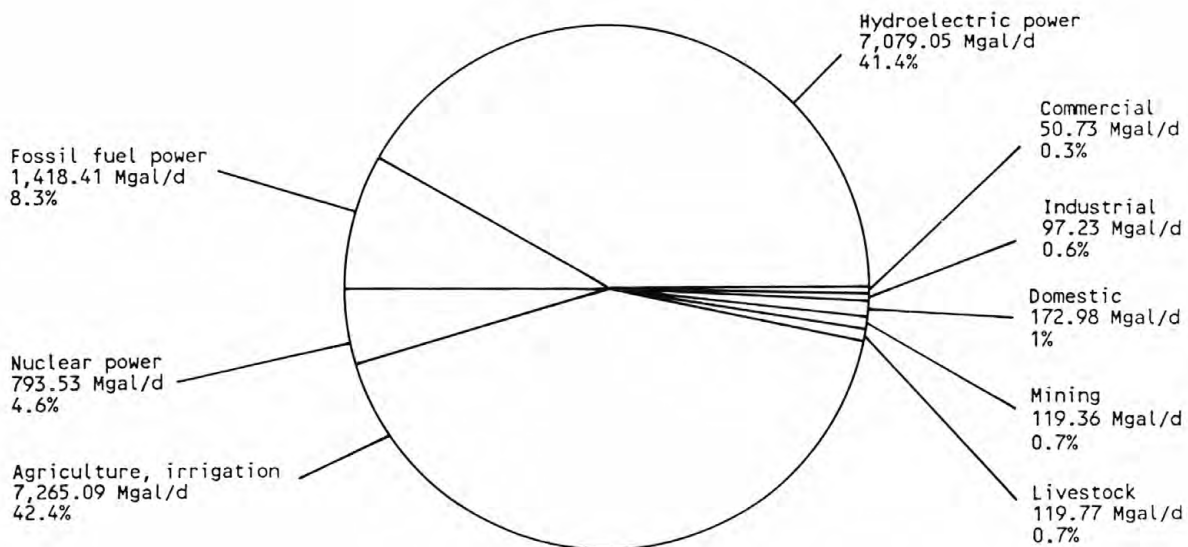
Figure 3.--Water levels in representative observation wells, water years 1988 and 1989.

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.

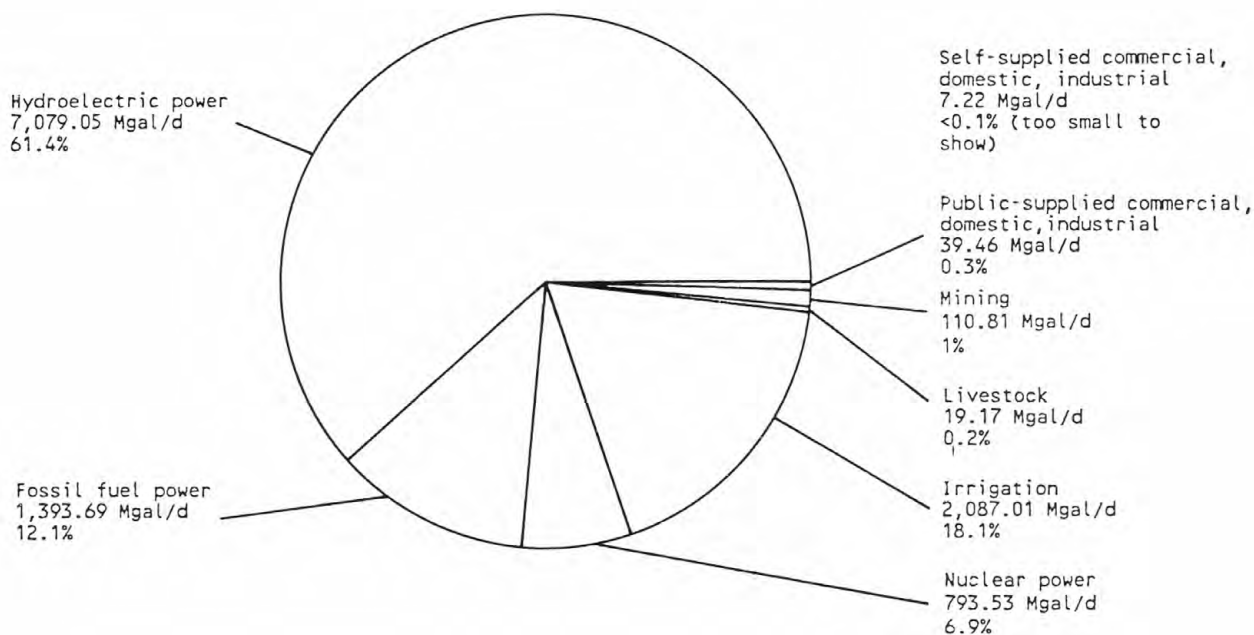
- Total water use in Nebraska was 17,116.15 million gallons per day (Mgal/d).
- Surface water use was 11,529.92 Mgal/d, or 67.4 percent of total water use.
- Ground-water use was 5,586.23 Mgal/d, or 32.6 percent of total water use, of which 5,178.08 Mgal/d or 92.7 percent was used for irrigation.
- Excluding 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.]



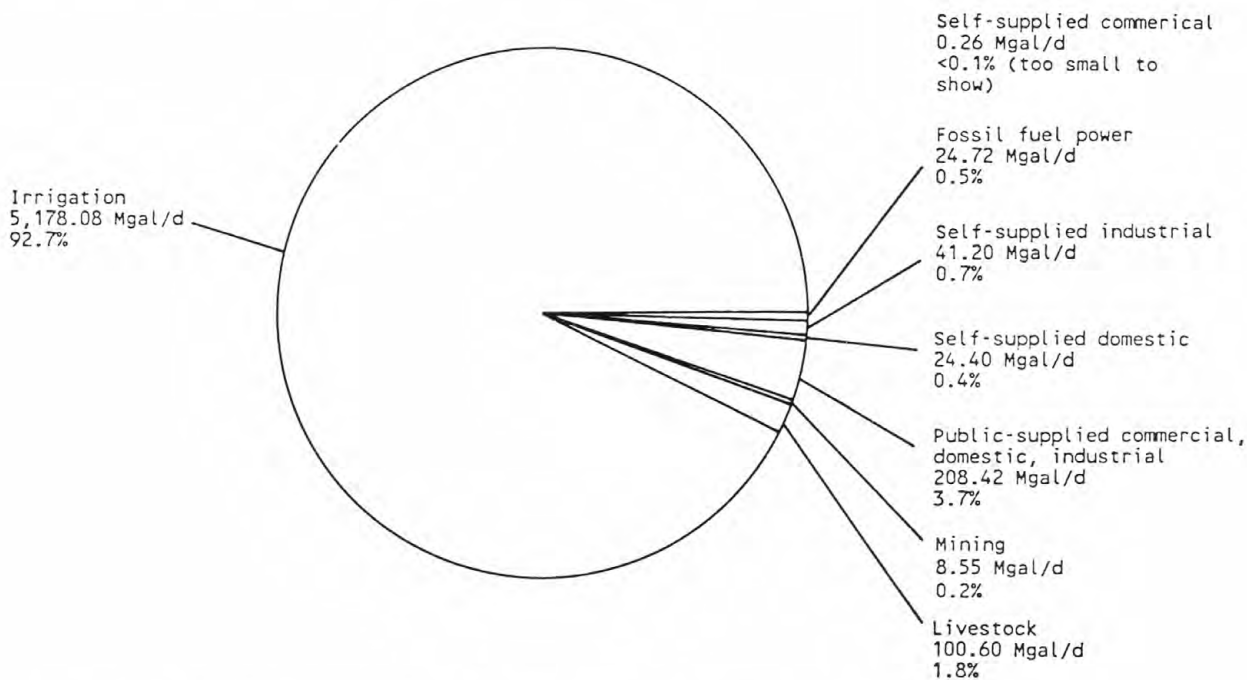
Total water use: 17,116.15 million gallons per day (Mgal/d)

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.

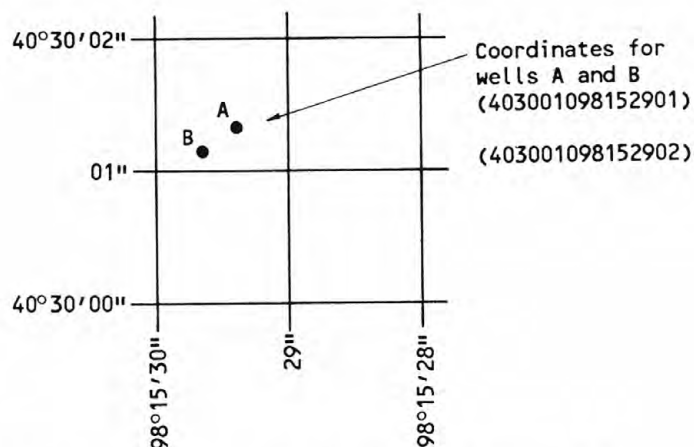
Downstream Order System

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.

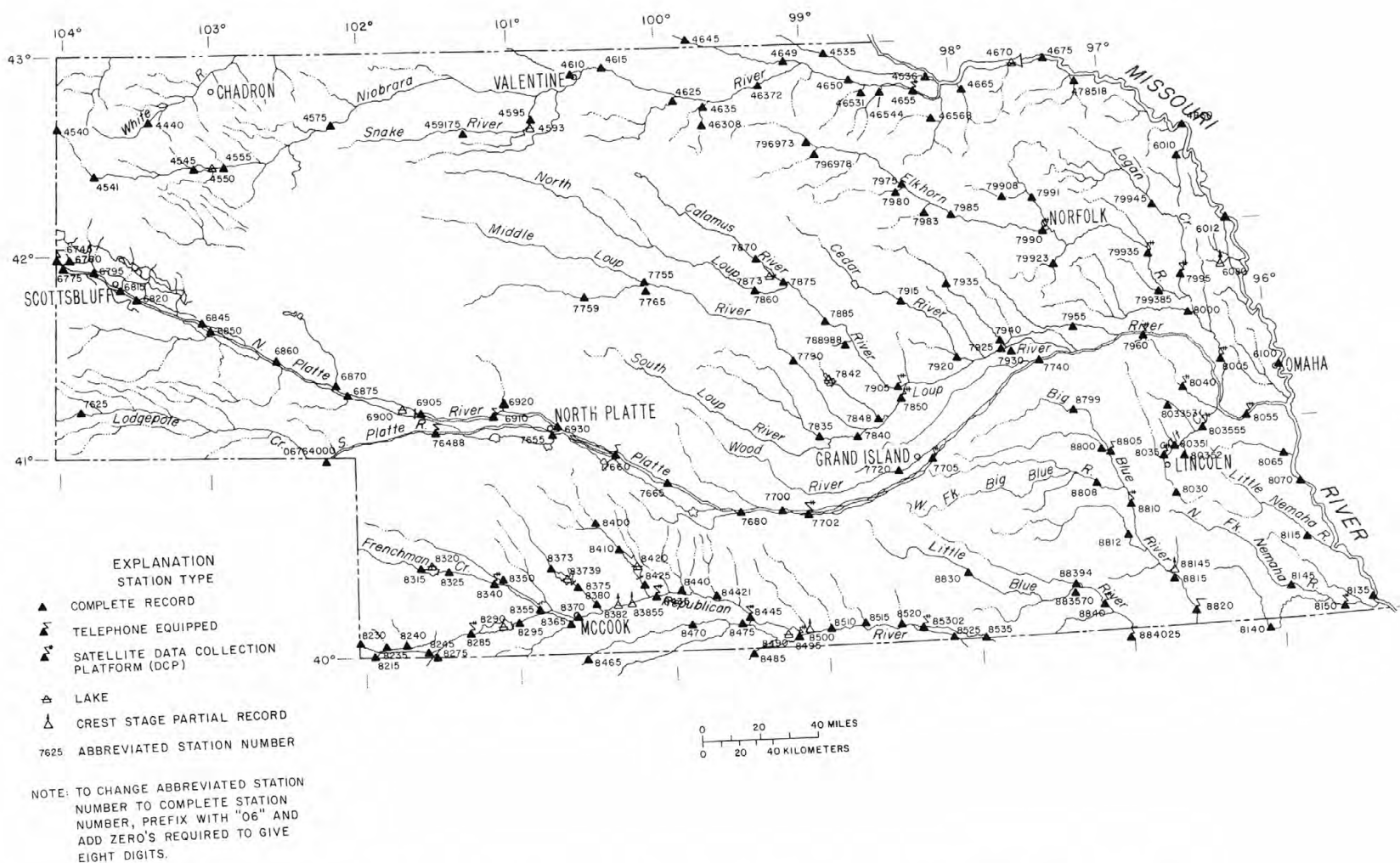


Figure 5.--Location of active surface-water gaging stations.

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.

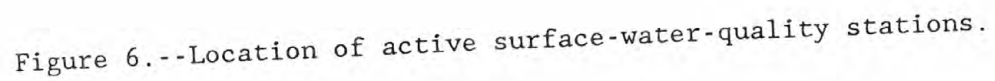
Arrangement of Records

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.



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 usefull 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.)

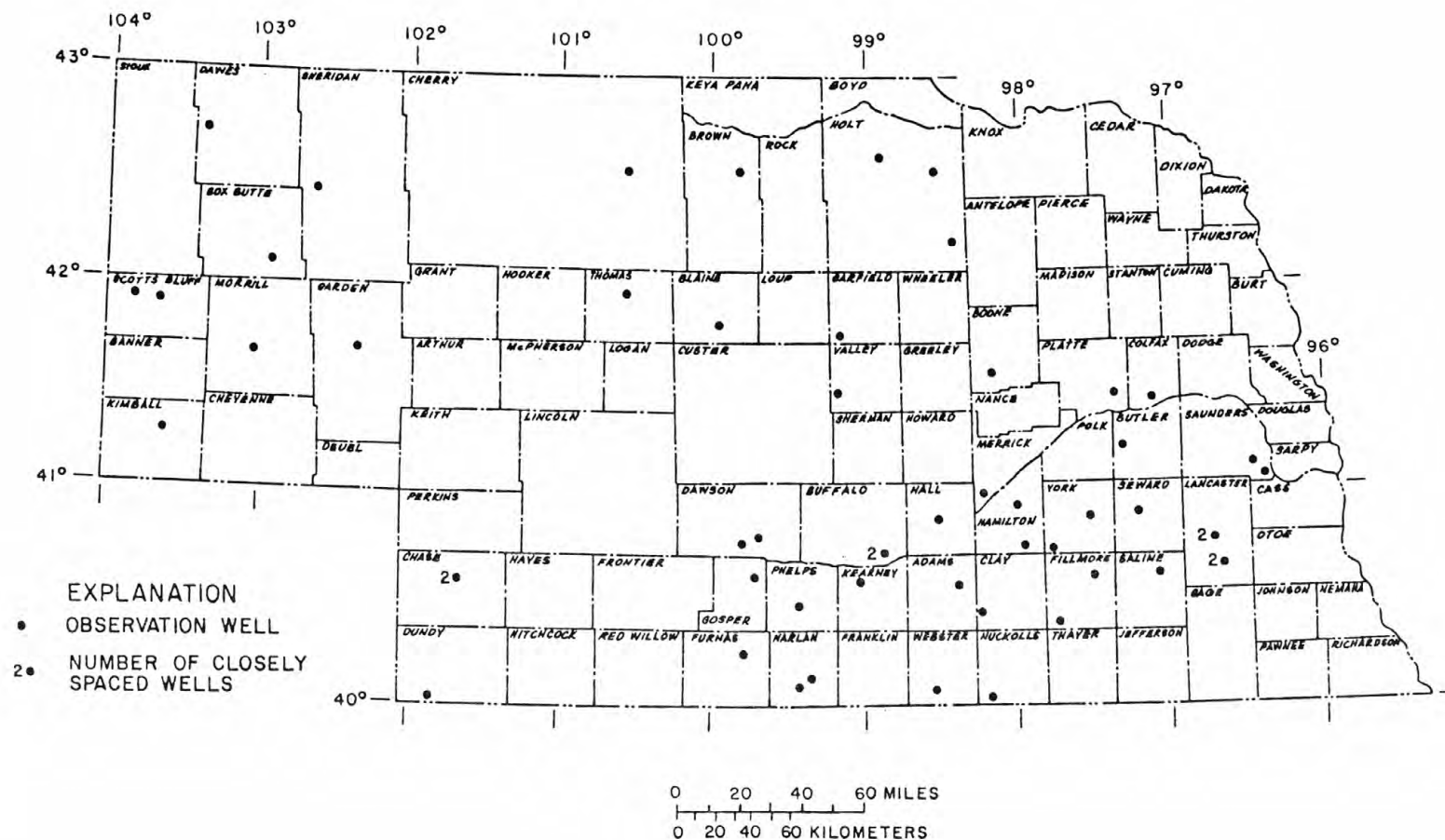


Figure 7.--Location of selected observation wells.

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 the graph or punched tape of a water-stage recorder. 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 emerged 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 μ m 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 μ m 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 μ m 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 hierarchical 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.....	Hexagenia
Species.....	Hexagenia limbata

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."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 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.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3. Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 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 Colclester	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	Minnechadua 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 Lemoyme	13.9	1932-37
6890	North Platte River at Lemoyme		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
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	1060	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
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, 1989

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

37

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: Nov. 28, Dec. 9, 16, 17, 24-28, Jan. 2, 7-9, 12-16, 20, 26, 27, Feb. 1-14, 16-19, and Mar. 2-7. 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.--54 years, 20.2 ft³/s, 14,630 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)
Aug. 19	1130	166	3.24	Sept. 21	0330	*185	*3.62

Minimum daily discharge, 6.5 ft³/s July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	17	21	19	20	23	23	19	12	8.2	8.4
2	14	17	17	20	18	20	22	22	18	11	8.1	8.6
3	14	17	17	19	19	19	20	22	18	9.6	8.3	8.6
4	14	17	17	19	20	18	20	22	19	9.6	8.1	8.3
5	14	17	17	20	21	18	20	22	18	9.1	8.1	8.1
6	14	17	17	20	19	25	20	21	16	7.9	8.7	7.7
7	14	18	17	19	19	26	20	21	16	7.3	9.9	7.9
8	14	17	17	20	18	26	21	21	16	6.9	9.7	12
9	14	17	17	21	19	29	21	21	19	6.8	8.3	17
10	14	17	17	22	19	35	21	21	17	6.8	9.1	19
11	15	17	16	22	20	28	20	20	15	6.9	8.9	18
12	15	18	17	21	20	26	20	22	15	6.9	23	15
13	15	18	17	21	19	24	20	22	13	6.7	15	16
14	15	17	16	22	20	23	20	22	14	7.0	12	15
15	15	18	16	22	23	22	20	21	14	8.4	11	14
16	15	18	16	21	22	22	20	21	13	9.9	9.6	13
17	15	18	17	20	21	21	23	26	13	9.7	10	12
18	16	19	18	22	20	21	21	22	13	9.6	9.2	11
19	16	19	18	22	21	22	20	21	13	8.9	47	11
20	16	18	19	21	20	22	20	20	12	8.3	21	13
21	15	18	19	21	20	21	20	20	12	7.9	15	88
22	15	18	20	19	20	22	20	19	13	7.1	9.6	25
23	15	19	18	18	20	21	20	18	13	6.7	9.5	17
24	16	18	18	19	21	22	22	17	17	6.5	8.9	15
25	16	18	18	18	21	21	19	16	19	6.5	11	14
26	16	18	18	18	21	21	21	16	18	7.2	11	14
27	16	17	17	19	20	21	26	17	17	7.1	9.8	16
28	16	18	17	20	20	20	25	17	14	7.3	9.6	15
29	16	19	16	20	---	20	22	16	14	8.7	9.3	14
30	16	17	22	20	---	22	23	19	13	8.9	8.9	14
31	16	---	23	21	---	22	---	20	---	8.5	8.3	---
TOTAL	466	531	546	628	560	700	630	628	461	251.7	364.1	475.6
MEAN	15.0	17.7	17.6	20.3	20.0	22.6	21.0	20.3	15.4	8.12	11.7	15.9
MAX	16	19	23	22	23	35	26	26	19	12	47	88
MIN	14	17	16	18	18	18	19	16	12	6.5	8.1	7.7
AC-FT	924	1050	1080	1250	1110	1390	1250	1250	914	499	722	943

CAL YR 1988 TOTAL 6984.3 MEAN 19.1 MAX 52 MIN 6.6 AC-FT 13850
WTR YR 1989 TOTAL 6241.4 MEAN 17.1 MAX 88 MIN 6.5 AC-FT 12380

PONCA CREEK BASIN

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. 27 to Mar. 14. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years, 47.0 ft³/s, 34,050 acre-ft/yr; median of yearly mean discharge, 34 ft³/s, 24,600 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.

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)
Mar. 10	2345	(a)	*5.70	No peaks greater than base discharge.			
Mar. 12	----	*290	a4.73				

a Backwater from ice.

No flow for Aug. 20-25, Sept. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	8.5	6.6	3.1	1.7	9.6	47	19	6.4	12	.41	.02
2	16	8.0	7.8	3.3	2.1	8.4	42	18	7.1	6.6	.37	.0
3	13	9.4	9.0	3.5	2.1	6.0	40	18	7.5	4.2	.75	.0
4	9.4	9.5	10	3.5	1.9	3.8	35	18	5.9	3.3	.52	1.2
5	8.1	9.7	12	3.1	2.4	2.5	33	17	5.4	2.5	.32	.26
6	8.1	9.2	12	2.7	3.5	2.4	33	17	4.6	1.9	.25	.07
7	8.1	9.6	13	2.4	5.0	2.4	36	16	3.8	1.5	.32	.58
8	7.9	10	13	2.3	5.8	2.4	38	15	3.9	1.1	.14	.41
9	7.7	11	13	2.3	6.0	2.6	39	14	3.0	.73	.05	.51
10	7.1	11	14	2.3	6.0	10	34	13	2.5	.53	.03	.45
11	6.5	11	14	2.3	7.0	50	32	11	2.2	.51	.06	.47
12	6.0	15	14	2.3	9.2	240	31	11	2.6	.49	.09	.16
13	6.0	18	14	2.4	9.5	180	30	11	2.1	.95	.10	.15
14	6.2	21	15	2.4	9.4	140	30	10	2.2	4.0	.12	.14
15	5.8	18	4.5	2.5	7.8	115	20	10	2.0	67	.12	.11
16	5.6	12	4.8	2.7	4.8	86	24	11	1.8	47	.09	.11
17	5.9	12	6.9	2.8	3.3	62	29	12	1.8	19	.04	.09
18	5.9	17	10	3.0	3.4	69	26	12	1.8	8.6	.0	.08
19	6.5	12	12	3.1	3.5	65	17	14	1.4	5.0	.14	.04
20	7.5	13	11	3.2	3.5	68	25	13	1.3	3.0	.00	.08
21	7.8	10	12	3.4	3.2	48	26	12	2.1	2.3	.00	.10
22	8.4	11	7.6	2.8	3.0	66	27	10	1.1	2.1	.00	.12
23	8.1	15	4.8	2.8	7.0	82	25	9.3	.96	1.6	.00	.12
24	7.6	19	4.2	2.9	15	84	22	8.9	1.6	1.4	.00	.12
25	7.5	15	3.5	3.1	14	77	23	8.1	3.1	1.2	.00	.12
26	7.4	14	3.0	3.2	13	74	22	7.5	8.4	1.0	2.5	.11
27	7.9	11	2.6	3.4	12	75	21	7.0	14	.79	.68	.10
28	8.0	7.2	2.6	3.2	10	71	20	6.4	67	.63	.40	.10
29	8.5	5.0	2.7	2.0	---	61	21	6.6	62	1.9	.19	.11
30	8.2	5.8	2.8	1.4	---	59	20	6.4	32	.78	.07	.10
31	8.3	---	3.0	1.5	---	50	---	6.8	---	.50	.04	---
TOTAL	262.0	357.9	265.4	84.9	175.1	1872.1	868	369.0	261.56	204.11	7.80	6.03
MEAN	8.45	11.9	8.56	2.74	6.25	60.4	28.9	11.9	8.72	6.58	.25	.20
MAX	27	21	15	3.5	15	240	47	19	67	67	2.5	1.2
MIN	5.6	5.0	2.6	1.4	1.7	2.4	17	6.4	.96	.49	.00	.00
AC-FT	520	710	526	168	347	3710	1720	732	519	405	15	12

CAL YR 1988 TOTAL 30499.74 MEAN 83.3 MAX 1500 MIN .82 AC-FT 60500
WTR YR 1989 TOTAL 4733.90 MEAN 13.0 MAX 240 MIN .00 AC-FT 9390

PONCA CREEK BASIN

39

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. 28 to Mar. 22. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--32 years, 79.3 ft³/s, 57,450 acre-ft/yr; median of yearly mean discharges, 62 ft³/s, 44,900 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)
Mar. 11	1530	(a)	*11.06	No peaks greater than base discharge.			
Sept. 26	1000	*753	6.04				

a Ice jam.

No flow Aug. 4, 6, 7, 9, 12, 14-18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	19	25	9.4	10	14	70	32	14	33	.39	3.1
2	33	18	25	8.8	8.0	12	65	31	12	22	.26	2.7
3	31	18	27	9.2	6.0	9.8	62	30	12	14	.05	2.4
4	25	18	24	11	6.4	7.6	57	31	12	8.6	.00	2.6
5	21	18	23	13	7.0	7.4	53	32	10	5.3	.08	2.2
6	18	19	24	9.0	7.8	8.0	51	31	8.7	3.1	.00	2.3
7	17	19	26	7.4	8.6	14	53	30	7.7	1.8	.00	2.3
8	16	18	18	7.0	9.0	33	51	29	7.5	1.3	.04	2.1
9	16	19	16	7.2	9.8	90	51	26	7.1	.82	.00	2.6
10	16	19	15	8.6	10	270	51	24	7.1	.21	.12	2.5
11	15	20	16	9.0	11	600	50	23	7.4	.20	.08	2.8
12	14	24	18	10	11	480	46	22	7.1	.20	.00	2.5
13	15	25	17	12	11	380	44	21	5.9	.16	.01	2.6
14	15	25	13	12	10	320	42	20	5.3	2.4	.00	2.6
15	14	27	11	11	11	210	40	19	5.8	13	.00	2.5
16	15	27	10	14	11	140	40	19	5.2	12	.00	2.4
17	16	24	11	13	11	100	36	20	6.3	34	.00	2.1
18	16	25	13	13	9.6	70	40	24	8.7	27	.00	1.8
19	13	26	15	12	8.0	110	40	24	5.5	18	.08	1.5
20	12	25	13	12	8.6	100	39	21	3.7	12	.51	1.8
21	25	22	14	13	9.2	130	34	20	2.6	8.6	5.9	2.1
22	20	24	15	14	9.8	190	38	21	1.9	6.1	1.2	1.6
23	18	24	13	15	7.6	136	35	26	1.6	4.6	.95	1.6
24	18	26	11	15	7.1	125	35	18	4.4	3.8	.92	1.7
25	19	29	10	15	13	116	34	15	6.9	2.1	1.3	1.6
26	21	35	11	14	20	106	33	14	31	1.8	314	1.5
27	19	30	9.0	14	18	100	33	13	18	.97	54	1.6
28	17	40	8.0	15	16	100	32	12	14	.37	13	1.5
29	16	35	7.6	15	---	92	31	12	12	1.7	7.3	1.5
30	18	28	9.2	14	---	82	33	11	41	2.1	4.8	1.6
31	19	---	10	13	---	76	---	14	---	1.3	3.7	---
TOTAL	576	726	477.8	365.6	285.5	4228.8	1319	685	292.4	242.53	408.69	63.7
MEAN	18.6	24.2	15.4	11.8	10.2	136	44.0	22.1	9.75	7.82	13.2	2.12
MAX	33	40	27	15	20	600	70	32	41	34	314	3.1
MIN	12	18	7.6	7.0	6.0	7.4	31	11	1.6	.16	.00	1.5
AC-FT	1140	1440	948	725	566	8390	2620	1360	580	481	811	126

CAL YR 1988 TOTAL 38884.6 MEAN 106 MAX 1700 MIN 1.1 AC-FT 77130
WTR YR 1989 TOTAL 9671.02 MEAN 26.5 MAX 600 MIN .00 AC-FT 19180

NIOBRARA RIVER BASIN

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: Jan. 7-14, Jan. 18 to Feb. 7, and Feb. 23 to Mar. 5. Records good. Diversions for irrigation of about 4,700 acres above station.

AVERAGE DISCHARGE.--34 years, 3.72 ft³/s, 2,700 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. 4	0330	(a)	*2.95	No other peak greater than base discharge.			
Mar. 14	1015	*24	2.61				

a Backwater from ice.

Minimum daily discharge, 1.2 ft³/s July 26, Aug. 2, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	1.9	2.2	2.0	1.8	1.6	4.7	3.0	2.7	1.5	1.3	1.3
2	1.6	1.9	2.1	2.1	1.8	3.0	4.7	3.1	2.5	1.4	1.2	1.3
3	1.6	1.9	2.1	2.0	1.8	2.5	4.5	3.3	2.6	1.4	1.3	1.3
4	1.6	2.0	2.1	1.9	1.8	2.0	4.2	3.4	2.8	1.4	1.4	1.3
5	1.6	1.9	2.1	2.0	1.5	2.5	3.9	3.5	2.8	1.3	1.3	1.3
6	1.6	2.0	2.1	1.9	2.1	3.2	3.8	3.0	2.7	1.4	1.4	1.3
7	1.6	2.0	2.1	1.9	3.0	3.5	3.8	3.0	2.7	1.4	1.3	1.2
8	1.6	1.9	2.1	1.9	2.4	4.2	4.2	3.0	2.9	1.4	1.3	2.2
9	1.6	2.0	2.0	1.9	2.4	4.7	4.2	3.0	2.8	1.4	1.3	2.9
10	1.6	2.0	2.0	1.9	2.4	5.8	4.0	2.9	2.6	1.4	1.3	4.2
11	1.6	2.1	2.1	1.8	2.4	6.6	3.8	2.8	2.5	1.4	1.9	2.7
12	1.6	2.2	2.1	1.8	2.4	7.2	3.9	3.4	2.3	1.4	2.5	2.5
13	1.5	2.1	2.1	1.8	2.4	7.1	3.9	4.2	2.4	1.5	2.3	2.4
14	1.5	2.1	2.0	1.8	2.4	8.0	3.7	3.9	2.2	2.2	1.9	2.3
15	1.6	2.2	2.0	1.8	2.4	5.5	3.5	4.8	2.1	1.9	1.5	2.2
16	1.6	2.3	2.0	2.0	2.4	5.9	3.2	4.8	2.1	1.8	1.4	2.1
17	1.6	2.3	2.0	2.3	2.4	4.4	3.2	4.2	2.0	2.0	1.5	2.0
18	1.6	2.3	2.0	2.1	2.4	4.2	3.2	3.6	2.0	1.6	1.7	1.9
19	1.6	2.3	2.0	2.1	2.4	4.1	3.0	3.0	2.0	1.5	1.6	1.9
20	1.7	2.2	2.0	2.1	2.4	4.3	3.0	2.7	2.0	1.4	1.4	2.8
21	1.6	2.2	2.0	2.0	2.4	4.6	3.0	2.7	2.0	1.4	1.5	5.8
22	2.1	2.2	1.9	2.0	2.4	4.8	3.0	2.7	2.0	1.3	1.6	3.0
23	2.7	2.3	1.9	2.0	2.4	4.7	3.0	2.5	2.0	1.3	1.5	2.6
24	2.9	2.3	1.9	1.9	2.4	4.9	2.9	2.4	2.4	1.3	1.5	2.4
25	3.2	2.2	2.0	1.9	2.3	4.9	2.9	2.4	2.1	1.3	1.4	2.3
26	3.5	2.2	2.1	1.9	2.3	4.7	2.8	2.4	2.1	1.2	1.3	2.2
27	2.3	2.2	2.1	1.9	2.2	5.2	3.0	2.4	1.7	1.3	1.4	2.2
28	1.8	2.2	2.1	1.9	2.2	5.2	2.9	2.4	1.6	1.3	1.4	2.3
29	2.0	2.2	2.1	1.9	---	4.6	3.0	2.4	1.6	1.2	1.5	2.3
30	2.0	2.2	2.1	1.9	---	5.0	3.2	2.9	1.5	1.3	1.4	2.2
31	2.0	---	2.1	1.8	---	4.9	---	3.0	---	1.3	1.3	---
TOTAL	58.1	63.8	63.5	60.2	63.6	143.8	106.1	96.8	67.7	44.9	46.6	68.4
MEAN	1.87	2.13	2.05	1.94	2.27	4.64	3.54	3.12	2.26	1.45	1.50	2.28
MAX	3.5	2.3	2.2	2.3	3.0	8.0	4.7	4.8	2.9	2.2	2.5	5.8
MIN	1.5	1.9	1.9	1.8	1.5	1.6	2.8	2.4	1.5	1.2	1.2	1.2
AC-FT	115	127	126	119	126	285	210	192	134	89	92	136

CAL YR 1988 TOTAL 984.64 MEAN 2.69 MAX 12 MIN .66 AC-FT 1950
WTR YR 1989 TOTAL 883.5 MEAN 2.42 MAX 8.0 MIN 1.2 AC-FT 1750

NIOBRARA RIVER BASIN

41

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.--32 years, 13.7 ft³/s, 9,930 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. 13	1230	*35	*4.37	No other peak greater than base discharge.			
Minimum daily discharge, 3.4 ft ³ /s July 10.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	7.5	13	12	14	16	17	8.2	10	5.5	4.0	4.6
2	7.2	7.4	14	13	11	14	16	7.9	10	5.5	4.0	4.8
3	6.6	7.4	14	13	11	12	16	7.7	9.7	5.1	3.9	4.9
4	6.5	7.6	14	13	12	7.4	15	7.9	9.9	5.1	3.6	5.0
5	5.0	8.1	13	13	11	11	15	7.4	9.3	4.4	3.9	5.0
6	4.7	7.1	13	13	11	12	15	6.2	9.3	4.2	4.1	5.2
7	4.9	7.4	14	13	8.7	13	15	6.8	9.8	4.1	4.1	5.4
8	4.6	8.3	12	8.7	10	14	15	6.4	9.6	3.9	3.9	6.1
9	4.5	8.1	12	9.5	11	22	15	6.1	10	3.7	4.0	7.5
10	4.5	8.6	15	10	11	25	15	5.9	9.3	3.4	4.4	8.8
11	4.5	8.8	16	11	12	25	15	6.1	8.3	3.7	4.5	8.9
12	4.6	8.2	15	11	12	29	15	7.6	8.1	3.5	5.3	8.0
13	4.6	7.7	15	11	12	32	15	7.7	7.7	4.2	5.7	7.9
14	5.0	7.8	15	11	13	27	14	7.8	7.9	4.6	5.4	7.9
15	5.1	11	12	11	13	25	13	8.6	7.8	4.6	6.2	7.7
16	5.3	13	13	11	12	24	14	8.6	7.5	4.9	6.7	7.5
17	5.4	14	13	11	13	22	13	9.5	7.2	6.2	6.4	7.2
18	5.5	14	15	12	12	20	9.4	13	6.9	5.6	5.8	7.0
19	5.6	14	16	12	13	21	11	14	6.2	5.2	4.9	7.1
20	5.8	13	16	12	13	21	9.2	14	5.8	5.0	5.0	7.8
21	5.9	13	15	12	13	20	8.5	13	5.6	5.0	5.5	9.9
22	6.2	13	15	13	13	20	9.1	12	5.8	4.6	4.8	11
23	6.1	14	12	13	14	19	9.9	12	6.1	4.1	4.5	9.0
24	6.2	14	13	13	14	20	11	11	8.0	4.1	4.3	8.7
25	6.3	14	14	13	17	19	9.2	10	8.4	4.5	4.3	8.4
26	6.3	13	11	13	17	19	8.9	9.8	7.3	4.7	4.5	8.2
27	6.4	6.9	11	13	17	18	10	9.5	6.8	4.6	4.9	8.0
28	6.5	9.9	11	13	16	18	9.5	9.2	6.4	4.8	5.0	8.0
29	6.6	14	11	13	---	18	8.5	9.4	5.6	5.1	4.9	8.0
30	6.8	14	11	13	---	18	9.1	9.6	5.5	5.0	4.7	7.9
31	7.3	---	12	15	---	17	---	10	---	4.3	4.5	---
TOTAL	178.7	314.8	416	375.2	356.7	598.4	376.3	282.9	235.8	143.2	147.7	221.4
MEAN	5.76	10.5	13.4	12.1	12.7	19.3	12.5	9.13	7.86	4.62	4.76	7.38
MAX	8.2	14	16	15	17	32	17	14	10	6.2	6.7	11
MIN	4.5	6.9	11	8.7	8.7	7.4	8.5	5.9	5.5	3.4	3.6	4.6
AC-FT	354	624	825	744	708	1190	746	561	468	284	293	439
CAL YR 1988	TOTAL 4744.7 MEAN 13.0 MAX 57 MIN 4.5 AC-FT 9410											
WTR YR 1989	TOTAL 3647.1 MEAN 9.99 MAX 32 MIN 3.4 AC-FT 7230											

NIOBRARA RIVER BASIN

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: Nov. 10-16, Dec. 8-23, Dec. 26 to Jan. 17, Feb. 1-10, 14-17, and Mar. 2-6. Records good except for periods of estimated record, which are poor. Diversions for irrigation of about 12,800 acres above station.

AVERAGE DISCHARGE.--43 years, 29.1 ft³/s, 21,080 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)
Mar. 4	0345	(a)	*4.68	No peaks greater than base discharge.			
Mar. 12	0500	*59	3.69				

a Backwater from ice.

Minimum daily discharge, 4.7 ft³/s July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	18	21	19	17	31	39	25	8.8	8.4	6.6	7.6
2	10	20	22	19	15	28	37	24	9.5	8.1	6.1	7.9
3	11	20	24	19	15	21	36	22	11	8.0	6.6	8.4
4	12	19	24	20	14	20	35	17	13	7.3	6.6	7.8
5	12	19	25	22	14	19	35	13	18	6.8	6.0	6.9
6	15	18	26	22	16	22	35	15	15	7.0	6.8	5.9
7	15	18	27	21	18	23	36	15	16	7.0	7.9	7.8
8	13	19	26	19	19	24	36	15	15	6.6	6.8	9.9
9	15	19	26	18	19	29	38	13	9.3	6.4	6.8	12
10	22	19	25	19	20	35	39	13	10	5.7	6.9	13
11	18	19	25	20	20	50	40	13	10	4.7	7.7	13
12	17	19	25	19	21	57	39	13	11	5.1	9.1	12
13	17	19	26	18	22	54	38	13	12	5.7	10	12
14	18	18	25	18	22	52	37	15	9.9	6.9	9.5	12
15	17	18	24	18	22	48	37	14	12	7.5	8.4	12
16	17	18	25	19	22	51	36	14	9.2	7.3	8.2	11
17	16	19	25	19	22	45	37	17	8.2	8.7	8.9	8.4
18	16	19	25	19	21	44	36	18	13	9.0	9.0	9.2
19	17	20	25	21	22	44	34	17	11	9.5	9.9	7.8
20	20	21	25	21	23	44	34	15	11	9.6	10	9.0
21	19	20	24	21	24	41	32	14	11	8.9	10	11
22	19	21	22	21	24	40	31	13	11	8.5	8.5	11
23	17	22	22	21	25	38	28	12	11	8.3	7.4	12
24	17	23	24	22	27	39	25	13	11	8.1	8.4	11
25	17	23	22	21	29	39	23	12	11	7.9	8.9	11
26	17	23	20	21	30	39	22	11	11	6.7	9.5	11
27	17	20	18	19	30	39	22	11	9.7	6.9	10	11
28	17	21	16	19	31	39	23	10	9.0	6.0	9.7	17
29	17	22	16	19	---	39	26	10	8.6	5.6	9.0	13
30	18	23	18	19	---	42	27	9.9	7.9	6.3	8.7	13
31	18	---	18	19	---	41	---	10	---	6.6	8.1	---
TOTAL	501	597	716	612	604	1177	993	446.9	334.1	225.1	256.0	314.6
MEAN	16.2	19.9	23.1	19.7	21.6	38.0	33.1	14.4	11.1	7.26	8.26	10.5
MAX	22	23	27	22	31	57	40	25	18	9.6	10	17
MIN	10	18	16	18	14	19	22	9.9	7.9	4.7	6.0	5.9
AC-FT	994	1180	1420	1210	1200	2330	1970	886	663	446	508	624

CAL YR 1988 TOTAL 8873.6 MEAN 24.2 MAX 84 MIN 7.0 AC-FT 17600
WTR YR 1989 TOTAL 6776.7 MEAN 18.6 MAX 57 MIN 4.7 AC-FT 13440

NIOBRARA RIVER BASIN

43

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, 12,180 acre-ft May 30, elevation, 3,992.09 ft; minimum observed, 640 acre-ft Aug. 16, elevation, 3,969.00 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet) ^{a/}	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,976.78	2,380	-
Oct. 31	3,979.63	3,540	+1,160
Nov. 30	3,982.05	4,780	+1,240
Dec. 31	3,984.59	6,240	+1,460
CAL YR 1988	-	-	-280
Jan. 31	3,986.08	7,200	+960
Feb. 28	3,987.62	8,320	+1,120
Mar. 31	3,990.40	10,620	+2,300
Apr. 30	3,991.90	12,000	+1,380
May 31	3,992.09	12,190	+190
June 30	3,989.10	9,500	-2,690
July 31	3,976.10	2,170	-7,330
Aug. 31	3,973.05	1,390	-780
Sept. 30	3,975.52	2,000	+610
WTR YR 1989	-	-	-380

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

NIOBRARA RIVER BASIN

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: Jan. 7. Records good. Flow completely regulated by Box Butte Reservoir (station 06455000).

AVERAGE DISCHARGE.--43 years, 25.0 ft³/s, 18,100 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, 198 ft³/s July 9, gage height, 4.33 ft; minimum daily, 0.62 ft³/s Sept. 26, 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.74	.67	.68	.67	.78	.90	.92	.91	136	99	1.2
2	.72	.72	.67	.68	.69	.78	.89	.90	.88	146	80	1.5
3	.75	.72	.67	.68	.68	.79	.86	.90	.90	155	80	1.2
4	.75	.70	.67	.68	.70	.84	.87	.94	.90	151	76	1.1
5	.69	.70	.67	.68	.72	.82	.89	.94	.92	150	54	.96
6	.70	.71	.67	.68	.69	.81	.89	.95	.92	160	46	.89
7	.76	.72	.67	.68	.68	.81	.87	.93	.91	171	33	.93
8	.74	.70	.67	.68	.68	.80	.91	.90	.92	169	25	1.0
9	.72	.70	.67	.68	.68	.84	.88	.89	.93	178	24	1.1
10	.72	.71	.68	.68	.69	.84	.90	.89	.93	184	21	1.1
11	.77	.72	.68	.68	.72	.84	.89	.90	.92	177	18	1.1
12	.73	.72	.68	.68	.71	.84	.87	.91	2.3	174	17	.94
13	.73	.72	.69	.68	.68	.87	.87	.93	5.4	171	16	.73
14	.72	.72	.68	.68	.68	.85	.87	.93	5.5	161	15	.70
15	.68	.70	.68	.67	.68	.84	.89	.93	5.5	48	14	.69
16	.70	.70	.68	.68	.68	.82	.90	.93	5.5	.70	8.5	.68
17	.70	.72	.68	.68	.68	.87	.92	.95	5.5	.67	.66	.67
18	.77	.73	.68	.68	.72	.86	.90	.93	5.4	.64	.65	.67
19	.75	.75	.68	.68	.72	.85	.90	.90	5.4	16	.64	.67
20	.76	.76	.68	.68	.72	.87	.89	.91	5.4	58	.64	.70
21	.74	.75	.69	.70	.69	.86	.89	.91	5.4	110	.64	.71
22	.75	.72	.72	.71	.71	.85	.90	.89	2.9	129	.63	.68
23	.71	.70	.71	.70	.72	.86	.89	.88	.95	136	.64	.68
24	.73	.68	.68	.72	.72	.85	.90	.88	34	145	.65	.66
25	.77	.67	.68	.69	.74	.85	.90	.87	125	137	.66	.69
26	.73	.68	.68	.68	.76	.85	.91	.87	123	131	.64	.62
27	.69	.74	.68	.68	.77	.85	.94	.87	118	132	.65	.63
28	.76	.70	.67	.68	.75	.85	.92	.87	120	131	.65	.62
29	.78	.68	.67	.67	---	.87	.93	.88	125	125	.64	.62
30	.75	.68	.67	.69	---	.92	.93	.90	132	116	.64	.64
31	.77	---	.68	.69	---	.92	---	.95	---	106	.64	---
TOTAL	22.76	21.36	21.05	21.20	19.73	26.15	26.87	28.15	842.19	3805.01	636.17	25.08
MEAN	.73	.71	.68	.68	.70	.84	.90	.91	28.1	123	20.5	.84
MAX	.78	.76	.72	.72	.77	.92	.94	.95	132	184	99	1.5
MIN	.68	.67	.67	.67	.67	.78	.86	.87	.88	.64	.63	.62
AC-FT	45	42	42	42	39	52	53	56	1670	7550	1260	50

CAL YR 1988 TOTAL 7030.76 MEAN 19.2 MAX 163 MIN .54 AC-FT 13950
WTR YR 1989 TOTAL 5495.72 MEAN 15.1 MAX 184 MIN .62 AC-FT 10900

NIOBRARA RIVER BASIN

45

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: Dec. 27 to Feb. 24, and Mar. 1-10. 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.--43 years, (water years 1947-89) 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, 351 ft³/s Sept. 20, gage height, 1.95 ft; maximum recorded gage height, 2.78 ft on Mar. 9, backwater from ice; minimum daily discharge, 33 ft³/s Dec. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	96	96	116	80	86	144	108	83	69	59	55
2	89	95	97	116	90	88	128	97	80	73	54	58
3	87	95	96	116	92	90	111	89	77	68	54	57
4	83	94	104	118	98	92	111	90	81	73	49	54
5	86	92	106	118	100	100	108	90	78	67	42	55
6	88	94	105	116	114	116	103	89	75	66	46	52
7	90	93	113	118	120	120	103	90	76	66	49	56
8	90	94	104	110	120	125	104	87	78	61	51	58
9	89	93	130	120	125	130	104	86	84	59	51	75
10	89	96	150	125	130	100	103	83	81	53	54	94
11	88	95	101	122	130	89	105	82	79	55	52	88
12	89	97	114	122	130	87	103	81	75	54	55	82
13	90	96	104	122	130	91	100	87	73	60	65	82
14	89	95	95	122	130	90	100	91	75	64	62	87
15	89	94	93	122	130	83	101	96	76	64	59	86
16	91	95	89	122	130	83	102	102	75	78	58	83
17	89	95	102	126	130	75	109	194	74	95	55	79
18	91	94	117	124	130	76	109	124	74	79	51	73
19	92	96	108	122	130	80	109	94	70	70	84	71
20	92	92	104	122	130	87	103	88	66	63	64	120
21	92	91	101	122	135	88	101	87	66	62	60	153
22	91	91	93	118	135	94	99	84	67	64	53	99
23	89	93	96	112	140	96	99	83	72	63	48	90
24	90	94	104	108	125	103	94	79	77	63	45	86
25	91	94	105	100	88	117	105	76	79	60	55	86
26	91	94	86	106	83	116	107	76	73	58	60	86
27	93	93	33	110	80	119	105	77	75	58	58	81
28	92	97	112	108	82	119	106	79	71	58	58	77
29	94	101	114	100	---	122	112	76	68	59	56	80
30	95	95	118	106	---	125	110	73	69	59	64	79
31	96	---	116	90	---	130	---	82	---	61	55	---
TOTAL	2797	2834	3206	3579	3237	3117	3198	2820	2247	2002	1726	2382
MEAN	90.2	94.5	103	115	116	101	107	91.0	74.9	64.6	55.7	79.4
MAX	96	101	150	126	140	130	144	194	84	95	84	153
MIN	83	91	33	90	80	75	94	73	66	53	42	52
AC-FT	5550	5620	6360	7100	6420	6180	6340	5590	4460	3970	3420	4720

CAL YR 1988 TOTAL 40326 MEAN 110 MAX 332 MIN 33 AC-FT 79990
WTR YR 1989 TOTAL 33145 MEAN 90.8 MAX 194 MIN 33 AC-FT 65740

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. 16, 25-30, Jan. 9, 10, Feb. 2-12, and Mar. 3-8. 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, 277 ft³/s Aug. 12, gage height, 1.82 ft; maximum gage height, 3.23 ft Mar. 4, backwater from ice; minimum daily discharge, 100 ft³/s Feb. 2.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190	163	177	160	148	151	187	157	148	145	132	194
2	192	166	182	157	100	158	188	158	151	149	134	175
3	188	163	177	169	105	140	178	157	146	149	140	175
4	175	161	177	175	115	120	169	156	146	156	133	173
5	174	158	176	176	120	130	175	154	150	145	130	173
6	173	157	182	173	135	150	177	154	147	132	127	171
7	181	159	177	161	150	185	175	158	146	130	128	172
8	177	157	161	135	140	210	166	156	144	129	131	173
9	177	161	144	158	150	176	166	152	145	128	133	180
10	176	160	153	187	160	210	160	147	147	124	139	193
11	173	163	156	169	175	223	161	148	150	126	139	193
12	174	171	157	166	200	209	164	147	143	130	191	188
13	177	171	162	160	167	193	166	162	138	133	201	177
14	179	171	160	160	164	163	164	164	137	153	169	176
15	174	160	152	147	164	154	161	160	143	150	159	179
16	179	154	148	157	174	154	163	160	143	140	159	178
17	175	161	155	158	184	138	165	165	142	145	162	177
18	170	163	165	162	197	130	164	182	143	141	155	170
19	170	167	166	160	204	157	166	165	145	141	171	171
20	171	165	161	159	197	164	163	158	146	138	167	177
21	170	165	158	164	197	159	160	153	136	134	167	207
22	171	167	163	168	207	165	160	151	133	133	162	189
23	166	165	151	158	204	167	160	153	136	130	159	173
24	144	163	149	153	217	169	161	149	140	131	157	173
25	147	154	158	154	221	170	159	141	146	128	162	172
26	153	163	167	146	207	173	159	135	146	126	160	165
27	156	153	132	148	190	172	161	142	145	127	157	161
28	142	148	145	146	164	177	149	149	142	129	168	161
29	153	170	174	150	---	173	146	150	144	141	165	160
30	162	175	174	154	---	172	153	144	145	139	185	161
31	163	---	163	153	---	180	---	144	---	137	226	---
TOTAL	5272	4874	5022	4943	4756	5192	4946	4771	4313	4239	4868	5287
MEAN	170	162	162	159	170	167	165	154	144	137	157	176
MAX	192	175	182	187	221	223	188	182	151	156	226	207
MIN	142	148	132	135	100	120	146	135	133	124	127	160
AC-FT	10460	9670	9960	9800	9430	10300	9810	9460	8550	8410	9660	10490
CAL YR 1988	TOTAL	63521	MEAN	174	MAX	289	MIN	79	AC-FT	126000		
WTR YR 1989	TOTAL	58483	MEAN	160	MAX	226						

NIOBRARA RIVER BASIN

47

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 June 16, elevation, 2,946.3 ft; minimum observed, 36,510 acre-ft Sept. 8, elevation, 2,929.1 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,934.8	46,810	-
Oct. 31	2,940.3	59,160	+12,350
Nov. 30	2,944.0	68,830	+9,670
Dec. 31	2,944.0	68,830	0
CAL YR 1988	-	-	0
Jan. 31	2,944.0	68,830	0
Feb. 28	2,944.0	68,830	0
Mar. 31	2,944.0	68,830	0
Apr. 30	2,944.1	69,110	+280
May 31	2,945.7	73,630	+4,520
June 30	2,946.1	74,780	+1,150
July 31	2,938.3	54,380	-20,400
Aug. 31	2,930.1	38,150	-16,230
Sept. 30	2,934.2	45,620	+7,470
WTR YR 1989	-	-	-1,190

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.

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

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

AVERAGE DISCHARGE.--26 years (1963-89), 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, 314 ft³/s Feb. 21, 22, Mar. 9, 10, 12, 14-23, gage height, 2.12 ft;
minimum daily discharge, 10 ft³/s Sept. 26, 27.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	30	224	227	217	261	246	220	28	51	25	22
2	29	30	223	227	164	227	246	184	28	48	28	22
3	29	30	223	227	142	195	247	162	28	40	25	22
4	29	31	223	242	142	195	248	163	31	40	23	22
5	29	31	223	250	196	194	246	122	35	37	23	22
6	29	31	243	250	235	192	247	95	40	28	23	22
7	29	31	254	250	236	224	248	62	41	23	23	22
8	29	31	254	250	238	246	248	35	43	23	22	22
9	29	30	254	217	238	289	216	35	50	23	22	22
10	29	31	254	199	238	311	199	34	57	23	22	23
11	29	30	254	215	238	310	228	35	64	23	22	23
12	29	31	254	238	238	310	242	35	67	23	22	22
13	29	30	254	250	238	310	242	36	70	23	23	22
14	64	30	254	250	238	312	245	36	70	23	23	22
15	87	31	254	250	238	310	246	37	75	23	23	22
16	87	30	254	250	238	312	248	37	82	23	23	22
17	153	30	254	250	238	313	250	38	77	23	23	22
18	189	35	254	250	238	311	250	38	80	23	23	22
19	189	66	254	250	238	313	253	38	81	23	23	22
20	189	82	254	250	259	314	255	38	78	23	23	23
21	154	116	250	250	312	314	263	38	70	23	23	23
22	59	136	250	250	296	314	268	37	62	23	23	23
23	31	208	250	250	250	279	273	37	56	23	23	24
24	31	250	234	249	250	254	238	36	53	23	22	25
25	31	218	223	246	285	254	216	35	51	24	22	20
26	31	199	223	246	310	254	216	34	51	24	22	10
27	31	199	204	246	310	290	216	36	57	24	22	10
28	30	199	192	246	279	310	217	32	59	24	22	11
29	30	199	192	246	---	310	216	31	61	24	22	12
30	30	213	192	246	---	271	218	30	55	24	22	12
31	30	---	213	244	---	248	---	29	---	24	22	---
TOTAL	1823	2638	7338	7511	6739	8547	7191	1855	1700	826	709	613
MEAN	58.8	87.9	237	242	241	276	240	59.8	56.7	26.6	22.9	20.4
MAX	189	250	254	250	312	314	273	220	82	51	28	25
MIN	29	30	192	199	142	192	199	29	28	23	22	10
AC-FT	3620	5230	14550	14900	13370	16950	14260	3680	3370	1640	1410	1220
CAL YR 1988	TOTAL	60140	MEAN	164	MAX	419	MIN	13	AC-FT	119300		
WTR YR 1989	TOTAL	47490	MEAN	130	MAX	314	MIN	10	AC-FT	94200		

NIOBRARA RIVER BASIN

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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.--41 years (1948-89), 25.5 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, 103 ft³/s Sept. 4, gage height, 2.33 ft; maximum gage height, 2.90 ft June 21, backwater from debris in channel caused by break in water main; minimum daily discharge, 5.5 ft³/s Oct. 8, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	30	30	25	22	27	40	38	26	9.5	21	19
2	22	28	30	24	14	21	19	32	23	17	18	5.9
3	35	26	30	24	23	22	54	30	8.0	32	29	6.4
4	31	26	29	26	26	19	37	31	19	8.2	16	51
5	29	11	29	28	24	24	28	31	34	29	6.9	38
6	29	25	29	29	23	27	45	20	24	20	9.7	19
7	27	37	29	25	23	25	33	42	24	7.8	31	20
8	5.5	28	25	13	22	29	21	28	18	8.6	18	26
9	19	27	25	13	23	40	44	38	16	10	17	6.6
10	36	26	31	22	23	50	32	27	8.0	24	15	29
11	29	13	29	25	24	52	36	26	19	21	12	31
12	30	27	26	25	25	59	31	27	37	17	7.6	26
13	29	27	31	24	26	63	33	6.2	28	7.0	8.6	28
14	26	36	30	24	26	64	32	21	24	13	22	20
15	7.1	30	28	24	26	60	36	37	18	8.3	22	25
16	24	28	23	24	27	54	31	30	13	12	20	6.9
17	35	27	27	26	27	48	28	28	8.8	35	20	16
18	33	27	31	29	22	42	32	29	16	27	16	34
19	30	14	31	29	24	46	34	29	33	7.5	8.2	23
20	28	25	30	26	26	45	32	13	15	30	8.2	26
21	28	35	29	28	29	43	31	39	18	29	21	5.5
22	10	29	30	30	30	42	17	25	20	6.3	20	31
23	25	28	25	30	26	43	42	22	15	7.6	16	13
24	35	30	22	32	31	45	26	21	5.7	28	12	25
25	31	14	21	29	35	45	28	22	13	17	12	37
26	28	43	23	24	36	45	28	22	32	15	7.1	29
27	28	13	21	28	35	44	29	5.6	21	13	7.8	27
28	23	36	22	31	31	43	40	28	22	10	17	27
29	13	36	24	30	---	43	12	11	22	5.6	17	15
30	25	31	24	30	---	44	28	32	18	7.1	17	5.7
31	38	---	24	31	---	43	---	28	---	22	5.8	---
TOTAL	796.3	813	838	808	729	1297	959	818.8	598.5	504.5	478.9	672.0
MEAN	25.7	27.1	27.0	26.1	26.0	41.8	32.0	26.4	19.9	16.3	15.4	22.4
MAX	38	43	31	32	36	64	54	42	37	35	31	51
MIN	5.5	11	21	13	14	19	12	5.6	5.7	5.6	5.8	5.5
AC-FT	1580	1610	1660	1600	1450	2570	1900	1620	1190	1000	950	1330

CAL YR 1988 TOTAL 12670.8 MEAN 34.6 MAX 109 MIN 3.4 AC-FT 25130
WTR YR 1989 TOTAL 9313.0 MEAN 25.5 MAX 64 MIN 5.5 AC-FT 18470

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 Minnehadzuza 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, Dec. 8-9, 12, 16-17, Dec. 23 to Jan. 6, Jan. 11-17, Feb. 2, 5-27, Mar. 4-9, and June 20. Records good except for for periods of estimated record, which are poor. 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.--44 years, 772 ft³/s, 559,300 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, 3,000 ft³/s Mar. 9, gage height, 5.09 ft backwater from ice; maximum gage height, 6.27 ft Mar. 8, backwater from ice; minimum daily discharge, 394 ft³/s Aug. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	538	575	777	820	803	832	898	833	547	507	440	517
2	559	579	778	860	500	800	877	817	528	514	432	465
3	572	582	773	900	432	648	883	785	517	514	527	465
4	554	585	779	960	430	720	883	799	515	508	455	593
5	548	569	771	960	550	740	848	772	541	511	429	586
6	549	574	775	900	620	740	837	696	531	492	394	457
7	555	598	803	851	700	840	845	740	530	448	426	449
8	548	583	810	841	660	1000	792	695	515	427	416	462
9	554	581	820	821	760	1200	822	669	518	419	416	459
10	577	593	789	828	820	1050	770	653	517	436	416	513
11	562	573	794	860	800	1120	738	613	555	427	455	549
12	565	612	830	880	800	1190	761	589	585	422	450	521
13	571	589	760	900	800	1090	761	602	542	409	474	513
14	575	605	804	880	780	1110	739	637	533	458	471	491
15	601	588	819	840	780	1040	729	650	524	511	466	496
16	634	619	830	800	800	1020	718	604	518	494	461	473
17	657	582	820	770	720	991	742	628	519	498	454	487
18	747	566	797	739	760	969	758	628	517	494	442	514
19	754	596	767	736	780	959	753	636	527	488	459	509
20	761	601	794	762	800	968	792	596	520	487	465	511
21	751	650	826	736	800	954	848	608	513	485	467	529
22	674	682	804	738	780	979	835	582	508	453	477	593
23	596	691	810	741	840	998	882	557	503	438	463	559
24	585	787	800	774	900	963	878	545	507	454	446	542
25	574	787	800	737	900	943	814	535	509	432	437	541
26	579	788	780	747	880	923	821	521	531	421	437	512
27	573	794	780	721	900	944	825	511	518	409	434	490
28	566	780	760	715	895	998	822	534	525	405	463	486
29	549	742	780	733	---	996	766	511	519	540	461	474
30	561	763	800	719	---	1010	805	539	517	480	457	458
31	585	---	840	734	---	929	---	546	---	449	454	---
TOTAL	18574	19214	24670	25003	20990	29664	24242	19631	15749	14430	13944	15214
MEAN	599	640	796	807	750	957	808	633	525	465	450	507
MAX	761	794	840	960	900	1200	898	833	585	540	527	593
MIN	538	566	760	715	430	648	718	511	503	405	394	449
AC-FT	36840	38110	48930	49590	41630	58840	48080	38940	31240	28620	27660	30180

CAL	YR	1988	TOTAL	281703	MEAN	770	MAX	1530	MIN	457	AC-FT	558800
WTR	YR	1989	TOTAL	241325	MEAN	661	MAX	1200	MIN	394	AC-FT	478700

NIOBRARA RIVER BASIN

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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, 33.0°C Aug. 30, 1988; minimum daily, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 276 microsiemens Feb. 3; minimum daily, 153 microsiemens Nov. 22, 26.

WATER TEMPERATURES: Maximum daily, 29.0°C July 30, Aug. 4; minimum daily, 1.0°C Mar. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 13...	1050	549	224	8.58	10.5	2	90	0	29
NOV 09...	0950	548	222	8.73	5.5	3	96	0	31
DEC 07...	0910	837	200	8.39	2.5	2	86	0	28
JAN 05...	0940	956	202	8.34	0.5	1	84	0	27
FEB 01...	1010	856	196	8.17	0.5	4	90	0	29
MAR 30...	0850	1020	205	8.48	8.5	20	90	0	29
APR 21...	0820	823	209	8.43	13.5	5	87	0	28
MAY 24...	0930	528	226	8.64	20.0	15	95	0	31
JUN 21...	0840	510	219	8.49	19.0	15	85	0	28
JUL 19...	0850	491	--	8.60	18.5	15	88	0	29
AUG 16...	0920	442	224	8.72	21.5	15	88	0	29
30...	1730	493	201	8.89	27.5	3	85	0	28

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)
OCT 13...	4.3	9.3	0.4	5.7	112	6.8	1.2	0.30	53
NOV 09...	4.5	9.2	0.4	5.6	111	6.9	1.1	0.30	53
DEC 07...	4.0	8.8	0.4	5.7	102	7.9	1.1	0.30	50
JAN 05...	4.0	9.3	0.5	5.8	100	7.6	1.1	0.30	50
FEB 01...	4.3	9.4	0.4	6.1	107	8.6	3.0	0.30	57
MAR 30...	4.2	9.7	0.5	6.9	106	9.1	1.3	0.30	51
APR 21...	4.1	9.2	0.4	6.6	104	5.7	1.1	0.40	51
MAY 24...	4.3	9.9	0.5	6.8	115	7.0	1.2	0.40	54
JUN 21...	3.7	8.7	0.4	7.0	106	6.0	1.0	0.40	54
JUL 19...	3.9	8.6	0.4	3.4	109	5.0	1.0	0.40	56
AUG 16...	3.9	8.2	0.4	6.7	108	2.0	1.1	0.40	52
30...	3.6	9.2	0.5	6.6	104	5.0	0.80	0.40	54

NIOBRARA RIVER BASIN

06461500 NIOBRARA RIVER NEAR SPARKS, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS 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 13...	179	0.24	265	0.440	0.090	0.060	20	8	3
NOV 09...	180	0.24	266	0.410	0.090	0.030	30	<3	1
DEC 07...	169	0.23	383	0.520	--	0.050	30	17	2
JAN 05...	168	0.23	433	0.600	0.130	0.070	20	35	3
FEB 01...	185	0.25	427	0.690	0.160	0.090	30	22	4
MAR 30...	176	0.24	486	0.270	0.170	0.070	20	32	3
APR 21...	169	0.23	376	0.180	0.110	0.050	30	15	2
MAY 24...	184	0.25	263	0.190	--	0.030	40	9	2
JUN 21...	174	0.24	239	0.250	0.090	0.070	30	10	3
JUL 19...	173	0.24	230	0.170	0.090	0.010	30	13	2
AUG 16...	168	0.23	201	<0.100	--	--	20	14	2
30...	171	0.23	227	0.120	0.160	0.030	30	25	2

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233	233	222	233	206	208	228	219	231	219	216	224
2	232	230	217	---	265	213	220	214	232	221	221	215
3	236	232	218	239	276	---	223	213	230	222	203	209
4	236	231	220	233	257	235	235	222	230	222	215	216
5	236	229	227	217	235	---	222	222	234	223	225	225
6	239	233	220	220	232	227	223	222	234	224	225	214
7	236	235	226	218	232	220	223	228	230	221	226	216
8	233	233	220	---	224	217	221	225	237	223	224	---
9	233	232	218	235	225	216	223	230	234	225	224	222
10	236	230	223	225	216	214	219	228	230	227	220	214
11	233	230	221	224	214	225	220	233	225	221	218	218
12	235	231	225	238	210	218	224	232	222	221	210	218
13	235	229	225	233	212	216	228	229	227	222	218	221
14	237	235	217	223	206	217	230	226	228	201	222	220
15	226	231	229	220	205	220	220	230	224	214	213	225
16	226	235	220	---	205	220	223	226	222	219	217	223
17	226	232	222	221	215	229	215	222	228	226	214	222
18	226	233	223	219	211	230	216	226	226	220	222	228
19	224	235	221	217	---	229	216	228	227	223	225	225
20	221	229	219	221	---	225	213	232	221	221	220	223
21	224	229	232	216	202	222	217	228	224	223	218	225
22	232	153	219	---	204	224	221	230	229	224	219	222
23	230	215	214	216	207	222	216	229	226	229	219	220
24	231	---	227	211	208	223	216	229	229	230	222	229
25	229	155	223	216	204	236	213	238	226	226	226	229
26	227	153	200	216	208	222	218	235	225	227	224	226
27	229	---	245	222	210	223	219	229	226	228	222	231
28	236	---	243	216	208	228	218	231	223	226	223	226
29	233	227	233	218	---	223	214	227	232	219	222	223
30	234	220	230	218	---	221	217	228	225	216	218	---
31	238	---	224	215	---	222	---	223	---	219	220	---
MEAN	232	---	223	---	---	---	220	227	228	222	220	---

NIOBRARA RIVER BASIN

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06461500 NIOBRARA RIVER NEAR SPARKS, NE--Continued

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	7.0	5.0	4.0	3.0	2.0	10.0	10.0	15.0	23.0	26.0	20.0
2	15.0	10.0	4.0	---	4.0	2.0	12.0	11.0	17.0	25.0	25.0	25.0
3	13.0	10.0	5.0	4.0	3.0	---	10.0	13.0	18.0	25.0	26.0	24.0
4	9.0	9.0	5.0	5.0	2.0	1.0	9.0	17.0	19.0	23.0	29.0	20.0
5	10.0	8.0	4.0	3.0	3.0	---	8.0	15.0	18.0	25.0	24.0	21.0
6	10.0	7.0	5.0	3.0	2.0	3.0	11.0	16.0	20.0	25.0	22.0	22.0
7	11.0	8.0	5.0	2.0	3.0	2.0	10.0	23.0	20.0	25.0	19.0	20.0
8	25.0	6.0	3.0	---	2.0	4.0	8.0	22.0	19.0	24.0	18.0	---
9	13.0	8.0	2.0	3.0	3.0	4.0	8.0	15.0	18.0	27.0	27.0	18.0
10	12.0	5.0	3.0	3.0	4.0	6.0	6.0	21.0	18.0	25.0	22.0	15.0
11	10.0	7.0	4.0	3.0	5.0	8.0	7.0	15.0	18.0	26.0	24.0	14.0
12	11.0	9.0	3.0	3.5	4.0	9.0	14.0	17.0	20.0	25.0	25.0	13.0
13	11.0	9.0	5.0	3.0	3.0	9.0	10.0	15.0	17.0	25.0	26.0	12.0
14	12.0	7.0	5.0	4.0	3.0	7.0	14.0	19.0	14.0	22.0	23.0	13.0
15	17.0	6.0	2.0	4.0	2.0	3.0	11.0	17.0	24.0	20.0	26.0	15.0
16	17.0	3.0	3.0	---	4.0	4.0	15.0	18.0	25.0	20.0	27.0	18.0
17	14.0	7.0	4.0	5.0	4.0	3.0	10.0	18.0	25.0	20.0	28.0	25.0
18	14.0	5.0	4.0	5.0	5.0	3.0	10.0	20.0	24.0	21.0	22.0	18.0
19	11.0	5.0	3.0	5.0	---	7.0	12.0	18.0	21.0	20.0	22.0	19.0
20	10.0	4.0	4.0	5.0	---	4.0	15.0	16.0	27.0	22.0	26.0	20.0
21	10.0	2.0	2.0	6.0	3.0	4.0	16.0	22.0	20.0	21.0	23.0	18.0
22	11.0	7.0	3.0	---	3.0	7.0	18.0	19.0	17.0	23.0	23.0	14.0
23	10.0	9.0	2.0	5.0	3.0	9.0	20.0	20.0	18.0	24.0	23.0	11.0
24	12.0	---	4.0	3.0	4.0	8.0	18.0	22.0	19.0	23.0	24.0	14.0
25	11.0	7.0	2.0	4.0	4.0	8.0	16.0	18.0	21.0	22.0	23.0	14.0
26	13.0	7.0	3.0	5.0	5.0	14.0	15.0	15.0	20.0	24.0	24.0	14.0
27	11.0	---	4.0	3.0	4.0	12.0	15.0	20.0	22.0	25.0	23.0	15.0
28	6.0	---	4.0	4.0	2.0	12.0	10.0	21.0	23.0	26.0	24.0	21.0
29	7.0	6.0	4.0	4.0	---	12.0	9.0	21.0	22.0	25.0	21.0	21.0
30	9.0	5.0	3.0	5.0	---	10.0	12.0	17.0	22.0	29.0	22.0	---
31	8.0	---	2.0	7.0	---	12.0	---	14.0	---	23.0	22.0	---
MEAN	11.8	---	3.6	---	---	---	12.0	17.6	20.0	23.6	23.8	---

NIOBRARA RIVER BASIN

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: Nov. 29-30, Dec. 16, Dec. 25 to Jan. 2, Jan. 8-16, Feb. 2-16, 18, 19, Mar. 1-8, and June 20-22. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years (1948-75, 1976-89), 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)
Mar. 7	1200	(a)	*4.17	No peaks greater than base discharge.			
Aug. 13	1500	*153	2.85				

a Backwater from ice.

Minimum daily discharge, 48 ft³/s Apr. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	125	123	130	115	112	130	111	119	100	100	113
2	118	124	121	128	108	98	126	113	118	100	99	111
3	113	125	115	126	100	94	122	116	121	97	107	111
4	110	125	120	127	104	92	113	117	116	94	105	107
5	111	122	128	132	108	88	111	114	108	90	99	107
6	111	122	131	140	109	90	112	112	111	91	95	109
7	103	122	131	138	113	96	113	112	108	89	95	113
8	95	124	129	126	109	110	109	114	102	86	93	109
9	108	123	128	122	111	140	103	115	99	80	91	108
10	92	123	131	128	119	133	96	111	104	77	91	112
11	72	127	131	122	118	128	101	114	105	80	92	113
12	83	133	130	122	117	121	73	108	121	81	98	111
13	92	130	136	126	116	132	48	115	112	83	113	111
14	109	126	137	123	114	131	51	126	105	94	107	109
15	113	123	130	117	113	120	78	118	106	110	108	110
16	117	124	130	110	120	120	114	119	107	105	108	109
17	117	120	129	106	140	114	120	126	106	103	108	109
18	117	120	133	104	127	110	119	134	107	106	98	108
19	114	120	135	104	130	114	115	128	104	98	103	107
20	119	116	133	109	124	109	119	112	101	89	101	108
21	119	119	135	107	124	110	123	111	105	87	102	126
22	121	120	139	111	128	121	128	107	104	89	99	116
23	120	121	135	114	130	126	130	110	99	89	99	104
24	119	121	131	118	122	128	131	107	102	89	98	102
25	119	122	129	113	122	130	127	100	112	89	100	100
26	120	120	127	113	122	133	127	103	125	84	101	100
27	124	117	125	116	122	134	125	104	118	83	99	99
28	122	116	121	114	116	137	120	107	114	84	103	99
29	122	116	127	115	---	134	111	105	110	99	102	99
30	122	114	130	118	---	137	113	109	105	114	104	99
31	125	---	133	123	---	130	---	113	---	104	103	---
TOTAL	3472	3660	4013	3702	3301	3672	3308	3511	3274	2864	3121	3239
MEAN	112	122	129	119	118	118	110	113	109	92.4	101	108
MAX	125	133	139	140	140	140	131	134	125	114	113	126
MIN	72	114	115	104	100	88	48	100	99	77	91	99
AC-FT	6890	7260	7960	7340	6550	7280	6560	6960	6490	5680	6190	6420

CAL YR 1988 TOTAL 70980 MEAN 194 MAX 915 MIN 72 AC-FT 140800
WTR YR 1989 TOTAL 41137 MEAN 113 MAX 140 MIN 48 AC-FT 81600

NIORRARA RIVER BASIN

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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.--10 years, 102 ft³/s, 73,900 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)
Mar. 10	1730	*127	*1.28	No peaks greater than base discharge.			
Minimum daily discharge, 81 ft ³ /s Aug. 10.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	106	105	104	104	101	101	101	101	93	85	88
2	93	106	107	104	112	101	100	101	101	92	86	86
3	93	105	103	103	114	101	101	101	104	92	89	90
4	91	105	103	102	110	95	99	103	100	93	87	91
5	95	104	103	103	108	97	99	101	98	91	90	93
6	97	105	104	103	105	97	99	102	96	91	86	94
7	98	105	104	100	105	98	101	101	99	91	84	97
8	100	103	103	100	105	100	100	103	100	91	85	96
9	99	105	103	102	105	105	97	102	101	90	84	96
10	99	105	102	103	104	120	99	102	102	88	81	98
11	101	106	102	104	104	117	100	102	100	89	83	97
12	102	110	103	105	104	113	100	100	99	89	82	95
13	103	109	105	105	105	111	99	101	98	89	84	96
14	104	107	104	107	105	116	99	101	97	92	85	97
15	104	106	104	106	105	107	100	102	98	106	88	99
16	105	107	104	106	104	109	100	104	95	98	91	98
17	105	108	104	107	104	105	99	104	95	96	88	98
18	106	105	104	106	101	104	101	104	97	98	85	98
19	105	106	104	106	101	104	101	104	95	95	91	98
20	106	105	104	105	102	103	101	103	92	92	87	97
21	107	107	103	105	102	104	100	104	90	89	86	95
22	106	106	103	105	101	107	101	98	90	87	88	96
23	104	107	101	104	100	107	102	97	91	87	90	94
24	104	106	102	105	102	107	102	94	93	88	88	95
25	105	104	100	105	103	105	101	94	102	89	87	93
26	106	106	101	106	104	104	101	95	104	88	89	93
27	104	105	100	107	103	104	102	97	97	85	91	95
28	103	105	102	106	102	104	101	100	96	83	93	95
29	104	106	102	106	---	103	101	100	96	88	90	93
30	104	105	104	106	---	101	101	101	97	87	91	93
31	106	---	103	110	---	102	---	102	---	87	91	---
TOTAL	3157	3175	3196	3246	2924	3252	3008	3124	2924	2814	2705	2844
MEAN	102	106	103	105	104	105	100	101	97.5	90.8	87.3	94.8
MAX	107	110	107	110	114	120	102	104	104	106	93	99
MIN	91	103	100	100	100	95	97	94	90	83	81	86
AC-FT	6260	6300	6340	6440	5800	6450	5970	6200	5800	5580	5370	5640
CAL YR 1988	TOTAL 41045	MEAN 112	MAX 350	MIN 89	AC-FT 81410							
WTR YR 1989	TOTAL 36369	MEAN 99.6	MAX 120	MIN 81	AC-FT 72140							

NIOBRARA RIVER BASIN

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.

REVISD 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: Jan. 8, Feb. 2-5, and Mar. 3-6. Records good, except for periods of estimated record, which are fair. Flow includes return water from Ainsworth Irrigation District since 1965.

AVERAGE DISCHARGE.--40 years (1948-53, 1954-89), 146 ft³/s, 105,800 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)
Jan. 8	0930	(a)	*5.49	No peaks greater than base discharge.			
Mar. 11	1200	*261	3.44				

a Backwater from ice.

Minimum daily discharge, 138 ft³/s June 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	176	171	157	160	166	186	164	162	156	155	159
2	183	174	170	161	156	161	183	161	160	149	152	157
3	179	175	169	165	152	160	180	161	161	144	168	180
4	175	176	168	164	161	160	178	166	154	150	156	173
5	172	175	168	166	171	168	178	159	153	152	162	172
6	172	177	171	167	176	177	178	157	158	154	171	165
7	171	174	171	162	173	197	178	157	161	159	172	166
8	171	173	169	159	168	200	176	159	155	153	172	175
9	169	171	168	162	168	210	174	157	153	147	156	186
10	169	175	168	162	174	232	171	186	151	143	161	182
11	165	178	170	161	175	248	171	188	154	140	167	185
12	166	174	170	159	172	236	170	179	157	143	164	185
13	167	175	171	160	172	220	169	181	153	142	167	180
14	168	174	172	161	170	222	166	168	152	154	166	175
15	169	177	170	161	168	202	166	172	155	174	163	168
16	170	177	167	161	168	205	167	177	151	169	177	163
17	171	177	170	162	164	199	167	172	152	167	161	159
18	172	177	174	163	165	192	167	175	156	180	161	156
19	171	176	171	165	167	190	165	172	153	168	184	156
20	172	175	166	164	168	189	170	164	144	168	177	194
21	173	175	167	166	166	188	179	166	138	162	172	185
22	175	175	168	167	163	196	181	168	139	164	166	176
23	173	176	170	167	164	197	179	166	141	162	166	166
24	173	176	172	164	167	193	175	164	153	162	157	157
25	175	174	169	163	171	190	172	159	170	151	155	155
26	175	174	169	162	172	191	172	163	174	150	157	163
27	175	171	171	164	170	190	170	164	168	147	164	160
28	176	168	169	164	168	190	168	165	156	148	164	154
29	177	173	164	165	---	189	166	165	158	164	159	152
30	177	169	163	167	---	188	164	167	154	163	159	154
31	177	---	160	170	---	187	---	165	---	161	164	---
TOTAL	5371	5237	5236	5061	4689	6033	5186	5187	4646	4846	5095	5058
MEAN	173	175	169	163	167	195	173	167	155	156	164	169
MAX	193	178	174	170	176	248	186	188	174	180	184	194
MIN	165	168	160	157	152	160	164	157	138	140	152	152
AC-FT	10650	10390	10390	10040	9300	11970	10290	10290	9220	9610	10110	10030
CAL YR 1988	TOTAL 73539		MEAN 201	MAX 803	MIN 145	AC-FT 145900						
WTR YR 1989	TOTAL 61645		MEAN 169	MAX 248	MIN 138	AC-FT 122300						

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 1988 TO SEPTEMBER 1989

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)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 13...	1630	170	199	8.41	15.0	2	72	0	23
NOV 10...	1050	176	195	8.37	7.0	2	81	0	26
DEC 08...	0930	166	189	8.08	2.5	2	78	0	25
JAN 05...	1410	170	192	8.34	6.5	2	76	0	24
FEB 01...	1410	150	200	8.22	1.0	2	75	0	24
MAR 30...	1220	184	192	8.44	8.5	30	81	0	26
APR 21...	1305	174	195	8.74	15.5	5	75	0	24
MAY 25...	1150	155	180	8.33	16.0	10	74	0	24
JUN 22...	1110	142	181	8.59	15.5	15	74	0	24
JUL 20...	1045	175	--	8.44	18.0	17	78	0	25
AUG 17...	1030	159	196	8.51	18.5	18	72	0	23
30...	1430	160	179	8.73	23.0	12	71	0	23

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)
OCT 13...	3.6	7.9	0.4	5.5	86	5.7	2.4	0.20	52
NOV 10...	3.9	8.0	0.4	5.4	85	6.0	2.5	0.30	54
DEC 08...	3.7	8.2	0.4	5.4	84	6.3	2.4	0.20	54
JAN 05...	3.8	8.4	0.4	5.8	85	6.3	2.6	0.20	54
FEB 01...	3.6	7.6	0.4	5.3	83	5.9	2.2	0.20	55
MAR 30...	3.9	9.3	0.5	5.7	88	7.5	2.9	0.30	52
APR 21...	3.6	8.1	0.4	5.4	86	4.2	2.2	0.20	51
MAY 25...	3.5	7.4	0.4	5.1	83	5.0	1.5	0.20	55
JUN 22...	3.4	7.4	0.4	5.4	85	4.0	2.0	0.30	56
JUL 20...	3.8	8.3	0.4	4.0	89	5.0	2.8	0.30	55
AUG 17...	3.6	7.2	0.4	6.0	87	3.7	2.1	0.30	51
30...	3.4	8.0	0.4	5.7	84	4.0	1.5	0.30	54

NIOBRARA RIVER BASIN

06463500 LONG PINE CREEK NEAR RIVERVIEW, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS 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 13...	161	0.22	73.8	2.00	0.200	0.160	20	19	2
NOV 10...	166	0.23	79.0	2.10	0.190	0.150	20	6	2
DEC 08...	165	0.22	74.1	2.20	--	0.160	20	11	2
JAN 05...	166	0.23	76.3	2.30	0.220	0.170	20	21	2
FEB 01...	164	0.22	66.3	2.30	0.160	0.190	20	17	1
MAR 30...	168	0.23	83.6	1.80	0.220	0.160	30	37	3
APR 21...	157	0.21	73.9	1.60	0.160	0.120	20	7	2
MAY 25...	158	0.21	66.0	1.40	--	0.060	20	15	3
JUN 22...	160	0.22	61.4	1.50	0.140	0.130	20	10	2
JUL 20...	163	0.22	77.0	1.20	0.220	0.150	30	11	2
AUG 17...	154	0.21	66.3	1.20	--	0.200	20	14	3
AUG 30...	155	0.21	67.0	1.10	0.220	0.130	20	13	2

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.

WATER-DISCHARGE RECORDS

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 ft³/s Apr. 8, gage height, 3.20 ft; maximum gage height, 6.37 ft, Feb. 11, backwater from ice; minimum daily discharge, 748 ft³/s Aug. 31.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	1100	1340	1200	1140	1450	1700	1530	908	1040	910	778
2	1100	1100	1350	1180	1100	1350	1700	1460	925	1020	844	881
3	1150	1110	1320	1140	1000	1300	1700	1430	913	1010	857	911
4	1080	1110	1330	1160	1060	1300	1750	1430	902	1020	902	941
5	1120	1100	1380	1120	1100	1200	1800	1320	919	979	880	967
6	1120	1080	1360	1100	1200	1250	1850	1380	956	908	861	986
7	1090	1080	1350	1080	1250	1350	1740	1350	974	1060	870	924
8	1110	1090	1300	1120	1300	1550	1890	1440	926	893	884	976
9	1090	1070	1300	1180	1350	1700	1770	1390	892	873	901	1030
10	1100	1080	1350	1250	1350	1800	1650	1280	911	881	859	1090
11	1120	1030	1400	1200	1350	1900	1510	1210	879	888	867	1040
12	1120	1020	1400	1250	1300	1900	1440	1210	927	889	870	1010
13	1110	1080	1400	1300	1250	1900	1370	1220	903	887	825	1030
14	1120	1070	1300	1350	1250	1900	1340	1230	901	899	831	1040
15	1070	1070	1200	1400	1250	1850	1490	1140	904	900	918	1040
16	1050	925	1200	1400	1220	1800	1370	1120	907	881	974	1030
17	1080	995	1250	1350	1200	1750	1440	1100	900	882	946	1030
18	1100	1030	1300	1250	1300	1700	1470	1070	875	899	899	1020
19	1110	1100	1400	1220	1300	1650	1500	1090	923	889	966	1020
20	1090	1150	1400	1200	1400	1650	1530	1080	928	883	845	1030
21	1090	1140	1300	1200	1600	1650	1450	1090	963	869	806	1040
22	1070	1180	1200	1240	1700	1650	1500	1030	941	875	811	1060
23	1070	1190	1100	1250	1800	1650	1570	950	896	882	803	1060
24	1070	1160	1100	1250	1800	1650	1620	972	943	868	801	1030
25	1100	1190	1100	1200	1800	1700	1530	909	970	853	771	1030
26	1120	1200	1100	1200	1800	1700	1550	889	1090	853	801	1050
27	1090	1220	1120	1220	1750	1750	1580	880	879	856	767	1050
28	1110	1280	1140	1250	1550	1750	1460	947	885	846	761	1030
29	1120	1310	1180	1250	---	1920	1490	902	885	864	759	1030
30	1120	1310	1200	1200	---	1800	1470	922	907	897	753	1040
31	1110	---	1250	1180	---	1750	---	930	---	1030	748	---
TOTAL	34090	33570	39420	37890	38470	51220	47230	35901	27632	28274	26290	30194
MEAN	1100	1119	1272	1222	1374	1652	1574	1158	921	912	848	1006
MAX	1150	1310	1400	1400	1800	1920	1890	1530	1090	1060	974	1090
MIN	1050	925	1100	1080	1000	1200	1340	880	875	846	748	

NIOBRARA RIVER BASIN

06463720 NIOBRARA RIVER AT MARIAVILLE, NE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1985 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 14...	1300	1100	232	8.38	20.5	8.9	94	0	30	4.6
MAY 22...	1330	1050	227	8.61	26.0	7.9	91	0	30	4.0
JUN 19...	1020	913	219	8.52	23.0	8.3	88	0	29	3.7
JUL 17...	1105	876	209	8.72	20.5	9.0	85	0	28	3.6
AUG 14...	1035	786	208	8.74	21.5	8.8	82	0	27	3.5
31...	1315	740	204	8.72	26.0	8.2	85	0	28	3.6

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, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT 14...	8.9	0.4	6.1	111	7.3	1.5	0.20	53	0.24	529
MAY 22...	9.0	0.4	6.9	108	7.0	1.3	0.40	53	0.24	500
JUN 19...	8.2	0.4	6.8	104	6.0	1.4	0.30	54	0.23	423
JUL 17...	8.0	0.4	6.0	102	5.0	1.1	0.30	53	0.23	393
AUG 14...	8.0	0.4	6.4	104	5.0	1.1	0.30	53	0.23	354
31...	8.6	0.4	6.4	103	5.0	1.1	0.40	53	0.23	335

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)
OCT 14...	0.800	<0.010	--	0.30	1.1	0.140	5	<100	<10
MAY 22...	0.300	<0.010	--	0.70	1.0	0.160	6	200	<10
JUN 19...	0.500	0.030	0.27	0.30	0.80	0.080	7	200	<10
JUL 17...	<0.100	0.040	0.96	1.0	--	0.060	6	<100	<10
AUG 14...	<0.100	0.020	0.88	0.90	--	0.010	6	<100	<10
31...	0.100	0.020	0.88	0.90	1.0	0.110	6	300	<10

DATE	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
OCT 14...	<1	4	7	<5	11	<0.10	<1	20	5.2
MAY 22...	<1	4	4	4	4	<0.10	<1	20	2.8
JUN 19...	<1	3	5	4	2	0.10	<1	20	2.5
JUL 17...	2	2	6	4	5	0.10	2	20	2.4
AUG 14...	<1	4	5	2	2	<0.10	<1	10	2.5
31...	<1	<1	4	3	1	0.10	<1	<10	2.4

NIOBRARA RIVER BASIN

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06463720 NIOBRARA RIVER AT MARIAVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	PHORATE TOTAL (UG/L) (39023)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)	PER- THANE TOTAL (UG/L) (39034)	DEF TOTAL (UG/L) (39040)	METHO- MYL TOTAL (UG/L) (39051)	PROPHAM TOTAL (UG/L) (39052)	SIME- TRYNE TOTAL (UG/L) (39054)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)
OCT 14...	1300	--	<0.10	<0.10	<0.1	--	<0.5	<0.5	<0.1	<0.10	<0.1	<0.1
MAY 22...	1330	--	<0.10	<0.10	<0.1	--	<5.0	<5.0	<0.1	0.10	<0.1	<0.1
JUN 19...	1020	--	<0.10	<0.10	<0.1	--	<0.5	<0.5	<0.1	0.10	<0.1	<0.1
JUL 17...	1105	--	<0.10	<0.10	<0.1	--	<0.5	<0.5	<0.1	0.10	<0.1	<0.1
AUG 14...	1035	--	<0.10	<0.10	<0.1	--	<0.5	<0.5	<0.1	0.20	<0.1	<0.1
31...	1315	<0.01	<0.10	<0.10	<0.1	<0.01	<0.5	<0.5	<0.1	<0.10	<0.1	<0.1
DATE	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	LINDANE TOTAL (UG/L) (39340)	CHLOR- DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI- ELDRIN TOTAL (UG/L) (39380)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	TOX- APHENE, TOTAL (UG/L) (39400)
OCT 14...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
MAY 22...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
JUN 19...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
JUL 17...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
AUG 14...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
31...	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1
DATE	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	PCB, TOTAL (UG/L) (39516)	MALA- THION, TOTAL (UG/L) (39530)	PARA- THION, TOTAL (UG/L) (39540)	DI- AZINON, TOTAL (UG/L) (39570)	METHYL PARA- THION, TOTAL (UG/L) (39600)	ATRA- ZINE, TOTAL (UG/L) (39630)	PICLO- RAM (TOR- DON) (AMDON) TOTAL (UG/L) (39720)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
OCT 14...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01	<0.01	<0.01
MAY 22...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	0.10	<0.01	<0.01	0.01
JUN 19...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01	<0.01	<0.01
JUL 17...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	0.10	<0.01	<0.01	0.03
AUG 14...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01	<0.01	0.02
31...	<0.010	<0.010	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01	<0.01	0.02
DATE	SEVIN, TOTAL (UG/L) (39750)	MIREX, TOTAL (UG/L) (39755)	SILVEX, TOTAL (UG/L) (39760)	TOTAL TRI- THION (UG/L) (39786)	METHYL TRI- THION, TOTAL (UG/L) (39790)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	DICAMBA (MED- IBEN) (BAN- VEL D) TOTAL (UG/L) (82052)	2, 4-DP TOTAL (UG/L) (82183)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)
OCT 14...	<0.50	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
MAY 22...	<5.0	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
JUN 19...	<0.50	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
JUL 17...	<0.50	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
AUG 14...	<0.50	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
31...	<0.50	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1

NIOBRARA RIVER BASIN

06463720 NIOBRARA RIVER AT MARIAVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
OCT 14...	1300	1100	20.5	896	2660	7	14	46	93
MAY 22...	1330	1050	26.0	360	1020	26	54	99	100
JUN 19...	1020	913	23.0	351	865	21	43	88	100
JUL 17...	1105	876	20.5	677	1600	12	17	47	97
AUG 14...	1035	786	21.5	291	618	22	31	79	100
31...	1315	740	26.0	529	1060	11	16	63	100

DATE	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT 14...	100	0	2	36	91	97	99	99	100
MAY 22...	--	0	4	60	98	100	--	--	--
JUN 19...	--	0	2	46	95	99	100	--	--
JUL 17...	100	0	1	29	89	98	99	100	--
AUG 14...	--	0	1	34	93	98	99	100	--
31...	--	0	1	32	90	98	99	100	--

NIOBRARA RIVER BASIN

63

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.--44 years (water years 1939-40, 1948-89), 71.7 ft³/s, 51,950 acre-ft/yr; median of yearly mean discharges, 59 ft³/s, 42,700 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)
Mar. 13	0315	a	*3.75	Mar. 16	--	*240	a

a Backwater from ice.

Minimum daily discharge, 14 ft³/s, Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	35	e40	e30	e20	e34	117	69	37	25	16	16
2	47	45	e42	e29	e18	e34	111	68	36	26	16	16
3	41	46	e46	e29	e16	e34	107	69	34	25	19	17
4	39	45	e46	e30	e14	e32	104	78	32	23	21	16
5	38	45	e47	e31	e15	e31	102	80	30	22	19	17
6	38	45	e49	e30	e18	e30	100	76	30	21	18	17
7	38	44	e50	e29	e21	e32	99	71	29	21	19	18
8	38	43	e40	e26	e23	e34	95	69	29	19	19	19
9	37	43	e32	e24	e26	e40	90	62	29	18	18	21
10	37	44	e30	e22	e28	e50	89	57	28	17	17	24
11	36	44	e30	e24	e30	e70	88	55	28	17	17	27
12	36	47	e32	e26	e33	e90	87	53	31	16	21	28
13	39	49	e31	e28	e35	e130	85	54	33	16	21	28
14	39	49	e29	e32	e34	e160	86	53	33	20	22	27
15	38	49	e30	e35	e34	e200	86	51	33	66	23	27
16	37	47	e32	e35	e34	e220	89	51	31	66	23	25
17	38	40	e33	e35	e34	e200	76	51	30	53	23	24
18	38	48	e35	e37	e32	e180	78	51	30	42	22	22
19	39	46	e36	e39	e31	e210	75	50	28	35	21	24
20	41	43	e35	e38	e32	e180	75	46	26	32	20	24
21	40	46	e34	e35	e33	163	77	44	25	28	19	24
22	39	49	e32	e32	e34	154	75	42	23	25	18	25
23	37	50	e32	e28	e34	162	71	40	24	23	17	26
24	36	53	e30	e25	e34	163	73	37	26	22	17	28
25	36	48	e30	e24	e36	163	75	35	28	21	16	27
26	35	47	e30	e23	e38	158	69	35	34	19	17	26
27	36	45	e30	e24	e36	160	66	34	31	17	16	25
28	34	e42	e27	e25	e35	160	70	34	28	16	17	25
29	33	e42	e28	e23	---	146	73	34	26	16	17	24
30	33	e41	e29	e21	---	151	72	35	25	15	17	24
31	33	---	e30	e22	---	123	---	37	---	16	17	---
TOTAL	1180	1360	1077	891	808	3694	2560	1621	887	798	583	691
MEAN	38.1	45.3	34.7	28.7	28.9	119	85.3	52.3	29.6	25.7	18.8	23.0
MAX	54	53	50	39	38	220	117	80	37	66	23	28
MIN	33	35	27	21	14	30	66	34	23	15	16	16
AC-FT	2340	2700	2140	1770	1600	7330	5080	3220	1760	1580	1160	1370

CAL YR 1988 TOTAL 42114 MEAN 115 MAX 1070 MIN 14 AC-FT 83530
WTR YR 1989 TOTAL 16150 MEAN 44.2 MAX 220 MIN 14 AC-FT 32030

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. 28, 29, Dec. 10 to Mar. 20 and Mar. 26 to Apr. 25. Records good, except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--32 years, 140 ft³/s, 101,430 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 86,900 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)
Mar. 14	1030	(a)	*10.32				
Mar. 19	----	*350	ice jam				

No peaks greater than base discharge.

a Backwater from ice.

Minimum daily discharge, 14 ft³/s Aug. 2, 9, 11, 12, Sept. 1-3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	84	104	86	46	96	200	123	68	41	15	14
2	147	87	106	82	40	93	190	117	66	36	14	14
3	134	85	107	82	32	88	185	111	71	34	18	14
4	119	89	109	84	30	80	180	112	66	33	16	52
5	110	89	109	86	30	70	175	124	62	31	16	35
6	107	89	110	88	33	66	170	133	58	27	15	27
7	102	90	112	86	36	65	170	120	57	25	16	29
8	95	92	104	78	40	74	165	111	55	24	15	33
9	92	91	66	72	44	88	160	118	53	25	14	37
10	89	91	71	68	49	105	150	109	51	22	15	37
11	85	94	80	64	54	125	147	108	49	21	14	38
12	85	101	90	66	60	150	145	97	51	21	14	37
13	82	98	110	68	64	180	140	87	48	20	16	39
14	90	98	120	72	66	200	140	87	51	27	26	39
15	84	103	110	76	68	230	140	93	54	53	27	41
16	86	103	95	82	70	280	143	92	52	45	29	39
17	87	103	98	88	70	300	145	100	50	81	31	38
18	88	99	100	88	66	290	147	93	53	72	29	35
19	95	95	110	94	64	350	144	91	49	51	28	34
20	93	97	110	98	60	290	126	86	42	52	25	42
21	97	96	105	92	70	230	122	83	38	45	25	42
22	96	92	105	88	78	237	120	85	37	42	23	39
23	89	86	100	74	80	194	118	81	36	39	19	38
24	85	91	100	66	80	204	112	71	40	35	18	38
25	80	99	95	58	84	208	108	61	51	32	16	40
26	79	101	95	54	92	220	114	59	107	29	18	40
27	81	107	90	52	98	215	116	61	101	24	21	40
28	75	84	90	54	100	210	116	59	66	21	21	39
29	78	88	80	56	---	225	116	59	59	20	18	38
30	79	85	84	52	---	210	118	60	49	18	16	37
31	82	---	88	45	---	210	---	66	---	17	15	---
TOTAL	2946	2807	3053	2299	1704	5583	4322	2857	1690	1073	603	1065
MEAN	95.0	93.6	98.5	74.2	60.9	180	144	92.2	56.3	34.6	19.5	35.5
MAX	155	107	120	98	100	350	200	133	107	81	31	52
MIN	75	84	66	45	30	65	108	59	36	17	14	14
AC-FT	5840	5570	6060	4560	3380	11070	8570	5670	3350	2130	1200	2110

CAL YR 1988 TOTAL 82274 MEAN 225 MAX 2470 MIN 36 AC-FT 163200
WTR YR 1989 TOTAL 30002 MEAN 82.2 MAX 350 MIN 14 AC-FT 59510

NIOBRARA RIVER BASIN

65

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.--59 years (1913-14, 1927-36, 1940-89), 1,430 ft³/s, 1,036,000 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, 3,780 ft³/s Mar. 14; minimum daily, 224 ft³/s Feb. 5-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	1260	2000	995	1660	2020	1970	1490	1220	937	817	667
2	1450	1330	1690	1160	894	1760	1870	1470	1060	906	682	663
3	1330	1340	1630	1350	260	1510	1910	1430	1160	861	689	680
4	1310	1340	1780	1580	225	1130	1920	1520	1080	801	718	923
5	1320	1360	1510	1610	224	948	1890	1500	1030	807	793	928
6	1320	1370	1610	1640	224	948	1870	1470	939	755	784	952
7	1290	1320	1610	1650	463	795	1950	1330	947	702	767	969
8	1220	1320	1260	1410	720	1060	1880	1210	1020	821	733	977
9	1170	1380	1180	972	941	1580	1820	1330	982	720	678	987
10	1210	1330	1380	735	1110	2210	1850	1240	929	612	676	991
11	1230	1380	925	919	1350	3150	1810	1250	937	578	609	1180
12	1190	1530	1300	1150	1490	3530	1720	1170	1000	561	643	1080
13	1180	1530	2080	1340	1590	3690	1800	1200	1160	624	669	1110
14	1150	1460	2300	1450	1570	3780	1670	1320	1200	771	687	1020
15	1260	1420	1120	1480	1630	3560	1740	1160	1060	1280	712	957
16	1330	1430	989	1520	1620	3050	1550	1230	866	1130	772	884
17	1510	1420	1140	1640	1610	2620	1620	1380	932	1080	781	825
18	2510	1380	1410	1700	1550	1970	1760	1400	1120	1090	749	963
19	1560	1310	1810	1730	1520	1930	1710	1340	891	1030	709	1080
20	1400	1360	2060	1510	1480	2460	1530	1220	830	928	799	1120
21	1310	1360	1800	1500	1480	2650	1490	1160	889	874	777	1290
22	1800	1470	1880	1580	1550	2870	1470	1180	889	798	753	888
23	1460	1420	1720	1750	1590	2990	1490	1090	863	808	718	1120
24	1350	1500	1240	1720	1650	2250	1540	1040	903	778	662	1140
25	1250	1540	1090	1620	1760	2530	1570	1130	1290	709	654	1010
26	1320	1670	758	1600	1850	2730	1200	1080	1460	677	991	988
27	1280	1440	635	1620	1980	2250	1380	1060	1420	654	800	994
28	1300	961	650	1690	2030	2170	1600	944	1210	619	769	917
29	1280	1690	612	1780	---	2160	1560	901	1140	663	747	893
30	1290	1710	687	1910	---	2130	1520	1140	1000	672	728	901
31	1240	---	816	2110	---	2150	---	1320	---	665	714	---
TOTAL	42430	42331	42672	46421	36021	70581	50660	38705	31427	24911	22780	29097
MEAN	1369	1411	1377	1497	1286	2277	1689	1249	1048	804	735	970
MAX	2510	1710	2300	2110	2030	3780	1970	1520	1460	1280	991	1290
MIN	1150	961	612	735	224	795	1200	901	830	561	609	663
AC-FT	84160	83960	84640	92080	71450	140000	100500	76770	62340	49410	45180	57710

CAL YR 1988 TOTAL 646803 MEAN 1767 MAX 6470 MIN 612 AC-FT 1283000
WTR YR 1989 TOTAL 478036 MEAN 1310 MAX 3780 MIN 224 AC-FT 948200

NIOBRARA RIVER BASIN

06465310 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: Nov. 26, 29, Dec. 10, 18, 19, 26, Dec. 29 to Jan. 7, and Jan. 9 to Mar. 13. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--11 years, 38.4 ft³/s, 38,470 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, 363 ft³/s Aug. 26, gage height, 4.73 ft; minimum daily, 7.8 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	38	52	45	22	35	48	43	38	24	15	27
2	42	39	50	35	15	33	48	43	34	24	14	25
3	41	38	47	43	16	30	48	43	42	24	11	24
4	40	39	47	42	25	26	46	46	35	20	11	37
5	39	39	45	42	40	24	45	44	31	17	12	37
6	40	37	45	38	45	20	47	43	29	17	13	33
7	41	38	44	30	50	45	48	42	27	17	15	32
8	41	38	39	21	74	50	47	40	27	24	12	31
9	40	39	40	23	74	56	45	39	26	22	10	34
10	41	37	45	33	70	64	43	37	27	19	12	34
11	40	40	45	42	62	68	43	36	27	20	11	37
12	39	54	47	42	58	80	43	37	26	17	10	37
13	39	47	57	42	56	110	45	34	26	20	11	36
14	39	47	50	44	54	92	45	34	25	38	10	35
15	39	49	43	45	52	62	44	34	27	48	9.6	34
16	39	51	35	47	50	59	45	32	24	35	9.8	33
17	40	51	47	49	52	48	47	40	26	37	8.9	31
18	39	52	50	49	56	49	47	47	33	32	7.8	31
19	41	49	49	40	50	52	47	50	27	27	15	29
20	41	48	48	42	43	49	47	38	20	21	42	35
21	40	49	46	43	40	46	43	36	20	17	57	35
22	40	51	48	44	46	52	45	42	22	16	44	32
23	39	50	47	44	56	52	47	37	21	15	37	31
24	38	47	45	41	62	51	47	34	29	15	33	33
25	37	46	35	40	54	50	45	30	34	16	33	32
26	38	50	32	42	45	52	45	28	63	15	136	31
27	38	50	29	45	45	53	45	30	45	15	42	31
28	35	39	31	46	40	52	41	28	34	15	38	30
29	37	50	33	46	---	51	42	29	34	16	36	28
30	38	55	37	47	---	49	45	31	29	17	32	27
31	38	---	40	48	---	47	---	42	---	18	29	---
TOTAL	1226	1357	1348	1280	1352	1607	1363	1169	908	678	777.1	962
MEAN	39.5	45.2	43.5	41.3	48.3	51.8	45.4	37.7	30.3	21.9	25.1	32.1
MAX	47	55	57	49	74	110	48	50	63	48	136	37
MIN	35	37	29	21	15	20	41	28	20	15	7.8	24
AC-FT	2430	2690	2670	2540	2680	3190	2700	2320	1800	1340	1540	1910

CAL YR 1988 TOTAL 18317 MEAN 50.0 MAX 218 MIN 13 AC-FT 36330
WTR YR 1989 TOTAL 14027.1 MEAN 38.4 MAX 136 MIN 7.8 AC-FT 27820

NIOBRARA RIVER BASIN

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06465310 EAGLE CREEK NR REDBIRD, NE--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 18...	1630	41	310	8.30	13.0	13	130	18	43
NOV 15...	1620	48	310	8.10	3.0	7	140	29	45
DEC 13...	1400	56	330	8.47	3.5	13	130	24	43
JAN 11...	0915	42	354	8.24	0.5	8	130	21	43
FEB 08...	1700	9.3	331	7.56	0.5	4	130	22	43
MAR 14...	1430	88	298	8.01	2.5	55	130	27	40
APR 05...	1220	47	331	8.25	12.5	20	140	22	44
MAY 03...	1210	41	318	8.28	16.5	15	140	22	45
JUN 26...	1335	64	321	8.27	25.0	50	130	23	43
JUL 25...	1605	17	289	8.49	30.5	25	120	3	40
AUG 23...	1025	35	290	8.24	23.0	15	120	4	40
29...	1145	37	307	8.18	22.5	22	130	10	43
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- LITY 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)
OCT 18...	6.4	8.8	0.3	5.3	116	25	3.8	0.20	43
NOV 15...	6.8	8.8	0.3	4.8	112	28	3.7	0.20	40
DEC 13...	6.4	9.3	0.4	5.1	110	27	3.9	0.20	41
JAN 11...	6.3	9.6	0.4	5.6	113	23	4.0	0.20	44
FEB 08...	6.2	9.0	0.4	5.1	111	24	3.8	0.20	43
MAR 14...	6.4	7.8	0.3	5.5	99	36	4.1	0.20	32
APR 05...	6.6	9.2	0.4	5.3	115	29	3.8	0.20	37
MAY 03...	6.3	9.5	0.4	5.3	117	26	3.4	0.30	37
JUN 26...	6.4	9.1	0.4	6.0	111	37	3.2	0.20	35
JUL 25...	5.4	8.7	0.4	5.7	119	21	3.0	0.30	44
AUG 23...	5.3	8.5	0.4	6.6	118	15	3.6	0.30	45
29...	5.7	9.3	0.4	5.9	121	23	3.2	0.30	45

NIOBRARA RIVER BASIN

06465310 EAGLE CREEK NR REDBIRD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS 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...	224	0.30	24.8	4.30	0.130	0.100	30	12	5
NOV 15...	226	0.31	29.2	4.80	0.090	0.060	30	13	13
DEC 13...	227	0.31	34.4	5.80	0.280	0.080	30	21	7
JAN 11...	232	0.31	26.3	6.40	0.130	0.100	20	14	9
FEB 08...	230	0.31	5.79	6.70	--	0.250	30	15	11
MAR 14...	212	0.29	50.4	4.70	0.480	0.100	20	59	13
APR 05...	225	0.31	28.6	4.80	0.070	0.060	30	14	8
MAY 03...	222	0.30	24.6	4.40	0.160	0.060	20	16	6
JUN 26...	216	0.29	37.4	2.20	0.270	0.070	30	32	5
JUL 25...	207	0.28	9.50	1.70	0.100	0.060	50	14	10
AUG 23...	205	0.28	19.4	2.30	0.200	0.100	20	19	9
29...	220	0.30	22.0	2.70	0.090	0.110	50	15	10

NIOBRARA RIVER BASIN

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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: Oct. 7-20, Nov. 27-28, Dec. 8-12, 25-31, Jan. 1 to Mar. 14, and Mar. 18-19. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--9 YEARS, 42.3 ft³/s, 30,650 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, 293 ft³/s Aug. 26, gage height, 1.85 ft; maximum gage height, 4.12 ft Mar. 18, backwater from ice jam; minimum daily discharge, 7.9 ft³/s July 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	37	41	24	18	33	45	27	33	24	11	25
2	56	37	41	28	16	33	42	34	29	25	9.6	23
3	48	36	40	33	16	32	42	28	36	24	12	23
4	46	37	37	33	25	25	38	31	27	25	12	28
5	44	36	37	34	35	21	35	33	25	22	14	24
6	40	37	37	28	37	18	38	32	23	19	9.9	26
7	39	37	35	23	43	33	41	33	22	19	13	26
8	38	35	27	26	43	60	35	33	21	19	13	22
9	38	37	29	25	25	62	32	31	21	18	11	24
10	37	35	28	27	35	64	30	30	19	20	10	23
11	37	36	27	32	50	62	30	29	19	25	9.6	25
12	36	40	35	32	40	76	30	29	21	25	9.7	23
13	36	38	43	32	35	90	31	28	22	27	12	26
14	36	37	37	32	30	82	30	29	22	33	11	26
15	36	36	30	35	35	59	29	28	22	54	14	25
16	36	36	33	39	35	57	30	27	21	50	14	24
17	35	36	39	40	31	44	28	33	21	46	14	23
18	35	37	40	40	29	32	30	39	30	43	13	21
19	35	37	37	31	29	40	29	48	24	35	14	19
20	35	35	35	34	28	47	31	39	21	27	17	22
21	37	36	34	35	27	45	31	34	18	23	23	22
22	37	35	33	35	28	51	30	45	18	18	28	21
23	35	36	31	35	34	54	28	38	18	15	23	20
24	34	38	32	33	40	53	28	33	17	12	21	21
25	34	36	28	30	50	53	28	26	24	8.3	16	21
26	35	39	24	34	45	52	29	25	59	8.5	134	20
27	37	32	20	40	40	57	29	27	57	7.9	45	21
28	33	26	21	42	36	55	28	28	38	9.1	36	20
29	34	40	21	45	---	54	24	29	31	13	30	20
30	34	42	26	18	---	48	25	26	25	14	30	20
31	37	---	26	19	---	45	---	31	---	14	29	---
TOTAL	1199	1092	1004	994	935	1537	956	983	784	722.8	658.8	684
MEAN	38.7	36.4	32.4	32.1	33.4	49.6	31.9	31.7	26.1	23.3	21.3	22.8
MAX	69	42	43	45	50	90	45	48	59	54	134	28
MIN	33	26	20	18	16	18	24	25	17	7.9	9.6	19
AC-FT	2380	2170	1990	1970	1850	3050	1900	1950	1560	1430	1310	1360

CAL YR 1988 TOTAL 15176.7 MEAN 41.5 MAX 251 MIN 7.1 AC-FT 30100
WTR YR 1989 TOTAL 11549.6 MEAN 31.6 MAX 134 MIN 7.9 AC-FT 22910

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.

WATER-DISCHARGE RECORDS

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

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

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, 4,090 ft³/s Mar. 14; maximum gage height, 6.30 ft Mar. 14, backwater from ice; minimum daily discharge, 293 ft³/s Feb. 4.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	1350	2050	1050	1940	1490	2180	1600	1360	1020	837	760
2	1640	1400	1940	1180	1250	1960	1970	1600	1130	984	743	733
3	1490	1440	1730	1390	412	1670	2050	1540	1280	936	694	709
4	1430	1440	1830	1550	293	1310	2030	1590	1200	877	752	907
5	1430	1450	1680	1770	336	1040	2000	1610	1120	857	785	1090
6	1400	1470	1720	1730	320	1020	2010	1600	1030	842	842	1020
7	1410	1460	1710	1740	487	941	2030	1500	980	752	808	1000
8	1350	1400	1440	1570	803	1070	2000	1340	1110	827	792	1060
9	1290	1460	1270	1190	1020	1530	1970	1380	1070	832	720	1060
10	1350	1440	1480	874	1160	2190	1920	1370	995	698	714	1050
11	1310	1460	1160	914	1410	3000	1970	1310	991	646	647	1230
12	1300	1620	1190	1200	1630	3740	1840	1310	1030	620	655	1190
13	1270	1670	1850	1360	1680	3860	1820	1270	1130	659	692	1180
14	1260	1590	2620	1540	1710	4090	1840	1260	1320	777	707	1150
15	1310	1540	1640	1580	1730	3710	1790	1270	1180	1340	731	1050
16	1430	1560	1010	1640	1750	3410	1790	1270	986	1250	797	990
17	1470	1520	1190	1670	1740	2940	1380	1420	936	1210	821	925
18	2350	1530	1400	1830	1690	2260	2070	1530	1210	1190	791	959
19	2120	1420	1810	1840	1640	1970	1860	1510	1030	1150	747	1140
20	1400	1450	2160	1680	1590	2460	1710	1370	884	1030	813	1110
21	1460	1510	2000	1600	1570	2660	1610	1290	918	947	934	1250
22	1880	1560	1940	1670	1620	2880	1570	1330	957	865	862	1120
23	1550	1600	1950	1780	1700	3380	1550	1180	927	842	813	1210
24	1490	1560	1460	1870	1760	2530	1630	1140	921	833	763	1240
25	1380	1620	1250	1740	1860	2240	1640	1170	1300	762	711	1580
26	1380	1720	973	1710	1950	3200	1440	1190	1520	721	1300	1130
27	1400	1830	666	1700	2050	2540	1390	1150	1670	691	950	1050
28	1360	901	751	1810	2100	2320	1620	1060	1220	667	871	1020
29	1390	1620	675	1860	---	2250	1670	989	1360	682	854	950
30	1390	1940	765	1920	---	2290	1640	1080	1100	721	814	992
31	1370	---	835	2170	---	2290	---	1450	---	697	797	---
TOTAL	45900	45531	46145	49128	39201	74241	53990	41679	33865	26925	24757	31855
MEAN	1481	1518	1489	1585	1400	2395	1800	1344	1129	869	799	1062
MAX	2350	1940	2620	2170	2100	4090	2180	1610	1670	1340	1300	1580
MIN	1260	1901	666	874	293	941	1380	989	884			

CAL	YR	1988	TOTAL	693053	MEAN	1894	MAX	6730	MIN	666	AC-FT	1375000
WTR	YR	1989	TOTAL	513217	MEAN	1406	MAX	4090	MIN	293	AC-FT	1018000

NIOBRARA RIVER BASIN

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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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
19...	1150	1840	264	8.35	8.5	730	--	10.9	29	170
NOV										
16...	1100	1540	275	8.16	0.5	719	59	12.9	--	K11
16...	1105	--	--	--	--	--	--	--	19	--
DEC										
12...	1715	1380	289	8.33	0.5	722	--	13.3	17	K37
JAN										
11...	1230	1480	--	8.38	0.0	725	--	12.8	8	K11
FEB										
07...	1630	597	385	7.87	0.5	728	--	11.8	12	K33
MAR										
27...	1115	2590	274	8.20	17.5	714	190	9.3	--	K51
27...	1120	--	--	--	--	--	--	--	57	--
APR										
04...	1255	2180	286	8.29	11.5	723	--	10.3	27	57
MAY										
02...	1300	1700	270	8.20	19.0	724	64	8.7	--	K28
02...	1305	--	--	--	--	--	--	--	24	--
JUN										
01...	1025	1490	266	8.54	19.5	727	--	8.8	17	150
JUL										
26...	1145	834	237	8.76	24.5	727	--	8.5	35	89
AUG										
22...	1020	941	226	8.68	22.5	717	24	8.8	--	220
22...	1025	--	--	--	--	--	--	--	16	--
29...	1720	872	228	8.89	26.5	722	--	8.6	27	41

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

NIOBRARA RIVER BASIN

06465500 NIOBRARA RIVER NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)
OCT 19...	340	100	--	34	4.8	9.4	0.4	--	--
NOV 16...	180	110	0	36	5.6	9.6	0.4	5.0	114
16...	--	120	--	38	5.3	9.0	0.4	--	--
DEC 12...	230	120	--	38	5.2	19	0.8	--	--
JAN 11...	30	130	--	43	5.6	10	0.4	--	--
FEB 07...	84	140	--	47	6.1	11	0.4	--	--
MAR 27...	310	110	6	37	5.3	10	0.4	7.2	108
27...	--	110	--	35	4.4	9.3	0.4	--	--
APR 04...	120	110	--	37	4.8	10	0.4	--	--
MAY 02...	72	110	0	35	5.0	10	0.4	7.1	115
02...	--	110	--	36	4.6	10	0.4	--	--
JUN 01...	92	100	--	34	4.6	8.7	0.4	--	--
JUL 26...	240	96	--	32	4.0	9.2	0.4	--	--
AUG 22...	260	95	0	31	4.1	8.8	0.4	6.7	102
22...	--	95	--	32	3.7	8.5	0.4	--	--
29...	140	97	--	32	4.2	8.6	0.4	--	--

DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
OCT 19...	14	2.2	--	--	--	64	0.09	320	254
NOV 16...	17	2.3	0.30	46	202	197	0.27	840	--
16...	14	2.2	--	--	--	68	0.09	--	240
DEC 12...	14	2.0	--	--	--	78	0.11	291	200
JAN 11...	20	1.8	--	--	--	80	0.11	321	27
FEB 07...	13	2.6	--	--	--	80	0.11	128	10
MAR 27...	26	2.2	0.40	44	208	202	0.28	1450	--
27...	22	2.1	--	--	--	73	0.10	--	581
APR 04...	18	4.4	--	--	--	74	0.10	437	329
MAY 02...	16	1.8	0.30	46	196	194	0.27	900	--
02...	<10	1.3	--	--	--	--	--	--	229
JUN 01...	<10	1.9	--	--	--	--	--	--	158
JUL 26...	9.4	1.4	--	--	--	56	0.08	126	46
AUG 22...	10	1.8	0.30	49	171	173	0.23	434	--
22...	11	1.5	--	--	--	57	0.08	--	68
29...	13	1.5	--	--	--	59	0.08	140	50

06465500 NIOBRARA RIVER NEAR VERDEL. NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 19...	0.900	--	0.140	1.5	1.6	2.5	0.310	--	--
NOV 16...	--	1.20	0.030	0.57	0.60	--	0.190	0.070	0.070
16...	1.10	--	<0.020	--	0.84	1.9	0.300	--	--
DEC 12...	1.40	--	0.090	--	<0.50	--	0.640	--	--
JAN 11...	1.50	--	0.070	1.2	1.3	2.8	0.130	--	--
FEB 07...	1.90	--	0.070	--	<0.50	--	0.080	--	--
MAR 27...	--	0.930	0.050	0.55	0.60	--	0.190	0.080	0.070
27...	0.890	--	0.130	1.5	1.6	2.5	0.600	--	--
APR 04...	1.00	--	<0.020	--	0.93	1.9	0.360	--	--
MAY 02...	--	0.760	0.030	0.17	0.20	--	0.110	0.070	0.040
02...	0.710	--	<0.020	--	0.51	1.2	0.300	--	--
JUN 01...	0.580	--	0.030	0.78	0.81	1.4	0.270	--	--
JUL 26...	<0.020	--	0.050	0.78	0.83	--	0.100	--	--
AUG 22...	--	<0.100	<0.010	--	1.5	--	0.120	0.010	<0.010
22...	<0.020	--	<0.020	--	0.98	--	0.130	--	--
29...	0.050	--	0.080	1.0	1.1	1.1	0.150	--	--

[illegible]

NIOBRARA RIVER BASIN

06465500 NIOBRARA RIVER NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

NIOBRARA RIVER BASIN

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06465500 NIOBRARA RIVER NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT						
19...	1150	1840	8.5	--	--	--
NOV						
16...	1100	1540	0.5	2010	8360	17
16...	1105	--	--	--	--	--
DEC						
12...	1715	1380	0.5	--	--	--
JAN						
11...	1230	1480	0.0	--	--	--
FEB						
07...	1630	597	0.5	--	--	--
MAR						
27...	1115	2590	17.5	1440	10100	51
27...	1120	--	--	--	--	--
APR						
04...	1255	2180	11.5	--	--	--
MAY						
02...	1300	1700	19.0	1560	7160	15
02...	1305	--	--	--	--	--
JUN						
01...	1025	1490	19.5	--	--	--
JUL						
26...	1145	834	24.5	--	--	--
AUG						
22...	1020	941	22.5	171	434	42
22...	1025	--	--	--	--	--
29...	1720	872	26.5	--	--	--

NIOBRARA RIVER BASIN

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. 28-30, Dec. 8-14, and Dec. 16 to Mar. 11. Records good except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--10 years, 25.7 ft³/s, 18,620 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, 52 ft³/s June 26, gage height, 1.71 ft; maximum gage height, 3.96 ft Mar. 9, backwater from ice; minimum daily discharge, 2.9 ft³/s Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	24	25	20	20	27	24	25	22	19	4.5	20
2	25	24	25	21	17	26	24	23	21	17	5.5	19
3	24	24	24	20	15	28	25	23	21	14	8.8	19
4	23	24	24	22	25	29	25	23	21	8.6	5.9	18
5	23	24	24	25	27	25	24	24	21	10	3.3	17
6	23	24	24	17	29	22	26	23	19	8.9	5.5	17
7	24	24	23	13	31	20	27	21	18	6.6	9.0	14
8	24	23	21	10	32	35	25	20	15	7.1	4.1	14
9	24	23	20	8.0	28	40	24	19	15	6.4	3.3	19
10	24	23	20	8.0	32	45	24	21	20	6.5	3.5	19
11	23	24	20	10	35	43	24	22	20	6.5	2.9	20
12	23	26	21	13	35	33	25	21	19	7.1	3.3	19
13	23	25	21	20	35	29	26	22	18	6.0	8.5	19
14	24	24	26	24	34	31	25	20	19	8.1	30	19
15	24	24	22	21	30	29	25	21	17	20	21	16
16	24	24	22	22	30	27	26	21	16	17	19	17
17	24	24	26	24	26	25	26	21	16	16	17	18
18	24	24	28	25	24	24	26	25	19	14	16	19
19	24	24	28	22	22	26	25	28	18	13	18	18
20	26	24	24	20	22	24	26	24	18	7.2	21	20
21	25	24	23	25	23	24	26	23	19	5.3	25	21
22	25	24	21	30	21	25	27	26	15	6.6	22	21
23	24	25	21	29	20	24	27	24	11	7.5	21	21
24	24	25	21	28	30	25	27	22	14	9.3	20	24
25	24	24	20	27	35	25	28	22	25	10	19	24
26	24	26	16	30	33	25	26	19	42	6.2	26	24
27	24	25	15	32	30	26	25	16	29	5.7	25	24
28	23	21	17	27	29	25	24	19	23	6.9	24	22
29	23	24	19	27	---	25	23	21	21	11	24	22
30	23	26	21	25	---	24	24	21	20	9.7	23	23
31	24	---	24	23	---	24	---	23	---	9.2	21	---
TOTAL	743	724	686	668.0	770	860	759	683	592	306.4	460.1	587
MEAN	24.0	24.1	22.1	21.5	27.5	27.7	25.3	22.0	19.7	9.88	14.8	19.6
MAX	27	26	28	32	35	45	28	28	42	20	30	24
MIN	23	21	15	8.0	15	20	23	16	11	5.3	2.9	14
AC-FT	1470	1440	1360	1320	1530	1710	1510	1350	1170	608	913	1160
CAL YR 1988	TOTAL	8925	MEAN 24.4	MAX 61	MIN 10	AC-FT 17700						
WTR YR 1989	TOTAL	7838.5	MEAN 21.5	MAX 45	MIN 2.9	AC-FT 15550						

BAZILE CREEK BASIN

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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. 26 to Mar. 14 and Mar. 18. Records fair except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--37 years, 83.0 ft³/s, 60,130 acre-ft/yr; median of yearly mean discharges, 71 ft³/s, 51,400 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)
Mar. 10	1400	(a)	*17.97	No peaks greater than base discharge			
Mar. 11	----	*700	ice jam				

a Backwater from ice.

Minimum daily discharge, 5.2 ft³/s Aug. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	38	38	42	31	31	73	52	36	25	7.8	15
2	47	38	40	32	26	30	73	51	32	23	6.6	15
3	45	37	40	33	22	31	68	52	31	21	6.5	14
4	45	39	37	35	24	33	67	51	29	21	6.2	16
5	46	38	38	30	27	31	68	49	27	20	8.2	19
6	44	38	40	35	29	30	74	48	24	19	7.6	19
7	44	40	35	39	32	35	83	47	23	18	9.3	24
8	44	41	30	34	33	40	82	46	24	16	8.5	24
9	45	43	20	28	31	45	72	43	24	14	6.6	25
10	44	43	15	31	29	200	66	41	25	12	5.8	25
11	43	43	16	33	32	500	64	39	27	10	5.2	28
12	43	45	15	35	34	250	62	38	28	10	5.2	27
13	42	44	15	38	35	150	60	38	29	10	8.6	27
14	41	47	16	35	31	110	60	38	28	15	14	27
15	42	47	13	32	33	100	58	36	28	35	15	24
16	43	47	16	33	31	90	56	37	25	30	14	22
17	44	43	22	36	32	70	55	46	26	24	9.6	19
18	44	48	28	39	28	66	58	48	34	22	6.7	16
19	43	44	35	35	24	80	58	55	31	20	7.0	14
20	45	44	40	32	26	75	55	51	26	14	13	18
21	45	42	38	34	28	66	54	46	23	13	21	21
22	45	49	37	36	27	79	53	42	23	14	19	20
23	42	46	37	35	30	82	50	37	21	13	18	20
24	40	47	38	33	35	92	52	33	24	13	15	20
25	39	46	34	32	38	91	64	30	38	11	15	19
26	39	45	30	34	36	86	61	29	50	8.5	36	19
27	40	35	27	36	34	85	58	29	55	7.0	36	18
28	39	25	25	39	33	83	53	29	46	5.8	27	17
29	38	40	34	38	---	83	49	30	38	5.8	24	17
30	38	40	40	38	---	80	51	30	30	6.6	20	17
31	38	---	41	37	---	76	---	36	---	8.5	16	---
TOTAL	1333	1262	930	1079	851	2900	1857	1277	905	485.2	418.4	606
MEAN	43.0	42.1	30.0	34.8	30.4	93.5	61.9	41.2	30.2	15.7	13.5	20.2
MAX	56	49	41	42	38	500	83	55	55	35	36	28
MIN	38	25	13	28	22	30	49	29	21	5.8	5.2	14
AC-FT	2640	2500	1840	2140	1690	5750	3680	2530	1800	962	830	1200

CAL YR 1988 TOTAL 21197 MEAN 57.9 MAX 310 MIN 11 AC-FT 42040
WTR YR 1989 TOTAL 13903.6 MEAN 38.1 MAX 500 MIN 5.2 AC-FT 27580

MISSOURI RIVER MAIN STEM

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, 446,000 acre-ft, Jan. 7; minimum, 332,000 acre-ft, Mar. 5.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,208.29	440,000	-
Oct. 31	1,207.72	425,000	-15,000
Nov. 30	1,208.03	433,000	+8,000
Dec. 31	1,207.42	414,000	-19,000
CAL YR 1988	-	-	-10,000
Jan. 31	1,208.05	433,000	+19,000
Feb. 28	1,205.19	357,000	-76,000
Mar. 31	1,205.28	361,000	+4,000
Apr. 30	1,205.16	357,000	-4,000
May 31	1,205.14	355,000	-2,000
June 30	1,204.86	348,000	-7,000
July 31	1,205.05	354,000	+6,000
Aug. 31	1,206.19	384,000	+30,000
Sept. 30	1,207.66	423,000	+39,000
WTR YR 1989	-	-	-17,000

NOTE.--Lake frozen over Dec. 31 to Mar. 30.

MISSOURI RIVER MAIN STEM

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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, 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.--59 years, 26,620 ft³/s, 19,286,000 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, 35,400 ft³/s at 0530 hours, Nov. 2, gage height, 16.82 ft; minimum daily discharge, 8,040 ft³/s, Mar. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30200	34300	12500	12200	15100	13600	25200	29100	31800	32600	32500	30500
2	30100	34400	12500	12500	16100	13000	25200	29300	31100	30200	32400	30500
3	30500	34200	12400	12200	16500	12800	25100	29300	32200	29900	32400	30600
4	31200	34200	12400	12300	16500	14400	25000	29000	31300	32200	32400	29400
5	31700	34300	12400	12200	16500	14900	25100	28800	31300	28000	32300	27300
6	31600	34300	12400	12300	16500	13100	25900	28700	32500	27700	32200	26800
7	31900	34500	12400	11900	16200	12000	26400	29000	32600	32100	32400	26600
8	32100	31500	12400	e12000	16300	10700	26600	29600	32400	29000	32300	25500
9	32100	28700	12500	e12000	16400	9820	26900	30500	32500	28400	32400	23500
10	32600	27300	12400	e12000	16100	8900	28000	31000	32700	32200	32400	23200
11	32900	24600	12600	e12000	16100	8040	28600	31500	32700	31000	32400	24800
12	32900	21600	12300	e12000	16100	8190	28600	31900	32200	31200	32400	26000
13	33400	18700	12400	12000	16100	8400	27800	32100	31100	32500	32400	26100
14	33600	16000	12000	12100	16200	8480	28000	32200	32500	32500	32300	26400
15	33500	13600	12600	12100	16300	8390	27900	32200	32600	32500	32100	26700
16	33500	12800	12600	12100	16200	9250	28000	32300	32600	32500	32200	26800
17	33200	13000	12700	12100	16200	9250	28100	32200	32600	32500	32300	27200
18	33400	13000	12300	12100	14800	9000	28400	32200	32500	32500	32400	27300
19	33700	12800	12300	12000	14800	9500	28800	32000	32700	31500	32300	27400
20	33400	12900	12200	12100	14700	9900	29400	32000	32700	29600	32000	27600
21	33400	12600	12400	12200	14600	9830	29500	32200	32500	32100	32300	27700
22	33500	12500	12200	12100	14700	9790	29900	32100	32500	28900	32300	27900
23	33200	12200	12300	12200	14800	10900	29800	31600	32500	28600	32300	28500
24	33700	12500	12500	12100	13400	13800	29700	30900	32500	32100	32400	28300
25	33400	12300	12700	12100	12300	16800	29600	31500	31000	30100	32300	28800
26	33600	12400	12700	12100	12000	19500	29600	31100	28400	29700	31600	29200
27	33100	12300	e12500	12200	12500	22300	29700	30800	31900	32200	30600	29200
28	33500	12400	e12500	12100	13600	25000	29000	32100	28200	31800	29800	29200
29	33600	12300	e12500	12100	---	25300	29100	30900	29700	32600	28900	29200
30	34000	12400	12500	12100	---	25200	29300	30800	32500	32500	28900	29300
31	34300	---	12400	13200	---	25300	---	31700	---	32500	29600	---
TOTAL	1016800	610600	385500	376700	427600	415340	838200	960600	956300	963700	987500	827500
MEAN	32800	20350	12440	12150	15270	13400	27940	30990	31880	31090	31850	27580
MAX	34300	34500	12700	13200	16500	25300	29900	32300	32700	32600	32500	30600
MIN	30100	12200	12000	11900	12000	8040	25000	28700	28200	27700	28900	23200
AC-FT	2017000	1211000	764600	747200	848100	823800	1663000	1905000	1897000	1911000	1959000	1641000
CAL YR 1988	TOTAL 9685200	MEAN 26460	MAX 38900	MIN 12000	AC-FT 19210000							
WTR YR 1989	TOTAL 8766340	MEAN 24020	MAX 34500	MIN 8040	AC-FT 17390000							

e Estimated

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. 16 to Mar. 1, and Mar. 17, 18. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--11 years, 76.6 ft³/s, 55,500 acre-ft/yr; median of yearly mean discharges, 60 ft³/s
43,500 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, 1,000 ft³/s Mar. 9, gage height, 8.68 ft, backwater from ice; minimum daily, 6.1 ft³/s Aug. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	36	52	40	44	50	49	46	42	17	7.1	8.0
2	29	48	53	44	40	48	40	45	40	19	7.2	7.2
3	34	48	52	48	40	48	42	43	36	18	8.0	6.9
4	31	41	52	58	48	46	40	42	31	20	7.4	9.8
5	28	40	52	68	50	48	35	33	29	16	8.3	11
6	36	47	50	66	52	50	34	34	30	18	6.7	8.9
7	37	50	50	62	54	52	53	40	29	17	7.0	95
8	38	52	48	52	56	54	63	47	32	19	7.1	54
9	36	52	45	46	60	640	51	45	30	14	6.4	27
10	33	52	40	50	62	400	47	41	28	13	6.3	16
11	29	54	44	52	64	260	51	35	31	14	6.2	15
12	30	65	46	54	62	231	47	35	29	14	6.8	12
13	30	52	42	54	60	111	44	33	29	13	8.5	12
14	32	38	38	52	58	123	42	39	27	19	9.7	12
15	29	41	36	54	56	88	45	43	24	40	6.8	10
16	30	42	34	56	54	91	51	32	15	30	6.7	9.7
17	34	42	36	54	54	88	38	29	18	26	7.0	9.0
18	41	41	38	52	52	86	44	37	26	28	6.1	8.8
19	43	40	38	52	52	84	45	52	19	26	6.1	9.5
20	55	41	40	50	50	67	40	41	13	22	6.3	13
21	61	43	39	50	50	52	39	33	13	16	81	13
22	53	45	40	54	48	67	42	30	16	12	11	13
23	45	46	42	52	44	61	36	35	16	9.4	6.5	13
24	42	47	40	54	46	64	39	38	21	11	6.4	15
25	43	46	40	54	50	58	54	35	37	8.6	6.6	15
26	48	43	38	56	52	52	41	32	36	8.1	12	15
27	42	48	38	58	52	53	41	34	34	8.2	11	15
28	37	49	36	56	50	47	45	34	27	7.3	11	16
29	33	50	38	54	---	61	46	38	26	12	9.2	16
30	30	50	42	52	---	57	43	35	22	11	7.4	15
31	30	---	40	46	---	48	---	40	---	8.5	9.2	---
TOTAL	1158	1389	1319	1650	1460	3285	1327	1176	806	515.1	313.0	500.8
MEAN	37.4	46.3	42.5	53.2	52.1	106	44.2	37.9	26.9	16.6	10.1	16.7
MAX	61	65	53	68	64	640	63	52	42	40	81	95
MIN	28	36	34	40	40	46	34	29	13	7.3	6.1	6.9
AC-FT	2300	2760	2620	3270	2900	6520	2630	2330	1600	1020	621	993
CAL YR 1988	TOTAL 20690.2											
WTR YR 1989	TOTAL 14898.9											
			MEAN	56.5	MAX	900	MIN	8.1	AC-FT	41040		
			MEAN	40.8	MAX	640	MIN	6.1	AC-FT	29550		

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: Jan. 6, 7, and Feb. 5-28. 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.--92 years, 31,970 ft³/s, 23,160,000 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, 35,500 ft³/s, Nov. 3; maximum gage height, 19.20 ft, July 18; minimum daily discharge, 5,060 ft³/s, Jan. 9; minimum gage height, 7.83 ft, Jan. 9, result of freeze up.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31100	34700	13300	14300	13500	13800	29200	31300	31300	31800	31400	29100
2	31000	34800	13500	12700	10800	13700	29300	31000	31700	31500	31400	29700
3	30700	35200	13700	13300	10300	11200	29700	31300	31400	30100	31700	29700
4	30600	34900	13500	14100	12200	9800	29500	31700	31800	29600	31800	31600
5	31300	35000	13600	14000	15900	12000	29000	31700	31700	30700	32000	30000
6	32200	35100	13700	14800	18100	14300	28600	31600	31500	29100	32000	28500
7	32500	34700	13700	14000	18000	15600	28900	31300	32000	27800	32000	29400
8	32700	34800	13400	8700	18000	14400	29800	31500	32100	30300	32000	29600
9	32800	33000	13100	5060	17800	15200	29500	31600	31900	29800	31800	27600
10	32800	30700	13200	11700	18000	18100	29900	32300	31900	28500	31600	25100
11	32900	29200	12500	15300	18700	16800	30400	32300	32000	30200	31300	24400
12	33300	26700	12400	15300	18800	16000	31300	32700	32700	30600	31400	25300
13	33300	23500	14300	14900	18300	16300	31100	32500	32100	30700	31800	26700
14	33800	20000	13600	14100	18000	16200	30700	32600	31200	31500	31800	27000
15	34100	17200	12600	14000	17900	13800	30600	32400	31600	32900	31600	27100
16	34000	15100	11900	13800	17900	12500	30500	32500	31800	32100	31600	27400
17	33700	13700	11800	14000	17800	11800	30600	33100	31800	32400	32000	27600
18	33500	13700	12700	14100	17600	10500	30900	33500	32400	33300	32400	28000
19	33500	13800	13300	14200	16300	11300	31300	33400	31600	31200	32400	28000
20	33900	13700	12900	14400	14800	11500	31400	32800	31400	30000	32300	28200
21	33800	13700	12400	13700	16200	12200	32100	32600	31500	28600	33200	28300
22	33700	13600	12700	14200	16600	12300	32100	32600	31500	30500	33200	28500
23	33900	13500	12900	14800	14900	12400	32100	32500	31400	29500	32300	28500
24	33800	13000	12300	14400	14700	12900	32000	32200	31400	28600	31800	29000
25	34300	13600	11800	13900	16200	15100	32100	31400	32300	30400	31600	29000
26	34000	13500	11700	13600	15500	18600	32100	31200	31000	30000	31700	29100
27	34100	13600	12600	13700	13700	21900	32000	31100	28900	29200	31200	29400
28	33800	12900	11400	13900	13100	24800	32300	30700	30300	30500	30100	29400
29	33800	13600	11800	13800	---	27800	31900	31400	29300	32300	29700	29400
30	33800	13400	12700	13900	---	29200	31400	30200	29000	32400	28800	29400
31	34300	---	14400	14000	---	29100	---	30500	---	31500	28500	---
TOTAL	1027000	663900	399400	420660	449600	491100	922300	989500	942500	947600	978400	850000
MEAN	33130	22130	12880	13570	16060	15840	30740	31920	31420	30570	31560	28330
MAX	34300	35200	14400	15300	18800	29200	32300	33500	32700	33300	33200	31600
MIN	30600	12900	11400	5060	10300	9800	28600	30200	28900	27800	28500	24400
AC-FT	2037000	1317000	792200	834400	891800	974100	1829000	1963000	1869000	1880000	1941000	1686000

CAL YR 1988 TOTAL 9912300 MEAN 27080 MAX 38400 MIN 11100 AC-FT 19660000
WTR YR 1989 TOTAL 9081960 MEAN 24880 MAX 35200 MIN 5060 AC-FT 18010000

OMAHA CREEK BASIN

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.--Water-stage recorder. Datum of gage is 1,082.45 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 4, 1952, at bridge 0.5 mi downstream at datum 8.03 ft lower. Aug. 4, 1952, to Nov. 3, 1966, at site 80 ft upstream at present datum. June 27, 1984 to Aug. 28, 1984 at temporary site 700 ft downstream at datum 2.00 ft lower.

REMARKS.--Estimated daily discharges: Nov. 27 to Dec. 19, Dec. 22 to Mar. 10, and Mar. 17-20. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--44 years, 37.8 ft³/s, 27,390 acre-ft/yr; median of yearly mean discharges, 32.0 ft³/s, 23,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s Feb. 19, 1971, gage height, 26.47 ft, from floodmark, from rating curve extended above 3,700 ft³/s on basis of slope-area measurements at gage heights 16.38 ft and 23.62 ft; 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 32.5 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)
Mar. 9	----	1400	(a)	May 29	----	*3000	*unknown

a Backwater from ice.

Minimum daily discharge, 3.3 ft³/s Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	14	18	9.0	50	35	22	19	16	6.5	6.8	14
2	14	14	21	10	20	27	22	17	15	6.6	5.7	14
3	13	14	20	11	12	23	21	18	13	7.1	5.0	14
4	13	15	24	13	8.0	19	20	19	11	7.4	5.3	54
5	12	16	23	35	8.2	16	18	19	11	7.0	5.7	21
6	13	15	22	120	8.6	13	19	19	10	6.8	6.3	10
7	13	15	23	60	10	16	20	19	8.1	6.2	4.9	36
8	13	15	18	40	9.8	22	22	18	11	9.5	4.6	113
9	13	15	16	30	12	800	19	17	6.9	6.4	5.0	120
10	12	15	15	20	16	350	18	17	6.5	5.0	4.5	27
11	11	15	13	16	19	94	20	16	7.3	5.2	4.4	12
12	11	21	14	14	20	29	20	18	9.5	5.0	4.6	9.7
13	12	23	17	13	20	27	22	16	8.3	5.0	5.2	9.0
14	13	18	16	14	19	28	21	17	8.5	5.3	5.9	8.3
15	14	18	15	16	18	25	20	16	8.0	16	6.1	7.6
16	13	21	13	17	17	25	20	14	8.0	17	6.7	6.8
17	13	24	14	19	16	23	20	13	8.3	13	5.7	6.6
18	13	23	14	20	16	17	20	13	10	24	6.2	6.0
19	13	23	15	18	17	17	20	17	9.8	15	7.6	5.9
20	13	18	61	16	18	18	18	13	7.6	9.5	9.3	5.2
21	14	16	36	15	17	22	17	12	5.9	8.5	57	4.7
22	14	19	20	19	17	23	17	14	5.7	8.5	26	4.1
23	16	20	17	20	17	22	16	14	5.3	9.0	12	3.3
24	16	20	16	19	15	22	25	16	5.4	10	9.9	4.6
25	16	20	15	17	35	24	21	15	33	10	10	5.2
26	17	21	15	14	120	26	17	15	12	10	21	4.9
27	16	21	15	20	80	26	17	15	7.8	10	22	4.2
28	15	17	12	18	40	23	24	20	7.0	11	19	4.8
29	13	17	10	20	---	23	20	800	7.0	73	17	5.1
30	13	18	11	35	---	24	21	25	6.7	25	15	4.9
31	13	---	11	100	---	23	---	17	---	9.0	15	---
TOTAL	421	541	570	808.0	675.6	1882	597	1298	289.6	367.5	339.4	545.9
MEAN	13.6	18.0	18.4	26.1	24.1	60.7	19.9	41.9	9.65	11.9	10.9	18.2
MAX	17	24	61	120	120	800	25	800	33	73	57	120
MIN	11	14	10	9.0	8.0	13	16	12	5.3	5.0	4.4	3.3
AC-FT	835	1070	1130	1600	1340	3730	1180	2570	574	729	673	1080

CAL YR 1988 TOTAL 10303.4 MEAN 28.2 MAX 500 MIN 5.8 AC-FT 20440
WTR YR 1989 TOTAL 8335.0 MEAN 22.8 MAX 800 MIN 3.3 AC-FT 16530

06601200 MISSOURI RIVER AT DECATUR. NE

LOCATION.--Lat 42°00'26", long 96°14'29", in NE1/4SW1/4 sec.36, T.24 N., R.10 E., Burt County, Hydrologic Unit 10230001, on right bank 0.1 mi upstream from Iowa Highway 175 bridge at Decatur, and at mile 691.0.

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

PERIOD OF RECORD.--October 1987 to September 1989.

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

REMARKS.--Estimated daily discharges; Feb. 4-27. 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, 40,600 ft³/s Sept. 16, 1988, gage height, 25.59 ft; minimum daily discharge, 8,290 ft³/s Jan. 9, 1989; minimum gage height, 13.78, Jan. 9, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,300 ft³/s July 18, gage height, 24.55 ft; minimum daily discharge, 8.290 ft³/s Jan. 9; minimum gage height, 13.78, Jan. 9, 1989.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32300	34600	13600	14700	14100	13700	29600	32000	32000	31200	32000	30000
2	32100	34800	13700	14100	12600	14400	29500	31900	32400	32500	31900	30400
3	32000	35100	13700	13100	10900	13700	29500	31800	32100	32100	32000	30700
4	31900	35000	13700	14200	13000	11600	29700	32100	31800	30400	31900	32600
5	32200	35200	13600	14200	16900	11300	29300	32400	32500	30400	32000	31600
6	32900	35300	13600	14900	18800	13300	28900	32200	31800	31000	32100	29600
7	33100	34900	13700	14500	18900	15100	28800	31800	31900	28500	32000	28700
8	33100	34600	13500	13100	18800	15800	29700	31500	32800	29100	32000	30600
9	33400	34000	13300	8290	18500	15700	29900	31800	32700	31400	32000	28900
10	33400	31100	13200	9010	18700	19800	30000	32400	32400	29500	31800	26800
11	33500	29700	13000	14000	19400	19100	30100	32700	32300	29800	31900	25200
12	34000	28000	12400	15600	19500	17400	31100	32900	32900	31700	32000	25300
13	34000	25400	13300	15700	19000	17300	31600	33200	33000	31300	32200	26700
14	34200	22500	14500	14900	18800	17300	31400	33400	31600	31800	32600	27400
15	34700	19900	13500	14600	18600	16400	31000	33400	31200	33300	32400	27400
16	34800	17700	12700	14700	18500	14200	31100	33300	32000	34300	32100	27800
17	34800	15800	12400	14800	18400	13100	31000	33300	31700	33000	31800	27900
18	34600	15000	13000	15000	18200	12300	31100	33500	32200	36400	32000	28100
19	34500	14900	13800	15000	17000	11700	31500	33600	32300	35100	31900	28300
20	34600	14700	14300	15000	15200	12200	31600	33400	31500	33600	32100	28700
21	34900	14500	13700	14400	15900	12500	31900	33100	31600	31500	32300	28800
22	34600	14400	13500	13800	16700	12900	32300	33000	32100	30900	33500	29000
23	34500	14300	13800	14200	15200	13100	32400	33100	31900	31400	32400	29100
24	34500	13900	13700	14500	15000	13300	32700	33000	31800	29300	32100	29500
25	34500	13900	13100	14600	15900	14300	32900	32300	32500	29500	32100	29600
26	34500	14100	12700	14300	15600	16900	32900	31800	32700	31100	32500	29700
27	34400	14100	12900	14100	14800	20300	32400	32200	30400	29800	32700	29900
28	34400	13900	13200	14100	14000	23500	32500	32000	29600	30000	31500	30100
29	34200	13600	11900	14200	---	26700	32200	34100	31200	32300	31200	30200
30	34000	13800	12600	14200	---	29400	32100	32700	28700	33500	30500	30200
31	34200	---	13900	14400	---	29700	---	31500	---	32400	29900	

MISSOURI RIVER MAIN STEM

06610000 MISSOURI RIVER AT OMAHA, NE

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.

DRAINAGE AREA.--322,800 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. April 1872 to December 1899 (gage heights only) in reports of the Missouri River Commission and since January 1875, (gage heights only) in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage encoder. Datum of gage is 948.24 ft above NGVD. See WSP 1730 for history of changes prior to Sept. 30, 1936. Oct. 1, 1936 to Sept. 30, 1982 at datum 10.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 18-21, Dec. 30 to Jan. 5, Feb. 5, and May 26. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and satellite data collection platform and U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--61 years, 30,850 ft³/s, 22,350,000 acre-ft/yr.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 54,100 ft³/s Sept. 8, gage height, 21.19 ft; minimum daily discharge, 6,500 ft³/s Feb. 5; minimum gage height, 6.85 ft Feb. 5, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34500	35700	16400	15500	17100	15600	32100	32900	33100	30900	35700	31300
2	31900	36100	16100	16600	16100	15200	31900	32800	33800	33000	34500	31500
3	31800	36300	16300	15500	13300	15700	31600	32600	34600	34100	33900	31900
4	31500	36700	16600	14800	9680	15200	31400	32600	33600	33400	33800	38200
5	31300	36600	16500	15000	6500	13300	31500	33200	33200	32000	33700	35200
6	31600	36400	16300	16500	9230	12900	31400	33800	33500	32400	33800	33000
7	33000	36500	16400	18900	20400	14500	31100	34000	33000	32700	33900	32300
8	33600	36000	16400	17600	18100	16400	30900	34000	33500	30200	33700	42600
9	34100	35800	16100	14700	18900	19200	31900	33400	34500	30900	33800	44500
10	35300	34700	15500	10800	18800	23600	32300	32900	33900	32800	33400	35100
11	35400	32900	15400	9940	18800	29100	32400	33300	33600	30700	33300	30500
12	35100	32600	15000	14000	19400	28000	32500	33800	33200	31000	33400	28100
13	35400	30700	14300	16300	20000	24400	33500	34000	34100	32700	33700	27800
14	35000	27600	15100	16600	20200	21700	34000	34100	34000	32100	33900	29000
15	35600	24000	17200	16100	19900	20700	33800	34200	32900	32300	34400	29700
16	36800	21600	15900	15700	19400	19700	33300	34300	32800	33300	34300	29500
17	37300	19600	14600	15700	18900	17400	33600	34300	33600	34300	34000	29700
18	37200	18100	14000	15700	18700	15400	33300	34200	33400	34300	33800	29900
19	36600	17500	14300	15900	18500	14200	33400	34700	33700	37400	34000	30000
20	36200	17300	15600	16000	18000	13600	33600	35600	33500	36900	34000	30100
21	36600	17300	17600	16100	16800	14100	33600	35400	32500	34100	34200	30300
22	36900	16800	16700	16000	16200	14400	33700	34800	33000	31800	34400	30400
23	36800	16400	16000	15600	17100	14700	34100	34100	33400	31500	35600	30400
24	36600	16300	16200	16100	16900	14700	34300	33700	33400	31800	34200	30400
25	36700	15900	16000	16300	15800	14800	34400	34500	34600	29700	33800	30800
26	37000	15900	14900	16000	16100	15400	34400	34200	34600	30100	33800	31000
27	36700	16500	14100	15500	17500	17700	34400	34000	34700	32000	34600	30900
28	36200	16400	14200	15200	16800	21300	34000	33900	32600	31300	34600	31100
29	36200	16000	14700	15400	---	25100	33600	35100	32400	32500	33200	31300
30	35800	15700	13500	16300	---	28600	33200	40200	33300	40100	32700	31600
31	35700	---	14500	16700	---	31400	---	34900	---	38500	32000	---
TOTAL	1090400	765900	482400	483040	473110	578000	989200	1059500	1006000	1020800	1052100	958100
MEAN	35170	25530	15560	15580	16900	18650	32970	34180	33530	32930	33940	31940
MAX	37300	36700	17600	18900	20400	31400	34400	40200	34700	40100	35700	44500
MIN	31300	15700	13500	9940	6500	12900	30900	32600	32400	29700	32000	27800
AC-FT	2163000	1519000	956800	958100	938400	1146000	1962000	2102000	1995000	2025000	2087000	1900000
CAL YR 1988	TOTAL	10993300	MEAN	30040	MAX	42200	MIN	12900	AC-FT	21810000		
WTR YR 1989	TOTAL	9958550	MEAN	27280	MAX	44500	MIN	6500	AC-FT	19750000		

LOCATION.--Lat 41°59'25", long 104°02'57", in SW1/4 NE1/4 SE1/4 sec.4, T.23 N., R.58 W., Scottsbluff 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.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder. Datum of gage is 4,021.35 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 6, 1929, nonrecording 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.

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, 13 ft³/s, May 12, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft³/s, July 14, gage height, 3.24 ft; minimum daily, 77 ft³/s, Feb. 2.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	690	343	244	204	183	182	172	225	156	923	1190	954
2	608	338	244	201	77	180	171	227	148	1000	1180	978
3	562	330	240	201	102	174	167	283	139	1140	1150	999
4	533	328	239	200	123	173	162	314	152	1200	1050	985
5	512	319	240	201	142	182	163	256	154	1230	1030	972
6	500	313	235	200	156	190	166	254	136	1270	1070	924
7	494	310	238	198	172	192	167	264	134	1350	1140	924
8	498	307	238	196	190	189	165	282	165	1430	1130	936
9	577	306	234	198	208	190	171	309	255	1430	1130	1010
10	588	301	232	199	232	190	169	295	304	1430	1110	787
11	518	299	231	199	242	190	169	390	331	1440	1120	666
12	491	299	227	193	230	191	166	563	341	1430	1210	644
13	475	296	226	195	217	193	163	540	366	1450	1120	704
14	463	293	225	199	207	192	162	549	441	1500	1120	673
15	450	290	222	200	205	190	162	518	452	1470	1090	604
16	435	277	218	198	199	189	162	394	502	1460	1040	638
17	423	274	217	191	196	185	162	329	598	1420	985	719
18	417	275	217	196	193	180	177	270	778	1370	1040	693
19	410	273	218	196	191	181	185	235	875	1360	1030	645
20	404	269	216	194	191	182	187	223	972	1360	1040	618
21	394	267	215	191	189	180	192	221	1140	1330	1030	613
22	382	265	211	191	188	180	198	208	1230	1210	982	567
23	371	263	209	192	191	180	195	193	1220	1180	980	547
24	369	261	207	190	193	180	196	196	1200	1180	995	475
25	367	259	206	189	194	176	200	186	1110	1240	1000	411
26	365	256	200	188	193	174	202	200	1090	1220	1000	377
27	361	253	192	186	189	176	227	215	864	1180	1000	364
28	355	250	194	186	183	175	232	195	724	1210	1010	431
29	353	252	201	188	---	174	233	172	779	1200	995	370
30	351	247	200	189	---	172	230	161	864	1200	963	330
31	348	---	200	188	---	170	---	158	---	1190	966	---
TOTAL	14064	8613	6836	6037	5176	5652	5473	8825	17620	40003	32896	20558
MEAN	454	287	221	195	185	182	182	285	587	1290	1061	685
MAX	690	343	244	204	242	193	233	563	1230	1500	1210	1010
MIN	348	247	192	186	77	170	162	158	134	923	963	330
AC-FT	27900	17080	13560	11970	10270	11210	10860	17500	34950	79350	65250	40780

CAL	YR	1988	TOTAL	214677	MEAN	587	MAX	2060	MIN	176	AC-FT	425800
WTR	YR	1989	TOTAL	171753	MEAN	471	MAX	1500	MIN	77	AC-FT	340700

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 1988 TO SEPTEMBER 1989

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)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
OCT										
06...	1605	499	900	8.2	12.0	656	9.7	105	K12	--
NOV										
15...	0800	296	930	--	4.0	--	--	--	--	--
DEC										
29...	0845	201	1010	8.2	1.0	652	12.6	104	62	--
FEB										
14...	1715	204	995	--	4.0	--	--	--	--	--
MAR										
20...	1545	179	790	8.5	8.0	--	--	--	K7	4
APR										
25...	1635	204	875	--	17.0	--	--	--	--	--
MAY										
23...	0930	195	880	8.4	17.0	655	8.5	103	85	4
JUN										
27...	1145	853	880	--	19.5	--	--	--	--	--
AUG										
01...	0815	1190	740	8.2	21.0	658	--	--	97	3
SEP										
05...	1745	956	710	--	20.0	--	--	--	--	--

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

87

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.

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

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.

AVERAGE DISCHARGE.--58 years, 75.4 ft³/s, 54,630 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, 337 ft³/s May 16, gage height, 4.30 ft; minimum daily, 11 ft³/s May 7.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	39	35	28	20	14	20	13	61	39	81	71
2	78	39	35	27	18	14	20	12	52	37	74	73
3	75	40	35	27	16	14	19	12	47	32	71	74
4	74	41	34	28	14	14	19	21	42	31	68	80
5	73	41	34	29	14	14	19	12	39	30	63	72
6	71	40	33	30	14	22	19	12	35	27	61	66
7	70	40	35	28	14	28	18	11	31	24	69	130
8	69	39	32	22	14	35	18	28	28	22	70	134
9	67	39	29	20	14	40	20	163	27	21	69	155
10	65	38	36	24	14	42	20	273	25	20	67	172
11	65	38	35	25	14	42	20	221	24	20	66	146
12	64	39	33	23	14	37	19	206	23	21	85	183
13	62	38	35	20	16	32	17	196	23	21	103	161
14	61	37	33	20	18	34	15	198	22	24	93	126
15	58	39	31	22	19	30	15	217	22	25	103	109
16	57	36	30	24	20	28	14	218	22	28	89	102
17	57	40	30	24	17	25	14	192	22	30	97	95
18	57	41	32	24	20	24	14	83	20	30	95	89
19	56	37	33	24	17	24	14	64	20	33	95	87
20	55	37	31	26	17	26	14	61	21	35	92	83
21	52	37	30	28	17	26	13	84	20	34	92	80
22	48	37	30	27	17	29	13	94	81	34	91	77
23	46	37	28	27	17	27	13	99	194	37	80	73
24	45	37	28	25	18	24	12	110	150	39	74	71
25	44	37	27	25	18	23	12	110	136	37	69	70
26	43	37	30	25	18	22	13	122	188	40	81	68
27	41	30	27	24	15	21	13	211	148	43	78	65
28	40	43	25	24	13	21	15	177	98	106	76	63
29	39	34	25	24	---	21	14	135	68	75	75	62
30	38	34	27	26	---	21	13	102	43	89	78	61
31	39	---	29	25	---	21	---	82	---	90	73	---
TOTAL	1788	1141	967	775	457	795	479	3539	1732	1174	2478	2898
MEAN	57.7	38.0	31.2	25.0	16.3	25.6	16.0	114	57.7	37.9	79.9	96.6
MAX	79	43	36	30	20	42	20	273	194	106	103	183
MIN	38	30	25	20	13	14	12	11	20	20	61	61
AC-FT	3550	2260	1920	1540	906	1580	950	7020	3440	2330	4920	5750
CAL YR 1988	TOTAL	39318	MEAN	107	MAX	599	MIN	10	AC-FT	77990		
WTR YR 1989	TOTAL	18223	MEAN	49.9	MAX	273	MIN	11	AC-FT	36150		

PLATTE RIVER BASIN

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.

DRAINAGE 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: Feb. 2-10. Record good except for period of estimated record, which is fair. Natural flow of stream affected by ground-water withdrawals and diversions for irrigation and return flow from irrigated areas.

AVERAGE DISCHARGE.--58 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, 111 ft³/s Oct. 22, gage height, 2.63 ft; minimum daily, 5.7 ft³/s Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	94	84	80	73	69	68	28	6.7	7.2	7.7	6.9
2	103	92	85	80	73	70	68	7.2	6.4	7.1	7.8	7.0
3	102	91	85	80	73	71	71	6.7	6.5	7.4	8.3	7.1
4	103	92	84	81	73	71	70	6.7	6.5	7.5	8.2	7.4
5	106	90	84	80	73	71	68	6.7	8.1	7.8	7.8	7.5
6	106	90	84	80	73	72	71	6.7	6.8	7.4	7.5	7.4
7	107	89	84	78	73	72	70	6.5	6.8	7.5	7.6	7.3
8	108	88	83	78	73	72	73	6.5	6.8	7.6	7.6	7.0
9	108	87	83	78	73	73	69	6.5	6.9	7.8	8.1	6.3
10	105	87	83	78	73	73	68	6.8	7.2	8.1	8.3	6.4
11	103	88	83	78	73	73	67	7.1	7.0	8.3	8.9	6.1
12	103	89	82	77	73	73	64	7.7	7.1	8.4	8.1	6.0
13	103	88	83	77	72	73	64	7.8	7.1	8.4	7.6	5.9
14	103	88	84	76	71	72	64	7.6	7.2	8.7	7.2	5.7
15	104	87	83	76	71	72	65	7.7	7.0	8.9	7.5	5.8
16	106	87	82	75	70	71	65	7.9	7.2	8.4	7.9	6.0
17	107	87	82	75	70	70	65	7.5	7.1	8.2	7.7	6.6
18	107	88	83	76	70	70	65	7.3	7.2	7.6	7.6	6.6
19	106	86	83	75	70	71	66	7.3	7.4	7.9	7.2	6.6
20	107	86	83	76	70	72	65	7.2	7.2	8.2	6.7	6.9
21	106	87	83	75	69	71	64	7.3	7.5	8.4	6.6	7.0
22	105	87	82	75	69	69	64	7.2	7.7	8.2	6.6	6.9
23	100	87	82	75	70	69	65	7.4	7.7	8.2	6.6	6.8
24	99	85	81	74	71	69	65	7.4	7.5	8.0	6.8	6.8
25	99	85	81	74	70	68	64	7.2	7.6	8.0	6.9	64
26	97	85	81	74	70	68	62	7.1	7.7	8.0	6.9	98
27	95	83	81	74	71	68	62	7.1	7.7	8.1	7.2	97
28	94	85	82	74	70	68	62	7.1	7.9	8.3	7.1	97
29	95	84	82	73	---	68	60	7.1	7.9	8.1	6.9	95
30	94	84	81	73	---	69	61	7.0	7.3	7.8	6.9	94
31	94	---	80	73	---	69	---	7.3	---	7.6	6.7	---
TOTAL	3180	2626	2563	2368	2000	2187	1975	242.6	216.7	247.1	230.5	705.0
MEAN	103	87.5	82.7	76.4	71.4	70.5	65.8	7.83	7.22	7.97	7.44	23.5
MAX	108	94	85	81	73	73	73	28	8.1	8.9	8.9	98
MIN	94	83	80	73	69	68	60	6.5	6.4	7.1	6.6	5.7
AC-FT	6310	5210	5080	4700	3970	4340	3920	481	430	490	457	1400

CAL YR 1988 TOTAL 20289.5 MEAN 55.4 MAX 108 MIN 5.1 AC-FT 40240
WTR YR 1989 TOTAL 18540.9 MEAN 50.8 MAX 108 MIN 5.7 AC-FT 36780

PLATTE RIVER BASIN

89

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: Feb. 1-10 and July 8-12: Records good except for periods of estimated record, which are 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).--32 years (water years 1958-89), 862 ft³/s, 624,500 acre-ft/yr; median of yearly mean discharges, 546 ft³/s, 396,000 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, 1,230 ft³/s Oct. 1, gage height, 2.65 ft; minimum daily, 86 ft³/s June 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1190	658	550	451	460	413	390	366	199	138	328	244
2	1100	654	545	453	460	398	387	254	183	123	340	249
3	1030	649	545	446	450	381	373	200	162	119	312	275
4	971	641	545	454	440	340	361	176	159	124	275	286
5	951	633	545	465	440	355	369	205	163	114	232	289
6	927	622	547	464	450	392	361	174	167	110	213	290
7	914	620	550	438	460	432	375	169	168	124	234	417
8	915	622	534	424	470	429	366	153	164	145	265	506
9	937	615	522	447	480	450	377	191	157	165	273	721
10	1010	608	520	460	490	447	368	339	160	185	284	827
11	943	609	520	464	481	444	370	399	161	205	274	720
12	928	617	520	433	489	437	368	438	152	220	345	564
13	908	604	528	432	477	427	364	420	149	213	385	419
14	884	589	524	451	459	410	364	377	143	261	359	461
15	864	603	512	441	439	411	373	426	134	287	368	380
16	846	593	495	442	428	411	380	401	116	284	338	388
17	827	596	495	460	420	404	364	444	104	279	301	442
18	814	593	502	465	420	399	372	296	103	269	303	438
19	810	582	505	465	428	409	392	241	104	242	296	410
20	800	579	501	457	426	409	400	231	103	252	295	417
21	787	579	485	460	423	406	409	232	86	258	306	633
22	781	581	485	465	420	407	422	230	90	252	287	879
23	759	590	477	465	427	401	425	224	257	248	271	887
24	750	580	475	460	437	398	409	222	291	248	272	865
25	740	580	475	452	443	407	396	221	244	259	268	815
26	724	580	472	441	441	422	409	245	256	293	260	809
27	714	580	444	450	434	420	435	297	392	275	256	744
28	684	580	434	460	424	419	446	315	264	337	235	751
29	679	570	449	449	---	410	426	279	199	341	238	770
30	674	560	450	460	---	400	401	238	153	334	226	758
31	666	---	451	472	---	400	---	216	---	334	215	---
TOTAL	26527	18067	15602	14046	12516	12688	11652	8619	5183	7038	8854	16654
MEAN	856	602	503	453	447	409	388	278	173	227	286	555
MAX	1190	658	550	472	490	450	446	444	392	341	385	887
MIN	666	560	434	424	420	340	361	153	86	110	213	244
AC-FT	52620	35840	30950	27860	24830	25170	23110	17100	10280	13960	17560	33030

CAL YR 1988 TOTAL 217040 MEAN 593 MAX 2040 MIN 266 AC-FT 430500
WTR YR 1989 TOTAL 157446 MEAN 431 MAX 1190 MIN 86 AC-FT 312300

PLATTE RIVER BASIN

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.--No estimated daily discharges. Records good. Base flow is mainly return water from land irrigated by Fort Laramie Canal.

AVERAGE DISCHARGE.--55 years, 50.0 ft³/s, 36,220 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, 2,150 ft³/s May 11, gage height, 9.47 ft; minimum daily, 19 ft³/s Mar. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	33	30	28	28	21	23	22	31	91	91	91
2	40	33	30	27	28	20	23	22	24	72	106	93
3	40	33	30	27	28	20	22	22	28	66	100	96
4	38	34	30	28	28	20	22	22	29	71	100	98
5	38	33	30	28	26	19	22	22	29	62	100	100
6	38	33	29	28	25	20	23	34	28	60	95	95
7	38	33	30	27	23	20	23	77	27	61	95	94
8	38	33	29	26	23	21	23	88	26	62	94	114
9	37	33	28	26	22	24	26	54	27	56	91	125
10	37	33	28	26	23	24	24	136	27	58	89	116
11	36	33	28	27	23	23	25	335	27	60	108	128
12	35	33	27	26	23	22	25	254	24	61	106	80
13	35	33	27	26	23	22	26	144	23	64	97	50
14	35	33	27	26	23	24	26	139	22	70	101	45
15	34	34	28	25	23	23	27	207	23	76	109	39
16	34	32	27	26	22	21	28	112	23	78	101	39
17	34	32	27	26	22	22	27	94	23	82	106	37
18	34	32	26	25	22	21	26	67	24	83	100	37
19	35	32	27	25	23	22	27	49	25	85	101	62
20	35	31	27	25	23	25	28	51	38	83	104	112
21	34	31	27	25	22	23	28	77	59	80	101	104
22	34	32	26	25	22	26	27	93	63	83	95	105
23	34	32	26	26	23	27	27	95	141	83	91	108
24	34	32	26	25	23	24	29	95	80	86	89	109
25	34	31	25	25	24	24	24	98	370	86	87	107
26	34	31	25	25	25	25	24	112	271	87	84	99
27	34	30	26	25	24	24	23	128	201	83	85	96
28	33	30	27	25	23	24	23	124	126	98	85	96
29	33	30	28	25	---	24	22	62	93	89	89	100
30	34	30	28	25	---	24	22	36	80	94	90	105
31	33	---	28	27	---	24	---	34	---	94	92	---
TOTAL	1103	965	857	806	667	703	745	2905	2012	2364	2982	2680
MEAN	35.6	32.2	27.6	26.0	23.8	22.7	24.8	93.7	67.1	76.3	96.2	89.3
MAX	41	34	30	28	28	27	29	335	370	98	109	128
MIN	33	30	25	25	22	19	22	22	22	56	84	37
AC-FT	2190	1910	1700	1600	1320	1390	1480	5760	3990	4690	5910	5320

CAL YR 1988 TOTAL 24288 MEAN 66.4 MAX 354 MIN 21 AC-FT 48180
WTR YR 1989 TOTAL 18789 MEAN 51.5 MAX 370 MIN 19 AC-FT 37270

PLATTE RIVER BASIN

91

06682000 NORTH PLATTE RIVER NEAR MINATARE, NE

LOCATION.--Main channel gage: Lat 41°47'26", long 103°31'11", in NE1/4SE1/4 sec.13, T.21 N., R.54 W., Scotts Bluff County, Hydrologic Unit 10180009, on left bank 220 ft upstream 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: Water-stage recorder. Datum of gage is 3,810.7 ft above National Geodetic Vertical Datum of 1929. Nov. 2, 1966, to July 13, 1976, water-stage recorder 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. 29, 30, Feb. 3-12, and Mar. 3-5. Nine Mile channel: Estimated daily discharges: Dec. 26-30, Jan. 7-9, 12, 13, 15, 16, Feb. 1, 3-15, and Mar. 3-6. 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).--32 years (water years 1958-89), 1,099 ft³/s, 796,200 acre-ft/yr; median of yearly mean discharges, 802 ft³/s, 581,000 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, 1,930 ft³/s May 12; minimum daily, 117 ft³/s June 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1470	980	818	686	630	587	579	551	349	236	399	344
2	1370	984	813	693	493	575	578	487	322	216	430	336
3	1270	968	807	689	430	485	572	405	302	193	417	353
4	1200	963	807	697	450	566	563	364	295	170	375	387
5	1170	946	807	709	520	574	554	350	295	157	312	380
6	1130	944	808	704	580	633	562	375	297	140	279	366
7	1160	946	809	699	645	598	559	370	294	129	270	381
8	1200	942	807	672	660	616	549	358	280	120	293	520
9	1190	917	797	665	675	637	570	326	273	121	300	665
10	1260	899	787	686	660	663	564	412	262	129	312	823
11	1260	876	794	678	600	654	563	577	252	137	379	827
12	1200	870	792	663	720	651	556	1190	250	156	565	741
13	1190	871	793	662	680	650	549	836	234	164	567	686
14	1180	876	785	661	665	635	543	712	213	190	539	688
15	1150	883	779	657	640	622	540	1060	192	235	577	668
16	1120	888	764	652	614	619	542	676	180	259	555	619
17	1090	871	758	655	590	615	531	661	159	287	528	579
18	1080	873	759	658	594	606	522	567	140	286	492	597
19	1060	870	758	670	585	613	538	468	117	279	470	617
20	1070	855	754	665	596	625	547	417	136	258	470	671
21	1070	857	744	664	595	615	542	430	130	255	466	731
22	1060	870	737	661	597	620	548	415	124	250	442	931
23	1030	877	731	662	613	618	552	410	200	245	404	1010
24	1010	881	720	656	616	624	544	391	251	247	380	1020
25	1000	866	718	654	618	620	524	408	440	251	357	1010
26	1010	857	714	648	616	614	534	422	644	272	343	1060
27	987	820	707	646	614	602	542	456	551	287	345	1000
28	963	812	697	645	601	598	554	481	484	353	346	962
29	960	812	686	646	---	590	552	435	347	376	375	997
30	961	819	690	653	---	585	552	377	283	379	383	971
31	973	---	686	652	---	575	---	370	---	407	364	---
TOTAL	34844	26693	23626	20708	16897	18885	16525	15757	8296	7184	12734	20940
MEAN	1124	890	762	668	603	609	551	508	277	232	411	698
MAX	1470	984	818	709	720	663	579	1190	644	407	577	1060
MIN	960	812	686	645	430	485	522	326	117	120	270	336
AC-FT	69110	52950	46860	41070	33520	37460	32780	31250	16460	14250	25260	41530

CAL YR 1988 TOTAL 303612 MEAN 830 MAX 2500 MIN 355 AC-FT 602200
WTR YR 1989 TOTAL 223089 MEAN 611 MAX 1470 MIN 117 AC-FT 442500

PLATTE RIVER BASIN

06682505 NORTH PLATTE RIVER AT MC GREW, NE

LOCATION.--Lat 41°45'42", long 103°25'02", in SW1/4 sec.25, T.21 N., R.53 W., Scotts Bluff County, Hydrologic Unit 10180009, at bridge on county road 1.2 mi north of State Highway 92, 0.3 mi downstream from Ninemile Creek and 0.9 mi north of McGrew.

PERIOD OF RECORD.--Chemical analyses: water years 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- FORM, TOCOC- CI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 17...	1400	1210	985	8.10	12.0	9.4	13	1000	440
NOV 08...	1115	1040	987	8.00	9.5	10.4	10	K33	260
DEC 05...	1345	850	1030	8.30	8.5	10.5	16	K20	85
JAN 18...	0845	738	1010	8.40	3.0	11.5	10	180	970
FEB 13...	1320	800	970	8.40	1.0	11.4	12	400	1100
MAR 14...	0910	792	986	8.40	2.5	11.9	13	900	2500
APR 10...	1330	618	993	8.40	12.0	9.3	9	K4	140
MAY 16...	--	900	--	8.20	15.0	9.0	35	7300	K38000
JUN 19...	1345	149	1060	8.20	28.0	7.1	16	320	K180
JUL 17...	1345	362	1050	8.30	23.0	7.4	61	730	1200
AUG 21...	1310	582	1050	8.40	22.0	7.0	19	680	990
SEP 06...	1400	514	1040	8.20	21.0	8.3	20	170	1900

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 17...	300	87	21	110	3	230	20	468	0.64
NOV 08...	330	95	22	110	3	240	21	488	0.66
DEC 05...	330	94	22	110	3	230	21	477	0.65
JAN 18...	320	92	21	99	3	240	22	474	0.64
FEB 13...	300	87	20	95	2	170	20	392	0.53
MAR 14...	340	99	23	100	2	190	26	438	0.60
APR 10...	300	86	20	100	3	150	24	380	0.52
MAY 16...	270	76	20	110	3	200	20	426	0.58
JUN 19...	310	88	23	120	3	210	35	476	0.65
JUL 17...	290	83	19	110	3	250	26	488	0.66
AUG 21...	300	85	22	110	3	260	26	503	0.68
SEP 06...	310	86	23	110	3	230	28	477	0.65

PLATTE RIVER BASIN

93

06682505 NORTH PLATTE RIVER AT MC GREW, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 17...	1530	120	3.10	<0.020	--	0.50	3.6	0.120	3.4
NOV 08...	1370	50	3.40	0.020	0.50	0.52	3.9	0.370	4.2
DEC 05...	1090	47	3.30	0.040	0.49	0.53	3.8	0.080	4.8
JAN 18...	944	36	5.80	0.240	--	<0.50	--	0.130	6.8
FEB 13...	847	45	3.40	0.170	--	<0.50	--	0.100	3.8
MAR 14...	937	102	4.00	0.140	0.57	0.71	4.7	0.190	4.2
APR 10...	634	43	3.30	<0.020	--	0.75	4.0	0.210	3.4
MAY 16...	1040	715	1.80	0.280	1.4	1.7	3.5	0.750	10
JUN 19...	191	49	3.20	0.160	0.70	0.86	4.1	0.130	4.9
JUL 17...	477	421	2.40	0.260	1.2	1.5	3.9	0.440	9.7
AUG 21...	790	188	2.60	<0.020	--	1.1	3.7	0.220	4.6
SEP 06...	662	49	2.70	0.070	1.0	1.1	3.8	0.160	6.4

PLATTE RIVER BASIN

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 Feb. 2-18, Mar. 2-9, June 17-20, June 29 to July 26, and Aug. 20-22. Browns Creek channel: Estimated daily discharges, Nov. 3-8, Feb. 1-6. 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).--32 years (water years 1958-89), 1,379 ft³/s, 1,999,100 acre-ft/yr; median of yearly mean of discharges, 1,056 ft³/s, 765,000 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, 1,840 ft³/s Oct. 1; minimum daily, 132 ft³/s July 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1740	1220	863	899	817	723	763	612	404	295	390	498
2	1730	1170	860	867	707	740	703	581	379	265	386	499
3	1600	1180	863	885	687	700	643	464	354	238	395	525
4	1600	1160	890	910	712	680	649	415	327	221	384	590
5	1610	1190	936	895	725	700	672	460	311	213	354	622
6	1590	1250	965	876	742	740	689	571	320	174	319	583
7	1500	1250	986	802	760	800	680	581	334	197	300	577
8	1440	1250	964	732	780	840	680	514	338	169	310	705
9	1400	1190	927	743	800	900	753	452	325	149	339	950
10	1390	1170	914	837	800	913	775	435	313	136	356	1230
11	1460	1150	946	849	860	902	769	506	308	136	347	1300
12	1520	1140	929	859	940	894	738	826	320	154	515	1270
13	1560	1080	952	861	940	880	698	990	312	133	678	1250
14	1510	1070	917	905	960	830	669	994	301	132	719	1200
15	1400	1070	900	892	940	809	639	1070	266	176	815	1160
16	1330	1020	885	891	920	822	607	1080	241	228	779	1070
17	1350	976	861	886	900	811	623	921	188	286	718	998
18	1350	943	886	883	860	805	619	842	149	312	688	962
19	1350	936	952	853	822	802	627	658	172	306	755	949
20	1350	925	943	861	711	831	618	574	200	285	698	990
21	1350	944	903	855	649	852	568	573	197	260	608	1040
22	1350	959	800	836	641	882	592	561	184	232	585	1170
23	1350	979	845	814	687	878	596	514	222	229	588	1320
24	1350	979	889	790	715	873	567	493	222	223	542	1270
25	1350	874	896	762	701	827	616	460	343	224	504	1180
26	1340	848	911	727	717	808	587	457	1190	242	503	1130
27	1310	900	875	707	733	779	601	453	990	265	525	1230
28	1330	868	883	710	737	752	630	448	761	288	550	1200
29	1300	845	910	753	---	789	615	428	529	342	532	1200
30	1270	827	967	804	---	839	615	465	362	361	523	1230
31	1210	---	965	839	---	807	---	447	---	406	505	---
TOTAL	44290	31363	28183	25783	21963	25208	19601	18845	10862	7277	16210	29898
MEAN	1429	1045	909	832	784	813	653	608	362	235	523	997
MAX	1740	1250	986	910	960	913	775	1080	1190	406	815	1320
MIN	1210	827	800	707	641	680	567	415	149	132	300	498
AC-FT	87850	62210	55900	51140	43560	50000	38880	37380	21540	14430	32150	59300

CAL YR 1988 TOTAL 377055 MEAN 1030 MAX 2760 MIN 442 AC-FT 747900
WTR YR 1989 TOTAL 279483 MEAN 766 MAX 1740 MIN 132 AC-FT 554400

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LOCATION.--Lat 41°37'38", long 103°02'10", in SW1/4 sec.12, T.19 N., R.50 W., Morrill County, Hydrologic Unit 10180013, on right bank 250 ft downstream from bridge on U.S. Highway 385 and State Highway 92, 0.5 mi upstream from mouth, and 4 mi southeast of Bridgeport.

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

GAGE.--Water-stage recorder. Sheet piling control since December 1964. Datum of gage is 3,635.99 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1934, nonrecording gage on downstream side of bridge 240 ft upstream and June 25, 1934, to May 18, 1936, water-stage recorder at upstream side of bridge 260 ft upstream, both at datum 0.29 ft higher. May 19, 1936, to June 8, 1965, water-stage recorder, June 9, 1965, to Sept. 1, 1965, non-recording gage, and Sept. 2, 1965, to Sept. 18, 1980, water-stage recorder, all on left bank 250 ft downstream from bridge at present datum.

AVERAGE DISCHARGE.--58 years, 27.2 ft³/s, 19,710 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63 ft³/s May 11, gage height, 2.00 ft; maximum gage height, 2.31 ft Feb. 2. backwater from ice: no flow for many days.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	17	19	20	18	21	27	26	30	.00	.00	.00
2	19	18	20	23	14	20	27	26	28	.00	.00	.00
3	15	18	19	22	13	20	28	25	27	.00	.00	.00
4	15	18	20	20	12	18	27	51	27	.00	.00	.00
5	15	18	20	20	12	15	26	45	26	.00	.00	.00
6	15	19	21	20	12	17	26	44	27	.00	.00	.00
7	16	19	20	18	12	19	26	44	25	.00	.00	.00
8	16	19	19	16	13	23	25	46	19	.00	.00	.00
9	16	19	19	18	15	24	26	39	23	.00	.00	26
10	16	19	19	18	21	24	27	43	25	.00	.00	29
11	16	19	20	23	22	25	27	30	38	.00	.00	31
12	16	19	20	23	21	27	27	31	25	.00	.00	31
13	16	19	20	20	20	26	27	36	22	.00	.00	31
14	16	19	21	20	20	26	28	42	22	.00	.00	28
15	16	19	22	20	19	24	27	44	22	.00	.00	28
16	16	19	22	20	19	23	26	44	21	.00	.00	27
17	16	19	23	20	19	24	26	46	17	.00	.00	26
18	16	19	20	20	19	26	26	47	7.2	.00	.00	26
19	16	19	20	19	22	26	25	44	5.1	.00	.00	26
20	16	19	20	19	21	27	25	48	2.3	.00	.00	27
21	16	19	20	20	20	26	26	48	1.0	.00	.00	28
22	16	19	20	20	20	27	26	46	.87	.00	.00	27
23	17	20	24	19	20	27	26	45	.67	.00	.00	29
24	17	21	25	19	20	28	26	41	.00	.00	.00	28
25	17	20	24	19	20	30	26	40	.00	.00	.00	28
26	17	20	23	19	21	30	25	40	.00	.00	.00	27
27	17	20	22	19	21	29	25	39	.00	.00	.00	26
28	17	19	23	20	21	28	25	38	.00	.00	.00	26
29	17	19	24	20	---	28	25	37	.00	.00	.00	25
30	17	19	24	20	---	28	25	35	.00	.00	.00	25
31	17	---	23	20	---	28	---	34	---	.00	.00	---
TOTAL	525	570	656	614	507	764	784	1244	441.14	0.00	0.00	605.00
MEAN	16.9	19.0	21.2	19.8	18.1	24.6	26.1	40.1	14.7	.00	.00	20.2
MAX	37	21	25	23	22	30	28	51	38	.00	.00	31
MIN	15	17	19	16	12	15	25	25	.00	.00	.00	.00
AC-FT	1040	1130	1300	1220	1010	1520	1560	2470	875	.0	.0	1200

CAL YR 1988	TOTAL	8526.60	MEAN	23.3	MAX	77	MIN	.01	AC-FT	16910
WTR YR 1989	TOTAL	6710.14	MEAN	18.4	MAX	51	MIN	.00	AC-FT	13310

PLATTE RIVER BASIN

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: Nov. 10-17, Dec. 20 to Feb. 24, Mar. 2-12, July 11-13. 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).--32 years (water years 1958-89), 1,459 ft³/s, 1,057,000 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, 1,880 ft³/s Oct. 2, gage height, 2.21 ft; maximum gage height, 3.02 Dec. 31, backwater from ice; minimum daily discharge, 46 ft³/s July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1830	1390	1160	1020	1080	983	912	711	439	409	309	522
2	1840	1360	1150	1060	900	920	884	700	412	295	318	519
3	1740	1350	1120	1100	800	800	847	682	393	240	291	591
4	1670	1330	1120	1200	800	860	825	628	387	180	306	699
5	1620	1340	1120	1100	800	900	833	598	378	128	280	733
6	1610	1330	1110	1080	800	1000	862	588	368	124	265	712
7	1610	1340	1130	1040	800	1040	886	599	366	98	235	674
8	1630	1360	1140	1020	860	1060	913	569	362	79	210	744
9	1610	1350	1130	940	900	1060	857	542	390	68	209	865
10	1570	1350	1120	940	1000	1060	837	543	394	63	267	1140
11	1670	1300	1120	960	1040	1080	824	551	387	46	282	1330
12	1610	1300	1090	900	1060	1080	828	607	377	52	315	1430
13	1550	1250	1090	900	1080	1080	835	865	382	58	430	1380
14	1460	1250	1110	900	1100	1050	848	1020	374	60	536	1360
15	1440	1200	1110	940	1100	1000	829	1130	363	108	562	1330
16	1440	1200	1080	940	1100	977	818	1430	337	96	573	1300
17	1420	1200	1110	960	1100	956	810	1190	298	116	586	1240
18	1400	1220	1100	960	1100	920	824	1060	265	144	549	1160
19	1380	1210	1060	980	1100	900	828	918	211	206	505	1100
20	1360	1230	1060	980	1100	911	821	742	181	207	523	1100
21	1330	1230	1100	980	1100	916	818	693	163	169	516	1170
22	1320	1220	1100	1000	1100	914	781	664	143	135	525	1170
23	1310	1270	1100	1000	1100	902	795	644	136	125	485	1270
24	1320	1280	1100	1020	1100	895	756	591	162	115	449	1340
25	1320	1250	1100	1020	1070	895	757	525	162	117	436	1310
26	1310	1230	1100	1040	1040	904	781	503	382	104	522	1280
27	1300	1160	1100	1060	1030	924	745	495	1020	114	513	1250
28	1290	1140	900	1080	992	923	736	461	876	120	564	1250
29	1300	1180	940	1080	---	919	732	426	708	165	548	1160
30	1330	1170	980	1080	---	908	727	428	524	234	529	1150
31	1380	---	1000	1080	---	914	---	475	---	288	511	---
TOTAL	45970	37990	33750	31360	28152	29651	24549	21578	11340	4463	13149	32279
MEAN	1483	1266	1089	1012	1005	956	818	696	378	144	424	1076
MAX	1840	1390	1160	1200	1100	1080	913	1430	1020	409	586	1430
MIN	1290	1140	900	900	800	800	727	426	136	46	209	519
AC-FT	91180	75350	66940	62200	55840	58810	48690	42800	22490	8850	26080	64030

CAL YR 1988 TOTAL 416187 MEAN 1137 MAX 2910 MIN 342 AC-FT 825500
WTR YR 1989 TOTAL 314231 MEAN 861 MAX 1840 MIN 46 AC-FT 623300

PLATTE RIVER BASIN

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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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
17...	0915	1510	962	8.00	11.0	668	--	10.5	17	2200
NOV										
07...	0930	1330	969	8.60	6.5	667	40	10.6	--	180
07...	0935	--	--	--	--	--	--	--	24	--
DEC										
05...	1100	1130	969	8.50	2.5	672	--	13.0	16	K3
JAN										
17...	1000	960	1000	8.40	1.5	665	8.0	12.5	--	K3
17...	1005	--	--	--	--	--	--	--	10	--
FEB										
13...	1000	1200	935	8.60	1.0	665	--	12.4	11	42
MAR										
13...	1000	1080	941	8.70	8.0	661	26	10.3	--	56
13...	1005	--	--	--	--	--	--	--	10	--
APR										
11...	1230	825	928	8.40	11.0	--	--	10.0	9	K5
MAY										
15...	0930	1130	831	8.50	15.5	--	260	8.5	--	1900
15...	0935	--	--	--	--	--	--	--	57	--
JUN										
19...	0930	184	861	7.60	27.0	--	--	7.6	12	70
JUL										
17...	1000	110	893	8.40	21.0	665	17	8.4	--	590
17...	1005	--	--	--	--	--	--	--	26	--
AUG										
21...	0930	508	944	8.40	20.5	665	--	8.1	26	150
SEP										
05...	1030	755	928	8.50	20.5	667	69	8.4	--	800
05...	1035	--	--	--	--	--	--	--	30	--

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

PLATTE RIVER BASIN
06686000 NORTH PLATTE RIVER AT LISCO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)
OCT 17...	230	280	--	79	20	100	3	--	--
NOV 07...	1100	300	63	85	22	96	2	11	241
DEC 07...	--	320	--	92	22	110	3	--	--
DEC 05...	54	320	--	93	21	100	3	--	--
JAN 17...	210	300	46	84	22	96	2	11	257
JAN 17...	--	310	--	89	21	95	2	--	--
FEB 13...	600	290	--	86	19	94	2	--	--
MAR 13...	620	300	47	84	21	99	3	11	252
MAR 13...	--	290	--	85	20	97	3	--	--
APR 11...	85	290	--	84	20	97	3	--	--
MAY 15...	K16000	270	78	75	21	83	2	10	200
MAY 15...	--	270	--	75	19	79	2	--	--
JUN 19...	K150	250	--	69	20	93	3	--	--
JUL 17...	420	250	51	68	20	88	2	10	--
JUL 17...	--	260	--	72	20	95	3	--	--
AUG 21...	240	270	--	75	21	97	3	--	--
SEP 05...	900	260	51	71	21	91	3	11	215
SEP 05...	--	270	--	73	22	92	3	--	--

DATE	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 CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
OCT 17...	240	21	--	--	--	460	0.63	1880	204
NOV 07...	230	20	0.40	40	647	650	0.88	2320	--
NOV 07...	230	21	--	--	--	475	0.65	--	112
DEC 05...	220	20	--	--	--	454	0.62	1390	71
JAN 17...	230	22	0.40	39	685	673	0.93	1780	--
JAN 17...	230	22	--	--	--	457	0.62	--	72
FEB 13...	170	20	--	--	--	389	0.53	1260	22
MAR 13...	220	23	0.50	40	678	667	0.92	1980	--
MAR 13...	--	26	--	--	--	--	--	--	115
APR 11...	150	22	--	--	--	373	0.51	831	72
MAY 15...	200	19	0.50	26	615	561	0.84	1880	--
MAY 15...	200	20	--	--	--	393	0.53	--	962
JUN 19...	180	27	--	--	--	389	0.53	193	59
JUL 17...	210	21	0.40	37	565	577	0.77	168	--
JUL 17...	230	23	--	--	--	440	0.60	--	49
AUG 21...	230	24	--	--	--	447	0.61	613	235
SEP 05...	220	23	0.50	36	549	610	0.75	1120	--
SEP 05...	200	24	--	--	--	411	0.56	--	209

PLATTE RIVER BASIN

06686000 NORTH PLATTE RIVER AT LISCO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 17...	--	--	--	--	--	--	--	--	--	--	0.5
NOV 07...	40	4	<0.1	<10	4	4	2.0	920	12	4	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	6.1
DEC 05...	--	--	--	--	--	--	--	--	--	--	3.9
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	4.6
FEB 13...	--	--	--	--	--	--	--	--	--	--	4.7
MAR 13...	40	10	0.2	<10	1	4	<1.0	910	12	4	--
MAR 13...	--	--	--	--	--	--	--	--	--	--	5.5
APR 11...	--	--	--	--	--	--	--	--	--	--	3.6
MAY 15...	37	3	<0.1	<10	<1	4	<1.0	790	11	7	--
MAY 15...	--	--	--	--	--	--	--	--	--	--	6.4
JUN 19...	--	--	--	--	--	--	--	--	--	--	3.4
JUL 17...	38	4	<0.1	<10	1	3	<1.0	830	8	10	--
JUL 17...	--	--	--	--	--	--	--	--	--	--	5.0
AUG 21...	--	--	--	--	--	--	--	--	--	--	4.6
SEP 05...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	--	--	--	--	--	--	--	--	--	--	4.2

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)
OCT 17...	0915	1510	11.0	--	--	--
NOV 07...	0930	1330	6.5	349	1250	41
NOV 07...	0935	--	--	--	--	--
DEC 05...	1100	1130	2.5	--	--	--
JAN 17...	1000	960	1.5	159	412	29
JAN 17...	1005	--	--	--	--	--
FEB 13...	1000	1200	1.0	--	--	--
MAR 13...	1000	1080	8.0	226	659	51
MAR 13...	1005	--	--	--	--	--
APR 11...	1230	825	11.0	--	--	--
MAY 15...	0930	1130	15.5	1070	3260	86
MAY 15...	0935	--	--	--	--	--
JUN 19...	0930	184	27.0	--	--	--
JUL 17...	1000	110	21.0	--	--	--
JUL 17...	1005	--	--	--	--	--
AUG 21...	0930	508	20.5	--	--	--
SEP 05...	1030	755	20.5	254	518	86
SEP 05...	1035	--	--	--	--	--

PLATTE RIVER BASIN

101

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: Oct. 8-13, Dec. 24 to Jan. 4, Jan. 9-16, Feb. 2-16, 24-26, Mar. 3-14, June 17-22, June 29 to July 3, July 20-25, and Sept. 14-20. 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.--59 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 116 ft³/s Mar. 23, gage height, 3.82 ft; maximum gage height, 5.42 ft Mar. 9, backwater from ice; minimum daily discharge, 0.11 ft³/s June 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	87	87	82	71	95	95	85	9.4	4.0	7.9	27
2	56	86	86	88	70	90	95	87	12	3.2	5.9	24
3	69	85	85	94	66	90	93	86	21	3.2	2.2	22
4	69	86	86	100	60	80	91	85	29	3.2	1.8	27
5	69	85	86	93	64	74	91	85	36	2.1	2.3	27
6	85	79	81	92	70	70	93	84	63	.92	10	28
7	102	79	84	85	80	70	92	86	66	4.2	8.2	22
8	100	82	84	71	88	76	91	81	66	11	5.7	22
9	100	81	86	70	90	82	93	76	70	5.6	.51	32
10	100	81	86	70	96	88	93	67	71	1.2	.35	32
11	98	77	86	70	96	94	90	48	73	6.4	.56	37
12	98	79	83	72	98	96	90	33	69	10	.37	45
13	96	79	84	74	96	98	90	30	50	14	1.4	56
14	92	81	83	76	90	98	87	33	47	31	3.1	56
15	94	82	82	80	90	91	90	40	37	64	6.7	52
16	93	83	87	90	88	91	89	51	18	68	16	50
17	95	84	84	82	86	90	87	63	8.0	76	16	46
18	95	84	85	81	86	90	86	62	5.0	70	14	42
19	99	85	87	81	87	94	86	54	2.0	67	15	38
20	97	85	86	81	90	101	86	51	1.0	64	14	36
21	96	87	85	80	91	100	85	54	.50	60	15	68
22	94	88	85	81	92	104	85	53	.14	56	14	67
23	94	88	86	81	92	109	85	53	.11	52	5.4	62
24	93	90	86	80	92	101	85	40	1.5	50	1.6	60
25	94	88	82	77	92	100	82	25	1.5	52	1.5	60
26	93	87	82	77	96	99	83	19	.15	42	18	44
27	90	85	72	77	99	96	84	17	.14	15	39	38
28	87	89	66	77	99	93	84	20	14	13	47	38
29	88	88	66	77	---	95	84	33	64	12	41	38
30	87	86	70	78	---	93	85	24	5.0	15	38	38
31	87	---	76	78	---	95	---	11	---	20	32	---
TOTAL	2759	2526	2554	2495	2415	2843	2650	1636	840.44	896.02	384.49	1234
MEAN	89.0	84.2	82.4	80.5	86.2	91.7	88.3	52.8	28.0	28.9	12.4	41.1
MAX	102	90	87	100	99	109	95	87	73	76	47	68
MIN	49	77	66	70	60	70	82	11	.11	.92	.35	22
AC-FT	5470	5010	5070	4950	4790	5640	5260	3250	1670	1780	763	2450

CAL YR 1988 TOTAL 24474.72 MEAN 66.9 MAX 186 MIN .02 AC-FT 48550
WTR YR 1989 TOTAL 23232.95 MEAN 63.7 MAX 109 MIN .11 AC-FT 46080

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 101800009, on left bank 19 ft downstream from bridge on State Highway 26, 1 mi southeast of Lowellien, and approximately 0.5 mi upstream from high-water line of Lake McConaughy.

PERIOD OF RECORD.--July to September 1931, December 1940 to current year.

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.

AVERAGE DISCHARGE (since Glendo project).--32 years (water years 1958-89), 1,559 ft³/s, 1,129,000 acre-ft/yr; median of yearly mean discharges, 1,280 ft³/s, 927,400 acre-ft/yr. Figures are unadjusted for storage and diversions.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,100 ft³/s Oct. 1, gage height, 5.65 ft; maximum gage height, 7.11 ft, Dec 26, backwater from ice; minimum daily discharge, 80 ft³/s July 12.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2050	1410	1260	1200	1400	1100	1050	791	500	486	216	518
2	1930	1430	1280	1250	1100	900	1030	806	474	402	224	517
3	1920	1420	1270	1300	1000	700	996	813	466	310	270	521
4	1770	1390	1280	1400	1020	700	953	789	473	247	243	601
5	1670	1320	1270	1450	1020	900	942	691	474	194	224	643
6	1650	1400	1260	1400	1040	1100	949	646	474	143	228	669
7	1650	1420	1250	1350	1040	1160	945	660	481	131	230	691
8	1670	1380	1250	1300	1040	1180	930	688	488	129	193	678
9	1690	1410	1230	1200	1060	1200	929	684	474	113	172	762
10	1730	1420	1230	1200	1100	1180	949	640	489	93	179	806
11	1740	1470	1250	1200	1120	1140	949	571	501	81	215	1150
12	1740	1400	1260	1200	1120	1140	936	543	483	80	310	1380
13	1770	1420	1260	1250	1120	1140	944	588	454	84	335	1540
14	1680	1420	1280	1300	1140	1100	955	904	428	85	375	1480
15	1580	1420	1240	1300	1140	1080	966	1130	417	111	445	1390
16	1550	1420	1170	1300	1140	1040	976	1400	386	146	497	1330
17	1580	1400	1130	1350	1140	1000	958	1600	368	152	527	1280
18	1570	1380	1210	1350	1160	989	959	1290	319	147	521	1230
19	1590	1360	1210	1400	1160	993	920	1110	280	166	524	1190
20	1590	1330	1210	1400	1160	1070	882	954	226	199	495	1160
21	1570	1290	1210	1400	1160	1080	891	847	189	207	478	1270
22	1550	1290	1230	1400	1160	1140	887	775	144	173	476	1190
23	1570	1310	1160	1400	1160	1090	879	725	111	156	485	1180
24	1580	1330	1080	1450	1160	1040	882	656	107	156	457	1300
25	1580	1350	1060	1450	1140	1030	884	576	115	152	456	1400
26	1570	1340	900	1500	1120	1030	880	526	118	139	532	1360
27	1510	1310	1000	1500	1120	1030	871	522	182	100	485	1350
28	1460	1140	1040	1500	1100	1030	832	516	665	93	519	1370
29	1430	1200	1100	1500	---	1040	803	523	830	99	533	1380
30	1420	1250	1140	1500	---	1040	780	518	666	137	536	1360
31	1400	---	1180	1500	---	1030	---	522	---	216	537	---
TOTAL	50760	40830	36900	42200	31340	32392	27707	24004	11782	5127	11917	32696
MEAN	1637	1361	1190	1361	1119	1045	924	774	393	165	384	1090
MAX	2050	1470	1280	1500	1400	1200	1050	1600	830	486	537	1540
MIN	1400	1140	900	1200	1000	700	780	516	107	80	172	517
AC-FT	100700	80990	73190	83700	62160	64250	54960	47610	23370	10170	23640	64850
CAL YR 1988	TOTAL 446965		MEAN	1221	MAX 3490	MIN 336	AC-FT 886600					
WTR YR 1989	TOTAL 347655		MEAN	952	MAX 2050	MIN 80	AC-FT 689600					

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, 1,557,000 acre-ft Apr. 27-29, elevation, 3,258.7 ft; minimum observed, 1,096,000 acre-ft Sept. 4, 6, elevation, 3,240.4 ft.

MONTHEND ELEVATION AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,248.7	1,291,000	-
Oct. 31	3,250.7	1,341,000	+50,000
Nov. 30	3,252.3	1,383,000	+42,000
Dec. 31	3,253.4	1,412,000	+29,000
CAL YR 1988	-	-	-59,000
Jan. 31	3,254.8	1,449,000	+37,000
Feb. 28	3,256.0	1,482,000	+33,000
Mar. 31	3,257.8	1,532,000	+50,000
Apr. 30	3,258.6	1,554,000	+22,000
May 31	3,257.4	1,520,000	-34,000
June 30	3,254.2	1,433,000	-87,000
July 31	3,246.7	1,242,000	-191,000
Aug. 31	3,240.6	1,100,000	-142,000
Sept. 30	3,241.7	1,125,000	+25,000
WTR YR 1989	-	-	-166,000

PLATTE RIVER BASIN

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.--47 years (water years 1943-89), 531 ft³/s, 384,700 acre-ft/yr; median of yearly mean discharges, 365 ft³/s, 264,000 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 1975-89.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,610 ft³/s June 24, gage height, 5.18 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	.00	.00	.00	.00	.00	.00	137	266	487	1190	147
2	.01	1.7	.00	.00	.00	.00	.00	152	263	488	1190	161
3	17	.00	.00	.00	.00	.00	.00	202	260	538	1330	154
4	25	.00	.00	.00	.00	.00	.00	205	261	625	1470	118
5	24	.00	.00	.00	.00	.00	.00	200	276	1130	1480	114
6	23	.00	.00	.00	.00	.00	.00	202	276	1500	1500	113
7	21	.00	.00	.00	.00	.00	.00	201	257	1700	1340	105
8	.58	.00	.00	.00	.00	.00	.00	210	258	1840	1130	102
9	.00	.00	.00	.00	.00	.00	.00	292	260	2070	1070	100
10	.00	.00	.00	.00	.00	.00	.00	353	248	2140	1160	238
11	.00	.00	.00	.00	.00	.00	.00	360	253	2130	1290	310
12	1.1	.00	.00	.00	.00	.00	.00	351	253	2240	1520	195
13	4.0	.00	.00	.00	.00	.00	.00	365	259	2300	1590	80
14	.01	.00	.00	.00	.00	.00	.00	386	255	2290	1620	46
15	.00	.00	.00	.00	.00	.00	.00	402	208	2000	1540	44
16	.61	.00	.00	.00	.00	.00	1.5	360	133	1820	1490	53
17	1.6	.00	.00	.00	.00	.00	37	305	121	1760	1480	45
18	.00	.00	.00	.00	.00	.00	32	242	126	1430	1540	26
19	.00	.00	.00	.00	.00	.00	113	242	261	1480	1570	1.5
20	.00	.00	.00	.00	.00	.00	95	247	624	1430	1560	.00
21	1.4	.00	.00	.00	.00	.00	80	258	1280	1430	1560	.00
22	.00	.00	.00	.00	.00	.00	81	263	1800	1410	1540	18
23	.00	2.4	.00	.00	.00	.00	78	270	2330	1440	1540	.29
24	3.1	.00	.00	.00	.00	.00	80	279	2200	1700	1660	3.8
25	2.5	.00	.00	.00	.00	.00	73	283	765	1910	1730	12
26	.04	.00	.00	.00	.00	.00	74	278	379	1920	1550	.41
27	.00	.00	.00	.00	.00	.00	72	271	265	1940	761	11
28	.00	.00	.00	.00	.00	.00	69	278	308	2040	256	.39
29	.00	.00	.00	.00	---	.00	67	273	450	2120	164	25
30	.00	.00	.00	.00	---	.00	112	271	469	2120	138	54
31	.00	---	.00	.00	---	.00	---	267	---	1490	140	---
TOTAL	130.25	4.10	0.00	0.00	0.00	0.00	1064.50	8405	15364	50918	39099	2277.39
MEAN	4.20	.14	.00	.00	.00	.00	35.5	271	512	1643	1261	75.9
MAX	25	2.4	.00	.00	.00	.00	113	402	2330	2300	1730	310
MIN	.00	.00	.00	.00	.00	.00	.00	137	121	487	138	.00
AC-FT	258	8.1	.0	.0	.0	.0	2110	16670	30470	101000	77550	4520

CAL YR 1988 TOTAL 113150.31 MEAN 309 MAX 2990 MIN .00 AC-FT 224400
WTR YR 1989 TOTAL 117262.24 MEAN 321 MAX 2330 MIN .00 AC-FT 232600

PLATTE RIVER BASIN

105

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. 8-10, 12, 13, 15-18, Dec. 23 to Jan. 29, Feb. 1 to Mar. 17, and Mar. 20. 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.--47 years (water years 1943-89), 535 ft³/s, 387,600 acre-ft/yr; median of yearly mean discharges, 361 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, 2,230 ft³/s June 24, gage height, 4.05 ft; minimum daily discharge, 80 ft³/s May 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	127	118	125	112	110	131	80	148	299	1400	205
2	132	127	124	130	110	90	130	82	134	284	1120	191
3	128	130	127	140	100	80	127	91	126	232	1200	205
4	132	128	129	150	100	90	124	104	124	244	1180	216
5	133	126	123	155	100	100	119	122	122	300	1110	186
6	139	124	121	160	100	110	116	118	146	752	1090	158
7	140	124	122	130	104	110	113	111	237	954	1140	148
8	138	123	120	96	106	110	116	99	193	1130	972	145
9	135	126	120	100	110	110	120	85	174	1250	836	173
10	128	123	122	100	120	120	120	103	175	1440	826	167
11	124	125	125	100	130	130	121	158	170	1510	876	148
12	122	135	125	102	140	130	122	152	236	1490	961	262
13	121	130	125	110	150	130	121	150	339	1590	1130	270
14	127	128	125	120	160	135	119	168	322	1630	1050	213
15	120	126	125	130	160	135	115	191	341	1650	1080	167
16	118	131	125	135	150	135	115	189	325	1370	988	145
17	118	133	125	140	140	135	118	205	235	1270	952	134
18	123	127	125	130	130	141	126	150	201	1170	935	125
19	126	128	127	130	130	137	117	104	123	976	1010	127
20	128	124	126	125	125	140	135	83	105	989	1010	131
21	130	122	130	125	120	151	163	98	368	950	997	132
22	128	118	125	120	120	154	135	112	920	935	1000	127
23	124	117	125	110	120	163	137	126	1410	957	993	126
24	120	118	125	104	120	155	120	144	1920	985	985	127
25	123	110	125	110	125	150	89	124	1690	1280	1140	127
26	123	110	122	120	125	145	82	115	835	1400	1400	122
27	124	110	120	120	125	139	82	119	421	1430	1200	117
28	126	115	114	116	120	136	85	114	227	1430	536	107
29	123	122	110	120	---	136	85	119	224	1500	316	104
30	123	116	110	122	---	138	82	111	276	1570	286	101
31	127	---	114	121	---	135	---	152	---	1990	232	---
TOTAL	3938	3703	3799	3796	3452	3980	3485	3879	12267	34957	29951	4706
MEAN	127	123	123	122	123	128	116	125	409	1128	966	157
MAX	140	135	130	160	160	163	163	205	1920	1990	1400	270
MIN	118	110	110	96	100	80	82	80	105	232	232	101
AC-FT	7810	7340	7540	7530	6850	7890	6910	7690	24330	69340	59410	9330

CAL YR 1988 TOTAL 125092 MEAN 342 MAX 2580 MIN 65 AC-FT 248100
WTR YR 1989 TOTAL 111913 MEAN 307 MAX 1990 MIN 80 AC-FT 222000

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. 27-29, Jan. 8, 9, Jan. 31 to Feb. 14, and Mar. 3-10. Records good except for period 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.--58 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, 321 ft³/s July 31, gage height, 2.15 ft; maximum gage height, 4.44 ft, Mar. 8, backwater from ice; minimum daily discharge, 97 ft³/s June 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	148	137	164	150	156	166	146	106	119	133	115
2	148	151	142	160	140	148	161	151	105	126	126	115
3	149	152	150	155	130	145	160	155	112	116	138	128
4	147	151	160	167	140	140	154	150	108	117	120	130
5	136	149	157	181	150	145	153	151	107	112	114	121
6	138	149	158	170	155	150	157	149	117	109	133	123
7	139	152	155	151	160	160	157	152	157	108	133	123
8	140	151	150	150	170	170	150	154	123	107	118	123
9	140	150	150	150	170	175	153	130	121	105	117	128
10	140	153	161	158	180	180	149	117	121	102	120	125
11	138	153	161	157	190	183	153	114	122	101	120	126
12	138	156	157	150	190	178	154	118	123	101	120	134
13	140	153	161	155	180	169	157	121	118	101	122	132
14	140	153	159	144	160	173	156	122	115	102	121	126
15	141	156	154	153	149	157	154	127	115	101	125	126
16	140	145	161	152	159	166	155	117	111	101	120	125
17	144	142	156	150	157	160	152	128	101	103	117	125
18	140	151	161	145	156	160	153	130	99	113	116	124
19	142	141	161	149	158	174	152	122	99	103	131	126
20	143	140	156	149	159	171	153	113	98	102	117	125
21	140	143	156	151	157	168	148	128	97	101	112	125
22	144	140	156	152	154	180	150	122	116	101	109	122
23	139	148	151	150	152	182	154	112	113	102	108	120
24	141	140	154	150	159	181	154	110	112	103	108	123
25	141	133	153	151	177	172	153	107	129	101	108	125
26	142	135	150	152	167	176	153	105	165	100	144	124
27	143	138	150	148	161	175	151	105	125	100	127	122
28	139	136	150	157	157	170	145	106	114	101	120	121
29	140	142	150	160	---	170	141	108	120	100	113	123
30	144	132	148	163	---	169	149	107	134	108	112	130
31	148	---	152	160	---	162	---	112	---	223	116	---
TOTAL	4392	4383	4777	4804	4487	5165	4597	3889	3503	3389	3738	3735
MEAN	142	146	154	155	160	167	153	125	117	109	121	124
MAX	149	156	161	181	190	183	166	155	165	223	144	134
MIN	136	132	137	144	130	140	141	105	97	100	108	115
AC-FT	8710	8690	9480	9530	8900	10240	9120	7710	6950	6720	7410	7410

CAL YR 1988 TOTAL 54967 MEAN 150 MAX 220 MIN 104 AC-FT 109000
WTR YR 1989 TOTAL 50859 MEAN 139 MAX 223 MIN 97 AC-FT 100900

PLATTE RIVER BASIN

107

06693000 NORTH PLATTE RIVER AT NORTH PLATTE, NE

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.

DRAINAGE AREA.--30,900 mi², approximately, of which about 26,300 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--February 1895 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WDR NE-67, WDR NE-76-1: Drainage area. WSP 2118: 1915(M).

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. 25 to Feb. 28, and Mar. 2-14. 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.

AVERAGE DISCHARGE.--47 years (water years 1943-89), 775 ft³/s, 561,500 acre-ft/yr; median of yearly mean discharges, 600 ft³/s, 435,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

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, 2,530 ft³/s July 31, gage height, 4.81 ft; minimum daily discharge, 212 ft³/s May 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	389	324	328	360	330	326	353	212	356	494	2170	488
2	379	317	331	370	320	300	320	219	339	479	1580	469
3	369	321	337	370	320	310	316	233	334	442	1480	498
4	354	321	340	370	320	320	303	254	324	417	1500	501
5	346	314	337	370	310	320	292	265	307	417	1490	477
6	346	310	336	370	320	320	304	274	301	482	1500	426
7	342	307	334	370	320	320	308	258	401	822	1640	400
8	345	311	330	360	320	320	284	258	428	946	1510	414
9	331	314	339	350	320	310	284	240	359	1130	1310	460
10	319	326	340	360	320	320	291	213	359	1280	1180	441
11	324	332	343	370	310	340	286	236	375	1440	1140	426
12	336	335	351	370	330	350	295	258	363	1460	1160	504
13	358	333	355	380	340	370	301	295	406	1540	1320	618
14	368	332	350	380	340	380	299	308	479	1620	1360	583
15	358	338	346	380	340	400	290	320	494	1690	1280	498
16	346	334	333	380	340	392	292	325	503	1620	1220	454
17	349	332	367	380	340	377	297	340	439	1440	1150	433
18	352	324	381	380	340	383	291	358	386	1430	1180	418
19	361	310	369	380	340	380	302	319	313	1200	1220	396
20	368	321	357	380	340	394	308	286	227	1130	1270	392
21	357	328	357	380	350	405	328	313	214	1120	1200	382
22	354	341	359	390	350	418	301	333	520	1070	1200	368
23	353	353	355	390	340	425	301	316	1080	1040	1260	355
24	340	350	364	390	350	430	305	311	1570	1100	1270	361
25	344	345	365	370	340	365	293	326	2000	1190	1360	349
26	326	340	360	370	340	354	276	321	1480	1500	1650	331
27	333	346	325	360	330	374	256	312	911	1590	1790	324
28	329	335	350	360	330	402	235	293	538	1590	1490	322
29	333	335	355	350	---	407	231	292	446	1600	842	323
30	329	337	360	350	---	401	219	293	489	1680	671	320
31	335	---	360	350	---	380	---	332	---	2250	557	---
TOTAL	10773	9866	10814	11490	9290	11293	8761	8913	16741	37209	40950	12731
MEAN	348	329	349	371	332	364	292	288	558	1200	1321	424
MAX	389	353	381	390	350	430	353	358	2000	2250	2170	618
MIN	319	307	325	350	310	300	219	212	214	417	557	320
AC-FT	21370	19570	21450	22790	18430	22400	17380	17680	33210	73800	81220	25250

CAL YR 1988 TOTAL 214672 MEAN 587 MAX 2590 MIN 302 AC-FT 425800
WTR YR 1989 TOTAL 188831 MEAN 517 MAX 2250 MIN 212 AC-FT 374500

PLATTE RIVER BASIN

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: Nov. 27, 28, Dec. 26-30, Jan. 8, 9, 12, 13, 15, 16, 29, Feb. 1-11, and Mar. 3-6. 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.--58 years, 10.4 ft³/s, 7,530 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, 8.6 ft³/s Apr. 22, gage height, 0.76 ft; maximum gage height, 1.68 ft Jan. 16, backwater from ice; minimum daily discharge, 1.4 ft³/s Aug. 30, 31, Sept. 1, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	3.5	4.1	4.0	4.2	4.2	4.4	3.6	3.7	2.6	2.1	1.4
2	3.3	3.5	4.0	4.0	4.2	4.3	4.2	3.7	3.5	2.4	2.0	1.5
3	3.2	3.5	4.1	4.0	4.2	4.1	4.2	3.7	3.5	2.4	1.8	1.5
4	3.3	3.6	4.0	4.0	4.2	4.0	4.3	3.6	4.3	2.4	1.7	1.5
5	3.2	3.5	4.0	4.2	4.2	4.0	4.2	3.6	4.0	2.3	1.7	1.4
6	3.2	3.6	4.1	4.1	4.2	4.3	4.6	3.7	3.9	2.3	1.7	1.5
7	3.2	3.6	4.2	3.9	4.2	4.8	4.3	3.7	4.0	2.2	1.9	1.5
8	3.1	3.7	4.2	3.9	4.2	4.7	4.4	3.6	4.2	2.3	2.0	1.7
9	2.9	3.7	4.3	3.9	4.2	4.4	5.1	3.7	5.3	2.3	2.0	1.7
10	2.9	3.7	4.4	4.0	4.2	4.2	4.7	3.6	4.3	2.2	2.0	1.6
11	3.1	3.7	4.3	3.9	4.2	4.2	4.8	3.7	3.9	2.2	1.8	1.5
12	2.9	3.8	4.3	4.0	4.5	4.3	4.7	3.9	3.7	2.2	2.1	1.6
13	2.9	3.7	4.1	4.0	4.2	4.3	4.4	4.0	3.5	2.3	2.0	1.7
14	2.9	3.8	4.0	4.0	4.2	4.1	4.4	4.4	3.5	2.4	1.9	1.6
15	2.9	3.8	4.1	4.0	4.1	4.1	4.1	4.2	3.4	2.3	1.9	1.6
16	3.0	3.7	4.0	4.0	4.1	4.2	4.2	3.9	3.5	2.3	1.8	1.7
17	3.0	3.7	4.0	4.6	4.1	4.0	4.1	4.0	3.4	2.1	1.9	1.7
18	3.1	3.9	4.1	4.6	4.1	4.1	4.1	3.7	3.3	2.0	1.6	1.7
19	3.2	3.8	4.1	4.6	4.2	4.4	4.1	3.5	3.1	2.1	1.6	1.7
20	3.2	3.8	4.0	4.6	4.2	4.5	4.0	3.6	3.0	2.1	1.8	1.7
21	3.2	3.8	4.0	4.6	4.2	4.4	3.9	3.8	2.8	2.2	1.7	1.8
22	3.2	3.9	3.8	4.6	4.2	4.4	4.7	3.8	2.9	2.1	1.6	1.9
23	3.1	3.9	3.9	4.6	4.4	4.5	3.6	3.6	2.9	2.1	1.7	1.8
24	3.2	3.9	3.9	4.5	4.3	4.7	3.9	3.5	2.9	2.2	1.6	1.8
25	3.3	3.8	4.0	4.4	4.4	4.4	3.8	3.4	2.8	2.1	1.5	1.8
26	3.3	3.9	4.0	4.3	4.4	4.2	3.9	3.5	2.9	2.1	1.5	1.9
27	3.3	3.8	4.0	4.4	4.4	4.2	3.7	3.6	2.8	2.0	1.5	1.9
28	3.3	3.9	4.0	4.4	4.3	4.5	3.7	3.6	2.6	2.1	1.5	1.8
29	3.3	4.1	4.0	4.5	---	4.3	3.6	3.6	2.6	2.0	1.5	1.9
30	3.4	4.0	4.0	4.5	---	4.3	3.6	3.5	2.7	2.4	1.4	1.9
31	3.5	---	4.1	4.6	---	4.5	---	3.6	---	2.3	1.4	---
TOTAL	98.0	112.6	126.1	131.7	118.5	133.6	125.7	114.9	102.9	69.0	54.2	50.3
MEAN	3.16	3.75	4.07	4.25	4.23	4.31	4.19	3.71	3.43	2.23	1.75	1.68
MAX	3.5	4.1	4.4	4.6	4.5	4.8	5.1	4.4	5.3	2.6	2.1	1.9
MIN	2.9	3.5	3.8	3.9	4.1	4.0	3.6	3.4	2.6	2.0	1.4	1.4
AC-FT	194	223	250	261	235	265	249	228	204	137	108	100

CAL YR 1988 TOTAL 1776.9 MEAN 4.85 MAX 25 MIN 2.0 AC-FT 3520
WTR YR 1989 TOTAL 1237.5 MEAN 3.39 MAX 5.3 MIN 1.4 AC-FT 2450

PLATTE RIVER BASIN

109

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.

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. 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: Oct. 1 to Dec. 19, Dec. 27 to Jan. 4, Feb. 3-9, Apr. 6-12, and May 25 to June 8. Records good except for estimated daily discharges, which are 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.--87 years, 546 ft³/s; 395,600 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, 14 ft³/s, July 27-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	125	196	500	700	900	141	47	40	45	97	159
2	136	126	186	500	500	868	150	35	40	41	78	148
3	148	121	198	550	300	800	159	40	40	43	56	129
4	157	116	214	600	250	700	205	32	40	42	45	127
5	163	111	248	700	250	600	208	30	50	42	37	137
6	161	106	256	800	250	700	210	30	70	43	31	139
7	156	101	249	900	250	900	210	35	70	45	24	144
8	160	95	235	1000	300	1000	210	33	270	49	27	159
9	179	74	224	800	400	1100	220	25	794	50	30	170
10	189	87	277	600	450	1040	220	27	853	41	37	190
11	200	91	300	650	500	969	220	30	547	39	34	226
12	219	94	363	700	550	945	200	28	318	31	37	283
13	224	102	428	770	600	871	179	24	221	29	45	442
14	180	99	455	750	700	706	195	31	163	29	40	621
15	151	101	445	700	750	595	200	37	137	25	42	619
16	140	103	485	650	800	516	208	85	109	19	41	571
17	115	105	530	700	900	433	189	46	75	22	44	533
18	117	104	494	800	1000	377	185	35	50	22	43	484
19	114	94	514	900	1050	344	201	34	43	20	47	441
20	112	96	547	1100	1100	315	172	31	31	22	49	425
21	108	98	627	1200	1200	269	147	137	27	18	47	395
22	101	109	697	1100	1300	279	148	58	25	16	45	385
23	98	124	731	1000	1300	254	140	52	26	16	50	335
24	94	123	830	900	1200	208	136	62	28	15	50	316
25	95	115	777	800	1100	197	132	60	28	16	47	317
26	94	113	810	800	1050	188	126	60	31	16	36	305
27	87	117	810	750	1040	209	104	60	32	14	51	292
28	74	112	750	750	889	158	78	60	37	14	58	280
29	78	112	650	800	---	134	70	50	70	16	71	278
30	87	156	600	900	---	147	60	49	59	31	124	264
31	105	---	550	900	---	135	---	50	---	69	161	---
TOTAL	4174	3230	14676	24570	20679	16857	5023	1413	4324	940	1624	9314
MEAN	135	108	473	793	739	544	167	45.6	144	30.3	52.4	310
MAX	224	156	830	1200	1300	1100	220	137	853	69	161	621
MIN	74	74	186	500	250	134	60	24	25	14	24	127
AC-FT	8280	6410	29110	48730	41020	33440	9960	2800	8580	1860	3220	18470

CAL YR 1988 TOTAL 194246 MEAN 531 MAX 2720 MIN 37 AC-FT 385300
WTR YR 1989 TOTAL 106824 MEAN 293 MAX 1300 MIN 14 AC-FT 211900

PLATTE RIVER BASIN

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. 16 to Mar. 13 and July 5-11, 13-18, 20-25, 27-30. 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.--7 years, 1,265 ft³/s, 916,500 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, 1,500 ft³/s Feb. 25, gage height, 8.02 ft, backwater from ice; minimum daily discharge, 0.5 ft³/s July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	94	155	420	900	950	229	115	56	124	163	32
2	140	95	187	420	700	900	221	106	58	85	216	60
3	135	89	214	480	500	850	215	98	57	84	259	69
4	140	94	228	510	200	800	210	88	54	89	216	74
5	148	96	241	680	200	700	217	79	55	20	121	58
6	152	97	265	960	250	600	223	70	60	16	69	37
7	128	96	283	1120	260	700	229	67	84	13	34	28
8	153	98	278	1200	270	900	224	61	85	11	45	23
9	152	102	282	1000	300	1000	232	54	259	8.0	28	29
10	151	102	279	660	400	1100	239	51	570	6.5	41	46
11	160	103	315	480	450	1140	253	49	819	5.5	19	47
12	158	114	369	640	490	1180	263	46	572	4.7	16	58
13	151	98	432	1060	520	1180	252	48	354	4.5	17	94
14	148	95	528	1020	600	1070	217	54	275	4.2	21	126
15	148	106	533	860	700	845	217	62	227	3.8	22	234
16	141	111	500	700	800	733	214	67	201	3.6	6.9	423
17	131	106	440	660	900	599	199	102	161	3.4	20	487
18	116	111	480	880	1000	534	190	129	130	3.2	7.9	483
19	101	108	500	920	1100	493	187	94	101	3.0	5.2	437
20	100	114	540	1200	1140	499	189	72	72	2.6	8.2	397
21	97	114	560	1300	1200	462	179	81	52	2.4	26	378
22	92	118	560	1300	1300	407	176	102	43	2.1	13	369
23	87	119	540	1200	1350	384	175	121	45	2.0	7.8	343
24	87	122	540	1100	1400	355	167	101	57	1.6	5.0	331
25	81	126	540	920	1400	301	158	79	106	1.2	4.0	306
26	79	130	520	820	1300	280	158	69	143	1.0	19	285
27	79	126	520	820	1200	264	151	70	74	.80	23	271
28	84	136	500	760	1000	250	135	68	56	.50	18	257
29	86	131	500	740	---	244	126	66	104	10	25	239
30	89	130	500	860	---	231	125	58	106	35	22	233
31	94	---	500	960	---	230	---	60	---	153	22	---
TOTAL	3755	3281	12829	26650	21830	20181	5970	2387	5036	704.60	1520.0	6254
MEAN	121	109	414	860	780	651	199	77.0	168	22.7	49.0	208
MAX	160	136	560	1300	1400	1180	263	129	819	153	259	487
MIN	79	89	155	420	200	230	125	46	43	.50	4.0	23
AC-FT	7450	6510	25450	52860	43300	40030	11840	4730	9990	1400	3010	12400

CAL YR 1988 TOTAL 208129 MEAN 569 MAX 3440 MIN 12 AC-FT 412800
WTR YR 1989 TOTAL 110397.60 MEAN 302 MAX 1400 MIN .50 AC-FT 219000

PLATTE RIVER BASIN

111

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. 27 to Jan. 12, Feb. 2-25, and Mar. 3-8. 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. South Platte canal diverts around station; diversion began Nov. 13, 1946.

AVERAGE DISCHARGE.--43 years (water years 1947-89, since Sutherland Canal diversion), 453 ft³/s, 328,200 acre-ft/yr; median of yearly mean discharges, 283 ft³/s, 205,000 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, 1,610 ft³/s Mar. 12, gage height, 3.89 ft; minimum daily, 90 ft³/s July 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	168	160	220	308	502	156	169	191	246	162	146
2	229	165	168	220	220	409	153	159	175	265	150	147
3	241	146	177	240	210	400	160	174	157	253	170	169
4	232	148	151	245	200	400	166	147	155	233	164	170
5	226	144	141	185	190	390	159	141	146	220	139	155
6	232	140	147	160	190	380	147	155	147	193	162	170
7	232	132	155	170	190	390	169	149	189	172	170	149
8	249	127	165	145	180	395	188	150	195	144	175	124
9	251	149	154	300	180	341	196	140	214	132	173	141
10	236	152	159	390	185	404	185	162	211	130	155	141
11	230	144	192	600	165	1320	203	175	228	127	148	140
12	250	154	201	450	170	1440	209	188	263	133	153	156
13	259	150	195	368	180	861	236	192	255	126	155	167
14	254	145	233	377	190	525	223	196	206	113	126	157
15	236	153	207	700	200	367	179	216	162	112	103	170
16	162	151	203	721	210	335	174	231	142	109	116	175
17	129	135	188	538	230	293	172	246	133	112	119	167
18	129	108	186	311	260	270	167	226	127	116	108	162
19	192	130	215	290	490	245	172	216	133	105	115	153
20	201	155	235	247	610	208	172	189	134	114	139	153
21	202	154	241	254	640	225	156	225	119	135	139	137
22	189	157	249	331	490	228	138	213	136	138	129	126
23	174	155	252	288	450	174	127	195	134	132	110	114
24	143	153	248	341	570	184	120	199	180	114	109	121
25	116	148	208	344	555	166	121	167	215	115	102	122
26	111	145	196	224	888	144	116	144	273	110	118	118
27	108	154	195	229	797	146	136	148	247	90	150	123
28	116	153	180	260	633	150	166	157	256	102	170	107
29	131	154	190	217	---	154	169	159	262	113	173	112
30	176	160	200	229	---	155	163	153	258	127	178	116
31	175	---	220	290	---	154	---	178	---	197	161	---
TOTAL	6029	4429	6011	9884	9781	11755	4998	5559	5643	4528	4441	4308
MEAN	194	148	194	319	349	379	167	179	188	146	143	144
MAX	259	168	252	721	888	1440	236	246	273	265	178	175
MIN	108	108	141	145	165	144	116	140	119	90	102	107
AC-FT	11960	8780	11920	19600	19400	23320	9910	11030	11190	8980	8810	8540

CAL YR 1988 TOTAL 138533 MEAN 379 MAX 2200 MIN 108 AC-FT 274800
WTR YR 1989 TOTAL 77366 MEAN 212 MAX 1440 MIN 90 AC-FT 153500

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. 30 to Mar. 9. Channel No. 4: Estimated daily discharge, Dec. 27-31, Jan. 8, 9, Feb. 2-12, and Mar. 3-7. 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

AVERAGE DISCHARGE.--48 years (water years 1942-89, since storage in Lake McConaughy), 790 ft³/s, 572,400 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, 1,920 ft³/s Aug. 1; minimum daily, 94 ft³/s June 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	113	139	142	152	196	163	139	125	214	1820	197
2	135	114	141	144	230	196	162	136	114	202	1510	187
3	137	122	141	146	295	184	156	130	118	195	1110	192
4	130	138	136	151	445	180	149	142	116	175	1040	195
5	129	124	140	155	450	180	142	142	113	165	984	193
6	131	126	132	157	400	200	140	138	112	150	934	172
7	131	125	119	158	400	245	146	138	134	280	1060	165
8	133	124	120	160	406	250	142	126	130	360	1050	169
9	131	120	132	164	410	255	149	124	126	571	916	188
10	132	121	147	169	415	614	138	122	127	788	869	180
11	126	119	134	170	420	644	142	118	125	953	863	172
12	117	126	138	170	425	982	140	123	123	1020	874	189
13	130	133	147	164	424	647	132	131	116	1050	889	203
14	132	119	136	164	392	306	137	128	110	1240	1000	208
15	120	124	122	151	401	214	143	129	108	1280	1020	193
16	118	122	111	151	360	191	147	127	112	1260	943	180
17	120	129	148	142	358	190	136	134	111	1210	829	177
18	116	135	168	141	360	183	132	161	108	1120	794	168
19	117	131	164	140	310	192	113	167	106	1040	852	156
20	121	129	164	140	260	188	127	160	103	1030	916	163
21	120	135	142	142	250	186	124	158	99	997	969	164
22	120	134	141	143	239	194	126	194	94	960	961	159
23	117	131	128	132	233	192	132	208	186	945	969	151
24	118	133	123	131	225	188	137	243	651	875	955	149
25	113	126	129	141	222	185	128	166	1170	856	1100	149
26	118	132	123	152	216	187	130	142	1500	929	1160	148
27	115	131	132	163	208	187	131	133	823	1110	1300	144
28	114	139	145	163	202	187	127	131	390	1100	1360	143
29	115	148	141	155	---	172	132	126	238	1150	735	142
30	116	139	146	155	---	169	133	121	233	1210	263	139
31	117	---	146	156	---	165	---	123	---	1470	219	---
TOTAL	3826	3842	4275	4712	9108	8249	4136	4460	7721	25905	30264	5135
MEAN	123	128	138	152	325	266	138	144	257	836	976	171
MAX	137	148	168	170	450	982	163	243	1500	1470	1820	208
MIN	113	113	111	131	152	165	113	118	94	150	219	139
AC-FT	7590	7620	8480	9350	18070	16360	8200	8850	15310	51380	60030	10190

CAL YR 1988 TOTAL 195265 MEAN 534 MAX 2690 MIN 109 AC-FT 387300
WTR YR 1989 TOTAL 111633 MEAN 306 MAX 1820 MIN 94 AC-FT 221400

PLATTE RIVER BASIN

113

06766500 PLATTE RIVER NEAR COZAD, NE

LOCATION (REVISED).--North Channel gage: Lat 40°50'19", long 99°59'17" in SE1/4NW1/4 sec.18, T.10 N., R.23 W., Dawson County, Hydrologic Unit 10200101, on left bank 10 ft downstream from highway bridge, 1.4 mi south of Cozad. South Channel gage: Lat 40°49'58", long 99°59'31" in SW1/4SW1/4 sec.18, T.10 N., R.23 W., Dawson County, on left bank 10 ft downstream from highway bridge, 1.6 mi south of Cozad.

DRAINAGE AREA.--56,500 mi², approximately, of which about 51,700 mi² contributes directly to surface runoff.

PERIOD OF RECORD.--July to September 1932, May 1937 to current year (prior to April 1939, irrigation seasons only). Monthly discharge only for some periods, published in WSP 1310.

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

GAGE.--Two water-stage recorders. Datum of gage on south channel is 2,473.07 ft and on north channel, 2,475.72 ft above National Geodetic Vertical Datum of 1929 (Nebraska Department of Roads bench mark). SEE WSP 2118 for history of changes prior to May 10, 1966. North channel gage: May 10, 1966, to May 10, 1976, at datum 1.00 ft higher and May 11, 1976, to June 16, 1977, at present datum, both at downstream side of previous highway bridge 1,100 ft downstream, June 17, 1977 to Nov. 15, 1988, 30 ft upstream of previous highway bridge, 1,110 ft downstream of present site, at present datum. South channel gage: May 10, 1966, to July 17, 1980, at downstream side of previous highway bridge 1,300 ft downstream, at present datum, July 18, 1980 to Nov. 15, 1988, 20 ft upstream of previous highway bridge, 1,300 ft downstream of present site, at present datum.

REMARKS.--Estimated daily discharges on one or both channels: Nov. 13-17, Dec. 1 to Mar. 7. 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.--48 years (water years 1942-89, since storage in Lake McConaughy), 701 ft³/s, 507,900 acre-ft/yr; median of yearly mean discharges, 325 ft³/s, 235,000 acre-ft/yr. Figures are unadjusted for storage or diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft³/s June 29, 1983; no flow at times in 1937-40.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,450 ft³/s June 26; minimum daily, 12 ft³/s May 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	223	253	246	246	243	266	94	27	91	362	172
2	225	226	253	268	211	232	276	48	36	186	586	188
3	217	223	250	265	266	223	269	15	40	230	155	176
4	194	236	244	255	366	228	241	13	32	215	96	146
5	187	239	245	267	517	226	225	13	26	114	125	214
6	188	229	241	275	518	322	242	12	18	35	134	259
7	199	236	240	254	466	413	238	13	44	29	164	251
8	222	234	231	131	477	736	235	18	57	48	94	255
9	235	234	225	217	517	830	252	14	50	89	104	303
10	237	235	240	225	527	782	236	15	44	69	74	285
11	258	239	242	242	525	586	196	17	39	59	79	269
12	252	240	237	252	507	814	180	19	33	115	77	292
13	245	241	242	296	513	1120	184	59	27	65	104	318
14	261	231	233	302	512	840	203	73	20	28	121	298
15	258	211	225	284	464	497	192	84	24	17	104	284
16	247	206	214	274	465	416	199	55	20	38	31	272
17	240	206	211	262	435	356	210	45	22	147	23	262
18	241	230	230	273	415	325	183	77	40	174	26	249
19	242	224	247	273	415	320	167	96	23	65	70	239
20	237	218	277	258	364	317	160	61	29	104	54	232
21	237	232	258	262	314	304	150	37	56	99	57	219
22	233	247	254	270	304	310	143	28	50	110	26	215
23	232	254	241	261	283	312	139	21	34	116	37	212
24	226	255	236	251	274	311	143	19	97	39	24	207
25	226	255	232	245	263	304	135	35	542	20	55	202
26	225	262	227	245	264	313	131	17	1180	20	28	193
27	226	257	137	245	253	311	128	17	1090	18	312	187
28	220	262	151	275	253	320	119	31	468	19	869	181
29	217	257	215	268	---	321	115	36	167	34	1010	176
30	213	243	232	272	---	297	106	25	76	76	481	174
31	224	---	237	273	---	258	---	20	---	214	236	---
TOTAL	7095	7085	7200	7986	10934	13187	5663	1127	4411	2683	5718	6930
MEAN	229	236	232	258	390	425	189	36.4	147	86.5	184	231
MAX	261	262	277	302	527	1120	276	96	1180	230	1010	318
MIN	187	206	137	131	211	223	106	12	18	17	23	146
AC-FT	14070	14050	14280	15840	21690	26160	11230	2240	8750	5320	11340	13750

CAL YR 1988 TOTAL 157597 MEAN 431 MAX 2740 MIN 23 AC-FT 312600
WTR YR 1989 TOTAL 80019 MEAN 219 MAX 1180 MIN 12 AC-FT 158700

PLATTE RIVER BASIN

06768000 PLATTE RIVER NEAR OVERTON, NE

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.

DRAINAGE AREA.--57,700 mi², approximately, of which about 52,900 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to September 1914 (gage heights only), October 1914 to current year. Monthly discharge only for some periods, published in WSP 1310. Published as "near Elm Creek" 1914-15.

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

GAGE.--Water-stage recorder. Datum of gage is 2,297.83 ft above National Geodetic Vertical Datum of 1929. July 1914 to October 1917, nonrecording gages at site 8 mi downstream at different datum. June 1918 to Sept. 12, 1928, nonrecording gage at present site (south channel only) at datum 4.0 ft higher. Sept. 13, 1928 to Sept. 30, 1930, nonrecording gage and Oct. 1, 1930 to Sept. 30, 1968, water-stage recorder, at present site (south channel only) at datum 2.0 ft higher. Oct. 1, 1968 to Feb. 3, 1976, water-stage recorder on south channel at present site at datum 2.0 ft higher, and Feb. 4 to June 2, 1976 (south channel gage discontinued), at datum 1.0 ft higher. Oct. 1, 1968 to July 10, 1974, north channel gage at present site at datum 2.0 ft higher and July 11, 1974 to June 1, 1976, at datum 1.0 ft higher. June 2, 1976 to Aug. 19, 1984, at site 600 ft downstream, at datum 1.0 ft higher. Aug. 20, 1984 to Oct. 6, 1986, at site 600 ft downstream.

REMARKS.--Estimated daily discharge: Oct. 1, 2, and Dec. 26 to Feb. 24. 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 1942-89, since storage in Lake McConaughy), 1,649 ft³/s, 1,195,000 acre-ft per year; median of yearly mean discharges, 1,224 ft³/s, 887,000 acre-ft per year.

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, 4,090 ft³/s June 27, gage height, 4.07 ft; maximum gage height, 4.61 ft Feb. 11, backwater from ice; minimum daily discharge, 137 ft³/s June 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	653	1190	1200	1600	2790	1080	365	169	1450	347	1520
2	1300	677	1190	1300	1600	2420	1050	403	163	2170	743	972
3	1560	642	1240	1350	1550	2420	1040	343	160	2230	984	1080
4	1740	540	1230	1450	1500	1700	1000	312	143	1840	454	1290
5	1770	669	1390	1550	1550	1970	946	306	146	1140	286	849
6	1330	644	1280	1400	1600	2290	869	303	138	540	252	872
7	1540	667	1310	1300	1600	2100	779	382	137	382	293	801
8	1380	752	1190	1400	1600	2490	731	414	140	323	287	854
9	1410	791	1220	1450	1650	2880	746	346	353	297	255	1070
10	1450	775	1190	1450	1650	2810	753	304	370	288	262	1160
11	1530	753	1190	1500	1650	2440	792	279	298	320	253	1280
12	1250	737	1120	1600	1700	2160	755	272	316	278	268	1510
13	968	717	1120	1700	1700	2680	700	293	488	282	275	1410
14	923	676	1020	1700	1700	3270	596	336	521	265	273	1450
15	1110	698	945	1700	1650	3010	669	352	527	232	272	1300
16	1120	719	1020	1700	1650	2770	736	332	484	184	287	1110
17	1130	862	1060	1750	1600	2560	588	369	336	408	256	997
18	957	829	1140	1800	1600	2170	537	582	202	1050	217	969
19	814	831	1150	1700	1600	2030	591	888	172	937	229	908
20	834	847	1290	1600	1700	1900	627	842	173	451	227	913
21	722	865	1540	1500	1800	1890	585	835	165	306	244	859
22	779	980	1310	1400	1900	2010	614	799	161	281	234	746
23	792	895	1310	1400	2000	2100	541	780	309	274	220	723
24	840	1220	1300	1400	2000	1900	546	795	309	270	200	698
25	786	1020	1260	1550	2100	1790	486	510	2530	238	202	750
26	725	949	1100	1600	2150	1760	519	429	3240	219	212	673
27	689	958	1000	1750	2090	1750	506	356	3740	201	852	691
28	658	941	1100	1850	2630	1280	390	336	2790	185	2110	747
29	649	1140	1100	1800	---	983	352	515	1420	190	2690	737
30	635	1120	1100	1650	---	921	332	310	1360	176	2390	758
31	668	---	1200	1600	---	991	---	171	---	268	2090	---
TOTAL	33159	24567	36805	48100	49120	66235	20456	13859	21460	17675	18164	29697
MEAN	1070	819	1187	1552	1754	2137	682	447	715	570	586	990
MAX	1770	1220	1540	1850	2630	3270	1080	888	3740	2230	2690	1520
MIN	635	540	945	1200	1500	921	332	171	137	176	200	673
AC-FT	65770	48730	73000	95410	97430	131400	40570	27490	42570	35060	36030	58900

CAL YR 1988 TOTAL 563113 MEAN 1539 MAX 4560 MIN 91 AC-FT 1117000
WTR YR 1989 TOTAL 379297 MEAN 1039 MAX 3740 MIN 137 AC-FT 752300

PLATTE RIVER BASIN

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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, 1,090 microsiemens Mar. 5 (north channel), Mar. 1 (south channel); minimum daily, 176 microsiemens June 25 (south chan.).

WATER TEMPERATURES: Maximum daily, 33.0°C July 6, Aug. 3 (north chan.); minimum daily, 0.0°C on several days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER AS (00900)	HARD- NESS TOTAL (MG/L CACO3)	
OCT												
12...	1230	1300		780	8.54	13.0	705	10.8	--	76	K30	--
12...	1235	--	--	--	--	--	--	--	19	--	--	260
NOV												
01...	1130	600		870	8.58	10.0	700	11.6	11	--	37	280
DEC												
07...	1430	1430		892	8.63	3.0	709	12.7	--	K4	20	--
07...	1435	--	--	--	--	--	--	--	22	--	--	280
JAN												
05...	1300	2100		890	8.58	2.5	687	12.5	--	16	33	--
05...	1305	--	--	--	--	--	--	--	13	--	--	280
31...	0945	2400		972	8.66	3.0	690	12.3	11	15	5100	320
MAR												
06...	1215	1620		1130	8.40	0.5	704	12.6	--	68	220	--
06...	1220	--	--	--	--	--	--	--	9	--	--	370
APR												
06...	1300	1220		972	8.66	12.5	702	10.7	--	700	2400	--
06...	1305	--	--	--	--	--	--	--	16	--	--	310
MAY												
02...	1500	402		919	8.61	21.0	700	10.3	17	K8	22	300
31...	1445	210		928	8.55	14.5	705	9.8	--	560	300	--
31...	1450	--	--	--	--	--	--	--	<8	--	--	310
JUN												
26...	1300	3540		762	8.46	23.5	700	9.9	--	20000	1200	--
26...	1305	--	--	--	--	--	--	--	50	--	--	210
JUL												
26...	1415	212		899	8.71	30.5	700	10.5	--	28	54	--
26...	1420	--	--	--	--	--	--	--	29	--	--	290
AUG												
23...	1100	212		953	8.56	22.5	700	10.6	--	120	160	--
23...	1105	--	--	--	--	--	--	--	8	--	--	310
30...	1030	1720		767	8.44	21.5	700	7.4	32	K3100	1000	230

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

PLATTE RIVER BASIN

06768000 PLATTE RIVER NEAR OVERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 12...	--	--	80	--	16	--	--	0.50	27	--	--
12...	67	22	87	2	--	220	23	--	--	419	0.57
NOV 01...	77	22	76	2	--	210	27	--	--	412	0.56
DEC 07...	--	--	77	--	11	--	--	0.50	31	--	--
07...	75	22	76	2	--	200	23	--	--	396	0.54
JAN 05...	--	--	78	--	7.7	--	--	0.50	31	--	--
05...	77	21	76	2	--	210	26	--	--	410	0.56
31...	85	25	87	2	--	260	35	--	--	492	0.67
MAR 06...	--	--	98	--	11	--	--	0.60	28	--	--
06...	100	29	95	2	--	260	44	--	--	528	0.72
APR 06...	--	--	83	--	11	--	--	0.50	25	--	--
06...	84	25	87	2	--	160	39	--	--	395	0.54
MAY 02...	77	26	85	2	--	250	39	--	--	477	0.65
31...	--	--	80	--	14	--	--	0.50	25	--	--
31...	83	25	76	2	--	200	34	--	--	418	0.57
JUN 26...	--	--	70	--	14	--	--	0.50	10	--	--
26...	53	18	70	2	--	210	30	--	--	381	0.52
JUL 26...	--	--	83	--	16	--	--	0.60	28	--	--
26...	78	24	82	2	--	200	29	--	--	413	0.56
AUG 23...	--	--	85	--	15	--	--	0.60	29	--	--
23...	82	25	86	2	--	240	29	--	--	462	0.63
30...	61	18	71	2	--	180	22	--	--	352	0.48

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)
OCT 12...	--	--	--	1.10	--	--	--	--	--	0.030
12...	--	34	0.840	--	0.050	0.72	0.77	1.6	0.200	--
NOV 01...	667	11	1.20	--	<0.020	--	<0.50	--	0.060	--
DEC 07...	--	--	--	1.20	--	--	--	--	--	0.120
07...	--	8	1.00	--	<0.020	--	1.2	2.2	0.120	--
JAN 05...	--	--	--	1.10	--	--	--	--	--	0.030
05...	--	19	1.60	--	0.080	--	<0.50	--	0.110	--
31...	3190	6	1.40	--	0.030	0.73	0.76	2.2	0.120	--
MAR 06...	--	--	--	2.10	--	--	--	--	--	0.090
06...	--	7	1.80	--	0.230	0.28	0.51	2.3	0.110	--
APR 06...	--	--	--	1.50	--	--	--	--	--	0.020
06...	--	17	1.50	--	<0.020	--	0.70	2.2	<0.020	--
MAY 02...	518	22	1.10	--	<0.020	--	<0.50	--	0.090	--
31...	--	--	--	1.30	--	--	--	--	--	0.020
31...	--	5	1.50	--	0.110	0.45	0.56	2.1	0.080	--
JUN 26...	--	--	--	0.470	--	--	--	--	--	0.090
26...	--	300	0.490	--	0.100	1.7	1.8	2.3	0.540	--
JUL 26...	--	--	--	0.670	--	--	--	--	--	0.040
26...	--	14	0.710	--	0.130	--	<0.50	--	0.110	--
AUG 23...	--	--	--	0.700	--	--	--	--	--	0.030
23...	--	8	0.820	--	<0.020	--	<0.50	--	0.190	--
30...	1630	99	0.730	--	0.050	1.0	1.1	1.8	0.290	--

PLATTE RIVER BASIN

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06768000 PLATTE RIVER NEAR OVERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	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)
OCT							
12...	1230	--	140	--	--	--	4
12...	1235	--	--	--	--	--	--
NOV							
01...	1130	50	--	<15	10	<10	--
DEC							
07...	1430	--	120	--	--	--	<3
07...	1435	--	--	--	--	--	--
JAN							
05...	1300	--	120	--	--	--	8
05...	1305	--	--	--	--	--	--
31...	0945	9	--	<15	<10	<10	--
MAR							
06...	1215	--	160	--	--	--	<3
06...	1220	--	--	--	--	--	--
APR							
06...	1300	--	150	--	--	--	4
06...	1305	--	--	--	--	--	--
MAY							
02...	1500	22	--	<15	<10	<10	--
31...	1445	--	140	--	--	--	3
31...	1450	--	--	--	--	--	--
JUN							
26...	1300	--	110	--	--	--	26
26...	1305	--	--	--	--	--	--
JUL							
26...	1415	--	120	--	--	--	6
26...	1420	--	--	--	--	--	--
AUG							
23...	1100	--	150	--	--	--	<3
23...	1105	--	--	--	--	--	--
30...	1030	6	--	<15	<10	<10	--

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)	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)
OCT							
12...	--	2	--	--	--	--	--
12...	--	--	--	--	--	--	4.2
NOV							
01...	20	--	0.10	22	<1	<30	4.9
DEC							
07...	--	3	--	--	--	--	--
07...	--	--	--	--	--	--	8.9
JAN							
05...	--	4	--	--	--	--	--
05...	--	--	--	--	--	--	7.6
31...	<20	--	<0.10	6	<1	<30	6.7
MAR							
06...	--	4	--	--	--	--	--
06...	--	--	--	--	--	--	3.7
APR							
06...	--	2	--	--	--	--	--
06...	--	--	--	--	--	--	3.6
MAY							
02...	<20	--	<0.50	19	<1	<30	3.8
31...	--	10	--	--	--	--	--
31...	--	--	--	--	--	--	3.3
JUN							
26...	--	5	--	--	--	--	--
26...	--	--	--	--	--	--	6.4
JUL							
26...	--	6	--	--	--	--	--
26...	--	--	--	--	--	--	6.0
AUG							
23...	--	36	--	--	--	--	--
23...	--	--	--	--	--	--	3.4
30...	<20	--	<0.50	4	<1	<30	6.1

PLATTE RIVER BASIN

06767998 PLATTE RIVER NEAR OVERTON, NE (NORTH CHANNEL)

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	884	874	856	858	900	903	899	896	920	831	860	845
2	793	798	852	844	1010	970	879	900	882	786	829	854
3	877	856	827	847	1030	1050	885	877	871	786	831	802
4	870	851	857	831	1030	1020	887	909	875	827	911	803
5	894	831	854	841	1020	1090	892	917	927	841	896	840
6	888	848	854	829	1010	987	896	915	912	855	892	819
7	871	842	862	856	---	959	892	920	836	873	919	823
8	877	847	864	898	---	885	894	912	902	842	939	812
9	862	857	857	921	---	816	902	914	939	859	899	875
10	883	838	866	893	---	807	896	925	922	862	892	838
11	862	842	834	883	---	741	900	928	926	811	905	845
12	893	839	838	871	---	800	900	929	899	853	912	780
13	879	841	837	873	---	664	915	896	925	864	857	829
14	879	837	844	893	---	768	909	894	942	793	881	828
15	871	843	841	883	899	804	904	923	928	861	878	829
16	879	839	843	852	811	882	887	900	932	874	867	835
17	879	862	844	859	951	908	899	889	913	870	896	856
18	878	844	839	848	973	928	847	884	914	838	894	854
19	884	854	838	847	964	925	893	911	908	848	879	829
20	875	846	814	879	943	916	887	927	916	854	870	844
21	884	823	819	888	910	882	886	904	887	861	877	851
22	892	824	829	816	917	950	890	910	882	843	914	853
23	889	838	806	873	1020	879	910	936	862	825	903	849
24	881	859	847	877	923	1040	893	945	853	828	898	862
25	815	850	835	882	888	909	904	933	693	845	921	866
26	870	829	836	902	823	914	894	927	797	846	915	887
27	875	850	845	904	911	921	906	934	750	841	625	849
28	880	839	895	887	914	908	902	924	787	830	691	863
29	893	804	871	872	---	828	891	920	819	822	814	847
30	882	857	871	910	---	880	903	920	812	852	822	844
31	895	---	849	907	---	868	---	884	---	773	862	---
MEAN	875	842	846	872	---	897	895	913	878	839	869	840

06767999 PLATTE RIVER NEAR OVERTON, NE (SOUTH CHANNEL)

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	796	856	832	827	958	1090	1010	927	949	795	876	762
2	883	845	813	823	1000	1080	996	932	921	761	849	780
3	817	855	835	838	996	1020	1000	913	945	760	858	743
4	815	859	807	839	---	1040	998	939	915	818	916	745
5	842	925	800	843	997	1010	994	937	910	855	897	799
6	843	856	800	852	988	1030	986	936	932	864	821	806
7	822	858	801	864	969	1040	952	946	869	872	825	807
8	830	842	811	853	969	1070	972	942	919	873	874	753
9	832	840	800	880	962	1040	950	937	957	862	941	754
10	854	843	812	854	984	982	953	944	935	854	905	793
11	837	858	810	865	982	930	957	946	936	827	919	789
12	887	862	828	859	982	1070	938	947	938	852	887	759
13	860	852	800	868	993	1060	944	928	944	857	841	781
14	860	845	812	873	1000	1080	890	925	943	816	858	790
15	833	835	800	883	996	1070	918	900	942	847	845	792
16	846	843	808	906	931	1070	918	927	947	826	870	822
17	843	835	805	899	1050	1060	925	915	922	826	918	813
18	848	829	814	907	1030	1050	915	940	927	804	932	812
19	854	833	812	912	1000	1050	919	937	923	808	918	830
20	847	836	808	927	1050	1040	910	952	931	859	917	815
21	860	845	811	927	1010	997	898	945	913	842	857	820
22	870	843	802	942	1000	1060	904	937	907	851	854	820
23	862	825	830	942	1020	1000	900	947	898	830	879	818
24	861	833	799	945	1010	944	900	955	867	826	871	822
25	864	826	817	944	1050	960	924	960	176	844	880	818
26	869	822	814	968	994	1000	933	952	502	840	856	841
27	871	816	813	969	1080	1050	925	962	484	840	272	825
28	872	825	835	952	1070	1010	926	953	577	832	478	841
29	883	820	826	961	---	1040	911	946	857	837	568	834
30	871	832	820	966	---	1020	912	946	650	857	651	827
31	876	---	815	980	---	989	---	912	---	786	727	---
MEAN	852	843	813	899	---	1030	939	938	848	833	825	800

PLATTE RIVER BASIN

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06767998 PLATTE RIVER NEAR OVERTON, NE (NORTH CHANNEL)

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	14.0	4.0	1.0	1.0	1.0	14.0	22.0	24.0	27.0	31.0	26.0
2	19.0	8.0	8.0	1.0	1.0	1.0	15.0	22.0	20.0	31.0	30.0	24.0
3	18.0	11.0	7.0	4.0	1.0	1.0	15.0	15.0	27.0	31.0	33.0	25.0
4	14.0	9.0	7.0	4.0	1.0	1.0	13.0	21.0	20.0	31.0	31.0	25.0
5	10.0	9.0	7.0	4.0	1.0	1.0	14.0	18.0	14.0	27.0	28.0	24.0
6	10.0	12.0	7.0	3.0	1.0	1.0	14.0	23.0	17.0	33.0	23.0	28.0
7	13.0	13.0	4.0	1.0	.0	1.0	18.0	23.0	27.0	31.0	25.0	26.0
8	18.0	9.0	2.0	1.0	.0	1.0	13.0	21.0	27.0	31.0	26.0	20.0
9	17.0	7.0	2.0	1.0	.0	3.0	10.0	24.0	21.0	31.0	26.0	18.0
10	15.0	9.0	3.0	1.0	.0	1.0	10.0	19.0	20.0	23.0	22.0	23.0
11	18.0	7.0	3.0	1.0	.0	9.0	14.0	18.0	22.0	32.0	23.0	14.0
12	13.0	10.0	2.0	1.0	.0	9.0	16.0	13.0	28.0	31.0	19.0	11.0
13	16.0	10.0	4.0	1.0	.0	8.0	18.0	13.0	18.0	23.0	30.0	11.0
14	20.0	10.0	4.0	2.0	.0	5.0	18.0	23.0	22.0	25.0	25.0	13.0
15	18.0	2.0	1.0	3.0	1.0	3.0	17.0	24.0	22.0	21.0	26.0	22.0
16	17.0	5.0	2.0	2.0	1.0	9.0	13.0	21.0	26.0	20.0	27.0	16.0
17	16.0	5.0	4.0	2.0	1.0	8.0	19.0	20.0	25.0	29.0	27.0	25.0
18	18.0	3.0	4.0	4.0	1.0	8.0	13.0	19.0	23.0	27.0	26.0	24.0
19	18.0	5.0	3.0	5.0	1.0	8.0	23.0	23.0	30.0	29.0	30.0	22.0
20	15.0	5.0	2.0	1.0	1.0	4.0	26.0	25.0	30.0	30.0	29.0	25.0
21	15.0	6.0	1.0	1.0	1.0	4.0	25.0	25.0	28.0	23.0	32.0	23.0
22	10.0	6.0	4.0	6.0	1.0	11.0	27.0	21.0	24.0	28.0	23.0	20.0
23	15.0	7.0	3.0	5.0	1.0	8.0	20.0	29.0	26.0	30.0	28.0	16.0
24	14.0	6.0	2.0	2.0	1.0	13.0	24.0	25.0	23.0	30.0	25.0	17.0
25	13.0	5.0	3.0	2.0	1.0	7.0	23.0	22.0	26.0	28.0	31.0	20.0
26	15.0	5.0	3.0	3.0	1.0	12.0	25.0	20.0	28.0	31.0	30.0	12.0
27	13.0	2.0	1.0	5.0	1.0	14.0	25.0	25.0	29.0	29.0	22.0	20.0
28	8.0	3.0	1.0	2.0	1.0	18.0	20.0	30.0	24.0	32.0	23.0	13.0
29	5.0	2.0	1.0	5.0	---	14.0	19.0	30.0	29.0	31.0	23.0	13.0
30	10.0	2.0	1.0	6.0	---	11.0	14.0	18.0	23.0	31.0	27.0	19.0
31	8.0	---	1.0	9.0	---	11.0	---	13.0	---	30.0	28.0	---
MEAN	14.4	6.9	3.3	2.9	.7	6.6	17.8	21.5	24.1	28.6	26.7	19.8

06767999 PLATTE RIVER NEAR OVERTON, NE (SOUTH CHANNEL)

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	13.0	5.0	1.0	1.0	1.0	13.0	19.0	23.0	25.0	31.0	25.0
2	19.0	8.0	6.0	1.0	1.0	1.0	15.0	21.0	20.0	29.0	29.0	24.0
3	18.0	10.0	6.0	3.0	1.0	1.0	14.0	15.0	25.0	29.0	31.0	25.0
4	13.0	8.0	6.0	4.0	.0	1.0	13.0	19.0	20.0	29.0	30.0	23.0
5	12.0	8.0	6.0	2.0	1.0	1.0	14.0	17.0	14.0	26.0	27.0	24.0
6	12.0	11.0	6.0	3.0	1.0	1.0	14.0	22.0	17.0	31.0	22.0	28.0
7	14.0	11.0	4.0	1.0	1.0	1.0	17.0	22.0	27.0	30.0	24.0	25.0
8	17.0	9.0	3.0	1.0	1.0	1.0	15.0	19.0	27.0	30.0	23.0	20.0
9	15.0	7.0	3.0	1.0	1.0	2.0	11.0	23.0	21.0	31.0	23.0	19.0
10	14.0	9.0	3.0	1.0	1.0	1.0	11.0	18.0	21.0	27.0	22.0	18.0
11	16.0	7.0	3.0	1.0	1.0	7.0	13.0	17.0	22.0	31.0	23.0	16.0
12	13.0	9.0	2.0	1.0	1.0	5.0	15.0	13.0	27.0	28.0	19.0	13.0
13	15.0	9.0	5.0	1.0	1.0	5.0	17.0	13.0	18.0	27.0	30.0	11.0
14	18.0	9.0	3.0	1.0	1.0	5.0	17.0	22.0	21.0	24.0	26.0	13.0
15	16.0	3.0	1.0	2.0	1.0	3.0	18.0	23.0	23.0	21.0	26.0	21.0
16	16.0	5.0	2.0	3.0	1.0	6.0	12.0	21.0	26.0	20.0	27.0	16.0
17	15.0	7.0	4.0	3.0	1.0	7.0	18.0	19.0	24.0	28.0	27.0	24.0
18	17.0	4.0	5.0	4.0	1.0	7.0	13.0	18.0	23.0	26.0	26.0	23.0
19	17.0	5.0	2.0	4.0	1.0	6.0	22.0	22.0	31.0	27.0	30.0	21.0
20	15.0	6.0	1.0	1.0	1.0	3.0	24.0	25.0	28.0	30.0	29.0	24.0
21	15.0	5.0	1.0	1.0	1.0	4.0	24.0	23.0	28.0	23.0	31.0	22.0
22	10.0	5.0	3.0	5.0	1.0	9.0	25.0	21.0	23.0	27.0	22.0	19.0
23	14.0	9.0	2.0	4.0	1.0	7.0	19.0	28.0	24.0	29.0	27.0	12.0
24	13.0	5.0	4.0	3.0	1.0	11.0	23.0	23.0	23.0	29.0	25.0	17.0
25	13.0	5.0	3.0	2.0	1.0	6.0	22.0	21.0	23.0	27.0	31.0	19.0
26	15.0	5.0	3.0	3.0	1.0	10.0	25.0	20.0	23.0	30.0	30.0	12.0
27	11.0	2.0	1.0	5.0	1.0	11.0	25.0	25.0	23.0	28.0	20.0	19.0
28	10.0	4.0	1.0	2.0	1.0	11.0	19.0	30.0	22.0	32.0	23.0	13.0
29	6.0	3.0	1.0	4.0	---	12.0	18.0	28.0	27.0	31.0	22.0	13.0
30	11.0	3.0	1.0	5.0	---	11.0	14.0	17.0	22.0	31.0	24.0	18.0
31	9.0	---	1.0	6.0	---	11.0	---	13.0	---	30.0	27.0	---
MEAN	14.1	6.8	3.1	2.5	1.0	5.4	17.3	20.5	23.2	27.9	26.0	19.2

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. 26, 27, and Jan. 8 to Mar. 15. 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.--48 years (water years 1942-89, since storage in Lake McConaughy), 1,567 ft³/s, 1,135,000 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, 5,980 ft³/s June 25, gage height, 5.18 ft; minimum daily, 35 ft³/s June 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	547	1180	1350	1750	2400	1290	249	68	1410	193	1320
2	1120	586	1170	1330	1700	2500	1180	266	85	1880	309	1070
3	1200	640	1190	1450	1600	2200	1130	230	74	2530	758	982
4	1160	636	1130	1490	1500	1800	1040	230	65	2050	713	1390
5	1240	590	1220	1590	1400	1900	1030	152	77	1270	290	1050
6	1100	613	1170	1620	1350	2100	1030	129	84	594	231	805
7	825	633	1170	1380	1350	2100	926	179	50	275	259	750
8	1060	633	1070	1350	1400	2200	807	241	40	133	233	777
9	910	732	1080	1500	1500	2700	750	176	37	85	195	1090
10	1050	710	1110	1550	1600	2600	802	134	214	60	146	949
11	1090	711	1060	1550	1700	2500	754	94	123	55	125	845
12	1090	738	977	1650	1800	2800	746	78	110	49	119	1060
13	823	718	1110	1750	1800	3300	661	85	171	43	107	1220
14	758	708	1020	1800	1800	3100	622	117	220	85	96	1270
15	804	779	988	1800	1700	3000	647	125	246	232	96	1270
16	906	734	1090	1800	1700	2320	623	121	253	132	114	1170
17	929	810	1270	1850	1700	2330	643	150	169	63	101	1050
18	888	852	1270	1850	1700	1920	690	282	107	625	82	976
19	734	830	1300	1900	1800	1700	609	510	68	757	87	893
20	691	868	1330	1800	1800	1600	632	521	62	570	78	832
21	656	884	1310	1700	1900	1700	539	497	57	243	88	756
22	633	941	1310	1600	2000	2030	503	473	49	186	81	668
23	661	1110	1260	1500	2100	2270	443	443	35	168	70	553
24	679	988	1230	1500	2200	2380	438	399	255	154	60	559
25	710	1190	1190	1550	2300	1950	409	338	3970	126	68	607
26	710	1170	1180	1700	2300	2160	392	220	5560	84	71	607
27	683	1190	1160	1750	2200	2500	411	151	4900	68	405	548
28	638	1010	1120	1900	2100	2270	331	158	3540	55	1970	515
29	593	1170	1220	2000	---	1730	284	166	1890	41	2920	530
30	563	1100	1140	1900	---	1410	254	175	1380	39	2640	556
31	554	---	1180	1700	---	1240	---	85	---	123	1800	---
TOTAL	26478	24821	36205	51160	49750	68710	20616	7174	23959	14185	14505	26668
MEAN	854	827	1168	1650	1777	2216	687	231	799	458	468	889
MAX	1240	1190	1330	2000	2300	3300	1290	521	5560	2530	2920	1390
MIN	554	547	977	1330	1350	1240	254	78	35	39	60	515
AC-FT	52520	49230	71810	101500	98680	136300	40890	14230	47520	28140	28770	52900
CAL YR 1988	TOTAL	546144	MEAN	1492	MAX	4200	MIN	13	AC-FT	1083000		
WTR YR 1989	TOTAL	364231	MEAN	998	MAX	5560	MIN	35	AC-FT	722500		

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.

PERIOD OF RECORD.--January 1982 to current year.

REMARKS.--Estimated daily discharges: Jan. 14-19 and Feb. 2 to Mar. 13. 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s June 29, 1983, gage height, 7.42 ft; minimum daily discharge, 14 ft³/s June 27, 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,780 ft³/s June 26, gage height, 5.11 ft; maximum gage height, 6.15 ft Mar. 8, observed, backwater from ice; minimum daily discharge, 32 ft³/s June 9.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	764	1260	1740	1790	2600	1010	314	98	1980	204	1380
2	1130	761	1320	1840	1200	2600	979	318	89	2170	211	1040
3	1240	742	1360	1830	1250	2000	951	294	77	2760	389	936
4	1270	746	1310	1790	1250	1600	976	322	67	2250	508	1370
5	1450	719	1350	1780	1300	1350	1010	214	68	1430	334	1060
6	1430	731	1340	1770	1300	1600	980	192	64	662	256	812
7	1110	732	1290	1520	1350	1700	914	192	52	401	228	746
8	1320	690	1240	1500	1400	1800	885	207	39	283	217	768
9	1190	792	1270	1520	1500	1900	846	185	32	230	195	1100
10	1350	781	1280	1870	1800	2200	871	159	80	209	171	1040
11	1430	789	1190	1830	1900	2600	858	132	93	196	162	903
12	1520	871	1340	1810	1900	3000	812	111	73	193	147	1040
13	1290	833	1340	1880	1750	3200	755	148	64	179	139	1260
14	1090	792	1240	1500	1800	3000	744	170	113	192	125	1210
15	1050	878	1200	1700	1700	2580	718	162	153	472	117	1190
16	1160	840	1160	1900	1700	2020	808	155	167	366	118	1110
17	1180	892	1300	2000	1600	2010	780	214	149	273	105	1010
18	1140	978	1250	2100	1600	1760	747	322	121	401	99	938
19	901	964	1160	2200	1700	1670	609	527	86	660	103	846
20	818	913	1240	2060	2050	1620	567	613	58	574	97	773
21	841	872	1140	1910	2000	1500	578	568	43	362	93	725
22	818	873	1200	1740	1700	1550	576	583	36	298	85	704
23	849	1050	1240	1540	1500	1640	578	541	37	267	74	658
24	839	973	1300	1620	2000	1560	580	500	274	249	61	676
25	834	1130	1320	1770	2150	1550	560	504	3910	223	98	724
26	754	1140	1320	1610	2300	1520	477	363	5860	202	92	745
27	716	1220	1330	1940	2400	1460	454	265	4680	183	162	699
28	641	1130	1300	2100	2500	1560	416	209	3820	174	856	674
29	618	1310	1430	2090	---	1170	364	180	2530	173	2010	668
30	652	1270	1430	2100	---	1110	324	163	2130	167	2290	654
31	739	---	1540	2130	---	1080	---	124	---	201	1920	---
TOTAL	32390	27176	39990	56690	48390	58510	21727	8951	25063	18380	11666	27459
MEAN	1045	906	1290	1829	1728	1887	724	289	835	593	376	915
MAX	1520	1310	1540	2200	2500	3200	1010	613	5860	2760	2290	1380
MIN	618	690	1140	1500	1200	1080	324	111	32	167	61	654
AC-FT	64250	53900	79320	112400	95980	116100	43100	17750	49710	36460		

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.

WATER-DISCHARGE RECORDS

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. 16-21, Dec. 9-13, 16-22, Dec. 31 to Jan. 8 and Jan. 11 to Mar. 11. 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.--48 years (water years 1942-89, since storage in Lake McConaughy), 1,598 ft³/s, 1,158,000 acre-ft per year; median of yearly mean discharges, 1,190 ft³/s, 862,000 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, 6,800 ft³/s June 27, gage height, 3.98 ft, maximum gage height, 4.46 ft Mar. 11, backwater from ice; minimum daily discharge, 111 ft³/s June 23.

CORRECTIONS.--Datum of gage should be 1,831.90 ft and supercedes the figure published in previous reports.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	808	1360	1000	1700	2500	1210	402	282	3720	589	2330
2	1120	819	1290	1160	1300	2600	1220	401	251	2860	512	1910
3	1250	776	1210	1350	1000	2300	1140	371	192	2460	527	1730
4	1210	758	1140	1350	1040	2000	1090	397	156	2860	583	2000
5	1240	639	1170	1300	1100	1600	1180	381	139	2570	842	1870
6	1320	662	1220	1300	1140	1400	1130	322	133	1920	721	1830
7	1350	706	1220	1200	1200	1250	1010	282	135	1280	517	1420
8	1160	774	1080	1200	1250	1400	895	270	129	796	462	1820
9	1260	758	1140	1150	1300	1700	798	252	150	609	453	2760
10	1240	779	1200	1190	1400	2500	765	290	151	506	416	2280
11	1240	865	1300	1200	1500	3500	806	298	182	529	354	1890
12	1250	903	1400	1250	1550	4100	807	291	276	594	291	1810
13	1260	920	1400	1300	1600	2440	802	300	226	436	265	1990
14	1110	929	1340	1350	1700	2140	745	312	179	488	226	2100
15	915	911	1070	1400	1750	2480	718	310	190	1530	221	1960
16	921	900	1140	1450	1800	2720	663	309	243	1560	304	1870
17	989	900	1400	1550	1900	2360	612	315	299	1460	263	1700
18	1030	920	1350	1650	1800	2210	584	466	332	1410	224	1510
19	1030	920	1400	1750	1800	2110	618	541	298	1330	538	1350
20	963	920	1450	1900	1800	1910	634	564	226	1480	473	1250
21	883	900	1400	2050	1900	1750	627	663	157	1380	353	1130
22	842	914	1400	2100	2000	1590	612	725	119	1040	308	1050
23	711	923	1450	2000	2050	1620	571	769	111	780	267	996
24	716	1010	1440	1950	2150	1710	560	625	184	665	220	976
25	733	973	1470	1800	2250	1710	540	518	1710	625	274	952
26	772	1160	1400	1700	2400	1650	510	486	5300	571	300	906
27	724	1090	1030	1800	2500	1570	470	459	5950	517	534	928
28	751	979	662	1900	2400	1590	410	412	4640	433	821	911
29	767	1440	778	2000	---	1590	387	383	3780	342	1010	877
30	772	1260	844	2050	---	1250	384	299	2990	246	2050	897
31	795	---	920	2000	---	1180	---	264	---	396	2640	---
TOTAL	31364	27216	38074	48350	47280	62430	22498	12677	29110	37393	17558	47003
MEAN	1012	907	1228	1560	1689	2014	750	409	970	1206	566	1567
MAX	1350	1440	1470	2100	2500	4100	1220	769	5950	3720	2640	2760
MIN	711	639	662	1000	1000	1180	384	252	111	246	220	877
AC-FT	62210	53980	75520	95900	93780	123800	44620	25140	57740	74170	34830	93230

CAL YR 1988 TOTAL 550093.0 MEAN 1503 MAX 5600 MIN 4.9 AC-FT 1091000
WTR YR 1989 TOTAL 420953 MEAN 1153 MAX 5950 MIN 111 AC-FT 835000

PLATTE RIVER BASIN

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06770500 PLATTE RIVER NEAR GRAND ISLAND, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to August 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1972 to September 1980.

WATER TEMPERATURES: July 1972 to September 1980.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,250 microsiemens Feb. 3, 1980; minimum daily, 575 microsiemens May 24, 1977.

WATER TEMPERATURES: Maximum, 34.5°C July 23, 1972; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 13...	0830	1210	893	8.69	10.5	10.5	26	140	64
NOV 22...	1115	914	914	8.60	2.5	12.8	14	K7	46
DEC 14...	0920	1160	852	8.62	1.0	13.0	15	89	48
JAN 04...	1700	1360	868	8.65	0.5	12.8	8	K2	42
FEB 16...	0935	1790	932	8.26	0.5	11.5	10	800	94
MAR 07...	0920	1260	1130	8.25	0.5	11.2	9	K10	76
APR 05...	1100	1120	1010	8.67	8.0	11.6	20	330	5400
MAY 02...	1130	397	1020	8.62	15.0	10.9	13	K7	K15
31...	1045	252	1010	8.64	15.0	9.6	10	160	240
JUN 26...	1700	6020	462	8.23	26.5	6.0	82	K12000	4400
JUL 26...	1005	563	866	8.71	26.5	9.4	25	93	66
AUG 23...	1730	255	911	8.66	30.0	6.8	19	87	180
30...	1430	2110	663	8.60	26.5	8.0	83	2000	1400

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)
OCT 13...	280	73	23	96	3	270	31	493	0.67
NOV 22...	310	82	26	92	2	230	31	461	0.63
DEC 14...	290	80	23	92	2	230	30	455	0.62
JAN 04...	290	79	22	79	2	240	28	448	0.61
FEB 16...	330	90	26	89	2	230	35	470	0.64
MAR 07...	370	100	29	99	2	240	44	512	0.70
APR 05...	330	90	26	92	2	280	40	528	0.72
MAY 02...	300	79	26	97	3	280	42	524	0.71
31...	300	74	27	91	2	250	41	483	0.66
JUN 26...	140	37	11	35	1	120	13	216	0.29
JUL 26...	250	60	25	89	3	210	33	417	0.57
AUG 23...	250	62	24	95	3	250	34	465	0.63
30...	200	54	16	57	2	150	21	298	0.41

PLATTE RIVER BASIN

06770500 PLATTE RIVER NEAR GRAND ISLAND, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 13...	1610	74	0.650	<0.020	--	1.9	2.5	0.240	4.6
NOV 22...	1140	38	1.00	0.150	0.70	0.85	1.8	0.140	4.4
DEC 14...	1430	31	1.40	0.170	--	<0.50	--	0.500	8.2
JAN 04...	1650	28	1.40	0.060	--	<0.50	--	0.100	5.0
FEB 16...	2270	<4	1.50	0.170	--	<0.50	--	0.060	5.2
MAR 07...	1740	4	1.80	0.190	--	<0.50	--	0.110	3.5
APR 05...	1600	16	1.60	<0.020	--	5.5	7.1	0.090	4.0
MAY 02...	562	12	0.400	<0.020	--	<0.50	--	0.110	3.4
31...	329	11	0.060	0.090	0.62	0.71	0.77	0.070	3.6
JUN 26...	3520	468	1.00	0.200	3.1	3.3	4.3	0.870	9.2
JUL 26...	634	40	<0.020	0.100	0.84	0.94	--	0.250	6.9
AUG 23...	320	52	<0.020	0.050	0.83	0.88	--	0.130	5.1
30...	1700	403	0.680	0.100	2.9	3.0	3.7	0.750	12

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.--No estimated daily discharges. Records good. Numerous small pump diversions for irrigation above station.

AVERAGE DISCHARGE.--36 years, 10.6 ft³/s, 7,680 acre-ft/yr; median of yearly mean discharges, 8.1 ft³/s, 5,900 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)
June 28	2100	*512	*9.78	July 16	2300	510	9.77
July 3	1400	359	8.78	Aug. 30	0830	398	9.06
July 12	1100	441	9.37				

No flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.00	.00	.00	.00	.00	.00	.00	.00	60	21	28
2	.01	.00	.00	.00	.00	.00	.00	.00	.00	85	20	14
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	324	19	8.2
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	158	20	24
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	61	12	6.8
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	36	8.3	3.8
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	22	11	3.5
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	24	8.6	31
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	24	3.6	81
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	16	7.1	88
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	44	9.8	253
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	333	7.1	117
13	.00	.00	.00	.00	.00	.06	.00	.00	.00	51	5.4	41
14	.00	.00	.00	.00	.00	.66	.00	.00	.00	48	9.2	31
15	.00	.00	.00	.00	.00	.17	.00	.00	.00	127	5.2	42
16	.00	.00	.00	.00	.00	.07	.00	.00	.00	430	2.7	33
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	394	12	20
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	111	5.0	9.4
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	72	25	4.2
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	210	65	2.0
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	64	31	1.1
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	28	15	.68
23	.00	.00	.00	.00	.00	1.8	.00	.00	.00	18	6.7	.32
24	.00	.00	.00	.00	.00	1.3	.00	.00	.03	10	3.6	.09
25	.00	.00	.00	.00	.00	.72	.00	.00	37	7.9	3.3	.00
26	.00	.00	.00	.00	.00	.11	.00	.00	87	5.6	2.5	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	297	5.4	17	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	467	5.4	81	.00
29	.00	.00	.00	.00	---	.00	.00	.00	299	8.6	191	.00
30	.00	.00	.00	.00	---	.00	.00	.00	71	8.6	304	.00
31	.00	---	.00	.00	---	.00	---	.00	---	14	58	---
TOTAL	0.29	0.00	0.00	0.00	0.00	4.89	0.00	0.00	1258.03	2805.5	990.1	843.09
MEAN	.009	.00	.00	.00	.00	.16	.00	.00	41.9	90.5	31.9	28.1
MAX	.28	.00	.00	.00	.00	1.8	.00	.00	467	430	304	253
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.4	2.5	.00
AC-FT	.6	.0	.0	.0	.0	9.7	.0	.0	2500	5560	1960	1670

CAL YR 1988 TOTAL 1133.03 MEAN 3.10 MAX 83 MIN .00 AC-FT 2250
WTR YR 1989 TOTAL 5901.90 MEAN 16.2 MAX 467 MIN .00 AC-FT 11710

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: Dec. 10 to Mar. 12. Records good except for period of estimated record, which is 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.a

AVERAGE DISCHARGE.--48 years (water years 1942-89, since storage in Lake McConaughy), 1,787 ft³/s, 1,295,000 acre-ft/yr; median of yearly mean discharges, 1,370 ft³/s, 993,000 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, 8,400 ft³/s Mar. 12, gage height, 6.18 ft, backwater from ice; minimum daily, 73.0 ft³/s June 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	722	1300	1100	1700	3600	1200	570	317	4000	230	2420
2	1050	733	1350	1400	1400	3600	1130	554	296	4360	364	2520
3	991	749	1320	1600	900	3400	1100	500	335	3650	452	2380
4	974	759	1300	1700	960	3000	1050	514	285	2990	390	2550
5	1050	681	1290	1600	1000	2600	1070	448	204	3290	365	2620
6	1120	686	1270	1400	1080	2400	1120	454	145	3050	426	2320
7	1130	692	1240	1300	1100	2100	1150	460	113	2570	695	2280
8	1170	649	1150	1200	1060	2400	1050	408	87	1990	609	2060
9	1160	640	1060	1200	1040	3200	1020	366	73	1310	399	2970
10	1050	586	900	1300	1200	4400	1040	354	92	1090	311	3760
11	1090	626	1000	1400	1400	5200	1030	322	121	901	264	2950
12	1050	747	1200	1300	1500	6400	1040	304	150	734	230	2550
13	1060	806	1300	1320	1650	4670	1070	287	153	811	194	2460
14	1080	835	1400	1380	1750	2670	1010	284	159	883	177	2500
15	1100	758	1340	1400	1800	2490	989	274	180	1030	169	2390
16	1040	545	1300	1500	1900	2680	926	270	163	1180	162	2180
17	945	798	1400	1540	2000	2790	772	278	151	1900	178	1990
18	855	1070	1400	1600	2000	2570	780	386	203	2060	190	1720
19	957	1140	1500	1700	2100	2470	869	543	233	1750	196	1420
20	1020	1080	1600	1900	2150	2380	885	587	241	1430	199	1320
21	1040	1040	1600	2000	2100	2280	868	574	211	1380	457	1220
22	1030	1040	1550	2200	2200	2270	837	598	168	1450	414	1130
23	870	1070	1400	2300	2250	1970	818	722	143	1290	289	1070
24	810	1060	1200	2300	2500	1760	794	782	153	1040	231	1060
25	733	1040	1100	2200	2700	1890	785	723	394	793	220	1040
26	756	1130	1000	2100	3000	2260	771	624	735	670	227	980
27	706	1020	980	1800	3300	2040	756	551	4390	591	347	881
28	681	987	940	1840	3500	1850	690	558	6060	516	605	780
29	671	1110	800	1900	---	1640	609	563	5170	426	912	822
30	670	1180	900	2000	---	1520	585	413	4570	331	996	756
31	703	---	1000	2100	---	1510	---	367	---	283	1250	---
TOTAL	29792	25979	38090	51580	51240	86010	27814	14638	25695	49749	12148	57099
MEAN	961	866	1229	1664	1830	2775	927	472	856	1605	392	1903
MAX	1230	1180	1600	2300	3500	6400	1200	782	6060	4360	1250	3760
MIN	670	545	800	1100	900	1510	585	270	73	283	162	756
AC-FT	59090	51530	75550	102300	101600	170600	55170	29030	50970	98680	24100	113300

CAL YR 1988 TOTAL 653576.0 MEAN 1786 MAX 7200 MIN 6.0 AC-FT 1296000
WTR YR 1989 TOTAL 469834 MEAN 1287 MAX 6400 MIN 73 AC-FT 931900

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 1988 TO SEPTEMBER 1989

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)
NOV 21...	1530	1050	836	8.34	4.0	735	14	12.5	K7	K25	300
JAN 18...	1500	1580	933	8.15	0.5	724	13	14.5	K12	100	280
MAR 14...	1255	2720	906	8.34	5.0	710	28	11.8	K120	180	300
MAY 10...	1500	368	1020	8.62	22.0	729	16	--	K10	21	300
JUL 06...	1300	2990	--	8.88	28.0	725	140	8.8	5900	K120	210
SEP 05...	1430	2740	737	--	24.0	737	70	9.6	400	1800	200

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

DATE	HARD- NESS NONCARB WAT TOT FLD MG/L AS CACO3 (00902)	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 WH TOT IT FIELD MG/L AS CACO3 (00419)	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...	100	76	26	85	2	10	197	240	31	0.50	24
JAN 18...	96	73	24	84	2	11	184	230	30	0.20	25
MAR 14...	120	79	24	77	2	11	178	240	30	0.50	24
MAY 10...	140	72	30	100	3	11	160	300	42	0.60	16
JUL 06...	58	56	17	62	2	15	154	170	24	0.50	16
SEP 05...	59	49	18	72	2	2.5	142	180	25	0.40	13

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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 21...	539	617	0.73	1530	1.10	0.140	0.96	1.1	0.150	0.070	0.070
JAN 18...	615	594	0.84	2620	1.40	0.190	0.51	0.70	0.160	0.080	0.060
MAR 14...	608	602	0.83	4470	1.70	0.120	1.1	1.2	0.280	0.110	0.130
MAY 10...	686	669	0.93	682	<0.100	0.020	0.88	0.90	0.040	0.010	<0.010
JUL 06...	477	456	0.65	3990	0.560	0.060	0.74	0.80	0.340	0.200	0.200
SEP 05...	441	443	0.60	3240	<0.100	0.040	2.3	2.3	0.420	0.030	0.030

PLATTE RIVER BASIN

06774000 PLATTE RIVER NEAR DUNCAN, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1530	<10	4	79	<0.5	<1	<1	<3	3	6	<5
MAR 14...	1255	10	4	73	<0.5	2	1	<3	6	14	<5
MAY 10...	1500	<10	2	80	<0.5	<1	<1	<3	2	10	<1
JUL 06...	1300	20	6	77	<0.5	<1	2	<3	6	11	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...	34	5	<0.1	<10	2	2	<1.0	710	<6	9
MAR 14...	30	5	<0.1	10	5	2	1.0	720	6	15
MAY 10...	38	5	<0.1	<10	2	2	<1.0	800	<6	8
JUL 06...	26	1	<0.1	<10	4	2	<1.0	510	10	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. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 21...	1530	1050	4.0	135	383	33
JAN 18...	1500	1580	0.5	1190	5080	--
MAR 14...	1255	2720	5.0	1320	9690	9
MAY 10...	1500	368	22.0	107	106	14
JUL 06...	1300	2990	28.0	489	3950	83
SEP 05...	1430	2740	24.0	--	--	--

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LOCATION (REVISED).--Lat 41°49'50", long 100°06'20", in NE1/4SW1/4 sec.33, T.22 N., R.24 W., Blaine County, Hydrologic Unit 10210001, on right bank 0.2 mi upstream from bridge on State Highway 2 at north edge of Dunning. 1.4 mi upstream from Dismal River.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,607.14 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 present site at datum 0.03 ft higher. Oct. 1, 1962 to May 15, 1989, water-stage recorder 0.2 mi downstream at present datum.

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, 2,160 ft³/s Mar. 8, gage height, 3.55 ft result of a bridge collapsing and releasing ice jam 0.2 mi upstream; minimum daily, 250 ft³/s Mar. 5, result of freezeout.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	455	457	458	445	420	454	392	393	343	418	363	416
2	455	458	456	440	350	434	391	391	334	420	360	407
3	455	458	455	454	330	381	397	386	343	390	388	418
4	449	465	455	455	360	252	387	391	334	369	384	405
5	455	462	456	487	400	250	390	389	320	366	357	384
6	454	457	461	484	425	400	391	387	340	354	392	393
7	454	458	462	487	450	514	398	394	455	351	396	393
8	458	458	460	456	430	586	389	392	353	336	378	408
9	459	456	460	450	500	389	392	393	398	335	378	404
10	457	461	458	450	480	387	385	391	405	323	378	416
11	456	453	455	458	450	390	385	393	417	337	388	427
12	456	475	450	450	450	390	391	383	426	371	389	398
13	457	466	458	450	450	385	389	396	404	375	388	385
14	455	455	457	435	450	446	392	393	383	379	374	401
15	456	490	458	450	450	398	394	371	383	410	426	422
16	456	465	450	445	450	392	395	377	392	401	380	435
17	462	454	453	455	400	452	388	416	403	406	372	427
18	463	458	457	447	425	416	389	385	396	426	392	418
19	459	458	454	442	440	391	393	373	378	393	437	437
20	468	460	467	448	450	391	390	353	383	389	407	453
21	463	459	459	448	450	383	387	350	386	392	415	447
22	458	457	477	452	480	390	385	357	369	388	414	429
23	464	463	460	455	490	390	384	354	380	380	410	413
24	461	457	450	441	480	396	384	351	401	371	398	409
25	455	460	440	446	455	390	390	326	443	376	424	430
26	460	467	435	458	458	395	383	323	532	371	521	434
27	470	460	430	436	450	391	384	330	431	365	521	434
28	463	460	440	437	461	392	387	345	385	359	498	444
29	457	456	450	431	---	397	389	352	399	361	456	447
30	457	454	440	434	---	400	394	352	456	362	437	449
31	460	---	430	440	---	399	---	363	---	371	429	---
TOTAL	14207	13817	14051	13966	12294	12421	11685	11550	11772	11645	12650	12583
MEAN	458	461	453	451	439	401	389	373	392	376	408	419
MAX	470	490	477	487	500	586	398	416	532	426	521	453
MIN	449	453	430	431	330	250	383	323	320	323	357	384
AC-FT	28180	27410	27870	27700	24390	24640	23180	22910	23350	23100	25090	24960
CAL YR 1988	TOTAL 174756	MEAN 477	MAX 727	MIN 350	AC-FT 346600							
WTR YR 1989	TOTAL 152641	MEAN 418</										

PLATTE RIVER BASIN
06775500 MIDDLE LOUP RIVER AT DUNNING. NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-56, 1965 to April 1989 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1949 to September 1956, October 1965 to April 1989 (discontinued).
SUSPENDED SEDIMENT DISCHARGE: March 1950 to September 1952, October 1953 to September 1954.

WATER TEMPERATURES: October 1949 to September 1956, October 1965 to April 1989 (discontinue)
SUSPENDED SEDIMENT DISCHARGE: March 1950 to September 1952, October 1953 to September 1954

INSTRUMENTATION.--Temperature recorder from Oct. 1, 1965.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURES: Maximum, 34.0°C June 21, 1956; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily, 3,800 mg/L Feb. 23, 1952; minimum daily, 56 mg/L Jan. 23, 1952.
SEDIMENT LOADS: Maximum daily, 5,160 tons Mar. 31, 1952; minimum daily, 21 tons Jan. 23, 1952.

SEDIMENT LOADS: Maximum daily, 5,160 tons Mar. 31, 1952; minimum daily, 21 tons Jan. 23, 1952.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 17.0°C Apr. 16; minimum, 0.0°C Mar. 18.

WATER TEMPERATURE. DEGREES CENTIGRADE. WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.0	11.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
2	14.0	11.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
3	13.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
4	10.5	9.0	8.0	5.5	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
5												
6	11.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
7	10.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
8	13.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
9												
10	11.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
11	13.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
12	13.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
13	12.0	10.0	10.0	8.0	5.5	3.5	1.5	1.0	2.0	1.5	5.0	3.0
14	14.0	12.0	12.0	10.0	8.0	5.5	3.5	1.5	2.0	1.5	5.0	3.0
15												
16	14.5	12.0	2.0	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
17	14.0	11.0	4.0	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
18	11.0	10.0	4.0	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
19	11.0	10.0	4.0	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
20	10.0	8.0	4.0	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
21	11.5	10.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
22	11.0	10.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
23	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
24	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
25												
26	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
27	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
28	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
29	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
30	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
31	10.0	8.0	4.5	1.0	1.5	1.0	1.5	1.0	2.0	1.5	5.0	3.0
MONTH	14.5	5.0	10.0	1.0	6.0	5	8.5	1.0	---	---	15.5	5

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

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 1988 TO SEPTEMBER 1989

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)
NOV 02...	1025	221	177	8.23	12.5	674	11	9.2	K30	44	72
FEB 16...	1035	199	159	8.16	5.5	697	20	11.1	K7	210	70
MAY 17...	1340	208	171	8.23	18.0	683	17	9.0	140	170	69
AUG 09...	1310	189	174	8.23	21.0	690	19	8.1	46	84	71

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

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	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 02...	0	23	3.6	7.0	0.4	4.9	76	6.9	0.80	0.20	59
FEB 16...	0	22	3.5	6.8	0.4	5.0	79	6.9	0.80	0.30	58
MAY 17...	0	22	3.4	6.9	0.4	4.9	78	6.0	0.80	0.30	57
AUG 09...	0	23	3.3	6.9	0.4	5.4	80	6.0	0.90	0.30	57

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTIT- UENTS, 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- PHOROUS DIS- SOLVED (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 02...	154	156	0.21	91.9	0.490	0.010	--	<0.20	0.130	0.120	0.120
FEB 16...	134	155	0.18	72.0	0.580	<0.010	--	0.40	0.220	0.130	0.120
MAY 17...	135	153	0.18	75.8	0.480	0.020	0.38	0.40	0.190	--	0.140
AUG 09...	154	153	0.21	79.8	0.370	0.020	0.28	0.30	0.210	0.180	0.150

DATE	TIME	ALUM- NUM, 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 02...	1025	40	8	51	<0.5	<1	2	<3	<1	34	<5
FEB 16...	1035	30	6	50	<0.5	<1	2	<3	1	21	<5
MAY 17...	1340	<10	7	49	<0.5	<1	1	<3	2	12	<1
AUG 09...	1310	40	6	49	<0.5	<1	1	<3	2	29	1

PLATTE RIVER BASIN

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06775900 DISMAL RIVER NEAR THEDFORD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 02...	12	4	<0.1	<10	3	<1	1.0	110	8	15
FEB 16...	12	3	<0.1	<10	<1	<1	<1.0	120	11	6
MAY 17...	12	2	<0.1	<10	<1	<1	<1.0	120	12	6
AUG 09...	12	4	<0.1	<10	1	<1	<1.0	120	10	8

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, BETA, 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 02...	1025	0.8	5.3	3.7	3.5	3.6	3.0	0.04	0.32
FEB 16...	1035	--	--	--	--	--	--	--	--
MAY 17...	1340	1.9	2.9	5.6	3.5	4.5	2.7	0.16	0.21
AUG 09...	1310	--	--	--	--	--	--	--	--

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 02...	1025	221	12.5	332	198	26
FEB 16...	1035	199	5.5	797	428	19
MAY 17...	1340	208	18.0	385	216	26
AUG 09...	1310	189	21.0	1500	765	5

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.--44 years (1945-89), 326 ft³/s, 236,200 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, 510 ft³/s June 26, gage height, 1.13 ft; maximum gage height, 2.33 ft Mar. 5, backwater from ice; minimum daily discharge, 205 ft³/s Feb. 3, result of freezeout.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354	351	325	300	350	339	340	299	300	358	313	311
2	354	357	335	321	209	337	338	305	308	344	314	309
3	350	358	328	312	205	310	334	310	307	345	319	320
4	348	354	320	340	220	300	314	312	308	341	319	334
5	346	332	323	373	240	315	319	301	305	348	309	316
6	340	328	331	354	270	320	326	294	319	332	324	321
7	350	343	321	329	300	330	328	306	349	332	318	315
8	351	336	310	298	310	350	311	315	316	323	313	318
9	358	332	309	330	300	400	314	300	357	324	311	318
10	358	323	315	325	330	395	303	300	327	317	313	319
11	358	331	311	297	350	390	310	298	324	320	314	307
12	363	338	314	314	340	389	324	312	320	324	312	311
13	365	332	327	315	340	380	329	328	305	320	314	308
14	364	331	328	323	340	370	328	321	297	322	321	318
15	372	330	311	319	340	333	318	322	296	320	351	325
16	366	300	306	328	350	325	331	319	308	320	321	327
17	369	290	304	324	370	318	324	338	316	324	316	338
18	353	306	322	336	361	315	321	335	312	332	325	335
19	359	302	331	337	369	318	327	323	310	319	371	339
20	355	303	326	339	335	322	339	306	314	316	345	344
21	357	302	324	342	319	321	342	314	313	318	329	333
22	361	322	322	354	321	339	349	321	302	321	324	316
23	352	338	313	353	333	360	351	315	302	321	309	309
24	347	340	295	342	343	361	347	312	321	322	309	318
25	349	335	289	341	370	348	337	300	342	319	309	323
26	354	345	303	342	355	358	337	289	423	316	372	327
27	355	326	290	343	346	365	341	292	386	313	343	327
28	329	331	300	356	340	365	308	296	340	315	349	326
29	328	327	316	347	---	362	290	316	346	318	327	334
30	333	323	318	354	---	333	292	317	388	327	321	341
31	345	---	305	377	---	324	---	305	---	369	318	---
TOTAL	10943	9866	9772	10365	8956	10692	9772	9621	9761	10140	10053	9687
MEAN	353	329	315	334	320	345	326	310	325	327	324	323
MAX	372	358	335	377	370	400	351	338	423	369	372	344
MIN	328	290	289	297	205	300	290	289	296	313	309	307
AC-FT	21710	19570	19380	20560	17760	21210	19380	19080	19360	20110	19940	19210

CAL YR 1988	TOTAL 131688	MEAN 360	MAX 565	MIN 240	AC-FT 261200
WTR YR 1989	TOTAL 119628	MEAN 328	MAX 423	MIN 205	AC-FT 237300

PLATTE RIVER BASIN

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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. 27 to Jan. 7 and Jan. 9 to Mar. 12. 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.--27 years (1962-89), 697 ft³/s, 505,000 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, 3,700 ft³/s Mar. 10, gage height 5.19 ft, backwater from ice; minimum daily, 44 ft³/s July 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	1030	1050	600	800	1100	1020	563	621	473	58	143
2	1050	1080	953	660	450	1050	1040	509	502	366	65	136
3	1020	1080	923	800	560	900	980	546	458	345	49	133
4	1020	977	1050	1000	800	520	895	604	432	308	52	922
5	1090	1020	956	950	900	500	814	582	414	262	51	505
6	988	971	926	850	1000	520	825	550	362	222	54	411
7	1020	901	970	540	800	640	756	447	459	144	68	390
8	1050	918	935	299	1000	900	813	360	536	79	85	403
9	1070	750	958	280	1100	1400	751	246	491	51	55	452
10	1050	692	899	500	1250	3700	839	221	560	44	47	395
11	1090	770	968	600	1150	3500	717	204	517	51	45	395
12	1120	952	964	660	1050	2800	763	214	415	50	52	483
13	1180	885	944	760	1000	2150	735	386	500	54	125	548
14	1060	819	849	840	1000	1540	765	506	444	75	109	507
15	1060	882	900	800	960	928	742	343	389	198	92	461
16	1050	831	862	900	920	555	700	298	288	115	130	584
17	1010	790	861	1000	900	721	719	417	286	187	166	474
18	1030	969	866	1200	880	632	645	592	326	228	94	448
19	1020	918	831	1000	900	655	617	470	292	228	371	431
20	1070	742	784	960	940	860	592	564	202	123	385	563
21	1210	786	815	1200	980	812	605	503	199	105	318	784
22	1180	778	753	1400	960	519	605	497	133	77	257	988
23	1130	922	791	1100	1050	975	607	542	93	63	181	896
24	1050	965	664	900	1100	1150	614	645	205	56	178	887
25	1050	954	596	840	1200	1130	643	638	790	47	108	952
26	1100	961	627	1000	1150	1210	611	635	967	48	89	1110
27	1050	1050	450	1120	1100	1310	604	681	1010	51	166	1040
28	1070	1130	314	900	1150	1150	621	477	1130	51	242	1040
29	979	1120	290	1000	---	1320	604	484	631	50	257	1060
30	966	1070	350	1120	---	1490	548	518	749	60	193	985
31	1080	---	700	1200	---	1240	---	709	---	70	157	---
TOTAL	32943	27713	24799	26979	27050	37877	21790	14951	14401	4281	4299	18526
MEAN	1063	924	800	870	966	1222	726	482	480	138	139	618
MAX	1210	1130	1050	1400	1250	3700	1040	709	1130	473	385	1110
MIN	966	692	290	280	450	500	548	204	93	44	45	133
AC-FT	65340	54970	49190	53510	53650	75130	43220	29660	28560	8490	8530	36750

CAL YR 1988 TOTAL 273148 MEAN 746 MAX 2000 MIN 46 AC-FT 541800
WTR YR 1989 TOTAL 255609 MEAN 700 MAX 3700 MIN 44 AC-FT 507000

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.

WATER-DISCHARGE RECORDS

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: Nov. 20-24, Nov. 27 to Dec. 1, Dec. 4-6, Dec. 8 to Mar. 21, and May 5-9. Records good except for periods of estimated discharge, which are poor. Minor irrigation developments above station.

AVERAGE DISCHARGE.--43 years, 38.2 ft³/s, 27,680 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)
July 14	2300	*436	*11.57	No peaks greater than base discharge.			
Minimum daily discharge, 4.1 ft ³ /s Aug. 23.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	16	19	18	16	18	24	20	16	197	8.6	11
2	18	17	19	18	15	17	23	19	16	168	7.6	9.7
3	14	17	19	19	15	17	23	20	17	106	7.2	11
4	14	16	18	19	15	16	23	19	19	54	5.6	202
5	13	15	19	19	16	16	23	19	17	48	6.9	135
6	12	15	19	18	17	15	22	19	16	36	5.4	120
7	12	15	19	17	20	16	23	19	16	28	7.1	72
8	13	15	18	15	19	18	22	19	16	23	8.4	36
9	13	16	18	16	18	20	22	19	15	21	11	47
10	13	16	18	16	19	24	22	19	22	20	7.9	27
11	13	17	18	15	19	23	22	19	21	19	5.5	20
12	13	18	20	15	19	23	22	18	19	17	6.7	18
13	13	17	20	15	19	23	22	19	20	15	6.8	20
14	13	17	19	17	18	22	22	19	17	63	5.5	17
15	13	18	18	17	18	22	22	19	16	176	7.3	16
16	14	18	18	18	18	22	22	20	16	191	6.6	15
17	14	22	18	19	18	20	23	21	15	229	8.5	15
18	14	19	19	19	18	20	23	23	15	95	8.9	15
19	15	19	19	19	18	22	22	24	15	37	7.8	14
20	17	18	19	17	18	21	22	22	14	27	8.2	14
21	16	19	19	18	17	22	22	22	14	22	7.2	14
22	15	19	19	20	15	25	22	20	14	18	6.5	14
23	16	20	19	18	15	26	22	18	13	17	4.1	14
24	16	20	19	18	17	26	22	18	15	15	5.4	14
25	15	19	18	17	18	26	22	17	35	14	7.3	14
26	16	19	19	17	18	25	22	16	139	14	5.6	14
27	16	18	17	18	18	25	21	15	61	12	56	13
28	15	18	17	19	18	25	21	15	42	12	57	13
29	16	19	18	19	---	25	21	16	27	12	15	13
30	16	19	18	19	---	24	21	16	87	12	12	13
31	16	---	19	20	---	24	---	17	---	12	10	---
TOTAL	453	531	576	549	489	668	665	586	785	1730	333.6	970.7
MEAN	14.6	17.7	18.6	17.7	17.5	21.5	22.2	18.9	26.2	55.8	10.8	32.4
MAX	19	22	20	20	20	26	24	24	139	229	57	202
MIN	12	15	17	15	15	15	21	15	13	12	4.1	9.7
AC-FT	899	1050	1140	1090	970	1320	1320	1160	1560	3430	662	1930

CAL YR 1988 TOTAL 9823.2 MEAN 26.8 MAX 257 MIN 2.1 AC-FT 19480
WTR YR 1989 TOTAL 8336.3 MEAN 22.8 MAX 229 MIN 4.1 AC-FT 16540

PLATTE RIVER BASIN

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06783500 MUD CREEK NEAR SWEETWATER, NE--Continued

PERIOD OF RECORD.--Water years 1978 to August 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- PER ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 18...	1355	14	656	8.30	11.0	9.0	21	320	620
NOV 17...	1435	21	569	8.53	1.0	13.7	17	40	190
DEC 12...	0920	20	638	8.35	0.5	12.2	8	110	540
JAN 11...	1305	15	629	8.00	0.5	10.3	<8	37	88
FEB 07...	0945	20	763	7.75	0.0	6.2	16	87	210
MAR 22...	1010	26	624	8.36	2.5	11.7	19	57	110
APR 11...	1015	21	576	8.55	5.0	12.3	20	33	K48
MAY 09...	0950	19	608	8.35	14.0	8.6	24	280	2000
JUN 06...	1050	17	587	8.22	18.5	7.2	52	1000	2800
JUL 03...	1040	113	246	7.78	23.0	5.0	110	K8900	12000
AUG 02...	1050	7.9	602	8.43	24.0	7.1	56	1300	2900
28...	1110	58	243	7.73	19.5	5.2	230	K9100	K320000

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 18...	300	96	14	22	0.6	26	18	176	0.24
NOV 17...	290	95	14	14	0.4	22	8.3	153	0.21
DEC 12...	340	110	16	22	0.5	24	17	189	0.26
JAN 11...	310	100	15	16	0.4	26	10	167	0.23
FEB 07...	340	110	16	20	0.5	26	14	186	0.25
MAR 22...	300	98	14	17	0.4	<10	13	--	--
APR 11...	290	93	14	16	0.4	10	10	143	0.19
MAY 09...	290	94	14	16	0.4	<10	9.1	--	--
JUN 06...	280	90	13	19	0.5	21	17	160	0.22
JUL 03...	89	28	4.6	4.6	0.2	7.7	4.2	49	0.07
AUG 02...	290	93	13	15	0.4	27	9.9	158	0.21
28...	82	26	4.2	4.5	0.2	<10	8.2	--	--

PLATTE RIVER BASIN

06783500 MUD CREEK NEAR SWEETWATER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 18...	6.65	34	0.430	<0.020	--	0.79	1.2	0.460	5.4
NOV 17...	8.69	17	0.380	<0.020	--	<0.05	--	0.350	5.4
DEC 12...	10.2	14	1.10	0.220	--	<0.50	--	0.430	4.4
JAN 11...	6.76	13	1.20	0.130	--	<0.50	--	0.240	3.4
FEB 07...	10.0	21	1.40	0.220	--	<0.50	--	0.320	3.7
MAR 22...	--	83	1.20	0.700	0.30	1.0	2.2	0.590	5.8
APR 11...	0.0	30	0.190	<0.020	--	<0.50	--	0.410	7.2
MAY 09...	--	96	0.800	0.310	0.79	1.1	1.9	0.780	5.5
JUN 06...	7.34	257	1.30	0.390	1.2	1.6	2.9	0.910	7.3
JUL 03...	15.0	913	0.950	0.540	3.7	4.2	5.1	1.70	11
AUG 02...	3.37	136	0.320	0.220	1.7	1.9	2.2	0.950	6.9
28...	--	1050	2.30	0.450	5.4	5.9	8.2	2.50	18

PLATTE RIVER BASIN

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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. 10-14, 16-22, Dec. 29 to Jan. 31, and Feb. 2 to Mar. 10. Records good except for periods of estimated record, which are poor. Minor irrigation developments above station.

AVERAGE DISCHARGE.--46 years, 237 ft³/s, 171,700 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, 2,760 ft³/s July 15, gage height, 6.09 ft; minimum daily, 73 ft³/s Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	183	205	150	155	145	239	201	164	712	109	122
2	164	181	197	150	75	140	254	203	165	663	98	117
3	164	181	207	155	100	140	263	207	172	510	87	133
4	156	190	197	160	120	135	259	209	158	363	83	730
5	152	191	194	160	130	135	249	193	163	224	75	1070
6	150	186	175	150	140	130	229	187	147	191	85	523
7	150	181	171	145	150	150	229	180	141	175	81	428
8	149	179	175	135	145	160	220	170	132	158	80	321
9	146	167	174	145	150	190	215	161	127	149	84	513
10	145	177	170	140	155	500	210	156	131	146	88	301
11	139	172	160	140	155	449	210	155	153	343	86	217
12	140	182	160	140	150	356	200	151	158	237	73	254
13	140	184	175	145	150	346	189	156	146	197	79	293
14	141	187	170	150	150	300	190	175	137	266	84	258
15	139	204	161	145	150	300	194	193	136	1910	87	193
16	141	211	165	150	150	296	188	184	131	714	98	171
17	142	189	165	160	150	286	189	192	127	641	86	165
18	146	200	175	160	145	281	189	246	129	577	80	155
19	143	192	170	155	145	268	193	262	118	386	83	151
20	157	183	170	150	150	268	190	245	108	329	77	149
21	152	180	165	155	145	263	193	218	102	269	81	146
22	157	190	170	165	90	259	192	210	95	232	77	143
23	168	192	160	155	105	244	195	212	95	206	83	140
24	169	194	162	150	120	244	190	196	130	195	75	142
25	168	181	147	150	155	244	197	189	357	176	87	143
26	177	186	151	155	150	254	208	173	470	162	78	144
27	175	189	118	155	150	249	199	173	542	151	203	144
28	170	184	75	160	145	259	191	161	307	129	556	143
29	173	200	150	155	---	259	191	158	670	109	258	141
30	175	199	155	160	---	268	193	147	520	98	152	138
31	183	---	160	170	---	259	---	153	---	109	133	---
TOTAL	4838	5615	5149	4715	3875	7777	6248	5816	6131	10727	3486	7688
MEAN	156	187	166	152	138	251	208	188	204	346	112	256
MAX	183	211	207	170	155	500	263	262	670	1910	556	1070
MIN	139	167	75	135	75	130	188	147	95	98	73	117
AC-FT	9600	11140	10210	9350	7690	15430	12390	11540	12160	21280	6910	15250

CAL YR 1988 TOTAL 72049 MEAN 197 MAX 1140 MIN 38 AC-FT 142900
WTR YR 1989 TOTAL 72065 MEAN 197 MAX 1910 MIN 73 AC-FT 142900

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 1988 TO SEPTEMBER 1989

				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)				
		DATE	TIME									
		OCT										
		18...	1050	149	412	8.58	10.5	10.5				
		NOV										
		17...	1050	176	406	8.52	0.5	13.8				
		DEC										
		12...	1105	162	420	8.50	0.5	13.1				
		JAN										
		11...	1045	139	404	8.27	0.5	12.5				
		FEB										
		07...	1215	150	602	7.01	0.0	9.2				
		MAR										
		15...	1020	272	368	8.36	1.5	12.6				
		APR										
		12...	1210	197	437	8.63	11.5	11.3				
		MAY										
		10...	1520	152	388	8.84	22.5	10.5				
		JUN										
		07...	1035	141	386	8.78	23.0	10.1				
		JUL										
		05...	1020	233	328	8.54	27.5	8.1				
		AUG										
		03...	1050	89	374	8.71	25.5	8.8				
		23...	1040	86	344	8.67	23.5	9.0				
DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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)	
MAR												
15...	1020	48	160	0	51	8.1	9.7	0.3	12	172	19	
JUL												
05...	1020	100	150	0	46	7.4	10	0.4	14	157	15	
DATE	TIME	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)	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- PHOROUS 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												
15...	4.5	0.30	41	254	0.34	186	1.10	0.270	30	50	10	
JUL												
05...	4.9	0.30	39	232	0.32	146	0.320	0.340	50	60	2	

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, 70,810 acre-ft June 25, elevation, 2,162.9 ft; minimum observed, 40,520 acre-ft Aug. 28, elevation, 2150.6 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

	Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.	30	2,157.2	55,420	-
Oct.	31	2,156.3	53,210	-2,210
Nov.	30	2,155.7	51,770	-1,440
Dec.	31	2,155.7	51,770	0
CAL YR 1988		-	-	+710
Jan.	31	2,154.8	49,650	-2,120
Feb.	28	2,154.5	48,960	-690
Mar.	31	2,154.2	48,270	-690
Apr.	30	2,155.6	51,530	+3,260
May	31	2,162.5	69,650	+18,120
June	30	2,162.2	68,790	-860
July	31	2,159.3	60,810	-7,980
Aug.	31	2,151.5	42,380	-18,430
Sept.	30	2,158.1	57,690	+15,310
WTR YR 1989		-	-	+2,270

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.

PERIOD OF RECORD.--May 1966 to September 1970, October 1978 to current year.

REMARKS.--Estimated daily discharges: Dec. 7, 19-21, 27, Jan. 2, 5-8, Feb. 1-9, 18, 22, 23 and Mar. 2-4. Records good except for periods of estimated record, which are poor. Low flow includes return water from Farwell Irrigation District.

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, 774 ft³/s June 26, gage height, 12.98 ft; minimum daily, 5.4 ft³/s June 19.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	9.9	9.5	8.4	13	14	10	7.2	9.3	147	28	19
2	8.3	9.6	9.2	8.2	9.0	13	11	7.3	6.5	24	24	20
3	8.3	9.8	9.1	8.3	8.0	12	10	7.3	19	18	24	21
4	8.0	10	9.0	8.6	8.1	11	9.8	8.0	9.4	16	25	25
5	7.9	9.7	9.1	8.9	8.2	11	9.2	7.6	7.0	16	22	24
6	7.9	9.4	9.4	8.8	8.3	13	9.3	7.1	6.8	13	20	15
7	7.9	9.4	9.1	8.4	8.5	12	9.6	6.9	6.4	13	28	15
8	8.2	9.2	8.8	8.2	8.4	15	9.4	6.9	6.0	15	26	14
9	8.4	9.2	8.3	8.7	8.3	77	8.9	5.9	5.8	15	24	25
10	8.3	9.0	8.7	8.5	8.5	178	8.7	6.1	6.4	19	22	15
11	7.9	9.0	8.7	8.4	8.6	50	8.8	6.3	6.6	20	26	11
12	8.0	9.4	8.6	8.4	8.7	23	9.1	5.7	6.5	22	36	11
13	8.3	9.7	9.4	8.4	8.6	15	8.9	5.8	6.0	21	35	14
14	8.5	9.4	9.8	8.3	8.5	14	8.9	6.5	5.7	31	32	11
15	8.6	9.7	8.9	8.5	8.4	12	8.8	6.0	6.8	134	32	9.3
16	8.2	9.6	8.8	8.5	8.3	12	9.0	6.3	6.4	35	31	8.7
17	8.5	9.9	8.3	9.0	8.3	11	8.9	6.3	5.5	18	28	8.4
18	8.6	10	8.7	9.4	8.3	11	8.7	11	5.8	18	27	8.1
19	9.0	10	9.1	9.4	8.3	11	8.6	14	5.4	24	29	7.9
20	9.2	9.5	9.0	9.0	8.4	11	8.7	7.6	6.0	14	22	7.7
21	9.8	9.1	9.4	9.3	8.5	10	8.9	6.7	6.1	12	23	7.6
22	11	9.3	9.9	10	8.4	11	8.5	7.2	6.9	9.0	21	7.5
23	9.1	10	10	10	8.4	11	8.5	9.8	8.4	9.8	22	7.5
24	9.3	10	9.6	10	8.5	11	8.4	7.5	8.0	11	26	7.6
25	8.8	10	9.0	9.7	16	11	8.2	6.6	262	11	33	9.1
26	9.3	9.6	8.7	9.0	109	11	7.9	6.2	377	15	30	7.7
27	9.5	9.7	8.5	9.8	46	12	7.8	6.1	93	20	52	7.7
28	9.4	8.7	8.8	12	21	11	7.4	6.1	20	24	72	7.6
29	9.6	9.4	8.3	12	---	11	7.1	6.4	17	30	38	7.6
30	9.2	10	8.4	12	---	11	7.2	6.0	25	29	24	7.6
31	9.6	---	8.5	16	---	10	---	6.0	---	34	19	---
TOTAL	272.3	287.4	278.6	292.1	398.5	646	264.2	220.4	966.7	837.8	901	367.6
MEAN	8.78	9.58	8.99	9.42	14.2	20.8	8.81	7.11	32.2	27.0	29.1	12.3
MAX	11	10	10	16	109	178	11	14	377	147	72	25
MIN	7.9	8.7	8.3	8.2	8.0	10	7.1	5.7	5.4	9.0	19	7.5
AC-FT	540	570	553	579	790	1280	524	437	1920	1660	1790	729
CAL YR 1988	TOTAL 6473.6		MEAN 17.7	MAX 281	MIN 7.2	AC-FT 12840						
WTR YR 1989	TOTAL 5732.6		MEAN 15.7	MAX 377	MIN 5.4	AC-FT 11370						

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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.

WATER-DISCHARGE RECORDS

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.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1280	1560	1350	640	1550	1940	673	869	1430	313	450
2	1290	1290	1690	1470	250	1500	1530	668	884	1060	350	368
3	1360	1330	1680	1420	600	1300	1400	683	886	828	360	426
4	1380	1320	1640	1500	1000	1100	1390	713	826	761	369	668
5	1350	1360	1270	1520	1150	1100	1560	729	772	701	315	3100
6	1360	1350	1260	1550	1200	1200	1670	762	757	665	290	686
7	1490	1290	1310	1400	1300	1500	1780	763	719	590	298	600
8	1650	1260	1440	1300	1400	1600	1750	699	708	516	324	731
9	1310	1260	1350	840	1500	2750	1680	656	791	404	333	1340
10	1200	1250	1340	740	1700	5000	1610	589	854	318	342	1030
11	1170	1310	1310	760	1900	4200	1690	581	818	291	309	756
12	1180	1350	1490	1200	1800	4180	1470	556	837	803	279	756
13	1200	1380	1520	1300	1700	2030	1390	576	759	381	274	742
14	1210	1290	1320	1400	1600	1770	1450	625	696	321	288	800
15	1200	1320	1310	1450	1500	1700	1420	684	757	4620	373	625
16	1250	1500	1330	1350	1400	1880	1630	687	723	1630	342	562
17	1300	1670	1350	1400	1350	1550	1480	628	662	748	369	529
18	1270	1330	1380	1560	1300	1520	1490	743	588	758	388	516
19	1320	1280	1350	1520	1350	1260	1370	852	626	771	439	564
20	1240	1430	1360	1380	1380	1190	1140	782	625	825	418	627
21	1260	1400	1380	1340	1400	1250	1000	677	495	791	640	654
22	1330	1390	1370	1500	1450	1310	947	699	430	573	650	898
23	1300	1290	1330	1680	1550	1170	986	698	446	486	574	970
24	1360	1290	1300	1500	1700	1360	989	661	458	423	526	830
25	1390	1260	1250	1320	1750	1560	984	705	1460	385	511	923
26	1230	1520	1220	1280	1650	1570	1030	741	2270	363	520	1110
27	1460	1540	1200	1340	1600	1510	882	746	1600	325	592	1210
28	1510	1390	1120	1380	1600	1600	821	772	1150	302	1950	1210
29	1430	1450	1200	1400	---	1860	803	750	1200	285	1220	1360
30	1670	1450	1270	1400	---	2120	787	719	1580	258	742	1410
31	1530	---	1310	1400	---	2310	---	729	---	274	554	---
TOTAL	41540	40830	42210	41950	38720	57500	40069	21546	26246	22886	15252	26451
MEAN	1340	1361	1362	1353	1383	1855	1336	695	875	738	492	882
MAX	1670	1670	1690	1680	1900	5000	1940	852	2270	4620	1950	3100
MIN	1170	1250	1120	740	250	1100	787	556	430	258	274	368
AC-FT	82390	80990	83720	83210	76800	114100	79480	42740	52060	45390	30250	52470
CAL YR 1988	TOTAL 421774		MEAN 1152	MAX 3200	MIN 176	AC-FT 836600						
WTR YR 1989	TOTAL 415200		MEAN 1138	MAX 5000	MIN 250	AC-FT 823500						

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 1988 TO SEPTEMBER 1989

				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)	
		DATE	TIME										
		OCT											
		24...	1230	11300		270		8.43		10.0		10.5	
		NOV											
		21...	1500	1210		268		8.37		2.5		12.4	
		DEC											
		13...	1440	1370		251		8.34		1.5		12.5	
		JAN											
		04...	1330	1490		288		8.37		1.0		13.7	
		FEB											
		24...	1200	1650		276		8.03		0.5		12.2	
		MAR											
		16...	1110	1690		264		8.20		3.5		12.1	
		APR											
		04...	1545	1500		276		8.58		10.0		10.8	
		MAY											
		01...	1330	659		308		8.57		15.0		10.1	
		30...	1300	699		277		8.77		20.0		9.3	
		JUN											
		27...	1400	1840		238		8.00		25.5		6.6	
		JUL											
		25...	1350	377		376		8.81		27.0		8.8	
		AUG											
		21...	1415	639		298		8.66		28.0		8.5	
		30...	1600	654		302		8.56		26.5		7.8	
		DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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)
MAR		16...	1110	50	110	0	34	5.5	8.3	0.4	7.1	120	14
JUL		25...	1350	35	160	0	52	8.5	12	0.4	11	181	14
		DATE	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)	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- PHOROUS 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		16...	2.6	0.30	46	194	0.26	884	0.860	0.210	30	45	12
JUL		25...	3.7	0.30	49	260	0.35	265	0.290	0.180	50	17	3

PLATTE RIVER BASIN

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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. 30 to Jan. 6, 8-22, Feb. 1 to Mar. 11, and Mar. 14-28. 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.--52 years (1937-89), 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, 1,450 ft³/s Mar. 10, gage height, 6.19 ft, backwater from ice; minimum daily, 101 ft³/s July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	545	556	637	550	650	340	487	451	443	458	155	452
2	515	575	635	555	400	290	486	450	436	454	135	449
3	509	583	664	560	320	300	483	423	448	396	133	470
4	501	592	642	568	360	350	455	441	424	378	138	530
5	512	588	657	565	450	500	460	463	402	339	144	476
6	500	545	658	565	540	650	488	417	404	307	160	470
7	503	555	666	559	590	780	516	432	507	278	161	460
8	512	548	651	500	600	890	482	458	479	251	151	461
9	526	585	646	450	590	1000	439	452	471	213	143	495
10	536	580	666	530	570	1100	437	437	464	171	140	511
11	529	595	649	600	550	1050	433	429	463	155	140	510
12	532	639	635	630	540	621	459	424	485	163	197	510
13	555	628	670	660	540	524	474	443	460	157	196	503
14	565	602	693	690	550	540	482	492	433	269	192	499
15	570	631	656	690	590	570	481	499	411	489	252	520
16	568	595	600	680	650	560	487	501	398	444	282	532
17	579	583	615	660	680	550	489	542	409	424	273	514
18	581	551	662	650	670	520	473	536	409	416	278	504
19	574	561	695	650	650	490	473	507	369	363	401	493
20	591	586	701	645	640	480	488	449	330	339	366	508
21	556	618	671	640	640	480	495	438	328	324	406	525
22	564	626	696	635	640	490	508	426	247	299	411	498
23	553	640	677	628	650	520	515	415	274	276	372	489
24	527	659	671	625	680	560	495	413	335	233	350	497
25	541	649	665	567	700	600	541	383	428	183	354	502
26	558	658	656	532	750	610	516	384	678	162	387	497
27	570	634	557	535	760	615	534	377	517	128	503	497
28	559	527	496	538	640	620	511	395	425	101	509	481
29	557	638	507	568	---	625	456	407	366	107	485	473
30	565	658	520	539	---	610	439	426	444	151	459	487
31	559	---	540	607	---	540	---	449	---	167	453	---
TOTAL	16912	17985	19754	18371	16590	18375	14482	13759	12687	8595	8726	14813
MEAN	546	599	637	593	592	593	483	444	423	277	281	494
MAX	591	659	701	690	760	1100	541	542	678	489	509	532
MIN	500	527	496	450	320	290	433	377	247	101	133	449
AC-FT	33540	35670	39180	36440	32910	36450	28730	27290	25160	17050	17310	29380

CAL YR 1988 TOTAL 199817 MEAN 546 MAX 1300 MIN 146 AC-FT 396300
WTR YR 1989 TOTAL 181049 MEAN 496 MAX 1100 MIN 101 AC-FT 359100

PLATTE RIVER BASIN

06787000 CALAMUS RIVER NEAR HARROP, NE

LOCATION.--Lat 41°56'48", long 99°23'10" in NW1/4SE1/4 sec.22, T.23 N., R.18 W., Loup County, Hydrologic Unit 10210008, on right bank 44 ft upstream from bridge on U.S. Highway 183, 12.2 mi north of Taylor.

DRAINAGE AREA.--983 mi², most of which does not contribute directly to surface runoff.

PERIOD OF RECORD.--March to July 1932. August 1931 to February 1932, July 1932 to June 1939, 1955-64 and 1977, gage heights or discharge measurements only. June 1978 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,260 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 5, 1978, staff gage or reference point at same site at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Dec. 27-31, Jan. 7-11, Feb. 1-7, Mar. 2-6, and July 11-13. Records good except for periods of estimated records, which are poor. Diversions for irrigation above station.

AVERAGE DISCHARGE.--11 years, 248 ft³/s, 179,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,170 ft³/s May 4, 1964, gage height, 4.80 ft, datum then in use, from floodmark; maximum gage height, 5.34 ft Mar. 29, 1987, backwater from ice; minimum daily discharge, 90 ft³/s Jan. 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 474 ft³/s July 14, gage height, 2.10 ft; maximum gage height, 2.95 ft Mar. 2, backwater from ice; minimum daily discharge, 193 ft³/s Feb. 18, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	304	247	264	230	235	235	256	218	220	250	209	219
2	293	248	265	226	215	220	255	219	218	244	209	216
3	278	249	263	230	210	220	254	221	221	235	207	219
4	264	248	260	229	205	210	248	230	219	234	208	222
5	259	246	261	249	210	210	245	225	214	222	204	221
6	254	245	262	278	210	220	242	221	214	215	204	219
7	252	247	260	262	210	250	242	219	286	211	208	223
8	251	249	254	210	203	279	238	221	242	205	207	224
9	250	250	247	210	203	336	234	217	231	201	206	230
10	247	254	248	220	203	302	233	213	229	200	203	231
11	244	255	247	236	210	321	231	206	229	203	202	228
12	243	263	245	225	215	343	234	202	231	222	215	228
13	244	265	248	226	233	338	233	209	233	234	218	229
14	245	270	249	224	237	337	233	214	224	300	211	228
15	244	264	244	232	235	298	230	215	222	492	228	228
16	246	255	236	229	230	307	230	223	219	291	222	228
17	246	257	239	233	212	287	229	242	220	282	217	226
18	246	258	239	227	193	265	231	250	226	260	215	226
19	248	255	243	228	216	266	228	252	219	246	227	225
20	252	256	244	227	224	260	229	236	213	235	224	231
21	250	257	243	227	231	254	227	226	213	228	223	229
22	249	258	247	228	222	256	229	223	208	223	217	227
23	245	259	244	233	221	261	229	226	207	219	212	224
24	244	260	241	228	225	267	230	220	220	217	209	226
25	245	258	236	227	233	268	235	212	257	214	211	226
26	247	264	233	223	240	268	231	207	399	211	235	224
27	246	262	220	226	239	270	229	204	336	208	236	221
28	243	248	215	228	236	270	226	205	291	207	243	218
29	242	269	215	233	---	269	219	207	257	208	231	219
30	246	265	210	234	---	264	217	209	256	210	228	220
31	248	---	210	240	---	257	---	218	---	212	223	---
TOTAL	7815	7681	7532	7158	6156	8408	7027	6810	7174	7339	6712	6735
MEAN	252	256	243	231	220	271	234	220	239	237	217	224
MAX	304	270	265	278	240	343	256	252	399	492	243	231
MIN	242	245	210	210	193	210	217	202	207	200	202	216
AC-FT	15500	15240	14940	14200	12210	16680	13940	13510	14230	14560	13310	13360

CAL YR 1988 TOTAL 94511 MEAN 258 MAX 445 MIN 191 AC-FT 187500
WTR YR 1989 TOTAL 86547 MEAN 237 MAX 492 MIN 193 AC-FT 171700

PLATTE RIVER BASIN

147

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, 129,600 acre-ft June 29, elevation, 2244.42 ft; minimum observed, 84,770 acre-ft Oct. 17, elevation, 2235.04 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,237.97	98,900	-
Oct. 31	2,236.57	92,970	-5,930
Nov. 30	2,239.93	107,700	+14,730
Dec. 31	2,241.04	112,800	+5,100
CAL YR 1988	-	-	+4,500
Jan. 31	2,241.06	112,900	+100
Feb. 28	2,241.06	112,900	0
Mar. 31	2,241.34	114,200	+1,300
Apr. 30	2,242.35	119,100	+4,900
May 31	2,244.27	128,800	+9,700
June 30	2,244.40	129,500	+700
July 31	2,242.72	121,000	-8,500
Aug. 31	2,239.84	107,200	-13,800
Sept. 30	2,239.00	103,400	-3,800
WTR YR 1989	-	-	+4,500

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: Dec. 27, Mar. 4, 5, and July 17. 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, --4 years (water years 1986-89), 264 ft³/s, 191,300 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, 716 ft³/s Oct. 13, gage height, 3.34 ft; minimum daily, 15 ft³/s Oct. 27, Nov. 9-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679	59	80	243	303	324	350	58	109	370	292	173
2	707	56	121	253	290	304	342	58	119	352	292	78
3	702	53	77	262	275	304	338	57	127	345	292	71
4	706	52	77	267	266	290	323	56	138	338	288	70
5	706	48	77	270	271	290	265	55	146	337	288	65
6	707	47	76	282	270	278	236	55	155	324	290	59
7	705	33	75	284	256	283	217	55	230	315	299	58
8	698	16	76	284	245	289	212	55	252	311	308	101
9	693	15	75	285	240	304	208	55	249	310	310	299
10	695	15	75	278	241	336	194	55	228	306	304	363
11	694	15	76	267	244	298	142	56	208	304	302	364
12	694	18	149	266	243	229	145	56	218	305	291	365
13	693	43	243	270	246	315	146	55	222	303	290	381
14	691	47	248	279	258	367	152	54	208	316	290	384
15	689	46	247	284	271	377	164	53	161	296	299	381
16	688	43	242	284	282	380	171	53	149	290	297	379
17	431	44	236	294	282	380	170	53	157	300	310	378
18	176	43	233	298	284	382	172	53	163	305	319	405
19	97	44	245	294	288	379	161	53	165	314	312	423
20	93	45	250	298	304	361	154	52	171	316	312	426
21	83	47	251	294	356	352	151	51	213	317	311	412
22	58	48	249	286	382	342	150	51	185	317	311	403
23	52	48	256	283	358	336	148	51	157	319	312	409
24	56	48	257	286	348	344	149	57	148	319	309	420
25	61	47	256	286	359	354	112	52	211	319	312	415
26	38	47	258	286	370	359	78	53	365	317	309	335
27	15	45	245	292	373	363	65	51	428	316	309	305
28	37	44	244	294	351	361	60	52	409	315	316	321
29	59	44	244	300	---	361	59	69	396	314	326	322
30	59	44	242	304	---	360	59	90	393	299	313	284
31	58	---	244	305	---	360	---	106	---	290	288	---
TOTAL	12520	1244	5724	8758	8256	10362	5293	1780	6480	9799	9401	8849
MEAN	404	41.5	185	283	295	334	176	57.4	216	316	303	295
MAX	707	59	258	305	382	382	350	106	428	370	326	426
MIN	15	15	75	243	240	229	59	51	109	290	288	58
AC-FT	24830	2470	11350	17370	16380	20550	10500	3530	12850	19440	18650	17550
CAL YR 1988	TOTAL	103281	MEAN 282	MAX 787	MIN 15	AC-FT 204900						
WTR YR 1989	TOTAL	88466	MEAN 242	MAX 707	MIN 15	AC-FT 175500						

PLATTE RIVER BASIN

149

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. 27 and Feb. 3 to Mar. 10. 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.--38 years (1937-38, 1952-89), 888 ft³/s, 643,400 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, 4,930 ft³/s July 15, gage height, 4.74 ft; minimum daily, 428 ft³/s May 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1530	680	808	1040	996	1100	938	547	619	880	528	717
2	1480	699	858	1100	465	900	915	555	589	885	508	521
3	1420	694	809	1170	450	700	915	584	634	851	492	595
4	1380	703	815	1210	500	540	902	589	662	796	482	2310
5	1360	714	812	1180	600	560	862	578	658	771	470	846
6	1360	715	813	1240	900	720	809	603	645	742	451	545
7	1360	670	813	1130	1000	1000	811	523	771	716	477	543
8	1350	600	800	781	1050	1400	794	511	821	693	493	573
9	1360	637	757	654	1000	1800	799	511	779	619	496	839
10	1370	655	750	953	900	2400	783	511	790	596	462	966
11	1370	657	800	1170	900	2250	756	501	739	553	447	974
12	1380	644	818	1250	870	1550	728	486	711	552	475	1020
13	1380	678	902	1310	860	1400	745	510	753	561	531	1040
14	1380	699	934	1410	900	1330	743	585	726	850	527	1030
15	1370	708	937	1460	1000	1180	759	551	671	2170	667	1010
16	1350	714	908	1420	1000	1120	759	546	588	920	744	1020
17	1250	744	945	1370	1100	1070	743	605	585	861	651	1040
18	916	722	968	1230	1150	971	782	699	625	875	681	1020
19	764	730	942	1190	1100	984	776	661	596	828	846	1020
20	788	751	965	1170	1050	936	751	604	564	744	840	1040
21	761	762	944	1120	1050	818	743	535	581	751	785	1050
22	725	786	934	1110	1080	766	737	537	607	745	824	1050
23	717	768	910	1140	1000	813	743	537	522	714	786	1030
24	722	759	905	1060	1050	880	765	523	559	684	749	1020
25	730	753	862	1000	1100	952	771	526	753	619	697	1010
26	729	771	891	938	1250	988	666	457	837	588	708	980
27	661	757	800	965	1350	982	613	448	1080	530	768	874
28	674	731	678	944	1300	991	604	428	906	461	897	891
29	687	718	698	1010	---	966	614	457	960	480	873	928
30	682	761	826	1030	---	970	565	509	851	501	837	911
31	681	---	1000	1050	---	945	---	626	---	525	791	---
TOTAL	33687	21380	26602	34805	26971	33982	22891	16843	21182	23061	19983	28413
MEAN	1087	713	858	1123	963	1096	763	543	706	744	645	947
MAX	1530	786	1000	1460	1350	2400	938	699	1080	2170	897	2310
MIN	661	600	678	654	450	540	565	428	522	461	447	521
AC-FT	66820	42410	52770	69040	53500	67400	45400	33410	42010	45740	39640	56360

CAL YR 1988 TOTAL 366813 MEAN 1002 MAX 2140 MIN 308 AC-FT 727600
WTR YR 1989 TOTAL 309800 MEAN 849 MAX 2400 MIN 428 AC-FT 614500

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.--Estimated daily discharges: June 24 and Sept. 5-28. Records fair except for periods of estimated record, which are poor..

AVERAGE DISCHARGE.--10 years, 1.96 ft³/s, 1,420 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)
Mar. 10	0100	98	2.93	Sept. 4	2400	*274	*a3.93

a From floodmark.

Minimum daily discharge, 0.06 ft³/s, June 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.22	.34	.28	.62	1.5	1.2	.22	.07	5.2	3.0	2.6
2	.10	.22	.31	.27	.51	1.2	1.2	.24	.08	5.1	2.8	1.3
3	.08	.24	.29	.30	.23	1.0	1.1	.24	.10	5.1	2.9	6.8
4	.08	.26	.28	.35	.14	.78	1.1	.32	.07	5.1	2.8	66
5	.07	.28	.26	.38	.17	.64	1.1	.31	.06	5.1	2.5	49
6	.08	.27	.24	.43	.20	.66	1.0	.31	.06	5.1	1.9	11
7	.08	.24	.23	.42	.23	.70	1.0	.29	.08	5.3	2.1	7.5
8	.09	.27	.23	.38	.24	4.7	.85	.25	.08	5.5	2.0	6.8
9	.10	.24	.22	.30	.22	25	.80	.23	.07	5.5	1.4	6.2
10	.10	.24	.23	.29	.24	45	.79	.21	.07	5.0	1.2	6.0
11	.09	.24	.21	.29	.28	8.0	.75	.19	.08	4.8	.74	5.6
12	.10	.27	.23	.28	.31	4.8	.72	.16	.08	4.8	.45	5.0
13	.11	.39	.27	.25	.33	3.8	.76	.15	.09	4.8	.43	4.8
14	.12	.52	.31	.27	.33	4.0	.61	.17	.09	5.3	.77	4.6
15	.12	.54	.31	.29	.33	4.2	.66	.15	.09	9.3	.73	4.5
16	.14	.61	.29	.30	.35	3.6	.65	.18	.13	12	1.1	4.4
17	.16	.66	.30	.28	.36	2.1	.60	.19	.11	12	1.6	4.3
18	.18	.65	.32	.31	.38	2.2	.60	.51	.12	9.1	1.2	4.2
19	.20	.64	.38	.37	.38	2.2	.50	1.0	.13	7.3	1.0	4.1
20	.20	.61	.80	.39	.38	1.9	.50	.77	.16	5.9	1.2	3.9
21	.21	.57	.75	.41	.41	1.7	.50	.71	.16	5.2	.96	3.8
22	.22	.52	.70	.42	.42	1.6	.40	.49	.17	4.8	1.2	3.7
23	.22	.48	.55	.43	.41	1.4	.40	.25	.15	4.5	1.2	3.6
24	.23	.47	.50	.39	.45	1.3	.35	.17	.16	4.4	.96	3.5
25	.24	.43	.44	.36	7.7	1.3	.34	.13	4.7	4.0	.64	3.4
26	.24	.42	.43	.35	7.7	1.2	.31	.10	5.1	3.8	.79	3.3
27	.22	.40	.30	.34	5.7	1.4	.30	.10	5.3	3.6	.82	3.2
28	.20	.40	.27	.40	2.2	1.4	.27	.11	5.1	3.1	1.8	3.1
29	.20	.40	.26	.43	---	1.4	.24	.09	5.3	3.3	3.7	2.9
30	.20	.38	.25	.58	---	1.4	.22	.07	5.1	3.3	4.8	2.5
31	.20	---	.27	.97	---	1.3	---	.07	---	3.0	4.4	---
TOTAL	4.69	12.08	10.77	11.51	31.22	133.38	19.82	8.38	33.06	170.3	53.09	241.6
MEAN	.15	.40	.35	.37	1.11	4.30	.66	.27	1.10	5.49	1.71	8.05
MAX	.24	.66	.80	.97	7.7	45	1.2	1.0	5.3	12	4.8	66
MIN	.07	.22	.21	.25	.14	.64	.22	.07	.06	3.0	.43	1.3
AC-FT	9.3	24	21	23	62	265	39	17	66	338	105	479

CAL YR 1988 TOTAL 307.40 MEAN .84 MAX 27 MIN .03 AC-FT 610
WTR YR 1989 TOTAL 729.90 MEAN 2.00 MAX 66 MIN .06 AC-FT 1450

PLATTE RIVER BASIN

151

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. 29 to Mar. 12. 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.--82 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, 7,800 ft³/s July 15, gage height, 4.92 ft; maximum gage height, 6.63 ft Mar. 11, backwater from ice; minimum daily discharge, 320 ft³/s Feb. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	806	820	920	1050	1300	1190	699	603	1020	511	729
2	1560	849	854	1000	320	1000	1170	667	630	981	486	651
3	1550	873	917	1080	320	840	1130	689	715	894	498	535
4	1540	889	829	1130	340	600	1130	775	683	810	483	2030
5	1510	903	844	1250	600	640	1060	721	708	756	453	2620
6	1470	873	844	1300	1050	780	979	669	715	700	441	1040
7	1440	885	847	1250	1100	1150	913	667	701	656	423	624
8	1420	834	832	1000	1150	1350	877	596	841	604	411	559
9	1440	795	811	730	1100	1700	882	544	913	559	388	607
10	1420	794	831	1100	1050	2600	893	532	913	544	384	795
11	1420	796	804	1300	1000	4400	884	525	934	516	391	984
12	1360	809	787	1400	980	3600	843	471	830	494	459	1020
13	1380	774	886	1500	960	1740	804	525	748	455	479	1030
14	1440	801	841	1500	1000	1290	825	576	823	538	466	1000
15	1420	823	917	1550	1050	995	847	625	798	2630	464	999
16	1400	813	809	1500	1150	1050	881	601	709	2030	556	1020
17	1450	798	839	1500	1250	1000	897	585	566	1510	608	1050
18	1340	776	927	1400	1250	891	924	720	591	1360	555	1020
19	1080	763	890	1300	1250	812	949	839	628	1230	718	1020
20	884	758	937	1250	1200	860	935	724	605	1120	800	1050
21	858	757	877	1250	1200	853	898	653	553	967	832	1010
22	823	764	847	1200	1200	858	884	572	512	936	751	1060
23	801	760	954	1200	1100	958	896	568	547	877	764	1100
24	784	779	945	1200	1200	1010	926	563	650	820	697	1050
25	776	786	926	1100	1300	1000	942	540	2900	732	655	1050
26	742	839	798	1050	1400	1040	944	513	1140	645	626	1060
27	744	856	755	1050	1500	1100	828	480	1100	573	681	1020
28	671	778	678	1100	1450	1150	756	475	1410	527	753	945
29	721	778	640	1150	---	1190	733	483	1190	476	887	984
30	788	769	720	1150	---	1190	736	465	1270	480	825	987
31	805	---	800	1150	---	1180	---	492	---	501	801	---
TOTAL	36657	24278	26006	37560	29520	40127	27556	18554	25926	26941	18246	30649
MEAN	1182	809	839	1212	1054	1294	919	599	864	869	589	1022
MAX	1620	903	954	1550	1500	4400	1190	839	2900	2630	887	2620
MIN	671	757	640	730	320	600	733	465	512	455	384	535
AC-FT	72710	48160	51580	74500	58550	79590	54660	36800	51420	53440	36190	60790

CAL YR 1988 TOTAL 377526 MEAN 1031 MAX 2800 MIN 160 AC-FT 748800
WTR YR 1989 TOTAL 342020 MEAN 937 MAX 4400 MIN 320 AC-FT 678400

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 1988 TO SEPTEMBER 1989

				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 24...	0940	757	247	8.38	7.5	10.8				
		NOV 21...	1145	753	242	8.25	1.0	13.1				
		DEC 13...	1110	873	242	8.28	0.5	13.4				
		JAN 04...	1050	1130	240	8.31	0.5	13.2				
		FEB 15...	1020	1060	214	7.91	0.5	11.6				
		MAR 06...	1105	780	285	7.88	0.5	9.9				
		APR 04...	1315	1230	229	8.52	8.0	12.0				
		MAY 01...	1315	650	249	8.55	14.5	10.2				
		30...	1030	477	259	8.78	19.5	8.7				
		JUN 27...	1255	939	267	8.60	25.5	8.8				
		JUL 25...	1110	759	225	8.98	26.0	9.2				
		AUG 21...	1455	807	224	9.01	28.0	9.6				
		30...	1645	807	216	--	27.5	9.6				
DATE	TIME	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH TOT FLD MG/L AS CACO3 (00902)	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)	
MAR 06...	1105	14	120	--	37	5.9	9.5	0.4	7.5	128	11	
JUL 25...	1110	25	91	0	29	4.6	7.6	0.4	7.5	109	7.0	
DATE		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)	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- PHOROUS 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 06...	2.6	0.30	45	--	--	--	1.10	0.160	30	26	5	
JUL 25...	1.5	0.40	34	157	0.21	322	<0.100	0.030	30	20	4	

PLATTE RIVER BASIN

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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. 16, 20-22, 26, 28-31, Jan. 1, 2, 8-16, 26-31, Feb. 1-24, and Mar. 2-9. Records good except for periods of estimated record, which are poor. Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--41 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)
Jan. 2	----	(a)	*4.73	Sept. 4	0730	*323	3.82

a Backwater from ice.

Minimum daily discharge, 121 ft³/s July 10, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	156	169	185	140	170	172	146	162	170	145	133
2	180	158	166	220	135	160	174	145	159	166	138	129
3	175	160	166	188	140	160	171	147	148	158	132	137
4	174	162	164	175	150	170	169	158	149	151	128	286
5	174	161	165	180	160	180	168	154	151	143	126	188
6	174	158	167	193	165	170	168	152	148	135	125	159
7	174	158	167	195	165	200	171	161	147	133	125	173
8	175	158	163	155	175	225	167	152	145	128	124	168
9	173	158	163	170	180	245	163	146	144	125	123	173
10	170	159	164	180	180	225	162	140	142	121	123	169
11	167	157	168	180	180	211	163	138	155	121	122	159
12	166	158	173	185	170	215	166	135	157	125	125	156
13	167	156	169	185	165	217	164	135	151	123	126	157
14	169	154	168	190	160	222	161	137	148	126	131	153
15	168	157	165	190	160	203	159	136	143	140	131	151
16	170	164	160	200	165	198	160	139	143	144	131	151
17	173	162	166	174	165	185	158	141	145	145	129	151
18	173	165	169	165	170	177	159	188	152	144	127	149
19	170	165	173	160	175	177	142	225	154	141	148	147
20	171	163	170	157	175	174	155	216	148	135	145	147
21	171	161	180	156	180	171	157	193	142	132	139	145
22	168	164	185	157	190	168	158	181	140	129	135	142
23	163	165	184	158	210	168	157	177	138	129	134	138
24	158	165	178	161	200	170	158	172	148	130	131	137
25	159	163	176	161	191	173	164	162	195	129	132	137
26	161	166	170	166	190	173	169	154	200	129	134	131
27	161	170	179	166	182	175	165	150	191	128	139	129
28	157	173	160	168	174	177	157	149	179	127	146	137
29	155	171	160	174	---	176	148	151	171	127	146	138
30	156	171	165	177	---	172	145	149	169	144	143	136
31	156	---	175	181	---	171	---	154	---	147	139	---
TOTAL	5207	4858	5247	5452	4792	5778	4850	4883	4664	4225	4122	4606
MEAN	168	162	169	176	171	186	162	158	155	136	133	154
MAX	180	173	185	220	210	245	174	225	200	170	148	286
MIN	155	154	160	155	135	160	142	135	138	121	122	129
AC-FT	10330	9640	10410	10810	9500	11460	9620	9690	9250	8380	8180	9140

CAL YR 1988 TOTAL 72583 MEAN 198 MAX 514 MIN 145 AC-FT 144000
WTR YR 1989 TOTAL 58684 MEAN 161 MAX 286 MIN 121 AC-FT 116400

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: Dec. 9-16, and Dec. 29 to Mar. 10. 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.--49 years (1940-89), 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)
Mar. 10	1500	*a1600	*b5.40	No other peak greater than base discharge.			

a Backwater from ice.

b Based on partial record.

Minimum daily discharge, 69 ft³/s Aug. 9, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	325	247	265	250	200	330	328	233	240	254	110	181
2	282	241	276	240	170	310	330	212	237	247	130	188
3	260	239	279	250	180	290	331	232	288	241	115	187
4	261	254	275	280	190	280	326	247	246	229	91	569
5	257	259	272	270	210	270	320	243	252	205	90	397
6	261	260	268	260	230	270	314	241	230	181	88	341
7	265	257	270	260	260	280	314	243	224	160	89	256
8	263	254	267	250	250	320	300	244	217	131	73	273
9	248	253	260	230	250	660	285	249	217	122	69	300
10	240	252	250	260	300	1000	272	242	220	109	71	265
11	240	250	240	300	300	641	265	224	234	96	69	253
12	243	263	250	270	290	440	295	221	224	91	77	252
13	244	262	260	280	280	399	257	205	225	89	87	250
14	245	259	250	330	260	398	260	204	223	105	90	266
15	254	254	230	300	250	364	257	259	231	175	96	223
16	255	262	240	320	280	350	255	278	225	174	89	212
17	255	253	247	330	260	333	259	319	218	191	88	235
18	255	271	280	350	260	317	263	319	229	198	92	230
19	251	263	313	360	250	302	269	390	228	193	113	216
20	246	258	321	300	280	302	242	310	206	176	136	210
21	246	258	311	310	250	298	240	305	194	154	150	215
22	248	255	278	300	230	299	243	284	195	135	157	210
23	254	257	279	280	230	319	240	273	182	142	154	208
24	250	260	274	270	220	331	238	264	199	137	136	199
25	249	259	266	250	280	340	234	248	397	125	140	199
26	241	273	269	230	400	360	248	240	387	123	149	203
27	241	276	235	260	390	350	234	237	327	94	156	218
28	237	259	201	250	350	352	248	227	284	87	175	230
29	240	291	190	240	---	350	243	256	267	94	176	214
30	243	269	200	250	---	349	240	228	259	90	179	206
31	244	---	260	270	---	340	---	252	---	99	186	---
TOTAL	7843	7768	8076	8600	7300	11544	8150	7929	7305	4647	3621	7406
MEAN	253	259	261	277	261	372	272	256	243	150	117	247
MAX	325	291	321	360	400	1000	331	390	397	254	186	569
MIN	237	239	190	230	170	270	234	204	182	87	69	181
AC-FT	15560	15410	16020	17060	14480	22900	16170	15730	14490	9220	7180	14690
CAL YR 1988	TOTAL 97112	MEAN 265	MAX 540	MIN 110	AC-FT 192600							
WTR YR 1989	TOTAL 90189	MEAN 247	MAX 1000	MIN 69	AC-FT 178900							

PLATTE RIVER BASIN

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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 1988 TO SEPTEMBER 1989

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- TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT 28...	1200	233	280	8.38	5.0	--	17	--	--	--	--	130
NOV 21...	1055	256	--	8.22	1.0	730	--	16	13.3	K50	100	130
DEC 20...	1030	255	--	8.16	1.0	--	3	--	--	--	--	120
JAN 17...	1345	334	285	7.86	0.0	722	4	21	14.5	K77	760	120
FEB 09...	1005	250	--	7.23	0.0	--	1	--	--	--	--	140
MAR 14...	1000	395	275	8.12	5.5	694	29	60	11.3	K120	1400	120
APR 11...	1415	255	323	8.26	8.0	720	15	--	12.8	--	--	130
MAY 10...	1000	249	287	8.45	13.0	725	15	3.6	9.2	160	540	130
JUN 06...	0930	E335	289	8.59	19.0	715	15	--	9.9	--	--	120
JUL 06...	0800	188	262	8.58	24.0	721	--	27	7.3	2300	910	120
AUG 09...	1135	152	293	8.40	21.5	714	55	--	9.0	--	--	120
SEP 05...	1000	383	--	7.69	20.5	723	60	290	7.6	E75000	E88000	76

E Estimated value.

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

DATE	HARD- NESS NONCARB WH WAT TOT PLD MG/L AS CACO3 (00902)	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 WH TOT IT FIELD MG/L AS CACO3 (00419)	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 28...	0	40	7.0	8.4	0.3	6.2	--	9.8	2.0	0.20	44
NOV 21...	0	42	7.1	8.7	0.3	6.1	138	11	1.9	0.20	46
DEC 20...	0	37	6.5	7.5	0.3	6.2	--	11	2.0	0.20	40
JAN 17...	0	38	6.7	8.6	0.4	6.7	129	10	2.0	0.20	44
FEB 09...	0	44	7.4	8.9	0.3	7.3	--	12	1.9	0.20	50
MAR 14...	0	37	6.7	7.9	0.3	8.4	131	12	2.3	0.20	40
APR 11...	0	42	7.0	8.7	0.3	6.9	--	9.6	1.8	0.20	39
MAY 10...	0	41	7.0	8.4	0.3	6.8	137	9.0	2.0	0.30	37
JUN 06...	0	39	6.7	8.1	0.3	6.6	--	9.0	1.4	0.20	36
JUL 06...	0	37	5.8	8.3	0.3	7.1	130	8.0	1.6	0.30	41
AUG 09...	0	39	6.4	8.5	0.3	7.4	--	9.0	1.9	0.30	42
SEP 05...	0	24	4.0	4.7	0.2	11	--	9.0	2.8	0.30	21

PLATTE RIVER BASIN

06792000 CEDAR RIVER NEAR FULLERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 28...	--	205	0.28	129	0.530	--	--	--	0.260	0.180	--
NOV 21...	207	212	0.28	143	0.690	0.070	0.33	0.40	0.220	0.180	0.170
DEC 20...	--	191	0.26	132	0.470	--	--	--	0.200	0.150	--
JAN 17...	194	198	0.26	175	0.690	0.060	0.44	0.50	0.250	0.160	0.110
FEB 09...	--	226	0.31	153	0.850	--	--	--	0.200	0.020	--
MAR 14...	191	198	0.26	204	0.590	0.220	0.68	0.90	0.300	0.240	0.260
APR 11...	--	204	0.28	141	0.320	--	--	--	0.240	0.160	--
MAY 10...	194	195	0.26	--	<0.100	0.020	0.68	0.70	0.280	0.120	0.110
JUN 06...	--	190	0.26	--	<0.100	--	--	--	--	0.020	--
JUL 06...	196	188	0.27	96.8	<0.100	0.020	0.48	0.50	0.250	0.180	0.170
AUG 09...	--	194	0.26	79.5	<0.100	--	--	--	0.290	0.130	--
SEP 05...	138	133	0.19	218	0.920	0.370	3.3	3.7	0.990	0.270	0.220

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 28...	1200	--	--	--	--	20	--	--	--	--	17
NOV 21...	1055	<10	6	150	<0.5	30	<1	<1	<3	2	21
DEC 20...	1030	--	--	--	--	20	--	--	--	--	28
JAN 17...	1345	--	--	--	--	--	--	--	--	--	--
FEB 09...	1005	--	--	--	--	30	--	--	--	--	160
MAR 14...	1000	<10	6	130	<0.5	--	2	<1	<3	1	12
APR 11...	1415	--	--	--	--	20	--	--	--	--	14
MAY 10...	1000	<10	7	130	<0.5	30	<1	<1	<3	1	13
JUN 06...	0930	--	--	--	--	30	--	--	--	--	24
JUL 06...	0800	30	<1	120	<0.5	30	<1	1	<3	1	18
AUG 09...	1135	--	--	--	--	30	--	--	--	--	19
SEP 05...	1000	--	--	--	--	30	--	--	--	--	--

06792000 CEDAR RIVER NEAR FULLERTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 28...	--	--	10	--	--	--	--	--	--	--	--
NOV 21...	<5	16	12	<0.1	<10	2	<1	1.0	230	<6	5
DEC 20...	--	--	15	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 09...	--	--	24	--	--	--	--	--	--	--	--
MAR 14...	<5	13	15	<0.1	<10	2	1	<1.0	200	<6	7
APR 11...	--	--	17	--	--	--	--	--	--	--	--
MAY 10...	1	14	6	<0.1	<10	1	1	<1.0	240	9	9
JUN 06...	--	--	7	--	--	--	--	--	--	--	--
JUL 06...	<1	15	3	<0.1	<10	<1	1	<1.0	220	10	6
AUG 09...	--	--	11	--	--	--	--	--	--	--	--
SEP 05...	--	--	--	--	--	--	--	--	--	--	--

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)
OCT 28...	1200	233	5.0	--	--	--
NOV 21...	1055	256	1.0	349	241	28
DEC 20...	1030	255	1.0	--	--	--
JAN 17...	1345	334	0.0	367	331	--
FEB 09...	1005	250	0.0	--	--	--
MAR 14...	1000	395	5.5	951	1010	49
APR 11...	1415	255	8.0	--	--	--
MAY 10...	1000	249	13.0	356	239	54
JUN 06...	0930	E335	19.0	--	--	--
JUL 06...	0800	188	24.0	276	140	66
AUG 09...	1135	152	21.5	--	--	--
SEP 05...	1000	383	20.5	1570	1620	73

E Estimated value.

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.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,410 ft³/s Apr. 27, 1944; no flow Aug. 16, 24-27, 30, 31, 1966, flood damage to canal was being repaired.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2740	2170	2420	54	461	892	1810	1940	1620	3070	733	1510
2	1690	2180	2390	173	20	508	1720	1680	1980	3170	820	1380
3	395	2250	2370	757	9.3	263	1750	1720	2020	2860	789	1340
4	242	2390	2480	1080	98	380	1810	1800	1990	2540	734	2150
5	226	2390	2390	2460	350	590	1870	1820	1820	2230	736	2910
6	215	2620	2390	2200	605	479	1830	1780	1730	1950	688	3100
7	197	2320	2370	571	778	532	1830	1780	1670	1750	720	2340
8	1200	2200	555	61	1180	753	1810	1730	1610	1520	705	2170
9	2720	2180	104	11	1570	971	1860	1590	1710	1330	723	2360
10	2630	2300	98	7.0	1550	1010	1930	1470	1910	1170	728	2690
11	2630	2320	64	18	1590	1460	1860	1400	2020	1020	747	2300
12	2570	2450	75	31	1660	1740	2220	1370	1940	870	732	2240
13	2710	2470	800	58	1330	1920	2130	1320	1850	1490	817	2360
14	2630	2420	2380	79	1190	2270	2140	1360	1710	988	836	2400
15	2700	2590	881	504	1080	2260	2310	1440	1660	1690	793	2300
16	2610	2480	147	619	1040	1780	2200	1570	1710	3020	845	2030
17	2710	1880	116	964	1040	1730	2210	1570	1600	2980	856	1980
18	2720	2500	601	2290	1070	529	2340	1690	1510	2700	696	1940
19	2640	2420	1130	2230	757	1670	2340	2110	1380	2290	1010	1960
20	2640	2380	1880	1130	709	1550	2140	2280	1340	2010	1210	1890
21	2400	2320	1270	1150	985	1560	2000	1940	1270	1800	1270	1900
22	2400	2320	2800	1410	964	1630	1980	1690	1160	1600	1470	1880
23	2330	2340	2180	2290	898	1570	1920	1630	1060	1480	1390	2060
24	2320	2260	853	2320	861	1490	1970	1580	1130	1380	1270	2250
25	2320	2320	71	833	866	1480	1950	1470	1960	1240	1260	2150
26	2240	2490	70	679	1010	1540	2010	1510	2780	1150	1260	2160
27	2230	2140	45	1230	1090	1350	2070	1560	3050	994	1250	2180
28	2320	412	6.0	2180	1200	1310	1900	1510	3090	879	1480	2270
29	2270	1050	39	1230	---	1670	1870	1670	3070	813	2310	2180
30	2330	2410	51	1960	---	1730	1870	1550	3020	747	1910	2200
31	2200	---	524	2760	---	1880	---	1500	---	742	1620	---
TOTAL	64175	66972	33550.0	33339.0	25961.3	40497	59650	51030	56370	53473	32408	64580
MEAN	2070	2232	1082	1075	927	1306	1988	1646	1879	1725	1045	2153
MAX	2740	2620	2800	2760	1660	2270	2340	2280	3090	3170	2310	3100
MIN	197	412	6.0	7.0	9.3	263	1720	1320	1060	742	688	1340
AC-FT	127300	132800	66550	66130	51490	80330	118300	101200	111800	106100	64280	128100
CAL YR 1988	TOTAL 617403.0			MEAN 1687	MAX 2820	MIN 6.0	AC-FT 1225000					
YR 1989	TOTAL 582005.3			MEAN 1595	MAX 3170	MIN 6.0	AC-FT 1154000					

PLATTE RIVER BASIN

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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. 28, 29, Dec. 9-13, 15-17, 19-21, and Dec. 24 to Mar. 12. 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.--46 years (water years 1944-89), 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, 11,600 ft³/s Mar. 10, gage height, 9.40 ft, from flood mark, backwater from ice; minimum daily, 8.4 ft³/s June 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2610	27	19	2200	1900	2100	1450	19	16	433	17	98
2	2160	27	16	2000	1400	2100	1560	17	20	277	17	90
3	3120	39	14	2000	1200	2400	1280	18	18	162	17	85
4	2980	31	14	1700	1000	2300	1430	27	15	63	17	64
5	2940	24	13	1150	800	2200	1470	22	14	40	16	2010
6	3050	28	12	1200	600	2500	1220	20	14	40	16	785
7	3160	71	11	2000	500	2700	1020	20	14	41	16	124
8	2050	94	1040	2500	200	3000	863	19	15	34	12	152
9	117	98	1900	2200	200	4500	940	19	13	36	12	103
10	105	75	2100	2000	600	10000	1040	19	15	40	12	106
11	117	32	2000	2300	1100	9000	803	19	15	31	13	129
12	250	25	2100	2500	1500	7000	264	19	13	29	13	136
13	104	22	1500	2600	1600	5700	144	18	11	90	13	119
14	139	21	703	2800	1700	3470	117	18	13	31	13	127
15	126	22	2200	2400	1800	2780	163	18	11	2140	34	56
16	239	542	2300	2300	1900	2380	85	18	10	2990	72	41
17	161	930	2500	1880	1800	2480	102	19	11	507	109	42
18	330	57	2180	600	1700	3520	133	24	10	100	432	37
19	252	37	1500	600	1900	1500	115	20	10	50	40	38
20	80	30	1000	1300	2100	1750	56	16	9.0	30	28	35
21	44	80	1200	1400	1900	1670	26	16	8.4	25	57	33
22	39	34	119	1200	1700	1420	23	15	8.5	25	88	30
23	33	26	624	500	1700	1280	21	16	8.8	23	83	28
24	33	33	2200	540	2000	1360	22	16	12	22	83	34
25	31	23	2000	1700	2100	1450	22	15	1260	21	81	25
26	28	27	2000	1900	2200	1810	26	13	1610	20	55	24
27	27	368	1900	1300	2400	1890	21	14	1080	18	71	24
28	26	1100	1780	540	2400	1910	18	15	473	17	95	25
29	26	1500	1030	1300	---	1730	17	17	411	17	199	23
30	29	29	1400	700	---	1670	18	14	433	18	109	22
31	27	---	1600	1000	---	1590	---	13	---	17	94	---
TOTAL	24433	5452	38975	50310	41900	91160	14469	553	5571.7	7387	1934	4645
MEAN	788	182	1257	1623	1496	2941	482	17.8	186	238	62.4	155
MAX	3160	1500	2500	2800	2400	10000	1560	27	1610	2990	432	2010
MIN	26	21	11	500	200	1280	17	13	8.4	17	12	22
AC-FT	48460	10810	77310	99790	83110	180800	28700	1100	11050	14650	3840	9210

CAL YR 1988 TOTAL 341437.5 MEAN 933 MAX 7400 MIN 7.6 AC-FT 677200
WTR YR 1989 TOTAL 286789.7 MEAN 786 MAX 10000 MIN 8.4 AC-FT 568800

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. 16-18, Nov. 29 to Dec. 1, 9-13, 16-20, Dec. 24 to Jan. 3, Jan. 8-18, 21-23, 26-28, Feb. 1 to Mar. 7, and Mar. 14-19. 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.--19 years (water years 1945-53, 1980-89), 82.6 ft³/s, 59,840 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)
Sept. 4	1045	*571	*5.78	No other peak greater than base discharge.			
Minimum daily discharge, 31 ft ³ /s Aug. 8-11.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	51	60	60	60	50	77	54	54	49	42	44
2	58	51	63	55	52	48	76	52	48	51	39	44
3	54	57	62	60	38	48	74	51	46	47	36	46
4	53	56	62	68	39	50	72	54	46	43	33	241
5	53	53	63	101	39	60	71	51	46	42	32	126
6	51	58	61	221	42	70	70	52	45	40	32	80
7	50	58	61	103	42	80	72	51	44	38	33	73
8	50	60	60	70	45	83	72	48	42	36	31	68
9	62	57	56	55	42	109	69	45	42	34	31	84
10	53	60	56	55	52	277	69	46	46	35	31	74
11	51	60	56	55	58	151	67	43	45	33	31	68
12	52	60	56	55	60	122	67	45	44	34	33	61
13	48	63	58	60	62	101	68	45	41	33	35	62
14	49	58	65	60	62	100	66	46	41	34	35	61
15	46	58	62	60	65	95	67	44	45	52	34	57
16	47	58	50	62	65	85	66	45	46	53	36	55
17	48	56	52	65	65	80	66	50	46	50	36	54
18	48	58	52	66	65	75	69	62	58	49	36	53
19	49	63	60	66	65	75	70	84	51	44	39	50
20	54	65	70	61	65	76	67	70	44	39	43	51
21	49	64	78	58	65	75	64	64	41	38	64	49
22	56	64	69	58	65	76	62	60	42	34	55	48
23	50	66	65	58	60	78	60	58	43	36	44	51
24	51	63	60	61	60	79	59	61	46	35	42	49
25	52	61	54	59	70	81	63	55	69	34	43	51
26	53	63	52	55	74	84	62	52	71	35	45	49
27	48	64	52	55	74	87	59	54	72	33	47	48
28	48	61	52	60	83	86	54	53	60	33	50	44
29	51	60	52	65	---	83	53	53	54	32	48	42
30	55	60	55	64	---	80	54	53	50	45	47	42
31	50	---	60	69	---	78	---	52	---	53	46	---
TOTAL	1600	1786	1834	2120	1634	2722	1985	1653	1468	1244	1229	1925
MEAN	51.6	59.5	59.2	68.4	58.4	87.8	66.2	53.3	48.9	40.1	39.6	64.2
MAX	62	66	78	221	83	277	77	84	72	53	64	241
MIN	46	51	50	55	38	48	53	43	41	32	31	42
AC-FT	3170	3540	3640	4210	3240	5400	3940	3280	2910	2470	2440	3820

CAL YR 1988 TOTAL 24675 MEAN 67.4 MAX 251 MIN 30 AC-FT 48940
WTR YR 1989 TOTAL 21200 MEAN 58.1 MAX 277 MIN 31 AC-FT 42050

PLATTE RIVER BASIN

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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.

WATER-DISCHARGE RECORDS

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. 29 to Feb. 24, and Mar. 3 to Mar. 7. 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.--49 years, 125 ft³/s, 90,560 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)
Mar. 10	0941	*3230	*12.52	Sept. 4	2203	1490	9.39

Minimum daily discharge, 1.1 ft³/s Aug. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	79	80	90	96	246	128	81	75	69	34	32
2	78	80	82	96	94	199	127	82	77	65	26	30
3	73	79	82	110	94	170	125	82	79	62	21	30
4	71	81	84	120	92	160	123	86	76	56	19	955
5	70	82	82	180	92	150	119	83	73	48	17	609
6	70	80	82	500	90	160	118	81	72	44	15	169
7	70	79	80	300	88	180	117	80	72	41	14	115
8	70	78	80	150	88	224	117	81	84	36	11	144
9	70	79	82	120	86	516	114	77	71	35	11	178
10	75	79	84	110	86	2420	110	73	70	30	9.9	108
11	73	80	82	108	84	696	111	72	72	24	6.6	95
12	70	81	84	106	84	285	109	71	74	25	4.6	86
13	70	82	88	100	82	192	107	70	73	20	5.9	82
14	70	82	90	98	82	158	107	70	71	20	6.6	76
15	71	82	88	96	82	154	102	71	70	31	1.1	76
16	70	81	88	92	80	157	103	71	70	39	4.4	74
17	70	86	88	92	80	140	101	70	74	53	6.4	71
18	70	84	90	92	82	131	101	79	76	46	7.6	69
19	72	83	94	90	84	128	101	90	77	41	14	66
20	75	85	100	90	86	131	104	100	77	37	19	65
21	75	86	113	88	88	132	101	97	68	31	27	65
22	76	87	96	88	94	133	99	88	65	27	216	64
23	79	87	86	90	100	133	97	85	61	24	84	60
24	76	86	78	88	140	137	95	83	67	21	41	61
25	76	86	76	86	175	138	91	78	363	19	31	61
26	76	87	74	86	456	139	91	73	118	19	27	62
27	77	87	72	88	397	139	94	71	137	15	30	61
28	76	84	70	90	275	141	90	69	92	15	38	60
29	77	82	76	92	---	143	83	74	81	12	39	59
30	78	80	78	94	---	138	81	74	72	15	40	60
31	77	---	82	94	---	132	---	74	---	19	37	---
TOTAL	2299	2474	2611	3724	3457	8102	3166	2436	2607	1039	864.1	3743
MEAN	74.2	82.5	84.2	120	123	261	106	78.6	86.9	33.5	27.9	125
MAX	98	87	113	500	456	2420	128	100	363	69	216	955
MIN	70	78	70	86	80	128	81	69	61	12	1.1	30
AC-FT	4560	4910	5180	7390	6860	16070	6280	4830	5170	2060	1710	7420

CAL YR 1988 TOTAL 34850 MEAN 95.2 MAX 353 MIN 18 AC-FT 69120
WTR YR 1989 TOTAL 36522.1 MEAN 100 MAX 2420 MIN 1.1 AC-FT 72440

PLATTE RIVER BASIN

06794000 BEAVER CREEK AT GENOA, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 27...	1700	78	--	8.35	11.5	10.5	21	430	2000
NOV 21...	1225	87	303	8.11	1.5	13.7	17	460	200
DEC 20...	1145	80	250	8.08	0.0	13.3	40	5000	93000
JAN 18...	1130	92	330	7.45	5.0	13.0	22	K110	K7800
FEB 09...	1200	86	--	7.20	0.0	7.0	20	730	370
MAR 14...	1150	157	272	7.99	6.0	10.4	66	380	6600
APR 11...	1200	111	340	8.12	8.0	12.3	24	250	350
MAY 10...	0800	E75	367	8.40	13.0	9.4	13	500	320
JUN 06...	1200	E59	354	8.41	21.0	9.4	19	900	660
JUL 05...	1645	47	335	9.06	30.5	10.7	42	3300	1300
AUG 09...	0945	15	476	8.46	19.0	8.9	13	460	800
SEP 08...	1045	106	234	7.98	19.0	6.8	55	--	K26000

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 27...	150	49	7.3	10	0.4	9.2	4.7	80	0.11
NOV 21...	150	48	7.1	8.5	0.3	9.3	2.8	76	0.10
DEC 20...	130	41	6.4	7.6	0.3	10	5.5	70	0.10
JAN 18...	140	45	6.8	7.4	0.3	11	2.7	73	0.10
FEB 09...	160	52	8.1	9.7	0.3	11	3.0	84	0.11
MAR 14...	110	35	5.4	6.8	0.3	10	3.3	60	0.08
APR 11...	160	51	7.6	11	0.4	10	5.5	85	0.12
MAY 10...	170	51	9.5	10	0.4	<10	3.0	--	--
JUN 06...	160	51	8.0	8.9	0.3	<10	3.4	--	--
JUL 05...	170	54	7.8	9.5	0.3	12	2.9	86	0.12
AUG 09...	210	67	11	12	0.4	19	3.6	113	0.15
SEP 08...	92	29	4.8	5.9	0.3	11	3.3	54	0.07

PLATTE RIVER BASIN

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06794000 BEAVER CREEK AT GENOA, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 27...	16.9	131	0.674	<0.020	--	0.53	1.2	0.370	5.3
NOV 21...	17.8	77	0.680	<0.020	--	0.68	1.4	0.320	4.6
DEC 20...	15.2	26	1.10	0.340	1.6	1.9	3.0	0.860	8.0
JAN 18...	18.1	88	0.760	0.250	0.47	0.72	1.5	0.290	4.6
FEB 09...	19.5	116	0.910	0.160	1.2	1.4	2.3	0.350	5.2
MAR 14...	25.6	509	0.580	0.610	1.8	2.4	3.0	0.810	10
APR 11...	25.5	128	0.640	0.090	0.79	0.88	1.5	0.490	4.3
MAY 10...	--	95	0.550	<0.020	--	0.86	1.4	0.480	3.6
JUN 06...	--	151	0.570	0.070	0.74	0.81	1.4	0.500	2.9
JUL 05...	10.9	248	<0.020	0.120	1.5	1.6	--	0.650	4.4
AUG 09...	4.56	14	<0.020	0.100	0.62	0.72	--	0.290	3.6
SEP 08...	15.5	360	0.520	0.120	2.0	2.1	2.6	0.840	10

PLATTE RIVER BASIN

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. 28 to Dec. 3, Dec. 9-20, and Dec. 24 to Mar. 9. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years, 44.2 ft³/s, 32,020 acre-ft/yr; median of yearly mean discharges, 40 ft³/s, 29,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,970 ft³/s June 3, 1950, gage height, 21.38 ft; maximum gage height, 22.11 ft May 20, 1982, backwater from log jam; 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)
Mar. 11	0650	1900	15.02	Sept. 4	1515	*3260	*19.23
June 25	1800	1070	10.62				

Minimum daily discharge, 3.5 ft³/s Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	14	14	23	18	150	22	18	16	15	41	4.4
2	17	14	14	24	17	90	22	19	19	15	15	4.3
3	14	14	14	25	16	86	22	19	15	14	8.4	4.1
4	13	15	15	26	16	78	20	19	14	13	5.3	1900
5	13	14	15	30	15	78	20	19	15	11	5.1	1980
6	13	13	15	56	15	80	20	18	14	10	4.6	686
7	13	13	15	260	16	90	20	17	14	9.3	5.3	157
8	13	14	16	74	17	140	20	17	15	9.0	4.1	148
9	13	14	16	50	18	350	21	16	15	8.1	4.7	352
10	13	13	16	38	18	1270	20	16	14	5.4	5.1	210
11	13	13	15	33	19	1250	19	14	14	6.2	4.5	77
12	13	14	15	30	18	253	19	15	14	7.3	4.2	49
13	12	15	16	27	17	95	23	15	14	5.0	5.9	36
14	13	14	16	25	18	50	20	15	14	5.4	5.7	28
15	12	15	16	20	18	39	20	13	16	6.6	5.5	25
16	12	17	16	18	17	39	19	13	14	11	6.7	22
17	12	17	17	19	16	34	20	12	12	17	3.5	19
18	12	17	18	19	16	32	20	15	13	11	3.6	17
19	14	16	19	19	15	22	21	19	23	20	6.0	15
20	14	17	30	19	15	29	21	19	17	10	5.9	14
21	14	17	78	20	14	27	20	18	12	12	6.3	13
22	14	16	41	20	14	23	20	16	11	8.6	48	12
23	13	16	33	20	15	26	21	16	11	6.9	61	12
24	13	17	27	20	25	26	19	15	11	6.4	15	11
25	13	16	23	19	38	25	19	15	502	7.1	8.2	10
26	13	16	22	20	300	25	18	14	209	5.6	5.9	10
27	13	15	22	22	440	26	18	13	37	4.7	5.0	9.6
28	13	14	21	25	260	24	18	13	37	5.9	4.9	9.1
29	13	14	21	24	---	22	19	13	18	4.6	5.4	9.6
30	13	14	21	22	---	22	18	13	17	5.5	5.5	9.4
31	13	---	23	23	---	24	---	13	---	31	4.8	---
TOTAL	416	448	660	1070	1441	4525	599	487	1167	307.6	320.1	5853.5
MEAN	13.4	14.9	21.3	34.5	51.5	146	20.0	15.7	38.9	9.92	10.3	195
MAX	22	17	78	260	440	1270	23	19	502	31	61	1980
MIN	12	13	14	18	14	22	18	12	11	4.6	3.5	4.1
AC-FT	825	889	1310	2120	2860	8980	1190	966	2310	610	635	11610

CAL YR 1988 TOTAL 9293.1 MEAN 25.4 MAX 588 MIN 5.1 AC-FT 18430
WTR YR 1989 TOTAL 17294.2 MEAN 47.4 MAX 1980 MIN 3.5 AC-FT 34300

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.

WATER-DISCHARGE RECORDS

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.

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6600	3280	4680	2000	4000	8200	3250	2160	2070	8650	919	2130
2	6570	3670	3710	2300	2500	8400	3720	2890	2220	8840	1000	2840
3	4280	3730	4030	2500	1700	8000	5350	2440	2430	8390	1080	2670
4	7470	3700	4010	3500	1800	7800	3420	2280	2570	7080	1090	5500
5	5040	3650	4150	4500	2000	7400	3560	2680	2430	5180	1140	9000
6	5300	3950	4270	4800	2800	7000	3830	2600	2320	5530	1170	10600
7	5260	5170	4150	4200	4000	7000	3730	2220	2160	4850	706	5420
8	5460	2430	4930	3500	3500	7200	2580	2470	2130	4130	1590	5250
9	4420	3390	3090	3700	2800	7600	3670	2480	2020	3250	839	5680
10	4770	3240	4630	3500	3000	10000	3500	2190	2400	1520	1220	6300
11	4510	3410	4000	3400	4000	12000	3800	2220	2160	2290	1050	6460
12	4490	3740	3410	3000	4200	17000	3730	1610	1910	1950	967	5350
13	4050	3730	3890	2700	4800	19800	3300	2230	2280	872	1090	4870
14	4150	4210	5120	2800	5400	9070	3270	1810	2050	1070	914	5450
15	4610	4170	5490	3000	6000	7050	3860	1810	2100	1550	1020	5380
16	4090	3950	5140	3500	6400	5530	2650	2760	2040	6420	996	5470
17	3820	3950	5000	4000	6200	6440	4430	1910	1770	7300	1090	4550
18	4520	4170	4800	4500	6200	4800	1670	2330	1960	6110	998	4250
19	4920	4450	5200	5200	6400	6380	2670	2820	1840	4850	1130	3650
20	4000	4170	6000	4400	6200	4850	3010	2890	1950	3500	1350	4380
21	4090	3890	6400	5200	5800	5210	3040	3490	1420	3420	1230	3890
22	3960	4160	6200	6000	5400	4700	3210	3010	1460	3000	1430	2800
23	3820	3660	5780	5800	5200	4750	2100	2040	1260	2910	1620	3210
24	3130	3460	5180	6000	5200	3880	2810	3000	1650	2520	1530	3560
25	3690	3980	3940	5800	5600	4520	2530	2030	1370	1870	1420	2950
26	3440	2980	3600	5000	6200	4430	2480	2260	5600	2090	1330	3280
27	3540	3870	3000	5000	7000	4740	2390	2320	6370	1560	1060	2560
28	3540	3920	2500	5200	8000	7130	2690	2240	11700	1610	1280	2900
29	3530	3390	2000	5200	---	4490	2630	2500	11600	1160	1580	2770
30	3870	4280	1400	5600	---	4450	2190	1880	10300	904	2370	2940
31	3690	---	1600	5600	---	4580	---	2150	---	1340	2310	---
TOTAL	138630	113750	131300	131400	132300	224200	95070	73720	95540	115716	38519	136060
MEAN	4472	3792	4235	4239	4725	7232	3169	2378	3185	3733	1243	4535
MAX	7470	5170	6400	6000	8000	19800	5350	3490	11700	8840	2370	10600
MIN	3130	2430	1400	2000	1700	3880	1670	1610	1260	872	706	2130
AC-FT	275000	225600	260400	260600	262400	444700	188600	146200	189500	229500	76400	269900
CAL YR 1988	TOTAL 1559371		MEAN 4261	MAX 17000	MIN 250	AC-FT 3093000						
WTR YR 1989	TOTAL 1426205		MEAN 3907	MAX 19800	MIN 706	AC-FT 2829000						

PLATTE RIVER BASIN
06796000 PLATTE RIVER AT NORTH BEND, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1972 to September 1977.

WATER TEMPERATURES: October 1972 to September 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 790 microsiemens June 25, 1973; minimum daily, 218 microsiemens Sept. 19, 1977.

WATER TEMPERATURE: Maximum, 29.5°C several days during summer periods; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 26...	1500	3480	--	8.62	11.0	10.2	14	K1100	K48
NOV 21...	1200	5230	516	8.10	1.5	13.5	17	110	180
DEC 19...	1340	5230	--	8.30	0.0	11.8	19	700	480
JAN 19...	1230	7800	411	7.70	0.5	15.1	10	K77	92
FEB 10...	1100	2400	469	7.38	0.5	11.4	14	1000	210
MAR 15...	1200	6970	431	8.17	1.0	13.7	39	K450	3700
APR 13...	1430	4060	525	8.35	8.0	12.8	20	30	56
MAY 09...	1100	E2180	--	8.88	13.5	10.7	22	K10	180
JUN 05...	1430	E3200	358	8.79	22.5	10.8	26	120	K44
JUL 05...	0915	5900	542	--	26.0	7.6	38	850	260
AUG 08...	0845	1600	646	8.47	18.0	9.4	36	K100	460
SEP 07...	0930	4540	223	7.98	20.0	7.3	59	K24000	1700

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 26...	140	43	8.9	23	0.9	44	9.1	128	0.17
NOV 21...	180	52	12	35	1	87	13	199	0.27
DEC 19...	160	48	9.2	22	0.8	44	7.5	131	0.18
JAN 19...	150	46	9.3	23	0.8	53	8.3	--	--
FEB 10...	180	52	11	26	0.9	61	12	162	0.22
MAR 15...	140	41	8.7	26	1	59	11	146	0.20
APR 13...	190	56	12	35	1	60	15	178	0.24
MAY 09...	150	46	9.4	23	0.8	41	8.9	128	0.17
JUN 05...	140	41	8.0	18	0.7	39	6.9	113	0.15
JUL 05...	180	51	13	45	2	120	20	249	0.34
AUG 08...	200	55	14	49	2	110	23	251	0.34
SEP 07...	93	28	5.5	6.0	0.3	12	2.8	54	0.07

PLATTE RIVER BASIN

06796000 PLATTE RIVER AT NORTH BEND, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 26...	1200	62	0.750	<0.020	--	<0.50	--	0.180	4.0
NOV 21...	2810	78	0.920	<0.020	--	0.53	1.4	0.240	4.6
DEC 19...	1850	106	1.20	0.080	0.53	0.61	1.8	0.290	4.6
JAN 19...	--	46	1.00	0.070	1.1	1.2	2.2	0.200	4.0
FEB 10...	1050	37	1.40	0.140	--	<0.50	--	0.170	3.3
MAR 15...	2740	269	1.10	0.270	1.2	1.5	2.6	0.460	2.9
APR 13...	1950	87	0.940	<0.020	--	0.59	1.5	0.090	3.2
MAY 09...	--	88	<0.020	<0.020	--	1.2	--	0.260	4.3
JUN 05...	--	120	<0.020	<0.020	--	1.2	--	0.300	3.5
JUL 05...	3970	150	0.080	0.140	1.4	1.5	1.6	0.330	7.6
AUG 08...	1080	73	<0.020	0.110	2.5	2.6	--	0.270	4.3
SEP 07...	666	876	0.790	0.310	2.8	3.1	3.9	1.20	9.8

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.

WATER-DISCHARGE RECORDS

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. 28 to Mar. 11. 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.--7 years (water years 1983-89), 111 ft³/s, 80,420 acre-ft/year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s Apr.8, 1984, gage height, 8.41 ft; minimum daily, 4.4 ft³/s Aug. 11, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 90 ft³/s Mar. 11, gage height, 3.31 ft; maximum gage height, 3.79 ft Mar. 11, backwater from ice; minimum daily, 4.4 ft³/s Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	21	18	16	28	46	28	20	27	8.9	9.2
2	20	23	24	19	14	26	43	27	20	26	8.1	8.8
3	19	23	21	21	13	25	43	27	20	24	7.6	8.3
4	18	22	20	23	14	23	41	27	20	23	6.8	11
5	18	21	24	20	16	20	39	27	20	20	6.6	9.6
6	18	21	27	17	35	19	39	27	19	18	5.7	9.4
7	19	21	30	15	34	18	39	27	19	22	6.0	9.1
8	20	20	27	16	36	27	38	27	19	21	5.9	8.8
9	19	20	25	18	40	50	37	25	18	19	5.3	9.5
10	20	20	27	20	37	86	36	25	18	17	4.6	9.5
11	19	21	30	23	38	90	36	23	18	17	4.4	10
12	19	25	31	23	38	75	36	23	18	16	4.4	9.6
13	20	23	32	24	34	60	36	22	16	14	5.7	9.8
14	21	22	26	25	29	60	36	22	16	14	4.9	9.8
15	20	21	19	26	30	57	35	21	17	18	5.1	10
16	21	19	20	28	32	54	35	19	16	17	5.3	9.8
17	20	27	23	26	31	53	33	21	16	18	5.1	9.4
18	20	22	25	24	29	45	33	22	17	20	5.2	9.0
19	20	23	23	23	22	50	34	24	16	19	8.1	8.8
20	22	21	22	24	20	46	35	23	16	17	12	9.1
21	22	21	23	28	22	47	34	22	15	16	12	9.1
22	21	21	25	31	22	49	33	22	14	16	10	9.5
23	20	22	23	27	16	54	32	22	13	14	9.4	10
24	20	21	21	24	16	54	32	21	15	14	8.9	10
25	20	20	19	22	20	55	31	20	16	13	8.5	10
26	21	21	15	24	30	53	30	19	21	12	11	10
27	21	20	14	27	33	54	30	19	22	11	9.5	10
28	20	14	15	30	30	53	28	19	32	10	9.7	10
29	20	16	16	31	---	51	28	20	37	10	9.5	10
30	21	20	18	30	---	48	28	19	31	9.5	9.5	10
31	24	---	20	20	---	46	---	20	---	9.3	9.6	---
TOTAL	625	634	706	727	747	1476	1056	710	575	521.8	233.3	287.1
MEAN	20.2	21.1	22.8	23.5	26.7	47.6	35.2	22.9	19.2	16.8	7.53	9.57
MAX	24	27	32	31	40	90	46	28	37	27	12	11
MIN	18	14	14	15	13	18	28	19	13	9.3	4.4	8.3
AC-FT	1240	1260	1400	1440	1480	2930	2090	1410	1140	1030	463	569

CAL YR 1988 TOTAL 24597 MEAN 67.2 MAX 617 MIN 11 AC-FT 48790
WTR YR 1989 TOTAL 8298.2 MEAN 22.7 MAX 90 MIN 4.4 AC-FT 16460

PLATTE RIVER BASIN

06796973 ELKHORN RIVER NEAR ATKINSON, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 20...	1605	22	229	8.83	12.5	12.7	10	200	1100
NOV 17...	1620	32	223	8.18	5.0	11.8	17	310	300
DEC 13...	1030	32	227	8.26	1.0	12.8	10	K2600	380
JAN 11...	1430	23	236	8.20	0.5	10.6	<8	190	74
FEB 09...	1100	40	228	7.38	0.5	8.5	8	730	88
MAR 03...	1045	25	--	7.67	0.5	9.4	<8	610	320
APR 17...	1455	34	219	8.44	12.5	11.4	16	80	66
MAY 15...	1635	22	229	8.77	23.5	9.7	15	380	180
JUN 12...	1400	19	230	8.93	22.0	8.9	18	390	880
JUL 10...	1745	18	241	8.91	31.5	7.9	20	280	330
AUG 09...	1645	4.9	253	9.45	25.5	11.2	9	900	1800
SEP 05...	1300	10	234	8.95	26.5	11.3	15	530	290

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 20...	85	28	3.7	10	0.5	9.4	3.1	54	0.07
NOV 17...	86	28	3.8	9.5	0.5	8.7	3.4	53	0.07
DEC 13...	85	28	3.7	9.5	0.5	9.4	2.5	53	0.07
JAN 11...	83	27	3.7	9.0	0.4	7.9	2.3	50	0.07
FEB 09...	79	26	3.3	9.1	0.5	<10	2.7	--	--
MAR 03...	85	28	3.6	9.0	0.4	10	3.8	54	0.07
APR 17...	74	24	3.5	9.6	0.5	<10	2.6	--	--
MAY 15...	90	30	3.7	10	0.5	<10	3.4	--	--
JUN 12...	86	28	3.9	10	0.5	<10	2.5	--	--
JUL 10...	94	31	4.1	11	0.5	8.8	3.7	59	0.08
AUG 09...	100	34	4.3	13	0.6	13	4.8	69	0.09
SEP 05...	90	29	4.3	11	0.5	11	4.4	60	0.08

PLATTE RIVER BASIN

06796973 ELKHORN RIVER NEAR ATKINSON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 20...	3.22	8	2.20	<0.020	--	2.0	4.2	0.170	2.7
NOV 17...	4.61	24	2.70	<0.020	--	0.75	3.4	0.280	4.2
DEC 13...	4.59	27	2.60	0.180	--	<0.50	--	0.420	3.6
JAN 11...	3.10	<4	2.90	0.090	--	<0.50	--	0.180	3.3
FEB 09...	--	<4	2.20	0.160	0.35	0.51	2.7	0.180	1.8
MAR 03...	3.67	<4	1.90	0.280	0.24	0.52	2.4	0.260	2.5
APR 17...	--	14	1.60	0.040	0.14	0.18	1.8	0.950	3.8
MAY 15...	--	33	1.40	<0.020	--	0.88	2.3	0.190	3.4
JUN 12...	--	34	1.40	0.080	0.57	0.65	2.0	0.220	3.6
JUL 10...	2.85	28	1.40	<0.020	--	0.52	1.9	0.230	4.6
AUG 09...	0.91	<4	0.710	<0.020	--	<0.50	--	0.270	4.2
SEP 05...	1.61	9	1.00	<0.020	--	0.88	1.9	0.320	13

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LOCATION.--Lat 42°25'19", long 98°51'46", in SE1/4SW1/4 sec.5, T.28 N., R.13 W., Holt County, Hydrologic Unit 10220001, on left bank 12 ft downstream from bridge on county road, 4 mi southwest of Emmet.

GAGE.--Water-stage recorder. Datum of gage is 2,070.12 ft above National Geodetic Vertical Datum of 1929.
(Levels by Nebraska Natural Resources Commission.)

AVERAGE DISCHARGE.--11 years, 34.8 ft³/s, 25,210 acre-ft/yr; median of yearly mean discharge, 26 ft³/s, 18,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 948 ft³/s Mar. 19, 1987, gage height, 6.83 ft, from floodmark; maximum gage height, 7.61 ft Feb. 28, 1979, backwater from ice; minimum daily discharge, 0.10 ft³/s Jan. 24, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft³/s June 29, gage height, 3.82 ft; maximum gage height, 5.61 ft.
Mar. 15. backwater from ice: minimum daily discharge. 1.80 ft³/s Aug. 18.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	7.3	8.5	7.2	3.9	15	19	8.8	8.2	29	4.5	5.8
2	6.6	7.0	9.0	7.4	4.0	15	18	8.9	7.5	19	4.4	5.3
3	6.7	7.0	8.0	7.8	4.3	15	17	8.5	7.9	14	4.1	5.0
4	6.5	7.6	8.4	8.0	4.7	14	16	9.8	9.0	10	4.1	8.9
5	6.5	7.2	9.0	7.6	5.0	13	15	11	8.0	8.9	7.0	6.0
6	6.2	7.0	9.8	7.2	5.4	13	15	12	7.8	8.4	5.6	5.3
7	6.4	7.1	11	7.0	6.0	12	16	11	11	8.7	4.9	4.9
8	6.3	7.2	9.4	7.2	5.4	13	16	9.8	9.3	6.7	4.3	4.6
9	6.0	8.2	9.8	7.2	4.8	15	15	8.8	10	5.6	3.4	5.8
10	5.7	7.6	10	7.6	5.8	25	16	7.7	8.8	4.7	2.7	6.5
11	5.5	7.7	10	8.0	7.0	26	15	6.8	8.7	4.6	2.5	7.9
12	4.9	11	11	7.8	9.0	25	15	6.7	7.1	4.6	2.5	6.9
13	5.1	10	11	7.6	8.0	23	15	7.0	5.9	4.6	2.7	6.4
14	5.6	9.1	10	7.6	7.4	23	14	7.0	5.5	5.9	2.4	5.9
15	5.8	7.8	8.0	8.0	7.0	25	14	6.8	5.4	8.9	2.5	5.4
16	5.9	7.4	9.0	8.4	7.5	27	14	6.9	5.4	7.3	2.6	5.4
17	5.8	7.6	10	8.6	7.8	26	15	7.4	5.8	7.0	2.1	5.4
18	5.9	7.8	12	9.0	8.0	25	13	11	6.6	7.7	1.8	5.0
19	5.4	7.6	11	8.0	7.2	25	13	15	5.6	7.1	4.5	5.4
20	6.1	7.4	10	6.8	7.6	27	11	15	4.8	6.0	9.2	6.5
21	6.2	7.2	10	7.0	7.4	28	10	14	4.8	5.5	12	5.8
22	6.4	7.6	11	7.2	7.0	29	10	12	4.5	4.9	8.0	7.0
23	6.1	8.0	9.6	6.6	9.0	26	9.4	11	4.8	4.6	6.1	7.6
24	6.0	8.8	8.2	6.4	16	24	9.2	10	5.3	4.6	4.1	8.1
25	6.4	9.2	7.0	6.4	17	23	9.1	9.1	6.3	4.4	3.6	9.9
26	6.3	8.4	6.0	6.6	16	23	7.9	8.5	35	4.5	22	8.3
27	6.0	6.8	6.4	6.7	15	21	8.4	8.4	21	4.3	15	6.7
28	7.3	7.2	7.0	6.8	16	20	8.3	8.0	23	4.3	12	5.7
29	7.4	7.6	7.6	7.0	---	20	9.2	8.0	39	4.7	10	4.5
30	8.5	8.0	6.8	5.4	---	18	8.8	7.1	39	4.5	8.1	3.3
31	7.6	---	9.0	4.5	---	20	---	8.5	---	4.6	7.2	---
TOTAL	194.6	235.4	283.5	224.6	229.2	654	392.3	290.5	331.0	229.6	185.9	185.2
MEAN	6.28	7.85	9.15	7.25	8.19	21.1	13.1	9.37	11.0	7.41	6.00	6.17
MAX	8.5	11	12	9.0	17	29	19	15	39	29	22	9.9
MIN	4.9	6.8	6.0	4.5	3.9	12	7.9	6.7	4.5	4.3	1.8	3.3
AC-FT	386	467	562	445	455	1300	778	576	657	455	369	367
CAL YR 1988	TOTAL 9176.34		MEAN 25.1	MAX 236	MIN .90	AC-FT 18200						
WTR YR 1989	TOTAL 3435.8		MEAN 9.41	MAX 39	MIN 1.8	AC-FT 6810						

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. 15-19, Nov. 28 to Mar. 9, and Mar. 18-20. Records good except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--42 years, 183 ft³/s, 132,600 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 86,900 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)
Mar. 18	1111	*290	*a4.41	No peaks greater than base discharge.			

a Backwater from ice.

Minimum daily discharge, 7.2 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	60	70	44	54	90	124	82	51	77	20	32
2	58	60	76	46	50	90	121	82	51	70	18	29
3	56	59	76	49	43	86	119	80	51	64	17	28
4	54	59	74	50	42	82	117	80	49	56	15	28
5	53	60	70	52	45	78	117	82	48	54	13	26
6	53	59	68	52	50	90	119	80	46	55	14	27
7	53	59	64	54	47	110	122	78	45	50	13	32
8	54	59	62	56	50	130	126	75	43	42	12	28
9	55	59	58	56	52	150	121	72	44	37	11	29
10	54	58	58	50	54	200	121	69	44	35	11	28
11	53	59	68	45	54	218	119	67	46	39	10	29
12	53	62	74	43	56	211	111	64	48	42	10	30
13	53	62	78	54	58	205	110	63	45	42	9.0	31
14	54	63	80	58	60	220	107	61	44	42	8.8	31
15	54	64	70	60	60	189	104	61	44	41	8.4	30
16	54	62	70	60	64	195	101	60	45	44	8.1	29
17	56	64	74	61	66	173	98	60	46	45	7.8	27
18	55	62	78	61	70	120	97	68	50	44	7.2	25
19	56	62	81	62	70	115	97	74	49	43	11	23
20	58	62	82	64	68	130	96	73	45	43	17	23
21	61	61	80	66	66	143	93	71	43	44	36	23
22	60	63	74	64	58	143	87	69	41	46	33	23
23	59	63	64	62	60	141	86	66	40	47	35	22
24	58	64	66	62	70	143	85	63	44	46	31	22
25	58	64	64	68	76	139	92	55	53	40	27	23
26	59	66	60	62	80	135	86	52	60	36	30	23
27	61	62	56	58	84	135	85	51	78	33	33	23
28	58	38	50	56	86	132	82	49	80	29	39	22
29	58	46	44	62	---	130	80	49	71	26	43	22
30	58	64	47	62	---	126	80	49	77	23	39	22
31	59	---	52	58	---	126	---	50	---	21	35	---
TOTAL	1743	1805	2088	1757	1693	4375	3103	2055	1521	1356	622.3	790
MEAN	56.2	60.2	67.4	56.7	60.5	141	103	66.3	50.7	43.7	20.1	26.3
MAX	61	66	82	68	86	220	126	82	80	77	43	32
MIN	53	38	44	43	42	78	80	49	40	21	7.2	22
AC-FT	3460	3580	4140	3490	3360	8680	6150	4080	3020	2690	1230	1570

CAL YR 1988	TOTAL	50977	MEAN	139	MAX	1020	MIN	18	AC-FT	101100
WTR YR 1989	TOTAL	22908.3	MEAN	62.8	MAX	220	MIN	7.2	AC-FT	45440

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. 16, 17, 28, 29, Dec. 4-6, 9, 11-13, 16-19, Dec. 23 to Jan. 22, Jan 26, 27, Feb. 1 to Mar. 10, and Mar. 21-24. 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.--30 years (water years 1948-53, 1961-72, 1978-89) 69.5 ft³/s, 50,350 acre-ft/yr; median of yearly mean discharges, 52.9 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. 23	1800	ice jam	*2.29	No peaks greater than base discharge.			
Mar. 15	1100	*78	1.54				

Minimum daily discharge, 20 ft³/s Aug. 10-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	29	42	38	33	48	48	36	34	31	23	23
2	33	31	41	37	29	44	47	35	35	32	23	23
3	34	29	40	39	27	42	47	34	35	35	22	23
4	34	29	40	40	27	40	44	37	33	38	21	27
5	34	28	40	54	28	38	45	38	32	36	25	24
6	35	29	40	45	28	36	46	40	32	30	23	26
7	34	30	38	40	30	34	46	41	31	30	23	25
8	35	31	39	38	31	34	44	41	30	27	22	27
9	34	33	39	36	32	36	42	41	30	26	21	26
10	32	33	39	35	37	45	42	39	30	25	20	27
11	31	34	42	34	37	57	41	35	29	25	20	26
12	31	36	43	34	39	60	40	35	30	24	20	26
13	33	36	39	36	40	63	41	34	29	23	22	26
14	34	37	37	38	41	60	38	33	29	29	22	25
15	32	38	35	40	43	59	38	34	32	37	21	26
16	32	41	34	41	43	56	37	34	30	28	23	26
17	31	43	33	42	43	58	35	36	31	27	22	26
18	30	44	34	43	43	59	35	41	33	27	22	25
19	29	44	36	45	43	55	35	41	31	26	27	26
20	31	43	37	45	42	54	36	35	31	26	25	25
21	28	42	38	44	42	52	37	37	29	26	27	24
22	30	40	39	43	41	52	37	38	28	26	24	26
23	28	40	38	41	39	52	37	39	29	25	24	27
24	28	38	37	40	43	51	39	37	32	25	23	27
25	28	37	35	39	45	51	42	35	34	26	24	29
26	28	38	34	39	46	52	38	34	37	24	28	28
27	29	42	35	38	48	52	37	35	33	23	28	27
28	30	45	33	37	49	51	35	34	31	23	28	26
29	28	43	32	38	---	50	35	35	32	23	27	26
30	29	42	32	37	---	47	35	33	31	24	27	26
31	30	---	35	38	---	47	---	33	---	23	26	---
TOTAL	969	1105	1156	1234	1069	1535	1199	1130	943	850	733	774
MEAN	31.3	36.8	37.3	39.8	38.2	49.5	40.0	36.5	31.4	27.4	23.6	25.8
MAX	35	45	43	54	49	63	48	41	37	38	28	29
MIN	28	28	32	34	27	34	35	33	28	23	20	23
AC-FT	1920	2190	2290	2450	2120	3040	2380	2240	1870	1690	1450	1540

CAL YR 1988 TOTAL 18684 MEAN 51.5 MAX 207 MIN 28 AC-FT 37420
WTR YR 1989 TOTAL 12597 MEAN 34.8 MAX 63 MIN 20 AC-FT 25160

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. 16-18, 27-30, Dec. 9-18, Dec. 23 to Jan. 17, Jan. 21, 26, 27, and Feb. 1 to Mar. 9. Records good except for periods of estimated record, which are poor.

COOPERATION.--Records were furnished by Nebraska Department of Water Resources.

AVERAGE DISCHARGE.--15 years (water years 1962-64, 1978-89), 43.3 ft³/s, 31,370 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)
Feb. 12	----	(a)	*4.45	Mar. 9	2000	*104	4.15

No other peak greater than base discharge.

a Backwater from ice.

Minimum daily discharge, 4.8 ft³/s Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	24	27	20	30	32	33	27	21	24	6.9	14
2	26	25	27	19	25	32	33	28	19	24	6.4	15
3	24	24	25	19	22	33	32	26	18	21	6.4	16
4	23	25	25	21	21	35	31	28	18	19	4.8	20
5	23	25	25	27	21	35	32	28	18	17	7.9	20
6	23	25	25	31	20	38	32	29	18	14	8.1	19
7	23	25	25	21	23	45	34	27	17	14	9.0	18
8	24	25	25	19	23	50	31	28	18	12	8.8	19
9	23	25	23	19	25	55	30	25	20	10	8.4	23
10	23	24	24	19	31	71	31	24	20	8.0	7.7	22
11	23	25	22	19	35	58	30	22	21	8.6	7.8	21
12	22	25	21	20	38	55	31	21	21	9.3	6.1	20
13	23	25	25	22	37	49	30	22	19	9.7	8.6	21
14	23	25	24	25	35	47	29	21	19	9.5	9.3	20
15	23	25	20	25	33	43	29	21	19	28	8.1	19
16	24	25	21	27	33	40	29	21	19	28	7.9	19
17	23	24	21	30	33	37	28	22	21	22	8.0	19
18	23	25	25	31	32	34	27	26	30	29	8.9	19
19	23	26	27	30	32	35	26	31	26	21	11	18
20	24	26	27	32	33	32	27	26	21	18	10	19
21	24	26	27	30	33	33	28	25	20	17	13	19
22	23	26	26	32	32	33	27	23	19	13	12	19
23	23	27	25	32	32	34	26	24	19	12	11	20
24	24	26	24	32	35	33	26	22	27	12	10	20
25	25	26	22	32	36	33	30	20	37	12	9.9	20
26	25	26	21	32	34	33	29	18	35	11	16	20
27	24	26	20	32	33	35	26	18	29	10	16	20
28	25	25	20	35	31	34	24	16	27	8.7	17	19
29	26	26	20	35	---	35	24	18	26	7.8	17	20
30	26	27	20	37	---	34	25	18	24	7.7	17	20
31	25	---	20	38	---	34	---	21	---	8.5	17	---
TOTAL	739	759	729	843	848	1227	870	726	666	465.8	316.0	578
MEAN	23.8	25.3	23.5	27.2	30.3	39.6	29.0	23.4	22.2	15.0	10.2	19.4
MAX	26	27	27	38	36	71	34	31	37	29	17	23
MIN	22	24	20	19	20	32	24	16	17	7.7	4.8	16
AC-FT	1470	1510	1450	1670	1680	2430	1730	1440	1320	924	627	1150

CAL YR 1988 TOTAL 11587 MEAN 31.7 MAX 130 MIN 10 AC-FT 22980
WTR YR 1989 TOTAL 8766.8 MEAN 24.0 MAX 71 MIN 4.8 AC-FT 17590

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. 28 to Dec. 15, and Dec. 25 to Mar. 13. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--57 years, 306 ft³/s, 221,700 acre-ft/yr; median of yearly mean discharges, 240 ft³/s, 174,000 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)
Mar. 12	0108	(a)	*3.77	No peaks greater than base discharge.			
Mar. 14	1909	*490	3.75				

a Backwater from ice.

Minimum daily discharge, 33 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	148	170	160	150	190	239	164	141	135	45	74
2	147	148	165	150	105	185	238	169	133	137	39	69
3	138	152	160	145	140	180	231	168	125	131	37	67
4	130	155	155	150	175	175	222	176	117	123	37	81
5	125	151	150	180	170	175	218	189	113	114	47	72
6	124	146	145	165	165	170	228	188	109	98	54	73
7	126	147	140	205	170	180	244	186	105	89	47	76
8	127	141	130	170	180	190	230	182	99	85	45	91
9	129	142	125	130	185	205	220	170	98	79	42	94
10	128	141	125	140	190	230	214	163	101	74	38	83
11	125	142	130	160	195	300	215	156	110	64	35	81
12	124	148	135	180	200	430	212	151	120	64	34	79
13	123	148	150	190	190	370	214	151	109	64	41	79
14	124	144	160	220	185	451	207	151	101	66	41	78
15	127	149	140	220	180	379	199	147	103	123	40	75
16	130	137	113	205	190	351	199	143	106	142	38	73
17	131	138	141	195	185	330	199	146	113	120	35	75
18	129	173	194	190	165	295	194	175	140	119	33	75
19	134	161	201	195	180	252	194	205	127	121	42	75
20	141	156	189	195	190	273	195	189	99	115	65	77
21	143	154	177	190	180	271	193	175	87	102	69	75
22	146	159	192	190	165	257	190	165	85	89	90	70
23	144	161	166	195	160	259	187	158	81	82	80	64
24	140	164	150	190	175	273	183	146	103	80	75	65
25	139	159	100	170	200	273	203	130	149	76	70	68
26	138	159	98	170	200	267	208	121	151	69	79	68
27	144	149	112	185	200	279	188	118	159	59	88	68
28	135	90	130	180	195	270	171	116	163	53	90	70
29	139	110	150	165	---	263	159	124	158	49	95	73
30	138	150	175	170	---	256	159	126	140	49	91	74
31	144	---	165	175	---	241	---	134	---	49	82	---
TOTAL	4164	4422	4633	5525	4965	8220	6153	4882	3545	2820	1744	2242
MEAN	134	147	149	178	177	265	205	157	118	91.0	56.3	74.7
MAX	152	173	201	220	200	451	244	205	163	142	95	94
MIN	123	90	98	130	105	170	159	116	81	49	33	64
AC-FT	8260	8770	9190	10960	9850	16300	12200	9680	7030	5590	3460	4450

CAL YR 1988	TOTAL 96140	MEAN 263	MAX 1360	MIN 51	AC-FT 190700
WTR YR 1989	TOTAL 53315	MEAN 146	MAX 451	MIN 33	AC-FT 105800

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: Dec. 12 to Mar. 10. Records fair except for period of estimated record, which is poor.

AVERAGE DISCHARGE.--44 years, 514 ft³/s, 372,400 acre-ft/yr; median of yearly mean discharges, 418 ft³/s, 303,000 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)
Mar. 10	1300	*2650	*a7.45	Sept. 4	1230	2410	4.91

a Backwater from ice.

Minimum daily discharge, 50 ft³/s Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	231	319	240	420	240	379	250	253	216	101	134
2	263	228	322	230	350	230	398	259	254	202	96	132
3	242	231	311	240	160	220	410	265	234	196	90	138
4	222	233	296	250	140	210	398	287	251	190	87	952
5	206	231	299	350	150	200	385	279	231	165	96	1300
6	211	235	285	1080	170	200	392	274	229	156	95	646
7	199	235	297	700	190	240	429	274	201	140	96	306
8	188	231	295	400	180	350	423	270	203	136	94	264
9	193	230	289	230	180	800	398	260	193	117	82	266
10	203	231	314	240	190	1700	396	282	186	112	76	242
11	207	236	319	240	210	1490	378	257	186	110	68	205
12	211	246	240	250	230	919	358	259	179	103	60	181
13	212	254	300	260	260	836	362	250	173	89	55	171
14	221	254	310	260	287	795	369	245	181	99	54	167
15	237	257	240	270	285	720	368	235	180	179	57	165
16	241	246	250	280	280	635	366	240	149	170	58	164
17	248	260	260	280	280	608	328	240	155	199	54	164
18	254	250	270	290	275	517	339	265	176	237	52	158
19	245	263	260	280	265	483	347	300	176	261	50	157
20	250	276	240	270	260	477	333	361	176	204	54	154
21	245	273	230	310	250	492	359	367	168	177	105	150
22	247	278	210	350	245	529	354	338	152	161	134	149
23	241	267	200	350	240	524	337	289	143	153	102	134
24	238	265	190	330	230	487	330	284	164	140	108	132
25	235	260	190	320	230	463	314	245	196	129	109	132
26	237	271	180	310	235	450	320	243	255	123	114	133
27	238	263	180	320	245	427	342	217	260	111	124	135
28	234	294	190	310	260	407	302	222	247	100	142	135
29	230	312	200	430	---	417	274	221	242	97	147	137
30	231	272	210	400	---	429	261	220	232	---	147	139
31	229	---	300	375	---	437	---	235	---	103	139	---
TOTAL	7160	7613	7996	10445	6697	16932	10749	8233	6025	4678	2846	7442
MEAN	231	254	258	337	239	546	358	266	201	151	91.8	248
MAX	302	312	322	1080	420	1700	429	367	260	261	147	1300
MIN	188	228	180	230	140	200	261	217	143	89	50	132
AC-FT	14200	15100	15860	20720	13280	33580	21320	16330	11950	9280	5650	14760

CAL YR 1988 TOTAL 145732 MEAN 398 MAX 1510 MIN 83 AC-FT 289100
WTR YR 1989 TOTAL 96816 MEAN 265 MAX 1700 MIN 50 AC-FT 192000

PLATTE RIVER BASIN
06799000 ELKHORN RIVER AT NORFOLK, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-69, 1974 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 04...	1615	223	329	7.63	14.0	9.9	14	5000	380
NOV 21...	1540	288	300	8.06	2.5	14.6	<8	<10	K37
DEC 19...	1500	300	321	8.07	0.0	13.6	13	110	130
JAN 25...	1610	359	333	7.80	0.0	14.2	13	K42	1000
FEB 14...	1500	287	349	7.60	0.0	12.1	10	K50	120
MAR 14...	1535	567	252	8.12	3.5	11.8	33	K250	5500
APR 18...	1630	554	318	8.49	13.0	13.0	14	<10	K48
MAY 09...	1600	E270	333	8.71	20.5	9.1	14	K3	K56
JUN 06...	1720	191	285	--	30.0	9.5	23	K57	140
JUL 05...	1445	223	297	--	30.5	9.1	44	K12	600
AUG 08...	1400	144	345	8.78	27.0	9.2	28	K93	K390
SEP 07...	1615	274	300	8.39	21.0	7.7	27	K10000	6800

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 04...	140	47	6.4	8.9	0.3	22	4.0	88	0.12
NOV 21...	150	50	7.3	9.8	0.4	11	3.4	81	0.11
DEC 19...	160	53	7.8	11	0.4	12	3.2	87	0.12
JAN 25...	140	45	7.0	7.9	0.3	9.4	3.0	72	0.10
FEB 14...	160	50	7.6	9.3	0.3	<10	3.2	--	--
MAR 14...	110	34	5.1	7.3	0.3	<10	3.8	--	--
APR 18...	150	47	6.9	9.8	0.4	<10	3.1	--	--
MAY 09...	150	49	7.0	9.8	0.4	<10	3.5	--	--
JUN 06...	150	49	7.1	9.5	0.4	<10	3.5	--	--
JUL 05...	140	44	6.3	9.5	0.4	11	2.7	73	0.10
AUG 08...	160	51	8.0	10	0.4	11	2.6	83	0.11
SEP 07...	130	42	7.0	7.3	0.3	14	3.3	74	0.10

PLATTE RIVER BASIN

06799000 ELKHORN RIVER AT NORFOLK, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 04...	53.2	25	0.620	<0.020	--	0.66	1.3	1.40	4.3
NOV 21...	63.4	21	0.890	0.040	--	<0.50	--	0.230	3.9
DEC 19...	70.5	27	1.10	0.220	0.70	0.92	2.0	0.230	5.6
JAN 25...	70.1	34	1.00	0.190	0.75	0.94	1.9	0.140	4.3
FEB 14...	--	5	1.10	0.330	--	<0.50	--	0.130	4.1
MAR 14...	--	111	0.970	0.400	1.1	1.5	2.5	0.350	6.7
APR 18...	--	18	0.360	0.020	0.85	0.87	1.2	0.200	3.8
MAY 09...	--	48	0.300	<0.020	--	1.1	1.4	0.320	3.9
JUN 06...	--	43	<0.020	0.090	1.0	1.1	--	0.260	5.2
JUL 05...	44.3	42	<0.020	0.090	1.1	1.2	--	0.300	5.9
AUG 08...	32.1	11	<0.020	0.090	1.9	2.0	--	0.200	4.3
SEP 07...	54.4	154	0.610	0.090	1.5	1.6	2.2	0.470	8.4

PLATTE RIVER BASIN

179

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. 27 to Dec. 1, Dec. 8 to Mar. 11, and Mar. 14-22. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--14 years, 14.9 ft³/s, 10,800 acre-ft/yr; median of yearly mean discharges, 9.8 ft³/s, 7,100 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)
Mar. 8	1130	*80	*a5.19	No peaks greater than base discharge.			
a Backwater from ice.							
Minimum daily discharge, 3.8 ft ³ /s Aug. 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	8.6	9.2	6.0	6.0	7.0	14	9.5	8.6	6.5	4.3	5.0
2	8.3	8.6	9.2	5.4	5.2	7.4	13	9.4	8.0	6.3	4.3	5.3
3	8.2	8.5	9.1	5.6	4.5	6.6	13	9.5	7.8	6.1	4.3	5.9
4	8.1	8.7	9.2	6.2	4.0	6.2	12	9.7	7.8	5.8	4.2	7.8
5	8.3	8.4	9.4	7.0	4.4	6.0	12	9.5	7.7	5.6	4.5	6.3
6	8.5	8.5	9.3	8.0	5.6	5.8	12	9.5	7.4	5.4	4.2	6.1
7	8.5	8.6	9.3	6.8	7.4	12	13	9.4	7.1	5.6	4.2	6.1
8	8.6	8.6	9.0	5.8	6.4	60	13	8.8	7.0	5.5	4.2	6.8
9	8.5	8.5	9.2	4.3	6.2	54	12	8.7	7.0	5.2	4.0	7.1
10	8.4	8.5	9.0	4.5	8.8	58	12	8.7	7.2	4.9	4.0	6.6
11	8.3	8.6	9.0	5.6	10	42	11	8.6	7.6	4.8	3.9	6.2
12	8.4	9.3	11	5.4	9.0	34	11	8.5	7.3	4.8	3.8	6.1
13	8.5	9.0	12	5.0	10	23	11	8.2	7.0	4.8	3.8	6.1
14	8.5	8.8	11	6.0	9.0	18	11	8.1	7.0	4.9	3.8	5.9
15	8.3	8.5	10	5.6	11	17	10	8.1	7.2	7.7	3.9	5.8
16	8.3	6.7	9.2	6.0	10	16	10	7.9	6.6	6.5	4.0	5.6
17	8.1	13	11	6.2	10	15	10	8.4	6.7	6.0	3.9	5.4
18	8.2	11	13	7.2	9.6	15	10	9.9	7.3	6.4	3.8	5.2
19	8.3	9.5	12	6.4	9.0	14	10	11	6.6	6.0	4.1	6.6
20	8.6	9.4	12	5.4	10	13	9.8	9.7	6.2	5.5	4.7	5.8
21	8.6	9.4	10	6.6	9.6	13	9.7	9.1	6.0	5.5	5.7	5.4
22	8.5	9.2	9.0	6.6	7.0	13	9.5	9.1	6.2	5.3	4.8	5.4
23	8.3	9.2	9.0	5.8	8.0	13	9.2	8.6	6.0	5.1	4.7	5.4
24	8.6	9.4	10	6.4	10	13	9.2	8.4	6.4	5.1	4.5	5.4
25	8.3	9.1	10	5.2	12	13	9.7	8.2	8.2	4.9	4.5	5.4
26	8.5	9.2	9.0	4.9	11	13	9.7	8.0	8.2	5.0	5.2	5.2
27	8.3	9.0	8.0	4.6	9.2	14	9.5	8.1	7.5	4.8	5.6	5.2
28	8.2	8.4	6.6	5.4	7.4	14	9.5	7.9	6.9	4.6	5.9	5.2
29	8.4	8.2	6.4	7.2	---	14	9.5	8.3	6.9	4.5	5.6	5.1
30	8.4	8.5	7.0	6.4	---	14	9.2	7.9	6.5	4.5	5.4	5.2
31	8.7	---	6.2	7.0	---	14	---	8.6	---	4.4	5.2	---
TOTAL	260.1	268.9	293.3	184.5	230.3	578.0	324.5	273.3	213.9	168.0	139.0	174.6
MEAN	8.39	8.96	9.46	5.95	8.22	18.6	10.8	8.82	7.13	5.42	4.48	5.82
MAX	8.7	13	13	8.0	12	60	14	11	8.6	7.7	5.9	7.8
MIN	8.1	6.7	6.2	4.3	4.0	5.8	9.2	7.9	6.0	4.4	3.8	5.0
AC-FT	516	533	582	366	457	1150	644	542	424	333	276	346

CAL YR 1988 TOTAL 4839.0 MEAN 13.2 MAX 164 MIN 4.9 AC-FT 9600
WTR YR 1989 TOTAL 3108.4 MEAN 8.52 MAX 60 MIN 3.8 AC-FT 6170

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. 28, 29, Dec. 9-15, Dec. 25 to Mar. 11, and Mar. 15-19. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--29 years, 90.0 ft³/s, 65,200 acre-ft/yr; median of yearly mean discharges, 68.5 ft³/s, 4,960 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)
Mar. 11	1600	*750	*a8.57	No peaks greater than base discharge.			

a Backwater from ice.

Minimum daily discharge, 2.7 ft³/s July 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	26	29	39	27	36	51	35	26	21	7.9	8.6
2	27	26	29	37	25	35	49	35	26	21	6.4	7.2
3	26	26	28	37	25	34	48	35	25	19	7.7	7.8
4	24	26	28	40	26	32	47	36	24	16	7.4	11
5	24	25	29	46	29	30	46	35	24	14	9.2	10
6	24	25	29	50	32	32	46	35	24	13	7.8	10
7	24	25	28	41	35	35	48	35	22	12	9.0	13
8	24	25	29	32	34	42	49	34	22	10	7.5	13
9	23	26	28	28	33	58	48	33	21	7.7	5.1	12
10	23	26	27	30	36	450	47	33	20	10	5.2	12
11	23	26	27	31	37	600	45	32	20	7.3	5.3	12
12	23	28	28	33	37	369	44	31	22	5.9	5.8	12
13	23	28	28	34	36	150	43	31	21	4.9	5.7	12
14	23	28	26	35	36	99	42	30	20	4.9	5.7	12
15	24	28	28	34	36	70	41	29	22	19	6.6	12
16	23	22	31	35	36	72	41	29	21	16	6.0	12
17	23	31	38	36	37	64	40	28	20	14	5.8	13
18	23	32	43	31	38	60	40	31	22	17	4.3	13
19	23	29	41	29	38	62	40	38	21	16	4.1	13
20	24	28	33	28	38	63	39	36	18	16	6.0	13
21	24	28	35	29	37	57	38	35	18	16	6.5	14
22	24	29	31	29	35	59	39	33	15	16	9.7	13
23	24	29	32	28	35	58	38	33	16	15	12	13
24	24	29	31	28	40	58	37	32	18	12	9.7	13
25	24	29	29	27	42	56	39	30	25	9.1	7.2	15
26	24	30	27	29	39	55	39	28	26	7.4	7.7	14
27	24	27	27	31	37	54	38	26	25	5.4	13	14
28	23	23	28	30	36	53	36	28	24	3.8	11	14
29	23	24	32	31	---	53	35	29	23	2.7	9.9	14
30	24	31	36	32	---	54	35	27	23	4.2	9.5	14
31	25	---	40	33	---	54	---	26	---	5.2	9.0	---
TOTAL	745	815	955	1033	972	3004	1268	988	654	361.5	233.7	366.6
MEAN	24.0	27.2	30.8	33.3	34.7	96.9	42.3	31.9	21.8	11.7	7.54	12.2
MAX	31	32	43	50	42	600	51	38	26	21	13	15
MIN	23	22	26	27	25	30	35	26	15	2.7	4.1	7.2
AC-FT	1480	1620	1890	2050	1930	5960	2520	1960	1300	717	464	727

CAL YR 1988 TOTAL 20337.1 MEAN 55.6 MAX 300 MIN 5.4 AC-FT 40340
WTR YR 1989 TOTAL 11395.8 MEAN 31.2 MAX 600 MIN 2.7 AC-FT 22600

PLATTE RIVER BASIN

181

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: Aug. 15-27, Sept. 4-6. Records good, except those for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--11 years, 39.5 ft³/s, 28,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft³/s June 17, 1984, gage height, 22.90 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)
Mar. 10	0120	968	15.00	Sept. 4	unknown	*1240	*a16.11
July 18	0650	963	14.98				

a From floodmark.

Minimum daily discharge, 4.4 ft³/s Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	16	20	19	24	30	25	16	16	13	51	9.2
2	15	16	22	19	20	25	27	16	16	13	19	8.6
3	15	16	21	19	18	24	26	16	16	12	13	14
4	15	17	20	20	18	20	22	17	15	12	13	760
5	16	16	21	72	18	21	22	16	15	9.9	13	190
6	15	16	21	121	18	22	23	17	14	8.1	13	62
7	16	16	20	60	16	22	25	17	14	8.4	13	82
8	16	16	19	28	16	27	25	17	27	8.7	6.2	106
9	16	16	19	21	16	248	24	16	23	9.1	5.6	114
10	16	17	19	18	17	848	23	16	13	8.6	6.4	79
11	16	17	19	17	19	382	23	16	12	8.1	5.6	31
12	16	18	19	17	19	90	23	16	12	6.6	5.0	22
13	16	17	21	17	19	46	22	14	12	5.5	8.6	18
14	17	17	21	17	19	34	22	14	12	5.7	7.7	16
15	16	18	19	17	20	28	22	13	12	22	6.0	15
16	16	18	19	17	22	28	23	13	13	14	7.0	14
17	16	18	19	17	21	24	23	14	13	14	4.4	13
18	16	20	19	19	21	23	25	19	15	513	5.0	13
19	16	18	21	20	19	24	24	18	13	191	8.0	13
20	16	19	28	20	20	24	24	16	11	46	7.4	13
21	15	18	24	21	21	23	23	16	10	25	9.0	16
22	15	19	22	24	20	25	23	16	9.6	19	66	17
23	15	19	20	23	19	27	23	15	11	16	60	18
24	15	19	20	24	22	24	23	15	20	14	20	18
25	15	19	19	23	40	23	22	14	32	13	12	18
26	15	20	19	22	74	25	22	14	47	12	10	18
27	16	19	18	23	56	26	21	13	24	12	9.0	18
28	15	18	18	24	40	25	17	13	20	9.4	8.2	18
29	16	20	18	25	---	26	15	14	18	9.0	12	16
30	15	21	18	26	---	25	15	12	14	93	11	16
31	16	---	19	28	---	25	---	18	---	146	9.6	---
TOTAL	486	534	622	838	672	2264	677	477	499.6	1297.1	444.7	1765.8
MEAN	15.7	17.8	20.1	27.0	24.0	73.0	22.6	15.4	16.7	41.8	14.3	58.9
MAX	17	21	28	121	74	848	27	19	47	513	66	760
MIN	15	16	18	17	16	20	15	12	9.6	5.5	4.4	8.6
AC-FT	964	1060	1230	1660	1330	4490	1340	946	991	2570	882	3500

CAL YR 1988 TOTAL 8872.1 MEAN 24.2 MAX 264 MIN 6.3 AC-FT 17600
WTR YR 1989 TOTAL 10577.2 MEAN 29.0 MAX 848 MIN 4.4 AC-FT 20980

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.

WATER DISCHARGE RECORDS

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: Dec. 11 to Mar. 14. Records good except for period of estimated record, which is poor. Some small diversions above station for irrigation.

AVERAGE DISCHARGE.--21 years (water years 1969-89), 868 ft³/s, 628,900 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)
Mar. 9	2113	*10500	*a10.95	Sept. 5	0441	5920	9.41

a Backwater from ice.

Minimum daily discharge, 84 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	511	323	494	330	500	470	785	484	355	336	321	157
2	424	328	466	320	350	450	743	485	356	320	250	153
3	370	328	460	330	250	450	719	477	346	303	181	157
4	340	330	433	400	170	450	679	482	334	283	151	222
5	320	330	434	450	200	400	671	501	326	267	147	4860
6	320	317	425	600	230	450	657	518	318	252	133	3430
7	315	326	402	1200	270	540	656	510	311	233	132	1160
8	322	331	396	600	300	800	668	498	295	217	128	1560
9	334	334	404	450	290	1400	652	470	283	196	124	1380
10	345	334	407	340	290	6400	641	453	293	176	115	758
11	336	335	440	340	320	4000	623	442	305	163	106	523
12	334	375	360	350	360	2300	584	428	289	156	101	360
13	334	364	400	360	400	1200	584	416	273	145	94	291
14	334	363	410	370	450	1050	578	405	266	138	89	261
15	329	366	350	380	500	926	577	386	269	187	85	242
16	328	373	380	390	500	875	581	369	265	210	108	230
17	319	371	400	410	450	767	555	358	265	243	101	227
18	325	354	420	410	430	694	564	368	282	452	84	221
19	339	349	430	420	420	597	567	410	284	1040	85	217
20	334	349	410	410	420	618	560	447	281	654	86	214
21	336	370	390	420	450	640	552	445	270	416	101	210
22	342	379	360	480	430	668	551	431	262	303	132	206
23	352	381	330	500	400	692	549	425	246	261	161	204
24	337	371	320	500	400	694	551	414	243	236	136	209
25	327	380	290	490	450	685	543	389	410	221	128	211
26	325	384	290	490	520	689	522	379	722	236	143	213
27	325	398	280	490	540	731	506	369	1010	185	137	219
28	306	515	280	520	520	755	537	356	519	169	153	220
29	308	544	300	600	---	748	547	353	396	159	159	221
30	309	527	310	800	---	749	509	343	357	152	164	222
31	316	---	340	980	---	766	---	338	---	175	164	---
TOTAL	10496	11129	11811	15130	10810	32654	18011	13149	10431	8484	4199	18758
MEAN	339	371	381	488	386	1053	600	424	348	274	135	625
MAX	511	544	494	1200	540	6400	785	518	1010	1040	321	4860
MIN	306	317	280	320	170	400	506	338	243	138	84	153
AC-FT	20820	22070	23430	30010	21440	64770	35720	26080	20690	16830	8330	37210

CAL YR 1988 TOTAL 244802 MEAN 669 MAX 3700 MIN 148 AC-FT 485600
WTR YR 1989 TOTAL 165062 MEAN 452 MAX 6400 MIN 84 AC-FT 327400

PLATTE RIVER BASIN

06799350 ELKHORN RIVER AT WEST POINT, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-69, October 1980 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 04...	1210	340	450	8.31	11.5	11.3	25	3900	620
NOV 21...	1130	397	444	7.84	0.0	14.9	14	K120	430
DEC 19...	1045	433	534	8.05	0.0	13.5	<8	270	200
JAN 25...	1010	408	418	7.60	0.0	14.1	13	600	6500
FEB 14...	1100	486	475	7.75	0.0	9.5	8	1100	960
MAR 15...	1005	660	359	8.07	0.5	12.8	55	2100	8600
APR 18...	1220	564	439	8.56	10.5	11.4	16	K120	100
MAY 09...	1300	E560	--	8.77	15.0	10.7	24	120	110
JUN 06...	0905	365	357	8.62	19.5	9.8	37	230	290
JUL 05...	1100	220	349	--	26.0	8.8	50	3100	520
AUG 08...	1025	273	451	8.75	20.5	10.0	44	1200	240
SEP 07...	1200	1460	219	7.94	20.0	6.6	94	K340000	8400

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 04...	190	61	10	16	0.5	28	11	126	0.17
NOV 21...	210	67	11	16	0.5	24	12	130	0.18
DEC 19...	240	74	13	21	0.6	31	15	154	0.21
JAN 25...	180	56	9.9	13	0.4	23	7.5	109	0.15
FEB 14...	210	66	12	21	0.6	15	10	124	0.17
MAR 15...	140	43	7.7	11	0.4	18	8.1	88	0.12
APR 18...	170	53	10	16	0.6	12	8.5	99	0.14
MAY 09...	200	62	11	15	0.5	14	8.6	111	0.15
JUN 06...	160	46	10	16	0.6	22	9.4	103	0.14
JUL 05...	140	42	9.5	15	0.6	24	9.8	100	0.14
AUG 08...	190	55	12	22	0.7	31	18	138	0.19
SEP 07...	85	26	4.9	4.3	0.2	13	4.8	53	0.07

PLATTE RIVER BASIN

06799350 ELKHORN RIVER AT WEST POINT, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 04...	116	75	1.10	<0.020	--	1.4	2.5	0.650	4.8
NOV 21...	139	35	1.10	0.200	0.52	0.72	1.8	1.60	4.4
DEC 19...	180	32	1.60	0.690	0.41	1.1	2.7	0.350	4.4
JAN 25...	121	35	1.10	0.410	0.42	0.83	1.9	0.210	4.6
FEB 14...	163	24	1.40	0.310	0.20	0.51	1.9	0.220	3.3
MAR 15...	156	331	1.50	0.980	1.4	2.4	3.9	0.670	8.7
APR 18...	152	55	0.570	0.030	1.2	1.2	1.8	0.280	5.1
MAY 09...	--	81	0.470	<0.020	--	1.5	2.0	0.390	4.2
JUN 06...	102	45	<0.020	0.060	1.3	1.4	--	0.330	6.1
JUL 05...	59.6	93	0.030	0.060	1.7	1.8	1.8	0.400	6.4
AUG 08...	102	59	<0.020	0.140	1.5	1.6	--	0.400	7.8
SEP 07...	209	776	0.770	0.670	2.6	3.3	4.1	1.20	15

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. 28, Dec. 11-18, Dec. 26 to Jan. 3, Jan. 8-17, 20, 25, Feb. 1 to Mar. 8, and Mar. 18. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--11 years, 65.3 ft³/s, 47,310 acre-ft/yr; median of yearly mean discharges, 47 ft³/s, 34,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s June 16, 1984, gage height, 23.75 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)
Mar. 10	0232	1830	a11.73	Sept. 7	1158	2300	14.90
July 30	1336	1110	10.60	Sept. 9	0400	1950	13.77
Sept. 4	1100	*2940	*16.65				

a From floodmark.

Minimum daily discharge, 4.5 ft³/s July 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	16	21	21	60	62	22	17	16	11	30	6.9
2	24	16	21	23	20	40	22	17	14	11	21	9.6
3	22	16	21	25	15	35	22	18	13	12	17	29
4	21	16	20	29	16	30	21	18	14	10	13	1440
5	20	16	20	34	15	26	21	20	12	9.1	11	137
6	19	16	21	150	17	22	21	22	12	8.5	9.2	30
7	19	17	20	63	27	30	22	18	12	7.0	8.2	1070
8	19	18	19	35	26	422	22	18	16	6.0	7.0	361
9	18	17	20	25	30	741	21	18	14	5.5	7.1	763
10	18	17	19	26	35	897	20	18	12	6.1	6.2	100
11	17	17	17	26	32	198	19	18	12	6.7	6.0	25
12	17	20	20	25	28	50	19	19	16	6.2	5.4	15
13	17	20	23	25	24	31	19	18	12	4.6	5.9	13
14	17	19	21	24	23	27	18	18	12	4.5	4.8	12
15	17	20	19	25	22	23	18	17	10	8.7	5.1	12
16	17	22	21	26	21	25	17	16	9.9	11	5.7	11
17	17	20	23	29	20	21	17	16	11	8.8	6.0	11
18	16	19	24	31	19	20	18	18	11	298	5.4	11
19	16	21	25	28	18	23	19	27	9.8	90	8.8	11
20	16	19	53	24	20	24	19	21	7.6	40	9.6	11
21	17	19	38	26	21	21	18	21	7.0	28	8.0	11
22	16	20	25	24	19	23	17	19	7.0	26	13	10
23	16	20	22	21	18	22	17	18	8.1	25	10	10
24	16	20	20	20	19	21	16	17	9.1	22	7.6	11
25	15	20	20	19	35	20	17	16	178	19	7.3	11
26	15	22	19	20	150	20	18	19	51	39	7.6	11
27	15	22	18	20	120	21	17	16	23	42	12	12
28	15	19	19	21	90	21	16	19	18	20	6.3	13
29	15	23	20	39	---	24	17	15	15	16	8.8	12
30	15	22	19	83	---	24	18	15	12	391	8.0	13
31	15	---	19	198	---	23	---	16	---	66	7.6	---
TOTAL	541	569	687	1185	960	2987	568	563	574.5	1258.7	288.6	4192.5
MEAN	17.5	19.0	22.2	38.2	34.3	96.4	18.9	18.2	19.1	40.6	9.31	140
MAX	24	23	53	198	150	897	22	27	178	391	30	1440
MIN	15	16	17	19	15	20	16	15	7.0	4.5	4.8	6.9
AC-FT	1070	1130	1360	2350	1900	5920	1130	1120	1140	2500	572	8320

CAL YR 1988 TOTAL 11745.6 MEAN 32.1 MAX 928 MIN 5.6 AC-FT 23300
WTR YR 1989 TOTAL 14374.3 MEAN 39.4 MAX 1440 MIN 4.5 AC-FT 28510

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. 28 to Mar. 10 and Mar. 18-21. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--24 years, 160 ft³/s, 115,900 acre-ft/yr; median of yearly mean discharges, 130 ft³/s, 94,200 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)
Mar. 10	----	ice jam	*10.10	Mar. 11	0415	*2770	9.41

Minimum daily discharge, 13 ft³/s Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	67	45	62	54	82	86	71	51	49	34	32
2	65	68	50	58	50	80	85	72	51	45	31	31
3	63	69	58	68	44	78	83	73	49	45	29	32
4	62	70	64	76	46	74	83	74	50	42	27	54
5	62	69	66	84	50	72	83	75	49	34	24	141
6	63	68	66	140	52	64	82	73	46	35	21	57
7	63	70	62	100	58	100	83	68	45	32	22	47
8	63	71	58	66	64	150	84	63	44	60	19	104
9	63	71	56	47	70	300	84	62	40	34	18	107
10	63	71	58	50	72	2100	85	61	40	31	17	73
11	62	73	64	56	76	1830	84	63	40	27	15	58
12	62	82	68	60	76	479	82	59	40	23	14	55
13	64	80	72	64	74	210	80	59	42	20	13	52
14	63	78	74	68	74	157	80	59	46	18	19	50
15	63	78	70	72	72	153	78	59	49	33	17	50
16	63	93	68	76	72	140	79	66	53	42	16	49
17	63	81	66	78	72	116	76	62	60	39	15	47
18	63	82	68	80	70	92	81	60	55	40	16	45
19	63	80	74	78	68	92	87	63	51	39	17	44
20	63	80	80	76	66	90	79	58	49	42	18	41
21	64	81	76	74	66	90	73	57	47	37	25	41
22	64	81	74	70	62	101	74	52	44	34	36	41
23	65	79	72	64	58	100	74	55	42	31	32	39
24	64	77	72	62	64	98	67	52	44	31	26	40
25	65	75	70	58	78	94	67	50	62	29	24	42
26	67	75	68	54	82	91	67	49	60	27	25	42
27	68	74	62	56	84	88	74	48	61	28	29	40
28	65	33	52	58	84	84	73	56	54	28	31	40
29	66	33	60	60	---	84	71	78	52	35	33	40
30	67	39	62	62	---	86	68	54	51	40	33	39
31	69	---	64	60	---	87	---	54	---	38	33	---
TOTAL	1989	2148	2019	2137	1858	7462	2352	1905	1467	1088	729	1573
MEAN	64.2	71.6	65.1	68.9	66.4	241	78.4	61.5	48.9	35.1	23.5	52.4
MAX	69	93	80	140	84	2100	87	78	62	60	36	141
MIN	62	33	45	47	44	64	67	48	40	18	13	31
AC-FT	3950	4260	4000	4240	3690	14800	4670	3780	2910	2160	1450	3120

CAL YR 1988	TOTAL 43355	MEAN 118	MAX 1650	MIN 18	AC-FT 85990
WTR YR 1989	TOTAL 26727	MEAN 73.2	MAX 2100	MIN 13	AC-FT 53010

PLATTE RIVER BASIN

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06799450 LOGAN CREEK AT PENDER, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-68, 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT									
04...	1415	61	841	8.25	13.5	10.5	8	1900	230
NOV									
21...	1305	61	822	8.25	0.0	10.9	<8	K43	K77
DEC									
19...	1250	71	861	8.14	0.0	11.3	<8	K50	640
JAN									
25...	1135	117	890	8.00	0.0	11.9	13	640	4200
FEB									
14...	1230	95	845	7.73	0.0	9.9	<8	460	440
MAR									
15...	0900	169	720	8.16	0.0	12.9	50	2000	5800
APR									
18...	1438	79	784	8.37	10.0	12.0	<8	K10	92
MAY									
09...	1430	E28	822	8.45	19.0	9.2	11	K23	140
JUN									
06...	1035	E78	813	8.37	19.5	9.1	8	370	660
JUL									
05...	1215	23	747	8.57	28.0	8.7	12	150	280
AUG									
08...	1200	26	739	8.38	22.0	11.1	11	K120	190
SEP									
07...	1330	62	681	8.31	19.5	7.4	42	K17000	4700

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT									
04...	410	120	28	26	0.6	150	11	335	0.46
NOV									
21...	490	130	40	27	0.5	150	10	357	0.49
DEC									
19...	450	130	30	28	0.6	150	11	349	0.47
JAN									
25...	410	120	27	25	0.6	140	10	322	0.44
FEB									
14...	410	120	26	26	0.6	110	10	292	0.40
MAR									
15...	330	96	23	20	0.5	100	8.7	248	0.34
APR									
18...	350	96	26	27	0.7	110	8.3	267	0.36
MAY									
09...	390	110	28	26	0.6	88	11	263	0.36
JUN									
06...	380	110	26	26	0.6	120	10	292	0.40
JUL									
05...	360	100	26	26	0.6	100	12	264	0.36
AUG									
08...	320	85	26	25	0.6	140	7.7	284	0.39
SEP									
07...	320	92	23	23	0.6	120	15	273	0.37

PLATTE RIVER BASIN

06799450 LOGAN CREEK AT PENDER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 04...	55.2	66	2.10	<0.020	--	0.59	2.7	0.410	1.1
NOV 21...	58.8	52	2.20	0.020	--	<0.50	--	0.190	4.2
DEC 19...	66.9	25	3.10	0.170	--	<0.50	--	0.160	3.0
JAN 25...	102	45	3.00	0.200	0.47	0.67	3.7	0.180	6.4
FEB 14...	74.9	32	2.60	0.160	--	<0.50	--	0.150	3.3
MAR 15...	113	455	2.80	1.20	1.2	2.4	5.2	0.700	8.8
APR 18...	57.0	34	1.20	0.110	0.60	0.71	1.9	0.110	2.9
MAY 09...	--	79	1.60	<0.020	--	0.75	2.3	0.220	2.8
JUN 06...	--	73	1.30	0.180	0.37	0.55	1.8	0.230	3.0
JUL 05...	16.4	24	1.00	0.130	0.38	0.51	1.5	0.150	4.5
AUG 08...	19.9	16	0.120	0.170	1.2	1.4	1.5	0.060	2.8
SEP 07...	45.7	220	1.30	0.150	1.1	1.3	2.6	0.410	6.4

PLATTE RIVER BASIN

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06799500 LOGAN CREEK NEAR UEHLING, NE

LOCATION.--Lat 41°42'45", long 96°31'19", in NE1/4NE1/4 sec.16, T.20 N., R.8 E., Dodge County, Hydrologic Unit 10220004, near right bank on downstream 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.

REMARKS.--Estimated daily discharges: Nov. 26 to Mar. 10, Mar. 18-21, June 17, 20-22, 24, July 2-17, 22-29, 31, and Aug. 1-4, 15-18, 21-23. Records good except for period of estimated record, which are poor.

AVERAGE DISCHARGE.--48 years, 202 ft³/s, 146,300 acre-ft/yr; median of yearly mean discharges, 170 ft³/s, 123,000 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)
Mar. 10	----	ice jam	*13.38	Mar. 11	1100	*2530	7.77

Minimum daily discharge, 17 ft³/s Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	86	84	130	80	124	124	89	75	51	38	34
2	96	85	84	125	68	124	122	89	71	50	37	34
3	91	85	82	125	60	118	117	90	66	48	36	34
4	83	88	78	122	66	104	114	90	63	44	34	191
5	81	91	80	120	74	86	111	90	61	38	33	51
6	82	86	80	118	84	78	112	90	61	33	30	87
7	83	85	78	210	86	125	113	89	61	38	26	174
8	84	87	74	120	88	200	116	88	79	61	23	261
9	86	88	70	108	88	480	115	86	67	65	23	199
10	86	91	66	112	90	2300	111	83	59	36	22	131
11	85	90	72	112	90	2120	109	80	58	30	22	80
12	86	101	80	114	90	847	108	79	59	26	22	64
13	82	106	96	116	88	503	108	79	58	24	22	57
14	84	105	110	114	86	290	107	77	57	26	20	54
15	83	103	114	112	84	227	104	76	57	36	19	53
16	82	107	120	110	82	208	101	76	58	44	18	52
17	79	104	125	108	86	178	100	73	64	56	17	52
18	79	104	130	110	90	160	99	81	59	66	18	51
19	79	103	130	108	92	150	100	90	57	50	18	49
20	79	103	129	106	92	140	102	86	54	45	19	49
21	81	100	125	106	94	130	99	82	50	39	28	49
22	82	103	130	104	94	124	95	77	48	37	38	50
23	82	105	125	104	68	130	92	76	47	34	35	49
24	81	109	125	102	76	130	91	75	56	33	32	49
25	82	109	125	100	96	126	91	75	64	30	29	50
26	81	100	120	96	108	124	91	73	75	30	29	50
27	84	94	116	96	116	119	91	69	66	31	32	50
28	84	90	118	94	122	115	113	68	61	33	33	50
29	84	84	120	92	---	107	94	125	55	38	36	51
30	84	83	124	92	---	125	89	109	54	60	36	52
31	84	---	130	90	---	127	---	79	---	40	36	---
TOTAL	2616	2875	3240	3476	2438	9919	3139	2589	1820	1272	861	2257
MEAN	84.4	95.8	105	112	87.1	320	105	83.5	60.7	41.0	27.8	75.2
MAX	117	109	130	210	122	2300	124	125	79	66	38	261
MIN	79	83	66	90	60	78	89	68	47	24	17	34
AC-FT	5190	5700	6430	6890	4840	19670	6230	5140	3610	2520	1710	4480

CAL YR 1988 TOTAL 64253 MEAN 176 MAX 2500 MIN 47 AC-FT 127400
WTR YR 1989 TOTAL 36502 MEAN 100 MAX 2300 MIN 17 AC-FT 72400

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: Dec. 2 to Dec. 20 and Dec. 24 to Mar. 11. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--38 years, 67.4 ft³/s, 48,830 acre-ft/yr; median of yearly mean discharges, 53 ft³/s, 38,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s June 21, 1960, gage height, 14.67 ft; maximum gage height, 16.54 ft June 18, 1983; 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)
Mar. 10	----	2500	ice jam	Sept. 4	1940	*3620	*15.64
June 25	1505	1020	9.47	Sept. 7	1740	2150	12.27
July 18	1640	864	9.12	Sept. 9	0610	3120	14.69
July 30	2017	1530	10.58				

Minimum daily discharge, 1.5 ft³/s July 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	12	16	13	100	100	27	14	7.6	8.3	123	5.8
2	24	11	15	15	40	60	26	14	7.2	7.6	27	5.1
3	18	12	14	17	25	52	25	14	8.7	7.7	14	5.1
4	17	13	14	20	18	48	22	16	8.0	7.2	11	2280
5	16	12	13	27	12	46	21	15	7.3	7.1	8.8	2510
6	16	12	13	130	10	43	21	16	7.4	6.6	9.3	311
7	15	12	12	100	11	41	24	14	6.7	5.4	9.3	914
8	16	12	12	80	14	100	24	14	10	5.3	8.7	687
9	16	12	13	20	18	1700	23	13	46	4.2	7.5	2120
10	15	13	14	15	25	1800	21	12	16	3.9	4.4	274
11	14	13	14	12	24	450	20	12	12	3.7	3.6	102
12	13	16	15	11	24	148	19	11	15	2.9	3.1	69
13	13	15	15	11	23	65	19	11	9.8	1.7	2.5	54
14	13	16	16	11	22	47	18	11	8.4	1.5	2.2	39
15	12	16	16	11	22	39	18	10	7.6	3.0	2.2	35
16	12	17	16	11	21	36	18	10	6.8	3.4	2.2	31
17	11	17	17	11	20	31	16	11	6.5	3.8	2.7	28
18	12	16	17	11	20	33	18	14	6.5	440	4.6	25
19	11	15	18	11	19	31	19	16	5.5	256	7.7	22
20	11	15	17	12	18	37	19	16	5.0	56	9.1	20
21	11	15	24	12	17	32	18	18	4.6	15	7.4	18
22	12	16	55	12	17	34	16	15	3.7	9.3	9.6	18
23	11	16	34	13	16	33	15	13	3.9	8.4	11	17
24	12	16	21	13	14	30	15	11	3.9	6.2	7.3	16
25	11	16	20	12	25	30	14	9.8	368	3.7	6.2	15
26	11	19	18	13	80	29	14	8.6	327	3.5	5.8	14
27	12	18	15	13	200	29	15	8.2	60	4.5	6.2	13
28	11	15	13	14	130	29	16	8.6	17	3.2	8.0	14
29	11	19	12	15	---	30	14	9.3	11	2.6	7.6	15
30	10	17	13	40	---	30	13	7.8	9.1	415	7.3	14
31	11	---	14	120	---	29	---	7.4	---	742	6.2	---
TOTAL	443	444	536	826	985	5242	568	380.7	1016.2	2048.7	345.5	9691.0
MEAN	14.3	14.8	17.3	26.6	35.2	169	18.9	12.3	33.9	66.1	11.1	323
MAX	45	19	55	130	200	1800	27	18	368	742	123	2510
MIN	10	11	12	11	10	29	13	7.4	3.7	1.5	2.2	5.1
AC-FT	879	881	1060	1640	1950	10400	1130	755	2020	4060	685	19220

CAL YR 1988 TOTAL 15433.5 MEAN 42.2 MAX 911 MIN 3.2 AC-FT 30610
WTR YR 1989 TOTAL 22526.1 MEAN 61.7 MAX 2510 MIN 1.5 AC-FT 44680

PLATTE RIVER BASIN

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06800500 ELKHORN RIVER AT WATERLOO, NE
(National stream-quality accounting network station)

LOCATION.--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 100 ft upstream from old highway 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: Dec. 11 to Jan. 5, Jan. 8 to Jan. 29, Feb. 1 to Mar. 9. Records good except for periods of estimated record, which are poor. Some small diversions above station for irrigation.

AVERAGE DISCHARGE.--69 years, 1,217 ft³/s, 881,700 acre-ft/yr; median of yearly mean discharges, 1,010 ft³/s, 732,000 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)
Mar. 9	2400	ice jam	*9.16	Sept. 8	0300	6610	7.58
Mar. 10	2030	7710	8.08	Sept. 9	1900	7820	8.08
Sept. 5	0115	*9950	8.74				

Minimum daily discharge, 99 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	902	499	662	400	1500	1220	1080	718	557	546	1140	232
2	735	503	757	250	800	1220	1060	689	553	513	516	216
3	656	510	758	300	450	1200	1060	683	576	454	537	202
4	633	532	768	300	500	1160	1000	663	562	420	448	3430
5	566	547	725	1000	600	1120	982	655	524	381	295	6460
6	531	527	734	1650	660	1100	961	658	497	344	230	4260
7	521	525	740	2780	760	1140	938	662	486	329	216	3040
8	513	525	711	1400	680	1220	945	667	761	298	197	4570
9	513	533	600	1000	740	2500	936	660	556	276	176	5640
10	510	540	575	700	860	6010	914	624	527	265	167	3460
11	501	546	500	720	980	6470	885	593	485	252	157	1730
12	491	583	580	700	1060	6950	856	577	486	228	144	1010
13	482	633	630	690	1040	5010	835	569	493	209	132	758
14	482	646	580	740	980	3000	822	556	454	195	119	645
15	484	649	480	760	900	1850	816	537	435	210	115	585
16	486	708	490	800	940	1490	797	521	437	243	113	545
17	490	695	560	840	960	1350	784	513	436	333	100	500
18	490	679	680	900	980	1070	785	528	443	530	99	482
19	489	675	850	860	960	1070	809	649	445	1210	146	471
20	493	646	810	820	920	1020	823	680	426	1090	156	450
21	495	618	780	860	800	916	833	651	396	1110	156	437
22	501	630	900	900	680	893	823	650	417	733	272	431
23	505	661	810	960	600	899	789	637	399	540	205	419
24	502	659	700	980	740	934	765	621	398	444	194	407
25	507	651	570	980	900	920	772	600	669	390	244	410
26	514	671	600	560	1100	966	775	585	1010	346	231	408
27	528	685	470	860	1190	1050	778	563	998	333	215	403
28	523	602	260	840	1220	1070	837	550	974	354	267	401
29	512	574	270	820	---	1090	831	555	949	278	264	404
30	503	642	350	1120	---	1110	751	581	633	259	255	408
31	495	---	460	1650	---	1130	---	616	---	1090	247	---
TOTAL	16553	18094	19360	28140	24500	58148	26042	19011	16982	14203	7753	42814
MEAN	534	603	625	908	875	1876	868	613	566	458	250	1427
MAX	902	708	900	2780	1500	6950	1080	718	1010	1210	1140	6460
MIN	482	499	260	250	450	893	751	513	396	195	99	202
AC-FT	32830	35890	38400	55820	48600	115300	51650	37710	33680	28170	15380	84920
CAL YR 1988	TOTAL 361536	MEAN 988	MAX 4170	MIN 196	AC-FT 717100							
WTR YR 1989	TOTAL 291600	MEAN 799	MAX 6950	MIN 99	AC-FT 578400							

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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
31...	1030	493	605	8.46	5.5	737	--	9.7	12	470
NOV										
22...	1200	631	612	8.33	3.5	734	22	13.4	--	2000
22...	1205	--	--	--	--	--	--	--	21	--
DEC										
20...	1100	700	598	8.20	0.0	733	--	13.1	30	350
JAN										
30...	1120	1000	526	8.35	0.5	732	45	13.2	--	2300
30...	1125	--	--	--	--	--	--	--	39	--
FEB										
28...	1055	1190	480	7.63	0.0	731	--	10.3	120	1800
MAR										
29...	1140	1080	567	8.38	14.5	732	55	9.8	--	920
29...	1145	--	--	--	--	--	--	--	44	--
APR										
26...	0945	778	517	8.68	21.5	727	--	10.5	29	1000
MAY										
22...	1200	641	446	--	20.5	732	45	11.2	--	1300
22...	1205	--	--	--	--	--	--	--	49	--
JUN										
28...	1230	945	476	7.87	28.0	736	--	4.9	85	K4100
JUL										
31...	1100	934	356	--	26.0	734	760	2.8	--	E470000
31...	1105	--	--	--	--	--	--	--	--	--
AUG										
30...	1030	256	--	8.36	24.5	732	--	8.4	23	5300
SEP										
05...	1025	6100	160	7.22	20.0	733	1200	3.6	--	230000
05...	1030	--	--	--	--	--	--	--	230	--

E Estimated value.

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

PLATTE RIVER BASIN

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06800500 ELKHORN RIVER AT WATERLOO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)
OCT									
31...	140	260	--	76	16	25	0.7	--	--
NOV									
22...	5000	270	35	79	18	26	0.7	7.3	--
22...	--	270	--	81	16	25	0.7	--	--
DEC									
20...	540	240	--	88	5.7	26	0.8	--	--
JAN									
30...	20000	220	15	64	15	20	0.6	7.5	206
30...	--	220	--	67	14	18	0.5	--	--
FEB									
28...	32000	190	--	56	12	17	0.6	--	--
MAR									
29...	740	240	17	71	16	22	0.6	10	225
29...	--	230	--	71	14	21	0.6	--	--
APR									
26...	200	200	--	56	14	24	0.8	--	--
MAY									
22...	220	190	15	51	15	23	0.8	7.2	174
22...	--	180	--	50	14	22	0.7	--	--
JUN									
28...	6300	180	--	52	12	19	0.6	--	--
JUL									
31...	K420000	120	4	33	8.5	15	0.6	11	113
31...	--	250	--	88	7.8	14	0.4	--	--
AUG									
30...	1400	200	--	59	14	30	0.9	--	--
SEP									
05...	680000	60	0	17	4.2	4.2	0.2	10	--
05...	--	60	--	17	4.2	3.6	0.2	--	--
DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE D (MG/L) (00530)
OCT									
31...	57	16	--	--	--	190	0.26	253	39
NOV									
22...	59	15	0.30	29	382	387	0.52	651	--
22...	58	18	--	--	--	198	0.27	--	75
DEC									
20...	62	16	--	--	--	198	0.27	374	45
JAN									
30...	45	11	0.30	26	328	323	0.45	886	--
30...	38	12	--	--	--	149	0.20	--	94
FEB									
28...	26	11	--	--	--	122	0.17	392	973
MAR									
29...	55	11	0.30	28	341	360	0.46	994	--
29...	22	12	--	--	--	140	0.19	--	281
APR									
26...	38	13	--	--	--	145	0.20	305	47
MAY									
22...	46	12	0.30	13	269	273	0.37	466	--
22...	28	13	--	--	--	127	0.17	--	179
JUN									
28...	40	21	--	--	--	144	0.20	367	322
JUL									
31...	23	12	0.40	15	213	194	0.29	537	--
31...	28	14	--	--	--	152	0.21	--	2230
AUG									
30...	42	25	--	--	--	170	0.23	118	132
SEP									
05...	6.0	5.0	0.30	8.1	--	103	0.14	2140	--
05...	<10	4.0	--	--	--	--	--	--	2840

DATE	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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
1...	1.80	--	0.320	0.49	0.81	2.6	0.350	--	--
2...	--	2.00	0.340	0.96	1.3	--	0.450	0.380	0.330
2...	1.90	--	0.440	0.96	1.4	3.3	0.420	--	--
0...	2.40	--	0.520	0.39	0.91	3.3	0.600	--	--
0...	--	2.00	0.410	0.79	1.2	--	0.510	0.330	0.290
0...	2.30	--	0.450	0.75	1.2	3.5	0.460	--	--
8...	2.60	--	0.930	3.6	4.5	7.1	1.80	--	--
9...	--	2.00	0.120	0.38	0.50	--	0.510	0.350	0.330
9...	2.10	--	0.100	0.90	1.0	3.1	0.590	--	--
6...	<0.020	--	0.040	1.7	1.7	--	0.410	--	--
2...	--	<0.100	0.020	2.0	2.0	--	0.360	0.090	0.080
2...	<0.020	--	0.110	1.7	1.8	--	0.630	--	--
8...	0.790	--	0.560	3.3	3.9	4.7	1.10	--	--
1...	--	1.30	0.670	2.4	3.1	--	0.740	0.340	0.250
1...	1.40	--	1.10	8.9	10	11	3.90	--	--
0...	0.610	--	0.050	2.1	2.2	2.8	0.890	--	--
5...	--	1.20	0.650	3.3	4.0	--	0.410	0.240	0.230
5...	1.00	--	0.630	7.4	8.0	9.0	3.60	--	--

[illegible]

06800500 ELKHORN RIVER AT WATERLOO, NE--Continued

WATER QUALITY DATA. WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

PLATTE RIVER BASIN

06800500 ELKHORN RIVER AT WATERLOO, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT						
31...	1030	493	5.5	--	--	--
NOV						
22...	1200	631	3.5	129	220	57
22...	1205	--	--	--	--	--
DEC						
20...	1100	700	0.0	--	--	--
JAN						
30...	1120	1000	0.5	620	1670	30
30...	1125	--	--	--	--	--
FEB						
28...	1055	1190	0.0	--	--	--
MAR						
29...	1140	1080	14.5	512	1490	62
29...	1145	--	--	--	--	--
APR						
26...	0945	778	21.5	--	--	--
MAY						
22...	1200	641	20.5	217	376	80
22...	1205	--	--	--	--	--
JUN						
28...	1230	945	28.0	--	--	--
JUL						
31...	1100	934	26.0	2390	6030	93
31...	1105	--	--	--	--	--
AUG						
30...	1030	256	24.5	--	--	--
SEP						
05...	1025	6100	20.0	3710	61100	87
05...	1030	--	--	--	--	--

PLATTE RIVER BASIN

197

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. 11-17, Dec. 30 to Jan. 23, and Feb. 1 to Mar. 11. 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; 1989 water year mean is 4,606 ft³/s, 3,337,000 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, 43,600 ft³/s Mar. 12, gage height 18.60 ft; minimum daily, 884 ft³/s Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6720	3480	4420	2480	7510	9000	6420	3450	2310	8350	2430	3510
2	6180	3190	4570	2870	4510	9200	5290	3230	2400	7230	1570	2870
3	5970	3480	3740	2610	1870	9000	5960	3580	2360	7080	1290	3780
4	4200	3390	4390	4120	2100	8600	6510	3360	2640	6690	1280	5510
5	6140	3470	4190	5230	3500	8400	5470	3300	2530	5980	1290	15700
6	4530	3520	4390	6100	3970	8000	5530	3480	2520	4800	1190	16100
7	4620	3790	3900	5000	3770	8000	5570	3290	2440	4880	1250	14700
8	4590	4560	4500	4400	4720	8200	5310	3200	2370	4390	887	11200
9	4810	2790	4400	3110	4000	9000	4160	3060	2020	3800	1110	12100
10	4300	3160	3030	3200	4500	13000	4870	3000	1990	3150	1170	11200
11	4520	3090	3300	3900	5000	17000	4650	2650	2130	2110	904	8380
12	4470	3340	3200	3000	5400	25000	4770	2750	2440	2500	969	7470
13	4570	3470	4000	2800	6000	30700	4760	2250	2370	2060	884	6420
14	4330	3340	4500	2700	6400	18900	4460	2770	2330	1620	912	5920
15	4470	3680	5500	3000	7000	12700	4440	2390	2440	1400	1020	5940
16	4780	4040	5000	3500	7200	9410	4720	2330	2330	1990	1000	5800
17	4350	3700	4400	4500	7200	8300	3970	2730	2330	4410	1070	5640
18	3760	3670	4890	5000	7000	8050	5310	2760	2240	6530	1020	4830
19	4340	3870	5050	5800	7200	6970	3360	3160	2150	6050	1150	4390
20	4550	4050	6020	6000	7400	7900	3920	3530	2120	5760	1330	3870
21	3860	3770	6590	5800	6800	7420	4410	3250	2050	4720	1540	4230
22	4060	3730	6380	6600	6200	7140	4340	3760	2140	4450	1710	3880
23	3950	4070	7020	7160	5800	6910	4190	3340	1840	3790	1550	2990
24	3880	3700	5770	7170	6200	6720	3520	2770	1720	3470	2010	3300
25	3320	3870	5080	6970	7000	6160	3710	3280	2080	3310	2390	3580
26	3750	3870	4010	6300	7600	6400	3660	2480	2660	2540	2240	3310
27	3540	3540	4200	5000	8200	6400	3740	2470	4250	2600	1980	3540
28	3580	4020	4110	5420	8800	5660	3660	2510	5860	1860	1820	3140
29	3500	3200	2170	6490	---	7720	4020	2650	9270	1840	2070	3380
30	3390	3740	1400	6210	---	6280	3850	2860	9510	1610	2310	3180
31	3720	---	2000	7710	---	6350	---	2410	---	1620	3050	---
TOTAL	136750	108610	136120	150150	162850	309390	138550	92050	87840	122590	46396	189860
MEAN	4411	3620	4391	4844	5816	9980	4618	2969	2928	3955	1497	6329
MAX	6720	4580	7020	7710	8800	30700	6510	3760	9510	8350	3050	16100
MIN	3320	2790	1400	2480	1870	6160	3360	2250	1720	1400	884	2870
AC-FT	271200	215400	270000	297800	323000	613700	274800	182600	174200	243200	92030	376600

WTR YR 1989 TOTAL 1681156 MEAN 4606 MAX 30700 MIN 884 AC-FT 3335000

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: Feb. 2-6, 13-22, Mar. 6, June 7-18, and Sept. 10-20. Records good except for periods of estimated record, which are poor. Flood flow affected by several detention dams.

AVERAGE DISCHARGE.--38 years, 47.5 ft³/s, 34,410 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)
Sept. 4	1100	927	10.65	Sept. 8	a1700	*3110	*b18.10

a From partial record.

b From floodmark.

Minimum daily discharge, 1.8 ft³/s Aug. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.7	8.4	9.5	12	17	11	10	5.4	35	4.8	4.6
2	5.0	6.7	7.9	8.7	7.0	16	11	11	5.6	57	4.0	3.2
3	4.4	6.7	7.4	8.4	6.8	15	11	11	13	13	4.2	5.4
4	4.1	7.0	7.4	9.7	8.0	13	11	9.5	9.3	10	4.1	710
5	4.5	6.9	7.0	11	9.0	12	10	11	5.9	9.0	3.7	120
6	4.7	7.8	7.5	12	10	11	9.6	12	5.2	7.7	3.1	39
7	4.8	7.9	7.8	10	11	13	9.8	10	4.7	7.1	3.1	24
8	4.6	7.0	8.2	10	11	22	9.9	9.6	4.5	6.4	2.2	1760
9	4.7	7.3	7.0	9.1	14	70	9.9	8.9	4.4	5.8	1.8	1960
10	4.7	14	8.3	9.1	14	39	9.9	9.0	4.4	5.7	1.9	700
11	4.4	9.0	7.1	9.2	11	24	10	9.0	4.4	5.1	2.3	350
12	4.6	8.4	8.4	9.5	10	19	10	8.9	4.4	4.8	1.8	210
13	4.6	6.4	10	8.2	10	17	10	9.4	4.4	4.8	1.9	140
14	4.8	6.5	10	8.3	9.8	15	10	8.6	4.4	4.6	2.1	80
15	4.9	6.6	9.2	9.2	9.6	13	10	8.1	4.5	5.5	1.9	72
16	4.6	8.3	7.7	8.8	9.8	12	11	8.5	4.5	7.3	2.4	62
17	6.8	8.7	8.1	9.5	9.8	12	11	8.4	4.8	8.1	2.7	58
18	5.6	7.3	8.0	9.5	10	11	9.4	9.8	4.6	12	2.1	48
19	9.7	7.0	9.5	9.7	10	13	8.6	11	4.6	10	2.5	42
20	7.5	7.0	13	9.8	11	13	9.0	11	6.0	6.5	2.5	37
21	6.1	6.7	14	8.9	10	12	8.6	9.5	4.6	5.0	2.7	32
22	5.8	6.9	11	10	9.0	13	8.4	10	6.0	4.9	4.8	27
23	5.1	7.1	9.9	10	12	12	8.8	8.4	7.4	5.2	9.9	23
24	5.1	7.5	9.8	10	15	12	8.2	7.0	67	6.6	5.2	20
25	6.0	8.1	8.2	9.9	21	12	7.7	6.5	372	6.2	3.8	17
26	5.8	8.1	10	9.7	19	12	8.7	6.1	95	10	4.0	13
27	5.8	9.2	8.9	10	20	12	7.4	7.7	35	7.1	5.6	12
28	5.7	8.3	8.8	16	19	12	7.7	6.4	21	5.0	25	10
29	5.9	8.7	9.8	23	---	11	7.9	5.2	20	4.0	13	10
30	5.9	8.2	8.8	16	---	11	8.2	4.4	15	4.2	5.1	9.1
31	5.7	---	9.2	14	---	11	---	9.0	---	4.2	3.7	---
TOTAL	167.1	231.0	276.3	326.7	328.8	507	283.7	274.9	752.0	287.8	181.1	6598.3
MEAN	5.39	7.70	8.91	10.5	11.7	16.4	9.46	8.87	25.1	9.28	5.84	220
MAX	9.7	14	14	23	21	70	11	12	372	57	48	1960
MIN	4.1	5.7	7.0	8.2	6.8	11	7.4	4.4	4.4	4.0	1.8	3.2
AC-FT	331	458	548	648	652	1010	563	545	1490	571	359	13090

CAL YR 1988 TOTAL 4572.9 MEAN 12.5 MAX 71 MIN 2.0 AC-FT 9070
WTR YR 1989 TOTAL 10214.7 MEAN 28.0 MAX 1960 MIN 1.8 AC-FT 20260

PLATTE RIVER BASIN

199

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.--Estimated daily discharges: June 26-28. Records good. Flood flow affected by several detention dams.

AVERAGE DISCHARGE.--40 years, 234 ft³/s, 169,500 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)
June 25	0505	7070	12.19	Sept. 8	2400	*23200	*22.67
Sept. 4	1034	5130	10.42				

Minimum daily discharge, 43 ft³/s Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	78	79	66	90	121	73	58	63	101	60	70
2	83	77	75	58	80	108	75	59	67	120	56	64
3	78	80	72	66	73	106	77	60	120	111	59	413
4	74	33	67	66	68	71	75	101	130	88	61	3180
5	71	80	69	93	68	73	77	75	85	94	56	983
6	68	75	71	85	72	73	70	69	70	95	51	253
7	68	77	71	80	73	91	68	68	270	85	53	222
8	75	75	67	54	75	148	82	71	300	69	50	7010
9	84	77	64	67	74	286	79	71	102	61	50	11900
10	84	76	68	65	85	290	78	64	110	64	48	1900
11	80	92	45	67	101	201	77	63	75	61	47	997
12	76	117	69	67	100	148	77	66	72	107	46	836
13	74	82	82	70	107	117	75	65	71	63	43	616
14	73	78	86	77	103	108	72	60	69	71	48	485
15	62	120	69	76	102	97	70	65	68	212	49	399
16	55	112	64	78	99	95	68	67	62	73	49	356
17	57	91	69	86	94	91	75	69	74	141	48	314
18	55	86	69	92	96	87	75	112	77	89	48	282
19	61	86	86	95	87	102	72	117	64	79	100	251
20	69	79	117	92	93	101	68	87	64	75	63	227
21	68	77	81	92	95	91	65	79	77	67	264	211
22	63	77	86	97	76	95	64	74	168	61	904	193
23	60	78	77	100	70	99	62	61	72	58	168	170
24	63	72	73	103	84	99	64	66	291	63	102	151
25	67	73	57	111	121	95	63	66	3330	75	124	150
26	69	95	82	96	140	88	64	62	700	80	77	136
27	71	77	70	102	159	87	67	55	270	67	189	125
28	70	72	58	251	140	86	68	52	150	66	147	121
29	74	81	62	193	---	98	52	60	109	58	145	118
30	73	79	66	161	---	83	52	64	100	69	92	114
31	76	---	66	144	---	78	---	65	---	69	78	---
TOTAL	2213	2502	2237	2950	2625	3513	2104	2171	7280	2592	3375	32247
MEAN	71.4	83.4	72.2	95.2	93.7	113	70.1	70.0	243	83.6	109	1075
MAX	112	120	117	251	159	290	82	117	3330	212	904	11900
MIN	55	72	45	54	68	71	52	52	62	58	43	64
AC-FT	4390	4960	4440	5850	5210	6970	4170	4310	14440	5140	6690	63960

CAL YR 1988 TOTAL 40246.4 MEAN 110 MAX 1650 MIN 29 AC-FT 79830
WTR YR 1989 TOTAL 65809 MEAN 180 MAX 11900 MIN 43 AC-FT 130500

PLATTE RIVER BASIN

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: Dec. 15, 16, 27-29, Jan. 2, 8-13, Jan. 31 to Mar. 7, and Aug. 2-8. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--20 years, 15.5 ft³/s, 11,230 acre-ft/yr; median of yearly mean discharges, 14 ft³/s, 10,100 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)
June 25	0145	573	7.72	Sept. 8	2200	*4940	*a17.86

a From floodmark.

Minimum daily discharge, 1.4 ft³/s June 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	2.9	5.3	3.6	3.7	4.7	6.3	2.5	2.9	12	1.8	3.0
2	4.8	3.4	5.8	3.5	3.1	4.0	6.5	2.5	3.3	7.3	1.9	2.1
3	4.2	3.6	5.8	3.1	3.0	4.3	6.7	3.0	3.9	5.0	2.6	16
4	3.1	4.7	5.0	3.6	3.0	4.2	5.6	4.3	3.1	4.4	2.8	162
5	3.5	3.0	6.4	5.3	2.9	4.1	4.8	3.3	3.5	4.9	3.0	9.5
6	3.3	2.6	7.0	6.7	3.2	4.2	5.7	2.6	3.7	4.4	2.9	4.0
7	3.6	3.3	6.0	6.8	3.6	6.0	5.8	2.8	26	5.1	2.9	4.2
8	4.1	2.8	4.8	5.0	3.2	52	4.8	3.7	20	4.9	2.8	1120
9	3.7	3.7	4.7	3.5	4.3	42	3.6	2.9	2.8	4.9	3.1	1140
10	4.0	3.9	4.8	3.7	5.2	26	3.9	2.7	2.3	5.1	2.9	28
11	3.4	3.4	5.1	3.8	5.0	16	4.5	2.8	2.8	5.4	3.0	12
12	3.5	6.7	5.2	3.3	4.7	12	4.8	3.5	3.4	7.9	3.1	11
13	4.5	5.9	5.7	3.0	4.5	8.8	5.3	3.0	2.0	2.6	3.5	12
14	3.9	4.8	7.2	4.0	4.4	8.0	5.3	3.2	1.4	2.4	3.0	7.4
15	3.7	6.4	4.7	4.7	4.7	5.5	4.6	3.8	2.2	3.6	1.6	5.7
16	3.5	7.4	3.5	4.3	4.4	6.0	4.7	3.8	2.8	2.3	2.3	5.6
17	3.3	5.3	4.0	7.0	4.5	4.8	4.1	4.0	2.4	2.3	2.6	6.6
18	2.7	5.9	4.5	6.8	4.5	6.1	3.6	5.1	3.6	4.0	2.3	6.5
19	2.3	4.7	5.8	6.3	4.4	5.2	3.8	6.8	4.7	2.4	13	6.1
20	2.9	4.1	8.6	6.7	4.5	6.0	4.9	4.9	5.3	1.5	8.5	6.1
21	3.3	4.3	5.5	8.4	4.5	4.7	5.7	3.9	5.7	1.5	7.0	6.6
22	2.8	5.3	6.8	44	4.3	5.7	6.4	4.9	4.0	1.5	50	5.4
23	2.7	5.6	6.6	23	3.6	6.6	6.3	5.3	4.9	1.5	3.6	2.8
24	2.3	5.8	5.4	11	4.1	7.3	6.2	5.5	6.7	4.4	1.7	3.2
25	2.3	5.7	4.2	10	5.0	7.3	6.2	3.2	226	1.7	3.6	4.7
26	2.7	6.1	5.0	10	20	8.9	6.1	3.0	15	1.7	3.8	4.6
27	3.1	5.4	4.2	5.5	13	9.8	5.6	2.4	8.3	2.3	3.7	5.1
28	2.0	4.0	3.4	6.5	5.0	9.0	5.5	2.6	4.6	2.2	5.5	4.6
29	2.2	5.0	3.1	16	---	7.5	3.1	2.6	4.4	2.3	5.0	5.1
30	2.4	5.7	3.5	9.7	---	6.4	2.4	2.6	15	2.6	4.0	5.1
31	2.9	---	3.7	4.4	---	5.7	---	2.5	---	2.9	3.7	---
TOTAL	102.7	141.4	161.3	243.2	140.3	308.8	152.8	109.7	396.7	117.0	161.2	2615.0
MEAN	3.31	4.71	5.20	7.85	5.01	9.96	5.09	3.54	13.2	3.77	5.20	87.2
MAX	6.0	7.4	8.6	44	20	52	6.7	6.8	226	12	50	1140
MIN	2.0	2.6	3.1	3.0	2.9	4.0	2.4	2.4	1.4	1.5	1.6	2.1
AC-FT	204	280	320	482	278	613	303	218	787	232	320	5190

CAL YR 1988 TOTAL 3201.9 MEAN 8.75 MAX 307 MIN 2.0 AC-FT 6350
WTR YR 1989 TOTAL 4650.1 MEAN 12.7 MAX 1140 MIN 1.4 AC-FT 9220

PLATTE RIVER BASIN

201

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: Jan. 9-15, Feb. 1-8, 17-24, and Mar. 1-6. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--21 years, 18.7 ft³/s, 13,550 acre-ft/yr; median of yearly mean discharges, 20 ft³/s, 14,500 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)
June 25	0330	1580	10.63	Sept. 8	1700	*12900	*19.42
Sept. 4	1200	1320	9.72				

Minimum daily discharge, 0.54 ft³/s Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	1.4	2.7	3.4	3.0	4.0	3.1	1.8	1.1	2.5	1.3	1.0
2	1.4	1.4	2.6	3.4	2.5	3.5	2.9	1.9	1.1	2.3	1.4	.54
3	1.4	1.4	2.6	3.3	2.1	3.2	2.8	1.9	1.9	1.9	1.5	1.4
4	1.3	1.4	2.5	3.3	1.9	2.7	2.7	2.2	3.6	1.9	1.4	487
5	1.2	1.4	2.3	3.4	2.0	2.5	2.7	2.3	2.0	1.7	1.1	14
6	1.3	1.4	2.3	3.5	2.1	2.7	2.6	2.3	1.3	1.6	.84	4.5
7	1.4	1.4	2.4	3.2	2.2	3.5	2.6	2.2	8.9	1.6	.87	5.3
8	1.5	1.4	2.4	2.1	2.2	16	2.6	1.9	14	1.6	.92	4810
9	1.6	1.5	2.5	2.0	2.4	21	2.6	1.9	1.3	1.5	1.1	2300
10	1.9	1.5	2.4	1.9	2.4	15	2.6	1.8	1.1	1.4	.95	52
11	1.6	1.5	2.4	1.9	2.4	7.6	2.6	1.6	1.2	1.4	.70	19
12	1.4	2.1	2.4	1.9	2.4	5.5	2.7	1.5	1.1	7.0	.59	13
13	1.5	2.2	2.4	1.9	2.7	4.2	2.8	1.5	.74	3.9	.73	12
14	1.4	1.9	2.4	1.9	2.8	4.1	2.8	1.5	.79	2.0	.65	9.4
15	1.4	1.9	2.4	2.0	2.8	3.8	2.8	1.7	.79	4.6	1.0	7.5
16	1.3	2.1	2.6	2.1	2.7	3.2	2.8	1.5	1.1	3.3	.65	6.5
17	1.2	2.1	2.6	2.2	2.5	3.2	2.8	1.5	.58	3.9	.90	5.7
18	1.1	2.1	2.6	2.3	2.4	2.7	2.8	1.9	.99	4.0	.66	4.9
19	1.1	2.1	2.6	2.3	2.3	2.6	2.7	2.2	1.1	2.6	1.2	4.6
20	1.2	2.1	3.6	2.4	2.2	2.6	2.7	1.6	.71	1.9	.97	3.9
21	1.2	2.1	3.6	2.5	2.3	2.6	2.8	1.6	.80	1.7	1.4	3.8
22	1.2	2.1	3.5	2.7	2.2	2.6	2.8	1.5	3.0	1.6	124	3.5
23	1.2	2.2	3.5	2.9	2.0	2.8	2.6	1.4	2.5	1.7	7.2	3.3
24	1.2	2.2	3.6	2.9	2.5	3.2	2.3	1.5	19	2.0	2.5	3.2
25	1.2	2.0	3.6	2.9	3.0	3.3	2.5	1.3	598	1.9	1.5	2.7
26	1.3	2.0	3.6	2.9	6.2	3.5	2.3	1.2	12	1.7	1.1	2.7
27	1.4	2.0	3.6	2.9	5.7	3.5	2.0	1.1	5.6	1.5	1.3	2.7
28	1.4	2.0	3.6	3.7	5.3	3.4	3.4	1.1	3.4	1.5	3.5	2.6
29	1.3	2.3	3.4	6.9	---	3.2	2.4	1.2	2.6	1.4	3.0	2.5
30	1.3	3.0	3.3	4.6	---	3.1	1.7	1.3	2.3	1.2	1.7	2.3
31	1.3	---	3.4	3.9	---	3.1	---	1.2	---	1.5	1.2	---
TOTAL	42.0	56.2	89.4	89.2	77.2	147.9	79.5	51.1	694.60	70.3	167.83	7791.54
MEAN	1.35	1.87	2.88	2.88	2.76	4.77	2.65	1.65	23.2	2.27	5.41	260
MAX	1.9	3.0	3.6	6.9	6.2	21	3.4	2.3	598	7.0	124	4810
MIN	1.1	1.4	2.3	1.9	1.9	2.5	1.7	1.1	.58	1.2	.59	.54
AC-FT	83	111	177	177	153	293	158	101	1380	139	333	15450

CAL YR 1988 TOTAL 2245.94 MEAN 6.14 MAX 161 MIN .74 AC-FT 4450
WTR YR 1989 TOTAL 9356.77 MEAN 25.6 MAX 4810 MIN .54 AC-FT 18560

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 1988 TO SEPTEMBER 1989

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- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT										
12...	0800	112	6300	7.55	9.5	6.6	K71000	16000	340	77
NOV										
08...	1100	100	7160	7.69	6.5	8.2	E200000	E20000	370	75
DEC										
05...	1420	100	--	7.93	8.0	12.0	K33000	K6300	350	32
JAN										
04...	1130	93	7900	7.85	2.5	11.1	K14000	8000	390	52
FEB										
08...	0930	113	7430	7.75	0.0	8.1	E170000	K90000	390	49
MAR										
09...	1000	427	1970	7.80	2.0	11.0	40000	56000	170	11
APR										
03...	1530	E110	7190	8.20	16.0	12.7	K340	K220	350	40
MAY										
02...	0950	11	7550	7.75	13.0	7.6	770	K200	350	56
23...	1400	110	6450	7.93	26.5	8.1	2300	160	350	0
JUN										
28...	1130	149	3750	7.85	23.5	5.8	3800	1500	270	85
AUG										
23...	1130	200	2720	7.61	23.5	5.1	39000	36000	180	46
SEP										
05...	1415	900	580	7.35	21.0	5.0	58000	K150000	79	6

E Estimated value.

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 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)
OCT										
12...	86	30	1300	32	13	262	310	1800	0.60	21
NOV										
08...	91	34	1400	33	21	293	360	1900	0.60	23
DEC										
05...	88	31	1500	36	13	316	350	2000	0.60	23
JAN										
04...	99	34	1400	32	14	336	350	2000	0.60	26
FEB										
08...	100	35	1500	34	15	345	380	2100	0.70	28
MAR										
09...	47	13	370	13	11	160	110	500	0.40	14
APR										
03...	89	31	1300	31	12	310	350	1900	0.60	19
MAY										
02...	89	32	1400	33	13	298	350	2000	0.80	22
23...	86	32	1400	34	14	387	360	1900	0.90	26
JUN										
28...	72	21	700	19	15	182	210	1000	0.60	21
AUG										
23...	50	14	430	14	12	137	140	650	0.50	14
SEP										
05...	23	5.3	81	4	9.2	73	36	110	0.40	11

PLATTE RIVER BASIN

203

06803525 SALT CREEK BELOW STEVENS CREEK, NEAR WAVERLY, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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, 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- PHOROUS TOTAL (MG/L AS P) (00665)
OCT 12...	3730	5.07	1130	2.30	2.10	3.40	0.70	4.1	6.4	2.40
NOV 08...	4010	5.46	1080	1.70	1.70	5.70	0.0	3.8	5.5	3.70
DEC 05...	4200	5.71	1130	1.10	1.10	5.70	2.3	8.0	9.1	3.70
JAN 04...	4130	5.62	1040	--	1.60	1.60	3.6	5.2	--	3.10
FEB 08...	4370	5.94	1330	1.30	1.30	7.00	0.10	7.1	8.4	3.20
MAR 09...	1160	1.58	1340	1.50	<0.100	2.30	2.7	5.0	6.5	1.50
APR 03...	3890	5.29	--	1.20	1.20	4.50	0.10	4.6	5.8	2.40
MAY 02...	4090	5.57	119	1.40	1.50	4.60	0.10	4.7	6.1	3.00
JUN 23...	4060	5.52	1210	1.50	1.50	4.70	1.2	5.9	7.4	0.020
JUN 28...	2160	2.94	868	2.90	2.20	1.20	0.70	1.9	4.8	1.40
AUG 23...	1400	1.91	758	--	2.50	0.970	2.5	3.5	--	1.90
SEP 05...	327	0.44	795	1.50	1.70	0.640	4.6	5.2	6.7	0.420

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 08...	--	100	<1	3	7	480	<5
FEB 08...	4	200	2	9	7	470	5
MAY 02...	6	200	<1	3	5	660	<1
AUG 23...	7	300	1	23	20	24000	13

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 08...	440	<0.10	--	1	20	10
FEB 08...	820	<0.10	2	1	20	10
MAY 02...	440	<0.10	2	<1	30	13
AUG 23...	980	<0.10	1	1	100	20

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, 29, Dec. 8 to Jan 26, Feb. 2 to Mar. 9, and Mar. 18, 21. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--19 years, 39.1 ft³/s, 28,330 acre-ft/yr; median of yearly mean discharges, 31 ft³/s, 22,500 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 25	0755	1450	9.26	Sept. 9	0805	*4380	*15.59

Minimum daily discharge, 3.0 ft³/s Aug. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.5	10	11	8.8	12	15	12	9.5	27	6.0	5.8
2	10	9.4	10	11	8.2	11	15	12	9.7	11	5.9	5.3
3	9.6	9.6	10	12	8.0	10	15	12	80	9.8	5.9	6.3
4	9.3	10	9.5	12	9.0	11	14	13	15	9.1	6.2	77
5	9.3	9.4	9.9	15	10	13	11	12	9.4	8.9	5.8	25
6	9.3	9.1	10	15	11	14	11	11	8.5	8.2	4.0	6.9
7	9.5	9.4	10	14	12	15	12	11	12	8.3	3.0	12
8	9.6	9.1	9.0	9.4	12	60	12	11	163	7.3	3.1	812
9	9.7	9.4	8.8	9.2	12	240	11	10	13	5.8	3.2	2500
10	9.5	9.6	8.3	11	13	128	11	10	12	5.4	3.2	145
11	9.0	9.5	7.6	11	13	54	11	10	13	5.2	4.1	42
12	9.1	12	12	11	13	33	11	10	11	5.9	4.1	27
13	9.5	11	10	12	12	24	11	11	8.9	6.1	4.8	24
14	9.7	10	9.0	12	12	20	11	11	8.0	5.7	4.7	16
15	9.6	11	8.0	11	12	14	11	11	8.5	9.0	5.8	12
16	9.3	14	8.0	11	12	16	11	11	8.4	9.5	6.4	10
17	9.3	12	9.0	11	11	17	11	11	8.2	8.9	5.9	9.7
18	9.0	12	9.7	12	11	17	11	14	9.4	21	3.9	9.2
19	9.1	12	10	12	11	18	12	38	8.6	12	12	8.7
20	9.8	11	13	11	11	19	12	12	8.0	8.2	11	8.7
21	9.9	10	11	12	11	15	12	10	7.4	7.3	7.2	7.9
22	9.6	11	10	12	10	18	11	11	12	7.9	9.9	7.6
23	8.9	11	11	12	9.0	18	13	10	12	8.0	9.4	7.0
24	8.7	11	10	11	9.0	18	12	10	73	7.9	6.0	7.8
25	9.3	11	8.7	11	12	17	11	9.4	677	7.8	6.9	8.0
26	9.2	11	9.4	12	35	19	10	8.4	56	16	7.8	8.0
27	9.0	11	8.4	12	30	20	31	9.0	19	5.8	7.1	8.3
28	8.8	10	8.0	17	17	19	72	9.7	13	5.8	10	8.3
29	9.1	10	8.4	36	---	18	14	11	10	5.5	8.2	8.8
30	9.2	10	10	19	---	17	12	11	22	6.6	6.8	8.8
31	9.2	---	10	15	---	16	---	9.7	---	6.3	6.4	---
TOTAL	291.1	315.0	296.7	402.6	355.0	941	437	362.2	1325.5	277.2	194.7	3843.1
MEAN	9.39	10.5	9.57	13.0	12.7	30.4	14.6	11.7	44.2	8.94	6.28	128
MAX	11	14	13	36	35	240	72	38	677	27	12	2500
MIN	8.7	9.1	7.6	9.2	8.0	10	10	8.4	7.4	5.2	3.0	5.3
AC-FT	577	625	589	799	704	1870	867	718	2630	550	386	7620

CAL YR 1988 TOTAL 6324.3 MEAN 17.3 MAX 590 MIN 4.3 AC-FT 12540
WTR YR 1989 TOTAL 9041.1 MEAN 24.8 MAX 2500 MIN 3.0 AC-FT 17930

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.

WATER-DISCHARGE RECORDS

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. 1-18, Dec. 27 to Jan. 3, Jan. 8-14, 26, Feb. 1-17, 23, 24, and Mar. 5-7. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--37 years (water years 1953-89), 341 ft³/s, 247,100 acre-ft/yr; median of yearly mean discharges, 290 ft³/s, 210,000 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)
June 25	0841	9320	13.05	Sept. 9	0030	*34300	*24.68
Sept. 4	1545	4750	9.15				

Minimum daily discharge, 79 ft³/s Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	119	127	110	156	213	130	106	106	196	100	114
2	156	119	124	112	140	197	125	108	104	131	96	107
3	139	121	123	115	130	190	125	111	209	149	95	283
4	134	122	121	119	120	189	125	137	173	119	94	2870
5	132	120	120	128	125	180	122	125	139	108	92	1340
6	130	121	123	147	130	250	126	120	120	103	87	354
7	130	118	123	137	140	375	125	116	113	98	85	260
8	130	117	122	125	145	380	122	115	759	93	84	8950
9	140	117	118	115	150	657	121	114	214	84	80	22300
10	140	119	119	105	155	607	121	113	173	83	80	2560
11	138	119	100	110	170	389	119	110	164	87	81	944
12	134	175	110	115	180	279	117	111	135	174	81	799
13	132	141	120	120	195	233	117	112	127	132	79	653
14	129	125	120	118	200	211	117	111	123	97	81	513
15	123	126	120	123	190	196	112	109	121	279	84	407
16	115	199	115	122	175	181	111	114	116	138	86	365
17	112	159	118	123	150	172	112	113	112	147	86	335
18	111	139	120	123	165	171	117	123	133	246	88	312
19	110	134	124	125	166	184	118	179	111	136	128	288
20	117	130	173	124	173	178	113	143	106	117	130	270
21	119	126	145	122	172	171	111	121	104	109	103	260
22	115	123	137	123	170	168	106	123	224	103	1010	253
23	114	123	138	123	160	166	104	115	164	98	291	229
24	112	122	129	122	150	162	103	109	288	105	168	203
25	115	119	121	122	180	154	103	111	5320	103	156	192
26	115	140	120	118	261	150	104	107	951	142	149	187
27	116	138	120	121	252	143	106	106	303	107	129	179
28	116	122	115	186	237	143	208	103	191	104	273	171
29	119	131	110	302	---	135	113	107	158	97	181	168
30	119	132	110	202	---	156	103	104	151	100	149	167
31	117	---	110	170	---	134	---	105	---	110	123	---
TOTAL	3915	3916	3795	4127	4737	7114	3556	3601	11212	3895	4549	46033
MEAN	126	131	122	133	169	229	119	116	374	126	147	1534
MAX	186	199	173	302	261	657	208	179	5320	279	1010	22300
MIN	110	117	100	105	120	134	103	103	104	83	79	107
AC-FT	7770	7770	7530	8190	9400	14110	7050	7140	22240	7730	9020	91310

CAL YR 1988 TOTAL 70295 MEAN 192 MAX 2120 MIN 92 AC-FT 139400
WTR YR 1989 TOTAL 100450 MEAN 275 MAX 22300 MIN 79 AC-FT 199200

PLATTE RIVER BASIN

06803555 SALT CREEK AT GREENWOOD, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to October 1984.

WATER TEMPERATURES: October 1980 to October 1984.

SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976.

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, 9,100 microsiemens Sep. 22, 1981; minimum daily, 170 microsiemens June 13, 1984.

WATER TEMPERATURES: Maximum, 36.0°C June 25, 1981; minimum, 0.0°C on many days during winter period.

SEDIMENT CONCENTRATIONS: Maximum daily, 15,900 mg/L May 18, 1974; minimum daily, 5 mg/L Oct. 9, 1971.

SEDIMENT LOADS: Maximum daily, 492,000 tons Oct. 11, 1973; minimum daily, 1.0 ton Oct. 9, 1971.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT									
12...	1015	137	5070	8.16	9.0	8.0	75	K14000	K1800
NOV									
07...	1245	119	5730	7.70	6.5	9.3	38	K25000	1200
DEC									
05...	1300	121	4900	7.97	5.5	12.5	56	K17000	K1500
JAN									
04...	1315	121	5520	7.95	2.5	12.5	20	9100	1700
FEB									
08...	1230	148	5960	7.65	0.0	7.2	36	12000	3900
MAR									
09...	1200	715	1350	7.78	3.0	11.0	120	K23000	K72000
APR									
04...	1045	129	5460	8.08	10.0	9.2	27	K300	K140
MAY									
02...	1400	109	5880	8.06	13.0	9.2	38	730	1100
23...	1230	117	5260	7.97	26.0	6.5	40	220	120
JUL									
03...	1300	159	3870	8.44	28.0	10.5	40	8700	K520
AUG									
23...	0945	300	1310	7.39	23.0	3.8	140	41000	55000
SEP									
26...	1330	200	4280	7.93	14.0	8.5	20	130	260

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT									
12...	330	88	27	1200	30	310	1600	3220	4.39
NOV									
07...	380	94	36	1300	30	310	1500	3240	4.41
DEC									
05...	370	92	34	1200	28	290	1600	3220	4.37
JAN									
04...	360	96	28	1200	29	310	1600	3230	4.40
FEB									
08...	360	96	28	1200	29	290	1600	3210	4.37
MAR									
09...	120	35	8.8	230	9	50	390	715	0.97
APR									
04...	330	88	26	1100	27	270	1500	2980	4.06
MAY									
02...	320	86	26	1000	25	260	1600	2970	4.04
23...	330	88	26	1000	25	260	2000	3370	4.59
JUL									
03...	280	77	22	740	20	210	1200	2250	3.06
AUG									
23...	130	36	8.8	230	9	75	340	690	0.94
SEP									
26...	160	23	26	900	31	230	1500	2680	3.64

PLATTE RIVER BASIN

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06803555 SALT CREEK AT GREENWOOD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)		
	OCT 12...	1190	25	2.40	1.10	1.0	2.1	4.5	3.00		
	NOV 07...	1040	<4	2.10	2.30	0.90	3.2	5.3	3.20		
	DEC 05...	1050	17	1.60	3.10	1.8	4.9	6.5	3.20		
	JAN 04...	1060	<4	3.30	2.60	0.30	2.9	6.2	1.80		
	FEB 08...	1280	12	1.80	2.30	1.7	4.0	5.8	2.20		
	MAR 09...	1380	666	1.50	1.50	2.9	4.4	5.9	1.70		
	APR 04...	1040	13	2.00	1.60	0.60	2.2	4.2	2.00		
	MAY 02...	875	63	2.00	2.60	0.60	3.2	5.2	2.50		
	JUL 23...	1070	93	1.90	2.30	1.3	3.6	5.5	2.70		
	AUG 03...	965	112	2.40	0.130	1.5	1.6	4.0	1.40		
	SEP 23...	559	1360	1.40	2.00	3.9	5.9	7.3	2.30		
	SEP 26...	1450	28	1.80	0.570	0.63	1.2	3.0	1.80		
DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	SELE- NIUM, TOTAL RECOV- ERABLE (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 07...	1245	76	<15	10	<10	30	<1.0	27	<1	<30	8.4
FEB 08...	1230	31	<15	20	10	<20	<0.10	41	<1	<30	10
MAY 02...	1400	8	<15	<10	<10	<20	<0.50	26	<1	50	8.0
AUG 23...	0945	19	<15	50	47	40	<0.50	<3	<1	170	13

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: Nov. 28, Dec. 9 to Jan. 4, Jan. 7-27, Feb. 1-25, Feb. 28 to Mar. 7, and Mar. 16-22. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years, 87.1 ft³/s, 63,100 acre-ft/yr; median of yearly mean discharges, 75.6 ft³/s, 54,800 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)
Sept. 4	2200	2010	15.16	Sept. 9	1000	*3710	*19.19

Minimum daily discharge, 19 ft³/s Aug. 11, 14, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	35	39	31	20	37	41	32	31	34	22	21
2	39	35	38	32	25	35	41	33	34	38	23	21
3	38	36	38	33	28	34	42	33	189	32	23	22
4	36	36	40	31	32	34	40	34	49	31	22	825
5	36	35	38	38	33	33	39	35	33	30	21	643
6	35	35	38	45	34	38	39	34	30	29	20	88
7	35	35	38	39	35	45	40	33	35	28	21	62
8	34	36	37	38	35	200	40	32	167	27	20	650
9	35	35	31	36	35	287	39	32	35	26	20	2570
10	34	35	32	35	34	226	38	31	32	25	20	161
11	33	35	32	33	34	100	38	31	33	25	19	74
12	33	39	33	32	34	64	38	31	34	25	20	60
13	33	41	30	32	33	52	38	33	32	24	20	56
14	34	38	28	31	33	49	37	33	30	23	19	49
15	34	38	25	30	33	44	37	34	30	33	20	44
16	33	45	28	30	32	43	38	32	30	32	20	36
17	33	42	34	30	31	37	36	31	30	28	20	34
18	32	42	35	29	30	36	36	34	31	69	19	33
19	32	40	34	29	29	38	37	48	31	69	63	32
20	33	39	33	29	28	39	36	36	29	30	41	31
21	34	38	34	29	27	38	35	32	29	28	26	30
22	34	37	35	30	26	41	34	32	33	26	27	29
23	34	39	36	30	24	44	34	31	32	25	23	28
24	33	39	33	30	25	44	34	31	36	25	22	28
25	33	40	31	31	27	43	33	30	410	26	22	28
26	35	41	30	30	176	44	33	29	117	28	23	28
27	34	42	28	28	86	45	34	29	44	25	24	27
28	33	33	29	41	42	44	37	29	36	24	26	27
29	34	39	30	61	---	44	33	33	34	24	29	27
30	34	40	30	68	---	42	32	34	35	23	24	27
31	34	---	31	54	---	41	---	31	---	23	22	---
TOTAL	1068	1140	1028	1095	1061	1941	1109	1013	1751	935	741	5791
MEAN	34.5	38.0	33.2	35.3	37.9	62.6	37.0	32.7	58.4	30.2	23.9	193
MAX	44	45	40	68	176	287	42	48	410	69	63	2570
MIN	32	33	25	28	20	33	32	29	29	23	19	21
AC-FT	2120	2260	2040	2170	2100	3850	2200	2010	3470	1850	1470	11490

CAL YR 1988 TOTAL 21223 MEAN 58.0 MAX 1270 MIN 23 AC-FT 42100
WTR YR 1989 TOTAL 18673 MEAN 51.2 MAX 2570 MIN 19 AC-FT 37040

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8000	3850	5490	2330	10200	10400	6010	3430	2250	10300	1970	2960
2	7900	3980	5450	2430	8160	10200	5540	3060	2430	9100	1880	2400
3	6750	3910	4740	2470	2020	9600	5170	3250	2560	8860	1390	2950
4	5250	3800	5390	3070	4520	9200	6500	3310	3130	8480	1370	5860
5	6700	4050	5150	4330	5000	9000	5240	3180	2830	7590	1330	19600
6	5130	4090	5250	5480	6580	8800	5080	3280	2800	6110	1220	16200
7	4900	4330	5130	5830	5960	8600	5240	3050	3100	5980	1180	15100
8	5080	4790	5330	4870	6070	9000	5140	3240	3740	5280	1140	17700
9	5240	4100	5530	3040	6000	10400	4480	2850	3080	4630	857	39200
10	5100	3570	4020	3630	5200	13000	4100	2980	2730	3730	1290	22500
11	4880	3820	5130	4380	5600	16000	4490	2680	2730	3030	871	10600
12	4770	4150	4620	3230	5800	26000	4420	2520	3080	2650	991	8890
13	5010	4250	4900	2900	6600	28600	4440	2400	2670	2490	910	7220
14	4750	4120	4920	2900	7200	18800	4150	2290	2570	1890	847	6150
15	4780	4470	6000	3210	7400	13200	4220	2210	2570	1580	928	5970
16	4930	4810	6650	3880	7600	10500	4340	2090	2370	1960	866	5600
17	5180	4830	5690	4840	7800	9260	3990	2140	2340	3050	941	5730
18	4310	4330	4880	5180	7600	9250	4920	2730	2270	7210	841	5440
19	4900	4780	5220	5390	7400	7450	4140	2770	2210	5840	1010	5070
20	4750	4990	5740	6460	7800	8480	3510	3110	2090	5540	1250	4570
21	4530	4990	7200	6310	7400	7150	4280	2860	2010	4550	1250	4720
22	4730	4580	7270	6390	7000	7110	4210	3320	2390	4270	1960	4550
23	4410	4980	7700	7050	6800	6640	3880	3020	2070	3640	2170	3890
24	4190	4690	6230	7430	6400	6610	3890	2780	1920	3270	1840	3900
25	4210	4670	5420	7770	7800	5900	3270	2890	9100	3410	2040	3870
26	4020	5270	4350	7090	8600	6100	3520	2500	6010	2510	2000	3790
27	4160	4060	4080	6170	9400	5850	3630	2380	5350	2450	1860	3780
28	3990	5260	4210	6410	10000	6130	3820	2400	6250	2120	2030	3710
29	4040	4610	3110	8050	---	7790	3860	2410	10400	1880	1820	3790
30	3780	4250	1990	7930	---	6230	3550	2660	11300	1830	1950	3560
31	4080	---	2180	9470	---	6040	---	2470	---	1550	2210	---
TOTAL	154450	132380	158970	159920	193910	317290	133030	86260	110350	136780	44212	249270
MEAN	4982	4413	5128	5159	6925	10240	4434	2783	3678	4412	1426	8309
MAX	8000	5270	7700	9470	10200	28600	6500	3430	1			

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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
07...	1115	4830	420	8.31	12.0	755	--	11.1	29	1900
25...	1205	4290	539	8.52	8.5	724	24	12.3	--	K140
25...	1210	--	--	--	--	--	--	--	29	--
DEC										
06...	1100	5130	627	8.30	3.0	736	--	13.6	20	240
JAN										
24...	1330	7500	464	7.42	1.0	746	--	12.6	26	K110
FEB										
24...	1300	6050	718	8.16	0.0	741	10	11.8	--	240
24...	1305	--	--	--	--	--	--	--	9	--
MAR										
22...	1600	7350	681	8.36	4.0	735	--	13.1	29	230
APR										
19...	1400	3910	583	8.71	15.0	748	--	11.2	31	K150
MAY										
16...	1255	1940	881	8.77	21.5	737	21	12.1	--	K42
16...	1300	--	--	--	--	--	--	--	25	--
JUN										
13...	1400	3000	686	8.86	23.0	734	--	9.5	46	230
JUL										
03...	1415	6520	584	8.73	28.0	737	--	8.5	40	3500
AUG										
29...	1100	2150	--	--	25.5	736	66	9.5	--	2500
29...	1105	--	--	--	--	--	--	--	38	--
SEP										
26...	1100	3000	762	8.82	12.0	745	--	11.5	24	200

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

PLATTE RIVER BASIN

06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCCEI FECAL KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARE WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WH TOT IT FIELD MG/L AS CACO3 (00419)
OCT									
07...	530	160	--	48	10	35	1	--	--
25...	100	180	17	51	13	57	2	8.5	163
25...	--	180	--	51	12	56	2	--	--
DEC									
06...	140	180	--	54	12	73	2	--	--
JAN									
24...	2000	180	--	52	11	28	1	--	--
FEB									
24...	160	220	45	62	16	76	2	8.4	--
24...	--	200	--	59	13	72	2	--	--
MAR									
22...	1000	200	--	59	13	58	2	--	--
APR									
19...	88	170	--	50	11	46	2	--	--
MAY									
16...	K100	190	11	53	14	99	3	9.4	182
16...	--	190	--	56	13	94	3	--	--
JUN									
13...	380	170	--	50	10	77	3	--	--
JUL									
03...	650	160	--	46	11	57	2	--	--
AUG									
29...	960	140	30	41	9.6	76	3	9.3	111
29...	--	140	--	42	9.3	74	3	--	--
SEP									
26...	230	190	--	51	14	78	3	--	--

DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
OCT									
07...	64	23	--	--	--	180	0.24	2350	160
25...	70	51	0.30	35	393	389	0.53	4550	--
25...	76	56	--	--	--	251	0.34	--	86
DEC									
06...	73	67	--	--	--	279	0.38	3860	67
JAN									
24...	68	12	--	--	--	171	0.23	3460	127
FEB									
24...	120	67	0.40	40	502	503	0.68	8200	--
24...	87	68	--	--	--	299	0.41	--	33
MAR									
22...	70	55	--	--	--	255	0.35	5060	160
APR									
19...	52	41	--	--	--	200	0.27	2110	81
MAY									
16...	80	120	0.40	27	506	512	0.69	2650	--
16...	63	130	--	--	--	356	0.48	--	80
JUN									
13...	48	81	--	--	--	266	0.36	2150	120
JUL									
03...	96	48	--	--	--	258	0.35	4540	210
AUG									
29...	54	76	0.40	28	399	363	0.54	2200	--
29...	53	87	--	--	--	265	0.36	--	199
SEP									
26...	86	110	--	--	--	339	0.46	2750	68

PLATTE RIVER BASIN

06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

PLATTE RIVER BASIN

06805500 PLATTE RIVER AT LOUISVILLE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	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, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 07...	--	--	--	--	--	--	--	--	--	6.0
25...	<1	--	1	--	<1.0	370	<6	--	14	--
25...	--	15	--	<1	--	--	--	<30	--	3.2
DEC 06...	--	--	--	--	--	--	--	--	--	3.4
JAN 24...	--	--	--	--	--	--	--	--	--	4.5
FEB 24...	<1	--	2	--	3.0	470	<6	--	13	--
24...	--	11	--	1	--	--	--	20	--	2.8
MAR 22...	--	--	--	--	--	--	--	--	--	5.0
APR 19...	--	--	--	--	--	--	--	--	--	8.1
MAY 16...	10	--	2	--	<1.0	400	11	--	5	--
16...	--	--	--	--	--	--	--	--	--	6.2
JUN 13...	--	--	--	--	--	--	--	--	--	7.4
JUL 03...	--	--	--	--	--	--	--	--	--	6.4
AUG 29...	2	--	1	--	<1.0	310	10	--	9	--
29...	--	<3	--	<1	--	--	--	40	--	6.5
SEP 26...	--	--	--	--	--	--	--	--	--	6.1

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)
OCT 07...	1115	4830	12.0	--	--	--
25...	1205	4290	8.5	194	2250	48
25...	1210	--	--	--	--	--
DEC 06...	1100	5130	3.0	--	--	--
JAN 24...	1330	7500	1.0	--	--	--
FEB 24...	1300	6050	0.0	45	735	96
24...	1305	--	--	--	--	--
MAR 22...	1600	7350	4.0	--	--	--
APR 19...	1400	3910	15.0	--	--	--
MAY 16...	1255	1940	21.5	102	534	78
16...	1300	--	--	--	--	--
JUN 13...	1400	3000	23.0	--	--	--
JUL 03...	1415	6520	28.0	--	--	--
AUG 29...	1100	2150	25.5	243	1410	78
29...	1105	--	--	--	--	--
SEP 26...	1100	3000	12.0	--	--	--

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: Dec. 9-21, Dec. 24 to Jan. 3, Jan. 8-15, 21-27, Feb. 1 to Mar. 1, Mar. 4-9, 19, 20, 23, 24, and Sept. 10. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--39 years, 97.2 ft³/s, 70,420 acre-ft/yr; median of yearly mean discharges, 73 ft³/s, 52,200 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)
Apr. 28	0015	6840	22.05	Sept. 9	unknown	*10900	*a27.20
June 25	1048	7810	23.00				

a From floodmark.

Minimum daily discharge, 3.0 ft³/s Aug. 11, 14.

 DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	16	20	17	23	31	22	41	8.4	88	7.0	6.1
2	14	18	20	17	16	31	21	38	7.8	46	7.5	5.1
3	11	24	18	18	13	32	21	36	70	17	5.5	5.7
4	10	18	19	19	14	31	20	36	61	11	4.8	349
5	10	17	19	21	15	30	19	36	21	9.4	3.6	80
6	11	16	19	23	18	29	19	34	11	7.5	3.7	13
7	11	16	19	24	20	28	19	30	8.5	6.9	3.8	6.2
8	12	15	18	15	22	50	19	28	29	6.5	3.7	3750
9	11	16	17	16	23	165	18	25	35	5.7	3.5	8080
10	12	19	17	16	25	208	17	22	17	4.6	3.2	1060
11	11	17	16	17	24	84	17	20	12	4.2	3.0	114
12	11	18	17	17	23	52	17	18	11	4.9	3.1	83
13	11	20	17	16	23	40	17	17	10	4.7	3.1	68
14	12	19	16	15	21	34	17	15	10	4.8	3.0	57
15	12	19	14	16	22	31	17	14	8.5	81	3.1	49
16	11	26	15	19	22	30	17	13	7.6	36	3.3	42
17	11	27	15	19	23	28	17	13	6.4	13	3.4	37
18	12	22	16	20	24	27	17	14	7.9	359	3.1	34
19	11	20	16	20	24	25	17	15	7.5	71	4.6	30
20	13	20	17	19	25	25	17	14	5.5	16	4.5	26
21	14	19	17	19	25	25	17	13	5.4	9.9	3.9	24
22	15	18	24	19	23	25	18	13	36	8.1	4.2	22
23	16	19	21	19	21	25	16	13	26	7.2	4.5	19
24	18	19	17	20	24	26	16	12	59	6.8	3.9	19
25	15	18	17	20	29	27	16	10	4360	6.7	4.3	19
26	13	20	17	20	34	26	15	8.9	335	6.6	6.1	19
27	13	20	17	21	37	26	462	8.6	75	6.0	9.3	19
28	13	19	16	29	33	25	1340	8.8	31	5.1	16	19
29	13	20	16	59	---	24	62	8.4	20	5.1	13	18
30	14	21	16	43	---	23	45	8.8	15	6.4	9.7	18
31	16	---	17	31	---	22	---	8.6	---	5.7	7.3	---
TOTAL	395	576	540	664	646	1285	2372	592.1	5317.5	870.8	162.7	14091.1
MEAN	12.7	19.2	17.4	21.4	23.1	41.5	79.1	19.1	177	28.1	5.25	470
MAX	18	27	24	59	37	208	1340	41	4360	359	16	8080
MIN	10	15	14	15	13	22	15	8.4	5.4	4.2	3.0	5.1
AC-FT	783	1140	1070	1320	1280	2550	4700	1170	10550	1730	323	27950

CAL YR 1988 TOTAL 14017.7 MEAN 38.3 MAX 617 MIN 6.9 AC-FT 27800
WTR YR 1989 TOTAL 27512.2 MEAN 75.4 MAX 8080 MIN 3.0 AC-FT 54570

06807000 MISSOURI RIVER AT NEBRASKA CITY. NE

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.

WATER-DISCHARGE RECORDS

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.

REVISED 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: Feb. 21, 22, July 14-16, and Sept. 10, 11. 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.--60 years, 37,000 ft³/s, 26,810,000 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, 87,300 ft³/s Sept. 9, gage height, 18.00 ft; minimum daily discharge, 8,010 ft³/s Feb. 6, gage height, 0.92 ft, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40900	36500	19300	15700	25600	23200	35000	36500	34700	38600	36600	32600
2	38700	36800	20600	17100	25100	22400	34800	36400	34100	37300	35800	32700
3	37700	36900	20400	18100	18400	22500	34300	36000	35600	38400	35400	32600
4	37700	37700	19700	17700	13600	22400	34600	36000	35200	38400	35000	37700
5	36200	38000	20300	17400	9460	20200	35400	36000	34600	37200	35000	44500
6	37300	38000	20200	19600	8010	18300	35100	36000	34400	35600	34700	44100
7	36400	37900	20200	22800	13400	18700	35200	36100	34300	35600	34600	42500
8	37000	38200	19900	23200	22000	20800	35100	35800	35100	34800	34700	50400
9	36800	38400	20100	19400	20900	23800	35100	35400	36100	33100	34500	81600
10	37400	36500	19700	15500	21800	29000	35000	34400	35500	34000	34400	61000
11	37000	34800	17900	13400	22000	35700	35300	34100	35300	33900	34400	44000
12	36900	33900	17600	14000	22500	43200	35400	34000	35200	32000	34100	38800
13	37100	33100	17000	17400	23500	44400	35700	34300	35300	33100	34300	36000
14	37500	31000	16500	19400	23600	39400	36300	34400	35400	34500	34400	34700
15	37400	28600	17600	19600	23300	34000	35900	34800	34800	34500	34600	34800
16	38200	27200	19400	19300	22800	30900	35700	34700	33900	34600	35000	34600
17	38900	25100	19400	19400	22500	27600	35500	34800	34100	31800	34700	34200
18	38700	22800	18100	20300	22700	25300	35000	35100	34500	38300	34400	34300
19	38800	21000	17300	20600	22900	22600	35500	35500	34000	40000	34400	33900
20	39000	20600	18500	20800	22900	20500	34300	35900	34500	41200	34800	33600
21	39000	20500	20300	21600	21500	20700	34700	36100	34100	39800	34700	33300
22	38400	20100	21900	21600	20000	20300	34800	35600	34900	38000	35300	33700
23	38300	19500	21900	21100	20800	20500	35200	35900	35200	36700	35900	33300
24	37700	19700	22200	21500	22100	20500	35300	36200	34900	36600	35700	32600
25	37600	19300	20900	22400	21700	20700	35100	36900	42700	35500	34600	32800
26	37300	19400	20000	22600	21400	20500	35600	37900	42000	34400	34300	33100
27	37600	20200	18600	21900	22500	21700	36200	36700	37200	34600	34400	32800
28	37000	20000	18100	21000	23800	24400	39500	36600	37200	34900	34800	32900
29	36800	20600	18100	21900	---	28300	36800	36400	36200	33600	34100	32900
30	36500	19300	16800	23200	---	32500	36700	38800	39400	36400	33100	33400
31	36400	---	15300	23800	---	33700	---	38200	---	39300	33000	

LITTLE NEMAHA RIVER BASIN

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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.

WATER-DISCHARGE RECORDS

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. 28 to Dec. 1, Dec. 10 to Jan. 19, and Feb. 1 to Mar. 9. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--40 years, 296 ft³/s, 214,500 acre-ft/yr; median of yearly mean discharges, 206 ft³/s, 149,000 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)
Aug. 29	1055	6240	14.02	Sept. 9	1054	*26600	*24.12
Sept. 4	1524	13600	19.41				

Minimum daily discharge, 4.6 ft³/s Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	52	61	74	70	100	73	96	27	74	13	118
2	60	52	60	70	62	98	68	85	26	76	9.8	80
3	52	54	59	74	58	86	64	77	106	58	8.2	87
4	47	58	57	78	56	94	62	78	129	49	7.9	7190
5	44	56	56	78	64	90	59	75	61	42	7.4	2130
6	45	55	58	80	70	82	59	70	42	36	6.9	480
7	46	56	58	78	76	80	61	59	34	30	7.2	250
8	48	55	55	74	80	80	63	54	52	24	8.0	6180
9	48	55	54	70	70	100	58	48	56	21	7.3	20100
10	47	56	50	70	70	365	58	46	46	17	6.5	2720
11	44	56	47	74	76	270	57	45	40	15	5.7	1090
12	43	64	58	76	84	189	56	44	34	17	5.4	616
13	43	63	70	74	90	150	55	43	31	18	4.6	388
14	43	63	62	72	88	124	54	41	30	42	4.9	274
15	42	92	58	70	78	105	54	40	30	42	6.6	206
16	40	157	54	70	70	102	54	38	27	53	8.0	165
17	40	93	52	72	78	94	53	38	27	54	8.0	141
18	38	73	66	76	90	83	55	42	30	44	7.3	122
19	40	67	76	80	92	84	56	42	27	40	9.4	107
20	46	64	72	76	92	89	53	37	24	43	8.9	98
21	48	62	68	73	92	82	49	38	23	35	8.5	90
22	47	62	66	76	90	80	46	38	151	28	95	82
23	50	60	64	76	76	83	43	35	76	27	514	73
24	46	61	60	73	78	80	43	33	467	24	94	70
25	45	60	52	73	82	75	42	31	1700	20	48	68
26	46	61	56	70	92	75	40	29	976	19	31	67
27	48	61	60	67	110	74	41	29	245	16	31	65
28	45	58	58	115	100	71	1110	29	128	13	3080	63
29	47	54	62	163	---	76	291	30	85	11	4180	62
30	48	60	68	146	---	103	132	28	65	12	630	60
31	50	---	72	110	---	90	---	26	---	13	238	---
TOTAL	1455	1940	1869	2528	2234	3354	3009	1444	4795	1013	9100.5	43242
MEAN	46.9	64.7	60.3	81.5	79.8	108	100	46.6	160	32.7	294	1441
MAX	79	157	76	163	110	365	1110	96	1700	76	4180	20100
MIN	38	52	47	67	56	71	40	26	23	11	4.6	60
AC-FT	2890	3850	3710	5010	4430	6650	5970	2860	9510	2010	18050	85770

CAL YR 1988 TOTAL 39185 MEAN 107 MAX 1860 MIN 24 AC-FT 77720
WTR YR 1989 TOTAL 75983.5 MEAN 208 MAX 20100 MIN 4.6 AC-FT 150700

LITTLE NEMAHA RIVER BASIN
06811500 LITTLE NEMAHA RIVER AT AUBURN, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 13...	1120	41	618	8.37	11.5	10.9	15	1000	1000
NOV 07...	1600	54	643	8.43	9.5	12.5	10	1700	1600
DEC 07...	0900	59	604	8.21	0.5	14.6	<8	K400	3000
JAN 05...	1200	78	592	8.20	0.5	13.4	<8	11000	8400
FEB 01...	0945	69	530	7.93	0.0	13.3	36	K300	6300
MAR 29...	0930	67	551	8.49	12.0	10.1	11	K73	110
APR 24...	1045	48	622	8.53	21.0	10.0	21	9200	4400
MAY 17...	1400	39	611	8.59	18.5	10.7	15	K11000	5200
JUN 22...	1445	360	197	7.59	18.0	4.8	330	K37000	K71000
JUL 12...	1040	12	661	8.71	25.0	10.2	16	1300	300
AUG 16...	1430	6.5	--	8.69	30.5	14.4	14	E26000	1500
SEP 20...	1330	133	540	8.24	19.0	8.4	24	2500	1800

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 13...	250	72	17	39	1	63	16	207	0.28
NOV 07...	270	78	18	38	1	59	15	208	0.28
DEC 07...	270	81	17	36	1	61	14	209	0.28
JAN 05...	240	72	15	35	1	56	15	193	0.26
FEB 01...	230	69	15	30	0.9	52	15	181	0.25
MAR 29...	220	64	14	36	1	30	19	163	0.22
APR 24...	220	62	16	42	1	41	19	180	0.24
MAY 17...	240	70	15	37	1	46	18	186	0.25
JUN 22...	75	22	4.8	8.5	0.4	16	3.8	55	0.07
JUL 12...	260	76	17	43	1	66	19	221	0.30
AUG 16...	240	69	17	50	1	76	32	244	0.33
SEP 20...	240	70	15	24	0.7	57	15	181	0.25

LITTLE NEMAHA RIVER BASIN

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06811500 LITTLE NEMAHA RIVER AT AUBURN, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 13...	22.9	20	0.750	0.230	0.73	0.96	1.7	0.350	2.8
NOV 07...	30.3	20	0.440	<0.020	--	0.71	1.2	0.470	4.4
DEC 07...	33.3	19	1.50	0.380	0.34	0.72	2.2	0.220	6.9
JAN 05...	40.6	36	2.10	0.380	0.82	1.2	3.3	0.350	3.1
FEB 01...	33.7	100	1.80	0.090	0.60	0.69	2.5	0.290	6.6
MAR 29...	29.5	14	0.270	<0.020	--	<0.50	--	0.190	4.3
APR 24...	23.3	32	0.080	0.210	1.3	1.5	1.6	0.360	4.0
MAY 17...	19.6	47	<0.020	0.150	0.95	1.1	--	0.330	5.4
JUN 22...	53.6	--	1.30	2.30	11	13	14	3.30	12
JUL 12...	7.16	27	0.070	0.180	0.92	1.1	1.2	0.180	4.4
AUG 16...	4.28	27	0.070	0.440	--	<0.50	--	0.390	4.8
SEP 20...	65.0	61	1.10	0.110	0.75	0.86	2.0	0.430	6.1

MISSOURI RIVER MAIN STEM

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.--Estimated daily discharges: Aug. 5 - 7. 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 satellite data collection platform at station.

AVERAGE DISCHARGE.--40 years, 41,430 ft³/s, 30,020,000 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, 118,000 ft³/s Sept. 9, gage height, 20.94 ft; minimum daily discharge, 8,190 ft³/s Feb. 7; minimum gage height 0.78 ft Feb. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47800	37500	19700	15300	26100	24200	38200	37300	37000	43200	41100	34100
2	41900	37000	20400	16000	26800	23300	38500	37100	34600	41300	37200	33500
3	40600	37000	21200	17400	23100	22800	37000	36800	37400	41000	36300	33300
4	39800	37600	20600	18200	15500	22900	35600	36500	37400	42000	36100	41700
5	39100	38200	20400	17700	12100	22000	35900	36200	36400	41200	35400	55200
6	39300	38400	21000	18200	8980	18900	35400	36000	35500	39700	34900	50500
7	39000	38500	20600	21100	8190	17300	35500	36200	35700	38500	35600	47000
8	38800	38600	20500	25600	13600	18500	35900	35900	35600	38500	34800	53800
9	39000	38700	20400	25200	21400	21900	35900	35900	38100	36200	34600	114000
10	38800	38200	21000	20000	21400	31000	36200	35300	38600	35400	34500	106000
11	39100	36100	19900	15300	22300	40200	36000	35200	38100	36100	34600	75500
12	38600	35100	18300	13400	22600	43100	36600	35400	38400	34700	34200	58700
13	38600	34700	18400	14500	23700	47400	36500	35700	38000	33500	34100	49800
14	39400	33400	18000	17600	25000	43800	37100	36000	37600	35300	34300	44400
15	39400	31800	18000	19400	25900	38500	37300	35900	37300	35700	34400	42500
16	39300	30700	19500	19600	25700	35700	37300	36400	36400	36900	34900	41500
17	39800	29200	21000	19500	24700	33100	37200	36200	35600	37100	34900	39800
18	40100	26900	20800	20100	24100	30100	37300	36200	36100	38400	34400	39300
19	39800	24300	19300	21100	24100	28500	37600	36700	35700	43500	34200	38800
20	40500	23000	18800	21300	24100	24800	37300	36800	35500	43300	34500	37900
21	40200	22700	20400	22000	23700	23500	36400	37400	35500	42600	34600	37000
22	40100	22600	22400	22800	22400	23300	36900	37300	35900	39900	35100	36500
23	39900	21800	24000	22700	20900	23200	36800	36900	42700	38400	36400	36400
24	39000	21500	24600	22100	21800	23000	36900	36900	40200	37600	36600	35700
25	38400	21300	24100	22800	22600	22900	37200	37000	45900	37600	35900	35200
26	38400	20700	22300	23700	21600	22900	36500	37800	57000	36200	35300	34900
27	38300	21200	21100	23000	21600	23100	37300	37600	44500	35500	35600	35000
28	38300	21100	19400	21600	23400	24600	39900	37000	43700	36500	42700	34600
29	38000	21300	18900	20900	---	28200	39600	36900	41500	35600	51000	34600
30	37800	21200	18600	22600	---	33200	37600	37600	41100	35400	39000	34600
31	37700	---	16200	24300	---	36400	---	40200	---	40500	35000	---
TOTAL	1224800	900800	629800	625000	597370	872300	1109400	1136300	1163000	1187300	1122700	1391900
MEAN	39510	30030	20320	20160	21330	28140	36980	36650	38770	38300	36220	46400
MAX	47800	38700	24600	25600	26800	47400	39900	40200	57000	43500	51500	114000
MIN	37700	20700	16200	13400	8190	17300	35400	35200	34600	33500	34100	33300
AC-FT	2429000	1787000	1249000	1240000	1185000	1730000	2200000	2254000	2307000	2355000	2227000	2761000
CAL YR 1988	TOTAL	13055600	MEAN	35670	MAX	50700	MIN	16200	AC-FT	25900000		
WTR YR 1989	TOTAL	11960670	MEAN	32770	MAX	114000	MIN	8190	AC-FT	23720000		

MISSOURI RIVER BASIN

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BIG NEMAHA RIVER BASIN

06814000 TURKEY CREEK NEAR SENECA, KS

LOCATION.--Lat 39°56'52", long 96°06'30", in SW1/4 NW1/4 SW1/4 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.--41 years, 128 ft³/s, 94,740 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)
Sep. 9	0600	*13,200	*23.47	No other peak greater than base discharge.			

No flow July 10-15 and Aug. 20-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.80	1.7	1.7	e4.5	e4.6	2.9	1.4	2.1	17	4.2	29
2	.23	.71	1.9	1.7	e3.5	e4.5	2.8	1.9	1.7	6.3	3.3	13
3	.19	.91	2.4	1.7	e3.0	e4.0	1.9	2.6	147	2.0	2.1	10
4	.05	.98	2.3	1.4	e2.5	e3.7	2.6	6.6	74	.75	.21	1630
5	.07	.66	2.2	1.4	e2.8	e3.5	2.8	4.6	24	.38	.11	770
6	.12	.68	2.0	1.4	e3.0	e3.6	4.3	4.6	11	.22	.10	645
7	.13	.92	2.3	1.6	e3.2	e4.5	2.6	3.6	7.0	.18	.06	188
8	.17	1.1	2.5	e1.4	e3.5	7.0	3.1	2.5	5.4	.14	.06	1140
9	.28	1.3	2.5	e1.0	e4.5	9.7	2.0	1.7	4.7	.12	.06	7560
10	.13	1.4	2.1	e1.4	e5.0	14	1.6	1.4	5.7	.00	.06	477
11	.04	1.5	e1.7	e1.8	e4.5	14	1.5	1.2	4.5	e.00	.06	225
12	.07	1.9	e1.7	2.2	e4.0	14	1.9	.96	22	e.00	.06	135
13	.05	1.5	e2.2	2.4	e4.0	11	1.6	.96	11	e.00	.06	105
14	.03	1.5	e2.5	1.6	e4.0	8.0	1.5	.98	4.8	e.00	.06	80
15	.09	2.0	e2.2	1.5	e4.0	6.0	1.4	1.0	2.3	e.00	.07	61
16	.04	1.8	e1.9	1.6	e4.0	5.0	1.6	1.0	3.0	.08	.08	47
17	.01	1.7	e2.1	1.8	e4.0	7.8	1.8	3.2	2.0	.13	.08	38
18	.26	1.5	e2.1	2.0	e4.0	3.9	2.1	1.9	1.9	.09	.06	32
19	.28	1.3	e1.9	2.0	e4.0	3.2	1.6	1.2	1.3	.08	e.02	27
20	.10	1.2	2.7	e1.5	e4.0	3.2	3.9	1.2	1.3	.08	e.00	23
21	.10	1.2	3.9	e2.0	e3.8	3.2	1.7	2.0	1.3	.08	.00	20
22	.04	1.0	2.5	e2.5	e3.5	3.0	1.6	7.6	2.1	.08	.00	17
23	.23	1.2	3.0	e3.0	e3.7	2.8	1.7	4.9	11	.09	.00	14
24	.27	1.0	1.7	3.3	e4.0	2.7	2.2	2.8	191	.08	.00	12
25	.66	1.1	1.7	3.3	e5.0	2.5	1.6	1.5	216	.07	.00	12
26	.44	1.4	1.7	3.0	e4.6	2.6	1.6	1.4	45	.08	.08	12
27	.26	1.2	1.7	e3.5	e4.6	2.5	1.5	1.4	29	.08	169	10
28	.26	1.1	1.7	e4.8	e4.6	2.6	2.0	1.7	6.6	.08	1170	8.6
29	.36	1.4	1.7	e6.8	---	2.4	1.2	1.5	3.5	.08	1180	8.1
30	.39	1.6	1.7	e8.0	---	2.3	1.3	4.2	1.9	.08	250	7.4
31	.56	---	1.7	e6.0	---	2.3	---	1.8	---	.15	73	---
TOTAL	6.31	37.56	65.9	79.3	109.8	164.1	61.9	75.30	844.1	28.50	2852.89	13356.1
MEAN	.20	1.25	2.13	2.56	3.92	5.29	2.06	2.43	28.1	.92	92.0	445
MAX	.66	2.0	3.9	8.0	5.0	14	4.3	7.6	216	.17	1180	7560
MIN	.01	.66	1.7	1.0	2.5	2.3	1.2	.96	1.3	.00	.00	7.4
AC-FT	13	75	131	157	218	325	123	149	1670	57	5660	26490

CAL YR 1988 TOTAL 6052.04 MEAN 16.5 MAX 389 MIN .01 AC-FT 12000
WTR YR 1989 TOTAL 17681.76 MEAN 48.4 MAX 7560 MIN .00 AC-FT 35070

e Estimated

BIG NEMAHA RIVER BASIN

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. 28 to Dec. 4, Dec. 9 to Jan. 22, Feb. 2 to Mar. 9, and Sept. 7. Records fair except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--37 years, 203 ft³/s, 147,100 acre-ft/yr; median of yearly mean discharges, 169 ft³/s, 122,000 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)
Aug. 29	0444	11500	12.26	Sept. 8	unknown	unknown	unknown
Sept. 4	unknown	*32100	*a19.13				

a From floodmark.

Minimum daily discharge, 8.0 ft³/s Aug. 11,12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	27	28	30	35	59	30	31	16	25	23	91
2	25	27	29	29	27	62	30	33	19	92	14	69
3	22	28	28	33	25	70	31	32	529	109	13	162
4	19	30	27	36	27	64	29	48	78	60	11	11700
5	18	30	28	40	30	54	25	39	76	35	11	3460
6	19	29	29	35	32	54	24	34	52	26	12	2260
7	20	29	30	32	34	56	25	31	38	26	11	1500
8	20	30	25	31	37	60	25	30	39	20	11	6290
9	21	30	26	34	33	71	23	27	45	15	10	2880
10	21	29	27	37	40	86	22	23	49	13	9.8	790
11	21	28	25	38	50	125	22	22	51	17	8.0	230
12	21	29	27	36	56	107	25	22	51	20	8.0	162
13	21	33	29	35	64	91	23	23	33	29	8.1	145
14	21	35	30	38	54	73	22	24	24	32	8.8	112
15	21	75	28	39	54	59	24	23	22	24	8.8	99
16	21	44	25	37	54	54	29	23	17	40	9.4	86
17	20	39	26	38	56	50	28	23	13	43	10	73
18	20	36	29	37	58	41	26	27	17	31	10	65
19	20	34	30	34	60	48	26	29	15	31	11	61
20	21	33	31	34	62	49	26	27	17	25	13	61
21	21	33	25	31	66	43	28	25	14	19	14	47
22	21	31	26	32	60	50	28	28	44	16	13	35
23	21	32	24	34	50	43	25	25	60	16	13	28
24	21	34	23	33	48	46	29	21	174	17	11	26
25	22	32	19	33	56	45	34	21	201	14	22	28
26	23	32	22	32	100	45	31	18	237	13	20	28
27	23	28	21	30	80	44	30	17	117	12	807	27
28	24	26	20	46	60	41	41	17	53	11	1610	27
29	26	27	22	57	---	40	32	17	35	11	3820	28
30	27	28	25	54	---	38	27	16	28	12	421	28
31	27	---	25	47	---	32	---	16	---	82	148	---
TOTAL	674	978	809	1132	1408	1800	820	792	2164	936	7119.9	30598
MEAN	21.7	32.6	26.1	36.5	50.3	58.1	27.3	25.5	72.1	30.2	230	1020
MAX	27	75	31	57	100	125	41	48	529	109	3820	11700
MIN	18	26	19	29	25	32	22	16	13	11	8.0	26
AC-FT	1340	1940	1600	2250	2790	3570	1630	1570	4290	1860	14120	60690

CAL YR 1988 TOTAL 21659 MEAN 59.2 MAX 751 MIN 12 AC-FT 42960
WTR YR 1989 TOTAL 49230.9 MEAN 135 MAX 11700 MIN 8.0 AC-FT 97650

BIG NEMAHA RIVER BASIN

223

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.

WATER-DISCHARGE RECORDS

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. 29-30, Dec. 10 to Jan. 19, Feb. 3 to Mar. 8, and Mar. 18, 19. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--45 years, 605 ft³/s, 438,300 acre-ft/yr; median of yearly mean discharges, 530 ft³/s, 384,000 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)
Sept. 4	1455	15800	17.12	Sept. 9	0224	*33800	*23.85

Minimum daily discharge, 12 ft³/s Aug. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	45	60	82	86	115	89	61	60	74	107	457
2	45	45	61	78	64	120	85	57	40	58	49	249
3	41	46	61	80	56	110	71	57	861	124	42	172
4	38	48	60	80	54	88	62	66	650	115	39	7640
5	37	48	60	82	60	86	57	74	317	67	30	5420
6	38	48	60	80	66	94	55	64	145	44	26	2210
7	39	48	59	78	70	98	55	59	80	34	23	2000
8	41	47	57	70	80	100	55	52	64	23	21	3390
9	41	49	51	74	78	105	55	46	54	18	23	16200
10	41	50	37	76	70	104	53	41	48	17	20	5760
11	40	51	30	78	72	119	51	37	42	14	16	1360
12	39	52	38	76	80	122	49	35	39	15	15	907
13	38	54	52	74	92	109	50	34	69	17	13	679
14	38	55	66	70	88	95	48	35	91	23	12	525
15	37	56	45	68	82	87	50	34	49	43	14	410
16	36	102	40	72	86	75	55	33	37	41	20	329
17	37	169	50	74	90	77	55	33	34	56	18	271
18	35	94	62	76	96	73	53	36	37	59	16	221
19	35	86	70	80	100	74	56	38	35	47	19	186
20	36	71	72	77	100	77	55	39	32	41	19	156
21	38	63	72	69	100	75	54	44	38	39	20	131
22	39	58	72	76	96	71	52	50	42	36	20	111
23	41	57	68	73	94	76	48	47	76	33	25	98
24	39	55	64	70	96	59	48	43	153	31	22	85
25	39	55	60	69	100	57	48	47	1020	31	32	80
26	40	57	62	71	130	67	45	42	672	26	63	75
27	41	55	64	69	120	63	43	36	966	22	87	72
28	40	46	64	82	110	63	54	37	553	20	3150	69
29	41	44	70	106	---	79	57	37	186	21	8410	67
30	42	56	78	112	---	109	59	34	98	20	2560	65
31	44	---	80	113	---	82	---	31	---	58	924	---
TOTAL	1227	1810	1845	2435	2416	2729	1667	1379	6588	1267	15855	49395
MEAN	39.6	60.3	59.5	78.5	86.3	88.0	55.6	44.5	220	40.9	511	1646
MAX	51	169	80	113	130	122	89	74	1020	124	8410	16200
MIN	35	44	30	68	54	57	43	31	32	14	12	65
AC-FT	2430	3590	3660	4830	4790	5410	3310	2740	13070	2510	31450	97970
CAL YR 1988	TOTAL 53492	MEAN 146	MAX 1460	MIN 24	AC-FT 106100							
WTR YR 1989	TOTAL 88613	MEAN 243	MAX 16200	MIN 12	AC-FT 175800							

BIG NEMAHA RIVER BASIN

06815000 BIG NEMAHA RIVER AT FALLS CITY, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 13...	1340	38	715	8.46	19.0	11.3	<8	K20	K100
NOV 07...	1400	47	788	8.48	9.0	12.2	18	21	110
DEC 06...	1600	60	731	8.18	5.0	15.4	10	K43	160
JAN 05...	0930	82	668	8.20	0.5	13.9	<8	K93	230
JAN 31...	1530	117	687	8.38	8.0	11.8	14	700	80
MAR 28...	1700	62	652	8.77	23.0	11.3	20	<6	K57
APR 24...	1240	47	714	8.62	26.0	9.5	21	K20	K68
MAY 17...	1150	33	731	8.50	19.0	9.5	9	K110	440
JUN 20...	1320	31	710	8.38	32.0	7.7	37	K48	K53
JUL 12...	1135	12	775	8.78	31.0	7.9	28	330	92
AUG 16...	1230	13	738	8.43	30.0	7.6	12	1100	250
SEP 20...	1115	261	622	8.51	18.5	10.1	24	580	1100

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 13...	280	76	22	53	1	120	39	310	0.42
NOV 07...	320	90	23	51	1	110	36	310	0.42
DEC 06...	310	87	22	46	1	99	34	288	0.39
JAN 05...	280	81	19	41	1	91	30	262	0.36
JAN 31...	260	74	18	37	1	73	32	234	0.32
MAR 28...	230	65	17	47	1	49	41	219	0.30
APR 24...	250	69	20	47	1	65	35	236	0.32
MAY 17...	290	80	21	53	1	76	37	267	0.36
JUN 20...	240	68	17	48	1	40	44	217	0.30
JUL 12...	280	82	18	57	2	60	49	266	0.36
AUG 16...	260	71	19	73	2	110	67	340	0.46
SEP 20...	280	85	17	23	0.6	78	24	227	0.31

BIG NEMAHA RIVER BASIN

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06815000 BIG NEMAHA RIVER AT FALLS CITY, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE		SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)
OCT									
13...		31.8	5	<0.200	<0.020	--	<0.50	--	0.240
NOV									
07...		39.3	<4	<0.020	--	--	<0.50	--	0.470
DEC									
06...		46.7	9	0.360	<0.020	--	0.83	1.2	0.090
JAN									
05...		58.0	11	0.910	0.030	0.59	0.62	1.5	0.130
31...		73.9	14	0.620	<0.020	--	<0.50	--	0.130
MAR									
28...		36.7	5	<0.200	<0.020	--	0.51	--	0.130
APR									
24...		29.9	<4	0.020	0.030	1.1	1.1	1.1	0.210
MAY									
17...		23.8	5	0.040	<0.020	--	0.65	0.69	0.170
JUN									
20...		18.2	58	<0.020	0.140	0.96	1.1	--	0.290
JUL									
12...		8.62	34	<0.020	<0.020	--	<0.50	--	0.190
AUG									
16...		11.9	10	<0.020	<0.020	--	<0.50	--	0.260
SEP									
20...		160	78	0.310	0.090	1.0	1.1	1.4	0.340

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	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											
07...	1400	36	<15	<10	<10	20	<0.10	14	<1	<30	4.6
JAN											
31...	1530	6	<15	<10	10	<20	0.10	<1	<1	<30	3.4
MAY											
17...	1150	13	<15	<10	<10	<20	<0.50	14	<1	<30	3.4
AUG											
16...	1230	6	<15	<10	<10	20	<0.50	<2	<1	<30	4.5

KANSAS RIVER BASIN

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: Nov. 24 to Dec. 11, Jan. 31 to Feb. 2, Feb. 13-26, and Mar. 7, 8, 22. Records 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.--58 years, 21.4 ft³/s, 15,500 acre-ft/yr; median of yearly mean discharges, 18 ft³/s, 13,000 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)
June 9	1350	*112	*5.66	No peaks greater than base discharge.			
Minimum daily discharge, 0.26 ft ³ /s, Aug. 6.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	3.5	2.9	.86	.80	5.4	7.1	7.5	7.2	15	.82	2.8
2	5.6	3.6	2.8	.88	.70	4.1	6.9	8.7	7.2	8.8	.64	4.0
3	4.9	8.0	2.8	.84	.61	3.5	6.9	7.7	7.1	6.8	1.1	4.7
4	3.6	3.4	2.7	.91	.60	.70	4.3	7.4	12	5.6	.42	4.4
5	5.4	5.7	2.6	1.2	.61	.49	4.2	8.1	23	7.2	.32	4.4
6	6.1	14	2.6	1.0	.60	.43	6.5	6.0	16	1.9	.26	3.5
7	5.2	11	2.5	.82	.60	1.0	6.0	2.7	15	1.4	.34	5.5
8	4.5	9.2	2.4	.78	.60	3.0	4.4	2.9	7.9	1.2	1.8	2.9
9	5.0	11	2.3	.80	.60	9.8	9.3	3.6	71	1.1	2.3	4.4
10	5.4	16	2.0	.79	.67	6.4	12	2.5	54	.90	1.8	8.8
11	5.7	7.7	1.7	.76	.64	5.8	13	2.7	24	.81	.52	10
12	7.6	5.2	1.5	.76	.72	5.4	14	2.3	15	.74	4.8	7.6
13	7.8	4.0	1.4	.81	.70	5.5	9.7	2.7	11	1.1	8.0	12
14	7.7	3.4	1.2	.83	.70	5.6	6.7	4.3	7.4	1.5	10	6.1
15	6.3	4.5	1.1	.76	.80	6.6	5.0	7.8	6.5	1.2	15	1.7
16	5.2	7.9	1.1	.82	.80	7.5	5.2	9.5	5.6	1.6	14	1.1
17	5.9	5.9	1.1	.88	.80	6.9	3.3	39	4.4	3.1	9.7	.94
18	6.2	3.3	1.1	.89	.80	6.5	4.3	34	3.1	1.5	9.7	.94
19	5.9	3.2	1.1	.94	.90	8.2	4.1	18	2.5	.97	10	.92
20	2.6	5.2	1.0	.82	.90	7.7	4.2	11	2.2	2.9	10	.94
21	1.4	6.8	1.0	.86	.90	8.6	3.5	12	5.8	2.9	8.0	.94
22	3.6	6.5	1.0	.80	1.0	8.8	3.5	9.8	11	1.8	12	.90
23	3.1	7.1	1.0	.76	1.5	8.0	2.8	7.9	11	1.2	11	.79
24	3.3	8.0	.99	.80	2.5	7.2	2.3	4.8	14	1.2	5.3	3.0
25	3.8	8.0	.97	.75	5.6	6.8	1.9	3.1	14	1.3	5.1	2.9
26	4.5	7.8	.97	.77	5.0	7.1	4.8	2.9	16	.95	4.3	2.0
27	4.3	6.0	.86	.86	7.0	6.6	8.5	3.0	23	.82	6.3	2.2
28	3.4	4.0	.85	.86	6.7	5.5	9.3	3.2	9.4	.53	8.5	2.6
29	3.2	3.5	.92	.84	---	5.0	8.9	2.9	12	.58	8.0	2.9
30	3.3	3.2	.88	.90	---	4.5	6.9	5.2	22	.42	5.7	2.9
31	3.4	---	.91	1.0	---	4.5	---	6.9	---	.97	2.7	---
TOTAL	152.6	196.6	48.25	26.35	44.35	173.12	189.5	250.1	440.3	77.99	178.42	108.77
MEAN	4.92	6.55	1.56	.85	1.58	5.58	6.32	8.07	14.7	2.52	5.76	3.63
MAX	8.7	16	2.9	1.2	7.0	9.8	14	39	71	15	15	12
MIN	1.4	3.2	.85	.75	.60	.43	1.9	2.3	2.2	.42	.26	.79
AC-FT	303	390	96	52	88	343	376	496	873	155	354	216

CAL YR 1988 TOTAL 2921.53 MEAN 7.98 MAX 139 MIN .00 AC-FT 5790
WTR YR 1989 TOTAL 1886.35 MEAN 5.17 MAX 71 MIN .26 AC-FT 3740

06823000 NORTH FORK REPUBLICAN RIVER AT COLORADO-NEBRASKA STATE LINE

LOCATION.--Lat 40°04'10", long 102°03'05", in 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: Dec. 29-31, Jan. 5-9, 13-14, 16, Feb. 1-10, and Feb. 12 to Mar. 1. 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.--59 years, 46.6 ft³/s, 33,760 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)
Feb. 3	1230	ice jam	*2.55	No peaks greater than base discharge.			
June 9	1545	*76	1.14				

Minimum daily discharge, 6.2 ft³/s, July 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	56	37	52	56	54	55	22	20	18	8.5	17
2	32	39	37	52	56	53	55	22	24	18	9.0	17
3	31	21	38	52	54	53	54	21	24	18	12	17
4	31	15	36	53	49	49	54	20	27	14	9.6	18
5	31	15	37	52	48	50	55	20	29	10	10	23
6	33	16	38	50	52	54	54	16	33	9.6	9.5	24
7	34	20	38	52	56	54	54	12	44	8.3	8.5	24
8	33	21	39	54	66	54	55	9.5	45	7.7	8.4	25
9	32	17	45	56	66	53	55	7.6	64	7.5	10	24
10	31	18	53	52	62	54	56	16	61	7.6	11	22
11	31	18	55	52	58	55	57	7.1	51	7.8	11	23
12	31	21	56	52	54	55	56	7.6	45	6.2	16	29
13	33	21	54	52	54	55	55	11	42	9.2	15	38
14	32	21	53	54	52	55	54	8.6	42	9.0	16	45
15	32	22	54	53	54	54	54	6.3	41	8.3	24	43
16	33	23	53	54	56	55	53	7.8	41	11	21	42
17	32	31	53	52	54	56	54	16	39	10	18	41
18	32	30	54	52	52	55	53	25	38	9.9	17	40
19	32	29	54	52	54	56	52	25	37	8.6	15	41
20	31	29	54	52	52	57	50	19	30	7.8	15	41
21	31	29	53	52	54	56	52	20	15	7.8	14	42
22	29	29	52	52	58	56	50	21	9.7	8.0	12	42
23	28	31	52	52	56	56	48	18	9.0	6.8	8.7	36
24	30	32	53	52	62	55	47	17	10	6.2	28	35
25	29	32	53	53	66	55	32	17	15	7.9	22	36
26	27	33	53	53	68	55	24	16	16	7.9	22	34
27	40	33	58	53	60	55	23	11	15	7.5	20	33
28	53	33	55	54	56	55	23	11	17	7.0	20	33
29	55	37	52	54	---	55	23	10	11	7.2	20	31
30	57	37	54	54	---	55	23	9.4	14	8.8	21	30
31	57	---	58	56	---	54	---	19	---	9.2	19	---
TOTAL	1074	809	1531	1635	1585	1688	1430	468.9	908.7	290.8	471.2	946
MEAN	34.6	27.0	49.4	52.7	56.6	54.5	47.7	15.1	30.3	9.38	15.2	31.5
MAX	57	56	58	56	68	57	57	25	64	18	28	45
MIN	27	15	36	50	48	49	23	6.3	9.0	6.2	8.4	17
AC-FT	2130	1600	3040	3240	3140	3350	2840	930	1800	577	935	1880

CAL YR 1988 TOTAL 12922.8 MEAN 35.3 MAX 96 MIN 5.8 AC-FT 25630
WTR YR 1989 TOTAL 12837.6 MEAN 35.2 MAX 68 MIN 6.2 AC-FT 25460

KANSAS RIVER BASIN

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: Dec. 29 to Feb. 1, and Feb. 3 to Mar. 8. 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.--49 years, 7.29 ft³/s, 5,280 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, 1987-89.

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)
Feb. 4	0615	(a)	*5.63	No peaks greater than base discharge.			
June 10	1030	*11	4.30				

a Backwater from ice.

No flow Apr. 28 to May 7, July 18-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	6.8	6.8	6.0	5.8	6.8	3.5	.00	5.6	5.8	.04	1.9
2	5.8	6.6	6.7	6.2	3.5	7.1	3.4	.00	5.8	5.4	.10	1.7
3	6.0	7.2	6.7	6.2	5.0	6.0	3.6	.00	6.0	2.5	.19	1.6
4	5.8	7.5	5.9	6.4	5.4	5.8	4.1	.00	6.9	.24	.06	1.6
5	5.9	6.9	6.3	6.8	5.4	5.4	4.6	.00	7.1	.09	.01	1.5
6	6.1	6.6	6.6	5.6	5.2	6.0	4.7	.00	6.9	.04	.01	1.0
7	6.4	7.1	6.4	5.4	5.6	7.8	3.9	.00	8.1	.03	.07	.53
8	6.3	7.0	6.3	5.0	5.6	9.0	3.7	.01	7.2	.02	.19	.60
9	6.1	7.1	5.3	5.4	5.8	8.7	4.5	.01	9.1	.02	.07	1.3
10	5.7	6.9	7.3	6.0	5.8	8.2	5.0	.01	10	.01	.03	2.3
11	5.6	6.9	6.5	6.4	6.0	7.7	4.9	.01	8.6	.01	.06	3.8
12	5.4	7.1	6.7	6.0	6.4	6.8	4.8	.05	7.1	.01	.10	6.8
13	5.5	6.9	6.9	5.4	6.6	7.4	4.4	.04	6.4	.03	.47	8.3
14	5.4	6.6	6.3	5.4	6.4	7.3	4.7	1.5	6.2	.02	.48	7.4
15	5.2	6.3	6.2	6.0	6.0	6.8	4.9	4.5	6.2	.01	.98	6.6
16	4.6	5.6	5.5	6.4	6.2	7.0	4.8	4.7	6.3	.01	2.4	6.2
17	4.3	6.6	6.7	6.6	6.6	6.9	4.8	5.9	6.0	.01	1.4	5.7
18	5.0	6.4	8.2	6.8	6.8	7.0	5.0	6.3	5.7	.00	.55	5.1
19	5.4	6.2	6.9	6.0	7.0	7.2	5.2	5.0	3.7	.00	.63	4.9
20	5.6	5.5	6.7	5.8	6.8	7.3	5.3	4.3	3.4	.00	1.6	4.9
21	5.4	6.4	6.4	5.8	7.4	7.1	5.0	4.3	2.7	.00	3.2	4.8
22	6.3	6.7	6.9	6.0	7.2	6.2	5.2	4.2	2.8	.00	.88	4.7
23	6.7	6.8	6.1	6.2	6.8	6.0	5.2	4.2	3.0	.00	.54	4.5
24	5.5	6.8	5.5	6.2	7.0	5.6	5.2	3.6	3.6	.00	.48	4.6
25	5.2	5.7	7.3	6.0	7.8	5.2	5.2	3.6	4.7	.00	.44	4.8
26	5.6	7.5	7.4	5.8	7.4	5.2	2.1	3.5	5.5	.00	.40	4.8
27	5.7	6.5	3.7	6.2	7.4	4.8	.03	3.7	4.9	.00	.53	4.7
28	5.9	5.1	4.2	6.4	7.0	3.7	.00	4.2	4.3	.00	1.5	4.7
29	6.3	7.4	6.0	6.0	---	3.6	.00	4.9	4.8	.00	2.1	4.8
30	6.7	6.7	6.4	5.8	---	3.6	.00	4.8	5.5	.01	1.8	4.8
31	7.0	---	6.8	6.0	---	3.5	---	5.0	---	.01	1.6	---
TOTAL	178.9	199.4	197.6	186.2	175.9	196.7	117.73	78.33	174.1	14.27	22.91	120.93
MEAN	5.77	6.65	6.37	6.01	6.28	6.35	3.92	2.53	5.80	.46	.74	4.03
MAX	7.0	7.5	8.2	6.8	7.8	9.0	5.3	6.3	10	5.8	3.2	8.3
MIN	4.3	5.1	3.7	5.0	3.5	3.5	.00	.00	2.7	.00	.01	.53
AC-FT	355	396	392	369	349	390	234	155	345	28	45	240

CAL YR 1988 TOTAL 1929.82 MEAN 5.27 MAX 22 MIN .00 AC-FT 3830
WTR YR 1989 TOTAL 1662.97 MEAN 4.56 MAX 10 MIN .00 AC-FT 3300

KANSAS RIVER BASIN

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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.--49 years, 13.6 ft³/s, 9,850 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)
Mar. 6	1530	(a)	*2.66	No peaks greater than base discharge.			
June 10	0200	*18	1.69				

a Backwater from ice.

Minimum daily discharge, 7.8 ft³/s July 9, 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	11	11	11	11	10	11	9.5	12	12	9.5	9.3
2	11	11	11	11	11	10	11	9.5	12	11	9.7	9.2
3	10	11	11	11	11	10	11	9.8	13	10	11	9.3
4	10	11	11	11	10	9.0	11	9.8	13	9.9	10	9.2
5	10	11	11	11	10	9.0	11	9.0	14	8.7	9.5	9.0
6	11	11	11	11	10	10	11	8.8	14	8.5	10	9.0
7	11	11	11	11	11	11	11	8.8	14	8.1	12	9.0
8	11	11	11	10	12	12	12	8.7	12	7.9	11	9.0
9	11	11	11	11	13	9.9	14	8.8	15	7.8	10	9.6
10	10	11	11	12	16	9.9	13	8.7	16	7.8	9.9	9.4
11	10	11	11	12	15	9.9	13	8.4	13	7.9	9.6	9.4
12	10	11	11	13	15	9.7	12	9.1	12	7.9	9.7	12
13	10	11	10	13	14	9.5	12	12	11	11	10	12
14	10	11	11	13	14	9.0	11	12	11	12	10	11
15	9.5	11	11	12	13	8.3	11	11	11	11	13	11
16	9.7	11	11	12	12	8.4	11	11	11	10	12	11
17	10	11	11	12	12	9.1	11	14	10	10	11	11
18	9.9	12	11	12	12	9.9	11	12	9.9	9.7	10	10
19	10	12	12	12	11	10	11	11	9.9	9.5	9.9	11
20	10	11	13	12	11	11	12	9.9	9.7	9.3	11	11
21	9.8	11	12	12	11	11	11	9.8	9.5	9.3	12	11
22	10	11	11	12	11	11	11	9.7	9.5	8.9	11	11
23	9.8	11	11	12	11	11	9.2	9.6	9.9	9.5	11	9.9
24	9.8	11	11	12	11	11	9.1	10	10	9.5	10	9.8
25	9.9	11	11	12	11	10	9.2	10	11	9.3	10	10
26	9.9	12	10	12	10	10	9.3	9.8	11	9.1	10	9.9
27	9.9	12	10	12	10	10	8.9	9.4	11	8.7	10	10
28	10	11	10	12	10	10	8.8	9.0	11	8.9	11	9.9
29	10	11	11	12	---	11	8.9	9.8	13	8.7	10	9.6
30	10	11	11	12	---	11	9.1	11	13	8.7	9.8	9.5
31	10	---	12	12	---	12	---	11	---	9.7	9.3	---
TOTAL	315.2	334	342	365	329	313.6	325.5	310.9	352.4	290.3	322.9	302.0
MEAN	10.2	11.1	11.0	11.8	11.7	10.1	10.8	10.0	11.7	9.36	10.4	10.1
MAX	12	12	13	13	16	12	14	14	16	12	13	12
MIN	9.5	11	10	10	10	8.3	8.8	8.4	9.5	7.8	9.3	9.0
AC-FT	625	662	678	724	653	622	646	617	699	576	640	599

CAL YR 1988 TOTAL 4152.7 MEAN 11.3 MAX 35 MIN 7.5 AC-FT 8240
WTR YR 1989 TOTAL 3902.8 MEAN 10.7 MAX 16 MIN 7.8 AC-FT 7740

KANSAS RIVER BASIN

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.

WATER-DISCHARGE RECORDS

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. 28 to Feb. 25 and Mar. 2-9. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--48 years, 84.6 ft³/s, 61,290 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)
Mar. 8	1500	(a)	*4.47	No peaks greater than base discharge.			
June 10	1345	*219	4.04				

a Backwater from ice.

Minimum daily discharge, 0.91 ft³/s July 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	62	68	78	60	81	76	34	27	51	3.8	24
2	28	59	67	74	44	76	82	31	30	49	5.1	19
3	26	51	68	76	50	74	78	34	41	42	12	17
4	27	44	67	80	60	76	73	32	44	29	5.3	17
5	28	38	66	82	70	80	75	28	46	22	4.3	16
6	34	37	67	80	76	90	80	25	55	18	7.7	18
7	35	44	67	74	78	94	79	22	79	11	12	18
8	37	46	65	68	74	98	74	19	77	7.2	9.7	21
9	34	44	64	66	74	100	87	17	94	5.2	6.9	29
10	33	45	71	72	72	113	100	16	191	4.1	5.6	31
11	31	48	73	76	80	112	107	18	163	3.2	4.4	34
12	43	49	71	74	88	102	101	22	121	2.5	5.2	52
13	44	50	71	72	90	99	99	37	99	22	8.3	58
14	47	51	71	70	86	100	98	33	79	12	9.3	62
15	46	53	73	72	90	85	98	31	75	8.0	22	70
16	46	59	73	76	94	87	89	40	76	8.3	24	64
17	43	62	76	78	92	87	82	56	74	8.1	30	57
18	45	65	82	80	84	83	83	68	65	5.7	27	51
19	46	61	83	82	86	77	81	78	55	4.9	28	47
20	48	63	85	80	90	79	77	62	38	4.3	34	46
21	49	66	78	80	94	82	71	56	35	3.4	53	48
22	47	69	79	82	100	79	68	56	29	3.0	41	47
23	43	68	75	80	110	81	67	53	24	3.0	43	48
24	42	67	73	80	120	82	62	44	26	3.0	36	44
25	41	69	75	84	140	84	66	38	30	2.7	32	41
26	41	71	82	88	105	85	63	32	33	2.0	25	43
27	40	72	68	88	98	85	42	22	32	1.5	25	36
28	42	70	66	84	88	82	39	21	32	1.2	37	32
29	52	69	72	86	---	77	37	19	44	.91	36	30
30	55	70	76	88	---	74	34	21	48	8.5	31	30
31	58	---	82	90	---	76	---	24	---	5.2	25	---
TOTAL	1259	1722	2254	2440	2393	2680	2268	1089	1862	351.91	648.6	1150
MEAN	40.6	57.4	72.7	78.7	85.5	86.5	75.6	35.1	62.1	11.4	20.9	38.3
MAX	58	72	85	90	140	113	107	78	191	51	53	70
MIN	26	37	64	66	44	74	34	16	24	.91	3.8	16
AC-FT	2500	3420	4470	4840	4750	5320	4500	2160	3690	698	1290	2280

CAL YR 1988 TOTAL 21519.82 MEAN 58.8 MAX 286 MIN .00 AC-FT 42680
WTR YR 1989 TOTAL 20117.51 MEAN 55.1 MAX 191 MIN .91 AC-FT 39900

KANSAS RIVER BASIN

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06824500 REPUBLICAN RIVER AT BENKELMAN, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-73, October 1980 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 05...	1200	29	492	--	8.0	9.8	<8	110	100
NOV 02...	1530	58	499	8.68	13.0	10.3	14	29	71
DEC 13...	1200	74	532	--	4.0	12.2	13	10	82
JAN 13...	1100	72	552	7.58	0.0	12.4	<8	7	78
FEB 09...	1200	72	437	7.54	0.5	11.2	9	7	110
MAR 01...	1545	78	519	8.63	1.0	13.7	13	K99	320
APR 12...	1105	99	--	8.42	13.0	11.2	20	22	190
MAY 10...	0930	17	--	8.60	15.0	9.8	8	370	290
JUN 06...	1200	57	508	8.62	24.0	8.1	21	680	180
JUL 06...	1230	21	--	8.70	32.0	7.7	67	190	230
AUG 04...	1140	5.1	528	8.50	30.5	7.9	26	490	240
SEP 07...	1110	20	502	8.10	25.0	8.5	12	360	140

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 05...	220	60	17	27	0.8	77	7.0	188	0.26
NOV 02...	210	59	16	23	0.7	57	6.1	161	0.22
DEC 13...	200	54	15	27	0.9	58	5.5	159	0.22
JAN 13...	220	60	17	23	0.7	62	6.1	168	0.23
FEB 09...	190	53	15	20	0.6	31	5.9	125	0.17
MAR 01...	200	55	15	21	0.7	35	6.3	132	0.18
APR 12...	200	55	16	26	0.8	36	7.6	141	0.19
MAY 10...	310	82	26	49	1	160	12	329	0.45
JUN 06...	220	58	18	29	0.9	36	9.1	150	0.20
JUL 06...	190	21	34	34	1	100	7.9	197	0.27
AUG 04...	200	52	16	34	1	82	9.7	194	0.26
SEP 07...	220	57	19	27	0.8	81	6.3	190	0.26

KANSAS RIVER BASIN

06824500 REPUBLICAN RIVER AT BENKELMAN, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 05...	14.7	15	0.620	<0.020	--	<0.50	--	0.090	3.7
NOV 02...	25.2	31	0.920	0.020	0.72	0.74	1.7	0.320	3.7
DEC 13...	31.9	66	1.50	0.120	0.42	0.54	2.0	0.060	3.3
JAN 13...	32.7	12	1.40	0.230	--	<0.50	--	0.070	3.6
FEB 09...	24.3	11	1.30	0.130	--	<0.50	--	0.070	2.6
MAR 01...	27.9	72	0.990	0.110	0.65	0.76	1.7	0.140	2.5
APR 12...	37.6	82	0.680	<0.020	--	0.68	1.4	0.070	3.5
MAY 10...	15.1	18	0.380	<0.020	--	0.72	1.1	0.040	3.6
JUN 06...	23.1	150	0.480	0.190	1.3	1.5	2.0	0.170	4.9
JUL 06...	11.2	143	0.340	0.040	1.1	1.1	1.4	0.240	--
AUG 04...	2.67	59	0.090	0.150	2.3	2.5	2.6	0.100	3.8
SEP 07...	10.3	86	0.320	0.070	0.93	1.0	1.3	0.160	3.2

KANSAS RIVER BASIN

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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: Nov. 1-20 and Dec. 14 to Feb. 26. Records fair except for period of estimated record, which is poor. Natural flow affected by irrigation development above station, and since July 6, 1950, by storage in Bonny Reservoir.

AVERAGE DISCHARGE.--59 years, 47.0 ft³/s, 34,050 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, 295 ft³/s July 14, gage height, 3.93 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	14	16	17	22	20	12	11	98	8.1	.75
2	.00	1.0	14	17	13	21	20	12	11	88	7.4	.75
3	.00	2.5	14	18	10	17	20	13	12	82	11	.75
4	.00	4.0	14	18	8.0	17	19	13	13	78	6.7	.75
5	.00	4.3	14	19	7.0	17	19	12	15	74	4.9	.75
6	.00	4.3	14	21	6.8	17	19	11	16	69	4.8	.75
7	.00	4.3	14	20	6.4	19	19	11	19	66	4.6	.84
8	.00	4.4	14	19	5.8	27	19	11	18	64	4.5	.90
9	.00	4.5	14	20	5.8	33	20	11	20	62	4.1	.90
10	.00	4.5	16	20	6.2	24	22	11	26	60	3.2	1.1
11	.00	5.0	17	19	7.2	22	23	11	24	59	2.5	1.1
12	.00	5.5	15	18	10	21	24	11	21	59	2.2	2.9
13	.00	5.8	16	17	14	21	23	15	19	99	3.0	4.8
14	.00	7.7	15	16	17	22	22	15	16	175	2.2	4.9
15	.00	10	14	17	18	22	19	14	15	90	5.7	4.1
16	.00	11	14	18	18	21	17	15	14	79	5.0	3.4
17	.00	11	17	19	18	21	16	20	13	75	3.8	2.7
18	.00	12	18	21	17	20	16	27	12	67	3.1	1.8
19	.00	12	20	22	16	20	15	26	11	59	3.1	1.3
20	.00	11	19	21	16	19	15	22	9.4	50	3.3	1.2
21	.00	12	18	21	17	20	14	21	8.1	43	6.5	1.2
22	.00	13	19	20	19	20	14	19	7.5	35	3.7	1.2
23	.00	13	16	20	20	19	13	17	7.3	29	2.9	1.2
24	.00	13	16	21	21	19	13	16	7.7	26	2.0	1.3
25	.00	13	17	22	22	18	12	14	9.5	22	1.4	1.3
26	.00	13	19	21	23	19	12	13	22	19	.96	1.1
27	.00	13	16	21	25	18	12	12	123	15	.95	1.0
28	.00	13	15	23	23	18	12	12	72	12	1.5	.98
29	.00	14	14	24	---	18	12	12	63	9.9	1.6	1.0
30	.00	14	14	24	---	19	12	11	84	11	1.0	1.2
31	.00	---	15	20	---	19	---	11	---	9.1	.75	---
TOTAL	0.00	255.85	486	613	407.2	630	513	451	719.5	1784.0	116.46	47.92
MEAN	.00	8.53	15.7	19.8	14.5	20.3	17.1	14.5	24.0	57.5	3.76	1.60
MAX	.00	14	20	24	25	33	24	27	123	175	11	4.9
MIN	.00	.05	14	16	5.8	17	12	11	7.3	9.1	.75	.75
AC-FT	.0	507	964	1220	808	1250	1020	895	1430	3540	231	95

CAL YR 1988 TOTAL 5121.73 MEAN 14.0 MAX 92 MIN .00 AC-FT 10160
WTR YR 1989 TOTAL 6023.93 MEAN 16.5 MAX 175 MIN .00 AC-FT 11950

KANSAS RIVER BASIN

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: Dec. 24 to Jan. 21, Feb. 6-26 and Mar. 3-9.. 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.--39 years, 122 ft³/s, 88,390 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, 3,290 ft³/s June 28, gage height, 9.06 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	37	64	74	94	95	89	39	14	104	13	9.2
2	.00	37	64	74	105	79	92	39	15	101	3.7	8.7
3	.00	42	63	76	70	90	92	38	21	88	7.8	7.3
4	.00	41	63	80	54	104	91	39	33	76	7.6	5.7
5	.00	38	64	82	59	114	88	36	43	66	2.3	4.6
6	.00	35	64	82	66	118	89	31	42	58	1.5	4.1
7	.00	35	66	80	80	126	87	28	56	53	1.6	2.7
8	.67	38	63	82	86	130	83	25	68	44	.88	2.5
9	3.8	39	107	86	88	140	93	22	64	38	.75	5.4
10	3.6	39	92	88	90	153	104	21	90	35	.69	8.1
11	3.2	40	82	88	100	132	109	19	155	31	.64	8.6
12	3.2	44	78	88	106	126	113	19	127	29	.53	24
13	10	46	77	86	102	114	112	35	97	72	.61	41
14	15	49	74	86	100	110	108	42	80	203	.77	40
15	15	48	70	90	108	101	106	44	72	167	3.3	41
16	15	57	70	92	110	90	104	47	68	90	20	38
17	16	60	75	96	110	85	92	67	59	74	18	32
18	15	60	82	98	106	90	85	86	53	63	23	24
19	19	59	84	98	104	92	80	91	48	50	98	21
20	20	59	104	106	104	90	77	80	38	40	47	21
21	20	58	83	114	110	94	72	84	25	35	56	21
22	24	59	78	115	118	99	70	72	19	29	44	20
23	21	60	69	115	114	101	67	56	13	23	33	20
24	22	62	68	95	112	101	64	41	18	18	25	23
25	25	61	64	89	140	93	60	33	44	15	19	20
26	26	62	60	108	170	93	59	27	41	10	14	17
27	29	61	58	113	142	92	54	23	38	5.5	15	16
28	26	61	58	110	108	90	41	16	434	2.9	16	15
29	28	63	60	117	---	85	38	14	740	1.1	19	13
30	36	62	64	130	---	86	36	8.9	134	.71	17	12
31	38	---	70	121	---	92	---	10	---	6.7	13	---
TOTAL	434.47	1512	2238	2959	2856	3205	2455	1232.9	2749	1628.91	522.67	525.9
MEAN	14.0	50.4	72.2	95.5	102	103	81.8	39.8	91.6	52.5	16.9	17.5
MAX	38	63	107	130	170	153	113	91	740	203	98	41
MIN	.00	35	58	74	54	79	36	8.9	13	.71	.53	2.5
AC-FT	862	3000	4440	5870	5660	6360	4870	2450	5450	3230	1040	1040

CAL YR 1988 TOTAL 25362.24 MEAN 69.3 MAX 507 MIN .00 AC-FT 50310
WTR YR 1989 TOTAL 22318.85 MEAN 61.1 MAX 740 MIN .00 AC-FT 44270

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, 84,770 acre-ft June 12, elevation, 2,745.98 ft; minimum contents, 52,810 acre-ft Sept. 11, elevation, 2,737.41 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 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59560	59050	60680	64090	68510	72870	78860	82150	84060	84320	66820	55420
2	59530	59080	60820	64160	68510	73100	79070	82190	84020	84360	66310	54950
3	59500	59120	60920	64230	68510	73260	79270	82190	84020	84230	66050	54550
4	59500	59180	61030	64380	68580	73260	79310	82270	84020	83940	65500	54190
5	59500	59150	61100	64520	68810	73340	79390	82230	84020	83560	64920	53790
6	59460	59150	61200	64590	68880	73450	79560	82230	84060	83230	64450	53400
7	59460	59150	61310	64700	68920	73570	79720	82230	84150	82640	63800	53100
8	59430	59150	61410	64810	68950	73850	79760	82230	84190	81780	63160	52940
9	59390	59180	61450	64920	69030	74280	80000	82230	84360	80860	62410	52940
10	59360	59180	61590	64990	69070	74630	80090	82150	84400	80050	61700	52840
11	59290	59220	61700	65100	69180	74910	80290	82110	84690	79110	61100	52810
12	59250	59290	61840	65210	69300	75260	80450	82020	84780	78180	60500	52970
13	59250	59290	61980	65240	69410	75500	80620	82060	84690	79190	59870	53030
14	59250	59320	62050	65350	69600	75860	80740	82190	84530	79070	59220	53070
15	59220	59460	62270	65430	69710	75940	80990	82440	84480	78780	58770	53070
16	59180	59500	62370	65570	69870	75980	81110	82730	84440	78340	58150	53130
17	59150	59500	62440	65680	70020	76170	81200	83060	84400	77860	57680	53160
18	59150	59530	62480	65800	70170	76330	81280	83350	84320	77250	57540	53160
19	59150	59600	62760	65980	70360	76530	81440	83520	83940	76570	57810	53200
20	59150	59630	62980	66130	70510	76770	81570	83600	83520	75900	57850	53200
21	59150	59670	63120	66380	70700	76890	81650	83940	82890	75140	57920	53200
22	59120	59800	63370	66530	70860	77130	81780	84060	82360	74360	57920	53070
23	59120	59870	63440	66750	71050	77370	81860	84150	81820	73570	57780	53070
24	59120	59980	63510	66900	71280	77530	81940	84230	81530	72710	57610	53070
25	59120	60080	63550	67160	71590	77690	82020	84230	81900	71940	57540	53070
26	59120	60260	63770	67270	71970	77940	82150	84190	81900	71090	57340	53070
27	59080	60290	63800	67500	72320	78060	82270	84150	81820	70320	57170	53000
28	59050	60290	63840	67830	72590	78220	82270	84150	82270	69600	56960	52970
29	59050	60500	63870	67980	---	78380	82230	84110	84060	68770	56620	52970
30	59050	60610	63910	68280	---	78540	82230	84110	84270	68130	56250	52970
31	59050	---	63980	68430	---	78740	---	84060	---	67500	55850	---
MEAN	59250	59570	62400	65870	69940	75850	80840	83050	83660	77170	60080	53310
MAX	59560	60610	63980	68430	72590	78740	82270	84230	84780	84360	66820	55420
MIN	59050	59050	60680	64090	68510	72870	78860	82020	81530	67500	55850	52810
(†)	2739.27	2739.72	2740.67	2741.88	2742.97	2744.52	2745.37	2745.81	2745.86	2741.63	2738.33	2737.46
(‡)	-510	+1560	+3370	+4450	+4160	+6150	+3490	+1830	+210	-16770	-11650	-2880
CAL YR 1988	MEAN	75040	MAX	104600	MIN	59050	(†)	-2400				
WTR YR 1989	MEAN	69240	MAX	84780	MIN	52810	(‡)	-6590				

(†) 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.--Estimated daily discharges: May 21-31. 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.--36 years (1954-89), 52.1 ft³/s, 37,750 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, 286 ft³/s July 13, gage height, 5.11 ft; minimum daily, 0.48 ft³/s Apr. 28, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.0	1.0	.91	.88	.80	.80	.58	.67	1.6	81	.65
2	.92	1.0	.97	.91	.91	.80	.78	.55	.70	1.9	80	.70
3	.91	1.0	.91	.91	.91	.80	.79	.50	.68	68	61	.72
4	.96	1.0	.91	.91	.90	.80	.76	.59	.70	106	47	.72
5	1.0	1.0	.91	.91	.91	.80	.80	.59	.85	105	46	.70
6	1.0	.97	.91	.91	.91	.80	.77	.60	.76	105	44	.72
7	1.0	1.0	.91	.91	.91	.80	.71	.63	.80	103	44	.75
8	1.0	1.0	.97	.91	.91	.80	.73	.58	.80	121	43	.70
9	1.0	1.0	.93	.91	.91	.80	.77	.66	.82	128	65	.75
10	1.0	1.0	.91	.91	.86	.79	.80	.66	.94	125	79	.64
11	1.0	1.0	.91	.91	.80	.74	.80	.64	.95	125	79	.64
12	1.0	.97	.91	.91	.70	.70	.76	.67	3.2	122	79	.96
13	1.0	.91	1.2	.91	.72	.73	.80	.70	2.0	138	78	.67
14	1.0	.97	.94	.91	.80	.78	.79	.70	.84	103	77	.62
15	1.0	1.0	1.0	.91	.80	.58	.75	1.8	.80	90	77	.59
16	1.0	1.0	.96	.89	.80	.71	.80	.71	.80	89	59	.57
17	1.0	1.0	.91	.91	.80	.80	.80	.56	.80	89	45	.58
18	1.0	1.0	.91	.88	.88	.76	.80	.63	.86	88	46	.58
19	1.0	.93	1.1	.89	.91	.75	.80	.53	62	87	19	.58
20	1.0	.91	1.3	.88	.91	.80	.72	.51	118	87	1.1	.56
21	1.0	.91	.97	.87	.83	.80	.70	1.5	116	87	.81	.62
22	1.0	.97	1.0	.88	.83	.80	.70	.80	114	86	.70	.57
23	1.0	1.0	1.1	.95	.91	.80	2.1	.70	111	85	.67	.60
24	1.0	1.0	1.0	1.0	.91	.80	1.3	.70	110	85	.63	.70
25	1.0	1.0	1.0	1.0	.80	.80	.70	.70	58	84	.62	.67
26	1.0	.91	1.0	1.0	.65	.80	.70	.60	2.0	84	.55	.59
27	1.0	.91	1.0	.98	.81	.80	.64	.60	1.5	83	.53	.56
28	1.0	.91	1.0	.91	.80	.80	.48	.60	1.5	82	.61	.58
29	1.0	.91	1.0	.91	---	.80	.61	.60	1.6	82	.60	.54
30	1.0	.97	1.0	.91	---	.80	.48	.60	1.4	82	.63	1.3
31	1.0	---	.91	.91	---	.80	---	.60	---	80	.69	---
TOTAL	30.79	29.15	30.45	28.42	23.67	24.14	23.94	21.39	714.97	2802.5	1157.14	20.13
MEAN	.99	.97	.98	.92	.85	.78	.80	.69	23.8	90.4	37.3	.67
MAX	1.0	1.0	1.3	1.0	.91	.80	2.1	1.8	118	138	81	1.3
MIN	.91	.91	.91	.87	.65	.58	.48	.50	.67	1.6	.53	.54
AC-FT	61	58	60	56	47	48	47	42	1420	5560	2300	40

CAL YR 1988 TOTAL 8026.37 MEAN 21.9 MAX 184 MIN .29 AC-FT 15920
WTR YR 1989 TOTAL 4906.69 MEAN 13.4 MAX 138 MIN .48 AC-FT 9730

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: Feb. 2-9 and Mar. 2-6. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--49 years, 58.3 ft³/s, 42,240 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)
Feb. 2	2130	(a)	*1.85	No peaks greater than base discharge.			
Aug. 4	0100	*68	1.61				

a Backwater from ice.

Minimum daily discharge, 15 ft³/s July 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	23	24	34	29	26	25	23	21	18	19
2	21	23	23	25	23	28	26	24	23	21	17	19
3	21	23	23	27	16	21	25	24	22	20	32	19
4	21	23	23	27	16	16	25	24	22	19	43	19
5	21	23	23	29	20	20	25	23	22	18	38	19
6	22	23	23	31	26	25	25	23	23	18	44	18
7	22	23	23	30	29	29	25	23	26	17	52	18
8	22	23	23	28	30	31	24	23	23	16	42	19
9	22	23	22	31	31	31	26	22	23	16	30	19
10	21	23	23	30	31	31	27	21	23	16	24	19
11	21	23	23	29	33	30	27	21	23	16	21	18
12	21	25	23	29	33	28	26	22	23	16	21	21
13	21	24	23	29	32	27	26	25	21	28	21	21
14	21	23	23	30	31	28	26	28	21	25	20	20
15	21	23	22	30	31	23	25	25	21	20	21	19
16	21	23	22	30	31	24	25	25	21	18	21	18
17	21	24	23	30	30	24	25	28	21	19	20	18
18	21	23	23	31	30	25	25	27	20	18	20	18
19	21	23	23	32	30	25	25	26	20	18	22	18
20	21	23	23	32	29	27	25	24	19	18	22	18
21	22	23	23	33	29	27	24	26	19	17	21	18
22	22	23	23	33	29	27	24	26	18	17	21	18
23	22	24	22	33	30	27	25	25	18	17	21	18
24	22	24	22	37	30	27	24	24	20	16	21	19
25	22	24	23	40	30	26	24	22	22	16	20	19
26	22	24	23	36	30	25	24	22	23	16	20	18
27	22	23	21	37	30	25	24	22	22	16	20	18
28	22	22	23	37	29	25	24	22	21	15	21	18
29	22	25	24	38	---	24	24	22	22	15	20	18
30	23	23	23	38	---	25	24	21	22	17	19	17
31	24	---	24	37	---	26	---	22	---	19	19	---
TOTAL	670	699	708	983	803	806	750	737	647	559	772	558
MEAN	21.6	23.3	22.8	31.7	28.7	26.0	25.0	23.8	21.6	18.0	24.9	18.6
MAX	24	25	24	40	34	31	27	28	26	28	52	21
MIN	21	22	21	24	16	16	24	21	18	15	17	17
AC-FT	1330	1390	1400	1950	1590	1600	1490	1460	1280	1110	1530	1110

CAL YR 1988 TOTAL 9438 MEAN 25.8 MAX 47 MIN 16 AC-FT 18720
WTR YR 1989 TOTAL 8692 MEAN 23.8 MAX 52 MIN 15 AC-FT 17240

KANSAS RIVER BASIN

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, 27,510 acre-ft June 16, elevation, 3,100.77 ft; minimum, 11,180 acre-ft Aug. 22, elevation, 3,084.97 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 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15920	17350	18880	20390	22200	23730	25320	26170	27130	26020	17620	12860
2	15960	17430	18940	20460	22200	23750	25380	26230	27180	25980	17480	12930
3	16020	17490	19000	20530	22240	23820	25410	26250	27180	25920	17310	13000
4	16070	17520	19040	20570	22320	23860	25400	26280	27180	25800	17150	13030
5	16110	17540	19110	20650	22370	23970	25440	26280	27230	25650	16910	13100
6	16160	17610	19140	20730	22470	24030	25490	26350	27350	25420	16640	13140
7	16230	17630	19160	20760	22530	24080	25520	26430	27330	25120	16360	13180
8	16290	17670	19230	20820	22580	24170	25530	26470	27360	24810	16110	13230
9	16340	17720	19260	20880	22650	24230	25570	26480	27350	24420	15840	13280
10	16400	17770	19320	20960	22680	24300	25610	26450	27370	23930	15600	13330
11	16440	17840	19370	21000	22710	24370	25640	26450	27470	23460	15360	13370
12	16490	17900	19430	21050	22780	24410	25650	26490	27460	23020	15110	13460
13	16540	17940	19500	21110	22830	24490	25720	26490	27430	22810	14810	13540
14	16610	17990	19530	21160	22870	24490	25740	26590	27370	22620	14500	13600
15	16660	18030	19570	21240	22930	24550	25800	26640	27420	22380	14220	13680
16	16700	18090	19620	21290	22970	24580	25850	26730	27500	22120	13880	13750
17	16710	18160	19670	21350	23030	24610	25830	26790	27500	22000	13480	13810
18	16780	18200	19730	21400	23100	24660	25900	26850	27470	21820	13070	13860
19	16790	18250	19770	21450	23160	24680	25930	26880	27400	21620	12600	13920
20	16830	18310	19810	21520	23210	24740	26020	26940	27250	21350	12160	13990
21	16880	18350	19880	21580	23270	24800	26070	27040	26900	21020	11170	13970
22	16920	18410	19930	21650	23320	24870	26130	27110	26700	20690	11210	14010
23	16980	18470	19970	21670	23390	24930	26130	27180	26530	20290	11440	14050
24	17030	18530	20000	21720	23450	24960	26130	27140	26380	19880	12220	14100
25	17050	18570	20050	21780	23500	25010	26160	27120	26330	19460	12310	14180
26	17110	18630	20080	21850	23560	25070	26190	27080	26320	19120	12390	14230
27	17130	18670	20130	21910	23620	25120	26130	27090	26280	18830	12490	14270
28	17140	18730	20190	21960	23680	25170	26110	27160	26160	18580	12580	14340
29	17180	18770	20240	22050	---	25180	26120	27170	26130	18280	12670	14400
30	17260	18820	20290	22140	---	25240	26140	27080	26070	18110	12750	14440
31	17320	---	20350	22180	---	25270	---	27080	---	17780	12800	---
MEAN	16650	18080	19620	21280	22910	24550	25800	26730	27020	22200	14200	13670
MAX	17320	18820	20350	22180	23680	25270	26190	27180	27500	26020	17620	14440
MIN	15920	17350	18880	20390	22200	23730	25320	26170	26070	17780	11170	12860
(†)	3091.60	3093.14	3094.62	3096.30	3097.62	3098.97	3099.68	3100.43	3099.62	3092.08	3088.36	3088.39
(‡)	+1470	+1500	+1530	+1830	+1500	+1590	+870	+940	-1010	-8290	-4980	+1640
CAL YR 1988 MEAN	21830			29740		13880			(‡)	-550		
WTR YR 1989 MEAN	21040			27500		11170			(‡)	-1410		

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

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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.--No estimated daily discharges. Records good except those below 5.0 ft³/s. Flow regulated by Enders Reservoir (station 06832000).

AVERAGE DISCHARGE.--43 years, 56.4 ft³/s, 40,860 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, 280 ft³/s Aug. 20, gage height, 8.28 ft; minimum daily, 0.18 ft³/s Nov. 4, Mar. 8-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.23	.27	.37	.37	.31	.34	.30	.39	45	97	.33
2	.37	.24	.28	.37	.40	.33	.34	.31	.41	44	118	.33
3	.37	.21	.29	.37	.43	.33	.37	.31	.41	49	128	.33
4	.37	.18	.29	.37	.41	.33	.35	.31	.41	61	118	.35
5	.37	.20	.30	.37	.43	.33	.33	.31	.41	84	136	.37
6	.37	.20	.31	.37	.44	.32	.36	.31	.44	120	177	.37
7	.37	.20	.34	.35	.43	1.2	.37	.31	.43	149	180	.37
8	.35	.21	.37	.37	.41	.18	.33	.31	.45	163	169	.39
9	.33	.22	.37	.37	.43	.18	.33	.31	.45	199	163	.39
10	.33	.22	.37	.37	2.9	.18	.37	.31	.45	238	143	.37
11	.33	.22	.37	.34	6.4	.19	.37	.31	.48	251	138	.35
12	.31	.23	.40	.33	6.5	.20	.37	.32	.50	231	154	.32
13	.31	.22	.41	.37	6.4	.20	.37	3.6	.50	200	179	.31
14	.32	.22	.41	.37	6.3	.27	.37	.32	.50	132	180	.31
15	.32	.23	.41	.34	6.3	.30	.40	.31	.50	133	179	.30
16	.33	.23	.41	.33	5.8	.30	.47	.31	.50	126	189	.29
17	.33	.23	.41	.33	2.9	.30	.43	.35	.56	94	216	.29
18	.33	.24	.41	.37	.28	.31	.41	.33	22	93	252	.30
19	.30	.25	.41	.34	.28	.35	.41	.33	55	115	259	.31
20	.29	.22	.41	.33	.29	.37	.41	.33	83	153	266	.33
21	.29	.20	.41	.33	.27	.37	.41	.35	105	164	236	.36
22	.27	.21	.41	.33	.29	.37	.41	.33	102	177	22	.33
23	.23	.22	.40	.33	.31	.41	4.0	.33	93	201	.38	.33
24	.23	.22	.33	.31	.31	.45	5.0	4.4	82	219	.78	.35
25	.23	.22	.32	.31	.32	.41	.30	7.5	67	219	.37	.37
26	.22	.24	.36	.35	.31	.43	.29	4.2	51	186	.33	.41
27	.22	.25	.37	.33	.31	.45	.29	.32	50	154	.45	.41
28	.22	.25	.37	.40	.30	.45	.29	.31	51	141	.36	.37
29	.22	.32	.37	.41	---	.43	.29	3.4	49	167	.33	.37
30	.24	.27	.37	.41	---	.41	.29	.37	45	198	.33	.38
31	.25	---	.37	.37	---	.39	---	.37	---	199	.33	---
TOTAL	9.39	6.80	11.32	11.01	50.52	11.05	19.07	31.48	862.79	4705	3702.66	10.39
MEAN	.30	.23	.37	.36	1.80	.36	.64	1.02	28.8	152	119	.35
MAX	.37	.32	.41	.41	6.5	1.2	5.0	7.5	105	251	266	.41
MIN	.22	.18	.27	.31	.27	.18	.29	.30	.39	44	.33	.29
AC-FT	19	13	22	22	100	22	38	62	1710	9330	7340	21

CAL YR 1988 TOTAL 8877.29 MEAN 24.3 MAX 261 MIN .18 AC-FT 17610
WTR YR 1989 TOTAL 9431.48 MEAN 25.8 MAX 266 MIN .18 AC-FT 18710

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.

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.

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.

AVERAGE DISCHARGE.--41 years, 78.7 ft³/s, 57,020 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 540 ft³/s June 29, gage height, 6.88 ft; minimum daily, 14 ft³/s June 19.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	23	25	29	30	27	28	19	23	68	185	41
2	24	23	25	30	29	27	27	19	22	64	133	38
3	24	23	25	31	28	26	26	20	22	61	145	37
4	24	23	25	32	28	26	26	19	21	60	139	34
5	24	23	25	33	28	26	26	18	21	62	131	31
6	25	23	26	34	29	26	26	18	21	76	133	30
7	25	23	25	33	28	26	26	18	23	90	170	28
8	25	23	26	32	27	25	25	19	23	120	176	28
9	25	23	26	32	27	26	26	18	21	127	171	28
10	24	23	26	32	27	26	26	17	22	156	165	28
11	24	24	26	33	27	26	26	17	23	187	153	26
12	24	24	26	34	27	26	26	17	22	206	145	28
13	24	24	26	33	27	26	26	19	20	208	149	29
14	23	24	25	33	27	28	25	21	19	205	166	27
15	22	24	24	32	28	27	24	23	18	150	176	26
16	22	31	26	32	28	28	24	23	18	143	178	25
17	22	25	25	32	28	27	24	24	18	143	182	24
18	23	24	25	33	28	27	24	25	16	122	204	23
19	23	24	25	33	28	27	24	24	14	113	364	22
20	23	25	25	33	28	28	24	22	22	115	252	22
21	23	26	26	32	28	29	23	63	41	145	263	22
22	23	25	25	31	27	29	23	44	71	154	247	22
23	22	25	25	31	27	28	23	29	82	159	130	21
24	22	25	25	30	28	27	22	25	116	178	80	21
25	23	25	24	30	28	27	21	24	121	194	165	22
26	23	25	24	30	28	26	23	24	89	200	101	21
27	23	25	24	31	28	27	22	25	73	180	64	20
28	22	28	25	31	28	27	20	25	99	158	78	20
29	23	27	25	31	---	26	20	23	227	142	55	20
30	23	25	26	31	---	27	19	22	77	155	48	19
31	23	---	27	30	---	28	---	23	---	232	44	---
TOTAL	724	735	783	984	779	832	725	727	1405	4373	4792	783
MEAN	23.4	24.5	25.3	31.7	27.8	26.8	24.2	23.5	46.8	141	155	26.1
MAX	25	31	27	34	30	29	28	63	227	232	364	41
MIN	22	23	24	29	27	25	19	17	14	60	44	19
AC-FT	1440	1460	1550	1950	1550	1650	1440	1440	2790	8670	9500	1550

CAL YR 1988	TOTAL 19026	MEAN 52.0	MAX 676	MIN 18	AC-FT 37740
WTR YR 1989	TOTAL 17642	MEAN 48.3	MAX 364	MIN 14	AC-FT 34990

KANSAS RIVER BASIN

241

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. 27-31, Jan. 2, 8-17, Feb. 2-22, Mar. 3-6, and Mar. 9 to Apr. 10. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--40 years, 38.4 ft³/s, 27,820 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)
Aug. 26	0900	*477	*8.31	No other peak greater than base discharge.			
Minimum daily discharge, 12.0 ft ³ /s July 27-29.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	25	27	24	28	29	28	22	24	24	21	33
2	22	25	27	22	21	29	28	22	25	23	17	30
3	22	25	27	24	22	22	28	22	25	21	19	28
4	21	25	25	24	21	24	28	23	24	19	19	27
5	21	24	25	26	21	26	28	23	23	18	18	26
6	21	24	23	26	21	27	28	22	22	17	18	25
7	22	24	22	26	21	32	28	22	22	16	29	24
8	22	24	23	21	20	31	28	22	23	16	29	24
9	22	25	23	23	22	30	28	21	23	15	22	24
10	22	25	22	24	20	31	28	21	22	15	19	31
11	22	25	23	25	21	32	28	21	22	14	18	32
12	22	25	23	24	22	31	27	21	22	14	17	29
13	22	25	22	24	23	30	27	22	22	14	17	30
14	22	26	23	23	24	29	26	23	21	30	17	33
15	22	26	22	24	26	28	26	24	21	18	17	32
16	22	26	22	25	25	28	26	24	20	15	18	29
17	23	26	21	25	24	28	25	25	20	15	18	27
18	23	26	21	26	23	28	25	27	20	15	18	25
19	23	26	22	25	23	28	25	28	20	15	40	24
20	23	26	23	26	24	28	25	30	19	14	34	23
21	23	25	22	25	25	27	24	35	18	15	40	22
22	23	25	22	25	26	27	24	35	18	14	32	22
23	23	26	22	26	27	27	23	46	18	14	23	21
24	23	26	21	26	27	28	23	32	31	14	20	21
25	23	26	21	27	28	28	23	28	29	13	112	21
26	24	26	21	26	29	28	23	26	24	13	438	21
27	24	26	20	25	30	29	23	25	32	12	139	20
28	24	26	21	26	30	29	22	24	34	12	67	20
29	24	25	22	28	---	28	22	24	27	12	59	19
30	24	27	23	27	---	28	22	24	25	19	51	19
31	25	---	24	27	---	28	---	24	---	27	44	---
TOTAL	702	761	705	775	674	878	769	788	696	513	1450	762
MEAN	22.6	25.4	22.7	25.0	24.1	28.3	25.6	25.4	23.2	16.5	46.8	25.4
MAX	25	27	27	28	30	32	28	46	34	30	438	33
MIN	21	24	20	21	20	22	22	21	18	12	17	19
AC-FT	1390	1510	1400	1540	1340	1740	1530	1560	1380	1020	2880	1510

CAL YR 1988 TOTAL 10251 MEAN 28.0 MAX 184 MIN 14 AC-FT 20330
WTR YR 1989 TOTAL 9473 MEAN 26.0 MAX 438 MIN 12 AC-FT 18790

KANSAS RIVER BASIN

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: Feb. 3-16 and Mar. 5-7. 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.--59 years, 97.1 ft³/s, 70,350 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, 405 ft³/s June 25, gage height, 6.11 ft; minimum daily, 5.7 ft³/s July 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	59	65	64	67	72	74	22	22	34	50	63
2	57	60	65	63	58	70	74	22	22	25	19	55
3	54	60	65	63	59	65	73	22	21	22	18	51
4	55	61	65	64	58	69	72	21	21	18	20	49
5	54	61	65	68	56	72	72	19	21	14	17	46
6	55	61	65	69	56	74	72	17	21	12	12	43
7	57	61	65	69	55	72	72	15	23	10	16	42
8	56	62	64	62	55	69	71	14	21	9.4	27	41
9	56	62	61	54	55	83	71	11	20	9.1	23	41
10	56	62	64	59	55	84	71	11	20	8.3	17	42
11	55	62	66	65	56	80	70	11	20	10	11	48
12	56	63	65	67	58	79	57	10	20	11	9.1	55
13	55	64	65	62	60	81	46	10	19	28	6.4	56
14	55	64	65	61	68	80	42	9.7	18	30	6.5	56
15	54	64	64	62	70	73	38	9.7	17	37	9.6	58
16	53	63	63	64	72	73	35	9.7	16	18	8.7	56
17	54	64	63	64	68	72	32	9.6	16	15	9.4	55
18	55	64	64	66	71	71	31	9.7	14	16	8.6	53
19	55	63	66	67	66	71	30	10	10	11	47	50
20	55	64	69	66	67	71	30	9.7	12	8.6	105	51
21	56	63	67	66	68	70	29	41	9.8	7.9	60	49
22	57	64	66	67	69	71	27	60	9.6	7.5	52	50
23	56	64	64	67	70	73	27	42	9.5	7.1	39	49
24	57	64	63	66	72	74	27	48	9.8	7.0	34	50
25	57	64	62	67	75	75	26	28	280	7.4	21	50
26	58	65	63	65	77	74	25	24	57	7.3	209	50
27	58	66	60	64	74	74	25	23	36	6.0	309	50
28	56	62	52	66	74	73	23	23	33	5.7	141	49
29	56	64	55	70	---	72	23	23	124	5.7	120	49
30	57	65	58	70	---	71	23	22	71	7.3	87	44
31	58	---	62	68	---	72	---	22	---	36	73	---
TOTAL	1731	1885	1966	2015	1809	2280	1388	629.1	1013.7	451.3	1585.3	1501
MEAN	55.8	62.8	63.4	65.0	64.6	73.5	46.3	20.3	33.8	14.6	51.1	50.0
MAX	58	66	69	70	77	84	74	60	280	37	309	63
MIN	53	59	52	54	55	65	23	9.6	9.5	5.7	6.4	41
AC-FT	3430	3740	3900	4000	3590	4520	2750	1250	2010	895	3140	2980

CAL YR 1988 TOTAL 19997.9 MEAN 54.6 MAX 419 MIN 3.3 AC-FT 39670
WTR YR 1989 TOTAL 18254.4 MEAN 50.0 MAX 309 MIN 5.7 AC-FT 36210

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. 27-30, Jan. 2, 8, 9, 13, 14, 26, 27, Feb. 3-14, and Mar. 3-8, 22-25. 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.--43 years, 10.2 ft³/s, 7,390 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)
June 30	1245	*1370	*16.96	No other peak greater than base discharge.			
Minimum daily discharge, 3.1 ft ³ /s, June 21.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	6.7	5.8	5.8	6.0	5.7	5.5	4.2	4.2	274	16	9.9
2	5.9	6.4	5.8	6.4	7.7	5.5	5.4	4.3	4.2	75	13	7.1
3	5.9	5.9	5.6	5.9	6.0	5.6	5.3	4.4	4.2	32	11	6.3
4	5.6	5.9	5.7	5.7	4.6	5.2	5.2	4.4	4.0	17	9.3	6.5
5	5.7	6.0	5.8	6.0	4.2	5.0	5.2	4.2	3.9	13	8.7	7.5
6	5.8	5.9	5.9	6.1	4.2	5.6	5.1	4.1	4.1	9.8	9.6	8.8
7	6.1	6.2	5.7	6.0	4.6	6.0	5.2	4.1	4.1	9.9	12	8.6
8	5.9	6.1	5.4	6.0	5.2	6.2	5.2	4.1	4.1	8.4	11	8.5
9	5.8	6.1	5.9	6.2	5.6	5.6	5.2	4.0	3.8	7.3	9.2	10
10	5.6	6.1	5.8	7.1	6.0	5.7	5.2	3.9	3.8	6.9	8.6	6.6
11	5.7	6.1	5.8	5.8	7.0	5.6	5.1	3.9	3.8	8.8	7.7	5.0
12	5.8	6.3	5.6	5.9	8.0	5.6	5.0	3.9	3.7	7.3	8.1	7.4
13	5.8	6.2	5.6	6.5	7.0	5.8	5.0	3.9	8.8	12	9.5	7.2
14	5.8	6.1	6.1	6.0	5.8	5.5	5.0	4.1	3.3	10	8.6	5.9
15	5.6	6.2	5.1	5.7	5.5	5.1	4.9	4.3	3.3	8.1	12	5.5
16	5.7	6.3	5.3	6.0	5.4	5.4	4.9	4.3	4.2	7.6	14	5.5
17	5.8	6.4	5.4	5.9	5.3	5.4	4.8	4.6	4.3	8.4	14	5.4
18	5.8	6.2	5.6	5.9	5.3	5.3	4.9	5.2	3.4	8.8	9.0	5.2
19	6.7	6.2	5.9	5.8	5.4	5.3	4.8	5.5	3.2	9.8	111	4.9
20	5.7	6.3	6.6	5.7	5.6	5.6	5.0	4.6	3.3	9.9	47	4.8
21	5.8	6.1	6.2	5.8	5.7	5.6	5.1	19	3.1	8.5	12	4.3
22	5.8	6.1	5.9	5.8	5.8	5.6	4.9	14	5.9	8.3	12	4.5
23	5.9	6.1	5.9	5.8	5.8	5.4	4.7	5.5	5.3	9.6	14	4.5
24	6.1	6.1	5.8	5.8	5.7	5.4	4.6	4.9	4.0	10	10	4.5
25	5.9	6.1	5.7	5.7	5.9	5.6	4.5	4.6	52	15	8.9	4.6
26	5.9	6.2	5.8	6.0	5.8	5.8	4.3	4.3	26	17	8.2	4.6
27	6.3	6.2	6.2	6.2	5.6	6.1	4.3	4.2	15	16	7.8	4.6
28	6.8	5.9	6.0	6.0	5.9	5.7	4.2	4.2	4.8	11	8.8	4.6
29	6.5	6.0	5.8	6.0	---	5.6	4.2	4.2	13	10	8.1	4.6
30	7.0	5.8	6.0	5.9	---	5.3	4.2	4.2	902	11	8.4	5.0
31	6.9	---	6.8	5.9	---	5.5	---	4.2	---	18	8.6	---
TOTAL	185.8	184.2	180.5	185.3	160.6	172.3	146.9	159.3	1112.8	678.4	456.1	182.4
MEAN	5.99	6.14	5.82	5.98	5.74	5.56	4.90	5.14	37.1	21.9	14.7	6.08
MAX	7.0	6.7	6.8	7.1	8.0	6.2	5.5	19	902	274	111	10
MIN	5.6	5.8	5.1	5.7	4.2	5.0	4.2	3.9	3.1	6.9	7.7	4.3
AC-FT	369	365	358	368	319	342	291	316	2210	1350	905	362

CAL YR 1988 TOTAL 3657.4 MEAN 9.99 MAX 267 MIN 3.7 AC-FT 7250
WTR YR 1989 TOTAL 3804.6 MEAN 10.4 MAX 902 MIN 3.1 AC-FT 7550

LOCATION.--Lat 40°11'15", long 100°37'04", in SW1/4NE1/4 sec.32, T.3 N., R.29 W., Red Willow County, Hydrologic Unit 10250004, on left bank 225 ft downstream from 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.

PERIOD OF RECORD.--October 1930 to June 1932, October 1954 to current year. Monthly discharge only for some periods, published in WSP 1310.

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 525 ft upstream at different datum and October 1954 to Mar. 13, 1959, on highway bridge 225 ft upstream at present datum. Mar. 13, 1959 to Mar. 29, 1988 on left bank 200 ft upstream at present datum.

AVERAGE DISCHARGE.--36 years, 169 ft³/s, 122,400 acre-ft/yr.

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, 1,280 ft³/s June 30, gage height, 6.52 ft; minimum daily, 40 ft³/s May. 11. 12. 14.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	82	84	90	100	118	99	44	51	384	189	91
2	78	81	85	94	90	116	100	44	52	122	153	84
3	76	82	87	98	80	107	100	46	52	81	134	82
4	79	82	86	98	64	100	97	45	52	79	111	79
5	84	80	88	100	66	96	93	43	52	94	94	76
6	83	79	90	104	68	110	94	43	52	97	89	75
7	81	80	90	104	68	120	94	42	54	97	90	73
8	78	80	90	100	72	130	92	41	53	99	91	69
9	76	80	91	98	80	122	89	41	51	111	91	70
10	75	79	93	96	90	112	86	41	52	124	96	70
11	73	79	91	96	100	111	87	40	52	128	105	69
12	73	79	93	98	110	108	84	40	52	132	107	76
13	73	76	92	100	106	105	78	41	53	216	110	78
14	74	76	92	102	104	103	68	40	50	224	116	77
15	74	76	92	104	104	99	66	41	50	163	115	77
16	71	78	91	106	100	97	62	41	50	144	121	77
17	72	78	88	108	98	97	59	43	49	136	104	74
18	73	79	89	110	98	95	56	50	48	134	90	70
19	74	78	90	108	100	94	54	52	46	130	254	70
20	73	77	94	102	106	95	54	44	46	121	207	68
21	75	77	92	98	110	95	54	154	82	116	125	67
22	76	78	91	98	110	96	54	131	92	114	104	65
23	77	78	92	100	106	97	54	98	101	113	98	65
24	78	76	89	106	100	97	54	89	114	112	88	64
25	80	75	90	106	110	97	52	71	326	111	79	64
26	80	74	91	100	123	100	52	62	284	117	94	65
27	80	74	82	96	121	102	51	61	141	113	267	65
28	81	79	78	96	120	102	47	59	94	110	226	65
29	81	80	72	100	---	100	45	55	93	108	134	64
30	82	80	78	106	---	98	43	52	792	114	115	64
31	82	---	88	106	---	98	---	51	---	263	98	---
TOTAL	2387	2352	2739	3128	2704	3217	2118	1745	3136	4207	3895	2153
MEAN	77.0	78.4	88.4	101	96.6	104	70.6	56.3	105	136	126	71.8
MAX	84	82	94	110	123	130	100	154	792	384	267	91
MIN	71	74	72	90	64	94	43	40	46	79	79	64
AC-FT	4730	4670	5430	6200	5360	6380	4200	3460	6220	8340	7730	4270
CAL YR 1988	TOTAL 37807	MEAN 103	MAX 553	MIN 44	AC-FT 74990							
WTR YR 1989	TOTAL 33781	MEAN 92.6	MAX 792	MIN 40	AC-FT 67000							

KANSAS RIVER BASIN

245

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: Dec. 10, 16-18, 23-26, Jan. 22, 23, 26, 27, Feb. 1-5, and Mar. 3, 5. Records good except for periods of estimated record, which are poor. Natural flow affected by pump irrigation development above station.

AVERAGE DISCHARGE.--29 years, 26.8 ft³/s, 19,420 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, 3.2 ft³/s June 28, 1988.

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)
June 25	0900	*765	*5.21	Aug. 26	0715	596	4.57

Minimum daily discharge, 5.2 ft³/s July 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	21	20	20	26	25	14	14	68	18	20
2	19	17	21	19	16	26	24	15	15	34	17	18
3	18	18	22	20	16	20	24	16	15	27	18	16
4	16	18	22	21	17	17	24	16	15	23	15	15
5	15	17	22	22	19	22	23	16	15	19	13	14
6	15	17	22	22	20	20	22	17	15	17	11	14
7	15	17	22	23	19	20	21	16	17	15	12	13
8	15	18	22	17	18	28	20	15	18	14	11	13
9	15	18	21	22	18	34	20	15	18	13	10	14
10	16	18	23	25	17	32	20	15	20	11	10	15
11	16	18	22	25	16	35	20	14	20	9.7	9.6	16
12	16	18	22	22	19	39	20	14	19	10	8.0	18
13	16	18	22	19	19	39	20	16	18	11	7.7	19
14	15	18	22	20	22	34	20	16	16	10	7.7	19
15	15	18	22	22	21	32	20	17	14	12	9.6	20
16	15	18	21	21	21	30	19	17	14	11	12	20
17	15	19	21	22	20	28	18	18	13	12	12	18
18	15	19	22	21	21	27	19	20	12	11	13	17
19	15	19	23	22	20	26	18	22	9.8	8.1	14	16
20	16	19	24	23	20	26	18	23	9.4	7.8	13	15
21	16	20	26	23	21	26	18	23	9.2	8.0	13	14
22	16	19	24	25	21	26	17	22	7.8	6.7	13	13
23	16	19	23	23	22	27	17	21	7.6	6.2	12	13
24	16	19	22	22	23	29	17	19	45	6.5	11	13
25	17	19	21	22	23	31	16	18	240	7.5	88	13
26	17	19	20	25	26	30	16	16	24	7.7	472	13
27	16	19	17	26	26	29	16	15	23	5.2	93	14
28	16	21	18	25	27	27	15	14	26	6.9	45	14
29	17	21	20	22	---	27	15	14	38	8.0	32	13
30	17	21	20	23	---	26	15	14	75	10	27	13
31	17	---	19	24	---	26	---	14	---	16	24	---
TOTAL	498	556	669	688	568	865	577	522	802.8	432.3	1071.6	463
MEAN	16.1	18.5	21.6	22.2	20.3	27.9	19.2	16.8	26.8	13.9	34.6	15.4
MAX	19	21	26	26	27	39	25	23	240	68	472	20
MIN	15	17	17	17	16	17	15	14	7.6	5.2	7.7	13
AC-FT	988	1100	1330	1360	1130	1720	1140	1040	1590	857	2130	918

CAL YR 1988 TOTAL 8141.3 MEAN 22.2 MAX 315 MIN 3.2 AC-FT 16150
WTR YR 1989 TOTAL 7712.7 MEAN 21.1 MAX 472 MIN 5.2 AC-FT 15300

KANSAS RIVER BASIN

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, 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, 31,340 acre-ft May 24, elevation, 2,577.60 ft; minimum, 24,090 acre-ft Aug. 25, elevation, 2,572.00 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 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25840	26170	26790	27560	28410	29150	30440	30700	31110	31060	26590	24990
2	25850	26200	26820	27580	28390	29190	30490	30700	31190	31110	26570	24930
3	25870	26220	26830	27610	28380	29210	30510	30830	31160	31130	26550	24910
4	25860	26230	26860	27630	28410	29200	30510	30840	31130	31060	26510	24880
5	25850	26210	26880	27670	28460	29230	30520	30810	31100	30950	26510	24830
6	25860	26220	26910	27710	28490	29260	30550	30810	31200	30800	26330	24810
7	25870	26240	26930	27720	28510	29310	30590	30850	31170	30610	26200	24770
8	25910	26270	26930	27720	28510	29350	30550	30910	31160	30410	26000	24710
9	25930	26280	26950	27740	28530	29420	30550	30870	31140	30210	25750	24710
10	25960	26280	26980	27790	28570	29500	30570	30840	31160	29950	25500	24710
11	25960	26340	27000	27810	28580	29600	30580	30810	31200	29730	25290	24690
12	25980	26330	27030	27830	28610	29660	30610	30830	31200	29500	25110	24790
13	26000	26340	27070	27850	28620	29750	30640	30840	31080	29280	24930	24830
14	26030	26380	27070	27880	28630	29770	30650	30870	30950	29110	24790	24870
15	26050	26390	27080	27910	28660	29830	30700	30930	30900	28910	24710	24920
16	26060	26410	27120	27930	28680	29850	30720	30950	30850	28700	24590	24970
17	26070	26430	27150	27960	28710	29880	30700	31030	30810	28610	24490	24990
18	26060	26470	27170	27980	28760	29910	30700	31080	30750	28490	24510	25010
19	26050	26470	27290	28000	28800	29980	30720	31130	30650	28350	24430	25050
20	26070	26490	27290	28010	28830	30000	30780	31130	30450	28240	24350	25070
21	26060	26530	27340	28040	28860	30020	30810	31240	30210	28090	24310	25030
22	26080	26550	27360	28080	28870	30070	30870	31300	29950	27950	24230	24990
23	26080	26610	27390	28100	28900	30110	30870	31310	29700	27770	24190	24950
24	26080	26630	27420	28120	28940	30170	30880	31310	30110	27610	24150	24950
25	26100	26670	27430	28160	28990	30210	30840	31260	30910	27420	24150	24970
26	26110	26680	27490	28170	29030	30260	30840	31210	30950	27210	24700	24970
27	26110	26710	27470	28220	29070	30320	30840	31170	30940	27050	24990	24970
28	26080	26730	27470	28310	29110	30340	30770	31210	30880	26910	25030	24990
29	26080	26740	27490	28340	---	30370	30710	31260	30900	26790	25030	25010
30	26100	26770	27530	28390	---	30400	30700	31170	30970	26770	25030	25030
31	26150	---	27540	28420	---	30400	---	31130	---	26670	25040	---
MEAN	26010	26430	27160	27940	28690	29800	30670	31010	30860	28920	25180	24910
MAX	26150	26770	27540	28420	29110	30400	30880	31310	31200	31130	26590	25070
MIN	25840	26170	26790	27560	28380	29150	30440	30700	29700	26670	24150	24690
(†)	2573.69	2574.19	2574.80	2575.47	2575.99	2576.94	2577.15	2577.45	2577.34	2574.11	2572.79	2572.78
(‡)	+330	+620	+770	+880	+690	+1290	+300	+430	-160	-4300	-1630	-10
CAL YR 1988	MEAN	28050	MAX	32240	MIN	25280	(†)	+1530				
WTR YR 1989	MEAN	28130	MAX	31310	MIN	24150	(‡)	-790				

(†) Elevation, in feet, at end of month

(‡) Change in contents, in acre-feet.

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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.

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.

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.

AVERAGE DISCHARGE.--28 years (1962-89), 20.1 ft³/s, 14,560 acre-ft/yr, unadjusted.

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, 133 ft³/s June 24, gage height, 9.91 ft; minimum daily, 3.1 ft³/s Nov. 5.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	3.9	4.3	4.3	4.5	3.8	3.8	4.1	4.1	26	40	29
2	4.0	3.9	4.3	4.1	4.4	3.7	3.7	3.9	4.1	26	34	29
3	3.9	3.6	4.4	4.0	4.3	3.6	3.8	4.7	3.9	25	33	29
4	3.9	3.5	4.5	4.1	4.3	4.1	3.7	4.2	4.2	27	33	28
5	4.0	3.1	4.5	4.3	4.1	4.0	3.5	4.5	4.2	43	33	28
6	4.0	3.3	4.5	4.3	4.0	4.0	3.5	4.4	3.8	62	39	28
7	4.0	3.3	4.5	4.3	4.0	4.1	3.5	4.4	4.3	81	66	28
8	4.0	3.3	4.3	4.3	4.0	3.7	3.7	3.8	3.6	81	95	9.0
9	4.0	3.3	4.3	4.1	4.0	3.7	3.8	3.8	3.7	84	121	5.0
10	3.9	3.5	4.3	4.0	3.8	3.6	3.9	3.8	3.8	107	128	4.7
11	4.0	3.6	4.3	4.0	3.8	3.5	3.6	4.4	4.1	128	114	4.3
12	3.8	3.6	4.3	4.0	3.8	3.6	3.9	4.4	4.2	124	101	4.0
13	3.7	3.6	4.3	4.0	3.8	3.6	3.9	4.3	23	108	101	4.2
14	3.6	3.6	4.2	4.4	3.8	3.5	3.9	4.3	52	86	88	4.2
15	3.5	3.6	4.0	4.4	3.8	3.6	3.5	4.4	26	85	74	4.5
16	3.7	3.6	4.0	4.3	3.8	3.7	3.9	4.4	26	86	70	4.2
17	3.7	3.6	4.0	4.3	3.8	3.7	3.3	4.6	27	89	65	4.2
18	4.1	3.6	4.1	4.3	3.7	3.7	4.0	4.8	29	77	59	4.0
19	4.3	3.7	4.4	4.1	3.6	3.7	3.8	4.5	55	68	55	4.2
20	4.7	3.8	4.8	4.0	3.6	3.9	3.9	4.2	89	64	52	4.2
21	4.8	3.7	4.3	4.0	3.6	4.0	3.9	4.8	94	64	45	4.0
22	4.3	3.6	4.5	4.0	3.6	3.9	4.0	4.3	113	72	36	4.2
23	4.1	3.8	4.5	4.0	3.6	3.9	4.1	4.1	111	75	33	4.0
24	4.0	4.0	4.5	4.0	3.6	3.9	4.1	3.7	109	88	35	4.0
25	4.0	4.0	4.0	4.3	3.7	3.8	4.1	3.9	74	93	39	4.0
26	4.2	4.0	4.0	4.3	3.8	3.8	4.1	3.7	25	106	38	4.0
27	4.0	4.0	4.0	4.3	3.8	3.6	4.6	3.9	25	98	39	3.8
28	3.9	4.1	4.0	4.3	3.8	3.7	3.7	4.2	25	80	42	4.0
29	4.1	4.3	4.0	4.3	---	3.7	3.6	3.8	25	69	36	3.8
30	4.1	4.3	4.0	4.3	---	3.7	3.7	3.8	25	85	30	3.8
31	4.0	---	4.1	4.5	---	3.8	---	3.8	---	77	29	---
TOTAL	124.3	110.8	132.2	129.9	108.4	116.6	114.5	129.9	1001.0	2384	1803	299.3
MEAN	4.01	3.69	4.26	4.19	3.87	3.76	3.82	4.19	33.4	76.9	58.2	9.98
MAX	4.8	4.3	4.8	4.5	4.5	4.1	4.6	4.8	113	128	128	29
MIN	3.5	3.1	4.0	4.0	3.6	3.5	3.3	3.7	3.6	25	29	3.8
AC-FT	247	220	262	258	215	231	227	258	1990	4730	3580	594
CAL YR 1988	TOTAL 6343.2		MEAN 17.3	MAX 116	MIN 2.9	AC-FT 12580						
WTR YR 1989	TOTAL 6453.9		MEAN 17.7	MAX 128	MIN 3.1							

KANSAS RIVER BASIN

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: Oct. 10, Oct. 12 to Nov. 3, Nov. 28, Dec. 9, 10, Jan. 9-11, 13-20, 27, Feb. 6-24, and Mar. 2-9. 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.--27 years (1963-89), 14.0 ft³/s, 10,140 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, 0.26 ft³/s Sept. 2, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 303 ft³/s June 25, gage height, 8.70 ft; minimum daily, 0.26 ft³/s Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	7.2	7.7	9.9	7.3	8.7	8.9	6.7	8.2	20	23	3.8
2	6.4	7.4	7.7	7.6	9.2	9.0	8.8	7.0	8.2	20	12	.26
3	6.5	7.4	7.6	10	5.7	9.2	8.8	8.4	8.0	18	10	.46
4	6.1	7.4	7.3	11	7.0	9.0	8.4	9.7	7.7	13	7.9	1.9
5	6.2	7.0	7.5	11	7.8	8.8	8.3	7.3	8.0	10	4.5	6.6
6	6.3	7.2	7.5	9.7	9.0	8.8	8.2	7.3	8.1	10	4.3	7.3
7	19	7.6	7.3	9.8	8.4	9.6	8.2	7.4	8.7	14	11	5.6
8	11	7.5	7.4	8.5	8.4	11	8.0	7.4	8.1	7.9	8.2	7.2
9	7.2	7.7	7.2	8.2	9.0	12	8.6	6.8	6.3	6.9	40	6.9
10	6.9	7.5	8.4	8.8	9.2	10	8.6	6.8	6.7	8.8	50	5.8
11	6.9	7.8	7.6	9.0	10	9.4	8.5	6.8	6.8	26	55	5.4
12	6.9	8.3	8.3	9.2	11	9.4	8.3	7.6	6.8	28	35	6.9
13	6.9	8.1	7.6	9.4	11	9.3	8.4	8.1	4.8	27	34	6.8
14	6.8	8.1	7.6	9.6	10	9.1	8.2	7.7	11	16	34	5.9
15	6.7	8.0	7.3	9.8	9.2	9.7	7.9	7.9	17	9.0	14	5.8
16	6.7	8.0	8.2	9.4	9.0	10	8.4	7.9	12	7.8	12	5.4
17	6.7	7.9	7.9	10	8.8	10	8.0	8.4	9.8	8.0	13	5.2
18	6.8	8.0	8.3	10	9.0	10	7.7	11	7.5	18	15	4.9
19	7.2	7.9	7.7	9.8	9.6	10	8.1	9.5	6.4	15	34	4.8
20	7.6	7.9	9.1	10	9.2	11	8.0	8.3	43	10	16	4.8
21	8.0	8.4	7.7	11	9.2	11	8.0	13	41	4.3	18	4.4
22	7.6	7.8	7.8	11	9.8	11	8.1	9.6	38	4.9	13	4.7
23	7.2	7.8	8.1	9.9	11	11	7.7	8.6	35	8.1	9.4	4.5
24	7.2	7.9	8.1	9.1	12	10	7.8	8.1	24	11	8.7	5.0
25	7.2	7.8	9.5	8.9	13	10	7.6	7.7	172	7.3	8.7	5.1
26	7.4	8.1	7.9	8.9	11	9.8	7.3	7.9	54	19	8.3	5.1
27	7.4	7.8	8.0	9.8	9.9	9.5	6.6	8.0	21	21	8.1	4.8
28	7.2	8.4	9.8	9.5	9.3	9.2	6.5	8.2	20	17	11	4.8
29	7.2	8.0	9.5	8.4	---	8.8	5.9	8.1	20	9.2	11	4.8
30	7.2	7.6	9.6	8.0	---	8.7	6.1	7.6	20	9.0	7.4	4.6
31	7.2	---	9.3	8.1	---	8.9	---	8.2	---	63	5.8	---
TOTAL	232.5	233.5	250.5	293.3	263.0	301.9	237.9	253.0	648.1	467.2	542.3	149.52
MEAN	7.50	7.78	8.08	9.46	9.39	9.74	7.93	8.16	21.6	15.1	17.5	4.98
MAX	19	8.4	9.8	11	13	12	8.9	13	172	63	55	7.3
MIN	6.1	7.0	7.2	7.6	5.7	8.7	5.9	6.7	4.8	4.3	4.3	.26
AC-FT	461	463	497	582	522	599	472	502	1290	927	1080	297

CAL YR 1988 TOTAL 4382.4 MEAN 12.0 MAX 310 MIN 2.7 AC-FT 8690
WTR YR 1989 TOTAL 3872.72 MEAN 10.6 MAX 172 MIN .26 AC-FT 7680

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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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 573 ft³/s Aug. 27, gage height, 11.24 ft; minimum daily, 1.2 ft³/s Aug. 6.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	5.0	5.2	5.5	5.1	6.3	5.9	6.1	5.9	5.6	3.7	4.7
2	4.4	4.9	5.2	4.9	4.3	5.8	5.9	6.1	5.8	5.6	3.6	4.6
3	4.5	4.6	5.2	5.4	5.6	5.2	6.1	6.1	5.8	5.6	3.8	4.6
4	4.3	4.7	5.2	5.8	5.3	5.7	5.9	6.3	5.8	5.1	3.0	4.5
5	4.4	4.7	5.3	5.9	5.4	6.2	5.8	6.1	5.8	4.7	1.5	4.5
6	4.3	4.8	5.3	5.8	5.5	5.5	6.0	6.2	5.9	3.1	1.2	4.3
7	4.3	5.0	5.3	5.4	5.5	6.3	6.2	6.1	6.6	3.3	2.0	4.2
8	4.3	5.0	5.3	4.7	5.4	8.0	6.1	6.1	6.3	1.6	1.7	4.4
9	4.5	5.0	5.1	5.4	5.1	11	6.1	6.0	5.9	1.3	3.1	6.0
10	4.5	4.8	5.5	5.8	5.6	7.9	6.1	5.9	5.8	1.7	3.1	4.6
11	4.5	4.9	5.4	5.9	5.8	6.3	6.1	6.0	5.8	2.9	2.5	4.1
12	4.6	5.0	5.4	5.1	5.9	5.8	6.2	6.3	5.7	2.1	3.3	4.9
13	4.6	5.0	5.5	4.6	5.9	5.6	6.2	6.7	5.3	1.8	4.6	4.9
14	4.6	4.9	5.6	5.9	5.9	5.5	6.2	6.5	5.2	1.6	9.7	4.5
15	4.5	4.9	5.4	5.5	5.8	5.6	6.2	6.5	5.2	1.5	4.6	4.2
16	4.6	4.9	5.1	5.1	5.8	5.8	6.3	6.2	5.2	2.1	4.4	4.1
17	4.8	4.9	5.4	5.5	5.8	5.9	6.3	6.3	5.1	2.2	4.3	4.0
18	5.0	4.9	5.6	5.6	5.6	5.9	6.4	6.9	4.5	5.0	4.1	3.9
19	5.1	5.0	5.7	5.5	5.6	5.9	6.3	6.6	4.3	5.5	4.1	3.7
20	5.2	4.9	6.0	5.4	5.8	6.0	6.3	6.1	3.0	3.9	1.9	3.6
21	5.0	4.8	5.6	5.3	5.7	6.0	6.3	6.1	4.0	2.4	2.1	3.5
22	4.7	5.0	5.5	5.4	5.7	6.1	6.3	6.5	2.9	3.8	2.0	3.4
23	4.8	5.0	5.5	5.4	5.7	6.2	6.1	5.8	3.5	4.6	2.3	3.4
24	5.0	5.0	5.5	5.4	5.9	6.2	6.2	5.8	4.1	4.0	1.6	3.4
25	4.9	5.0	5.2	5.3	6.2	6.1	6.1	5.5	6.7	2.7	4.3	3.5
26	4.9	5.0	5.3	4.8	6.4	6.2	6.0	5.5	5.9	2.7	3.8	3.4
27	5.0	5.1	4.2	5.3	6.3	6.3	5.9	5.6	5.7	1.5	160	3.4
28	4.9	4.8	4.5	5.7	6.3	6.2	5.9	5.7	5.1	2.2	20	3.3
29	4.9	5.2	5.1	5.7	---	6.0	5.9	5.7	5.1	1.3	6.1	3.2
30	5.0	5.1	5.1	5.6	---	6.0	6.0	5.6	6.1	3.2	5.3	3.2
31	5.0	---	5.2	5.8	---	5.9	---	5.7	---	7.1	4.9	---
TOTAL	145.7	147.8	164.4	168.4	158.9	193.4	183.3	188.6	158.0	101.7	282.6	122.0
MEAN	4.70	4.93	5.30	5.43	5.67	6.24	6.11	6.08	5.27	3.28	9.12	4.07
MAX	5.2	5.2	6.0	5.9	6.4	11	6.4	6.9	6.7	7.1	160	6.0
MIN	4.3	4.6	4.2	4.6	4.3	5.2	5.8	5.5	2.9	1.3	1.2	3.2
AC-FT	289	293	326	334	315	384	364	374	313	202	561	242
CAL YR 1988	TOTAL 2114.7		MEAN 5.78	MAX 38	MIN 2.4	AC-FT 4190						

KANSAS RIVER BASIN

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. 9, Dec. 28 to Jan. 21, Feb. 2-23, and Mar. 3-9. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--39 years, 63.3 ft³/s, 45,860 acre-ft/yr; median of yearly mean discharges, 57 ft³/s, 41,300 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)
June 25	0430	*1110	*12.26	No peaks greater than base discharge.			

Minimum daily discharge, 17 ft³/s Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	41	45	50	52	54	52	42	37	57	30	39
2	40	41	46	49	32	54	52	43	37	59	32	36
3	38	41	46	52	25	47	51	45	38	63	41	34
4	37	41	46	54	35	44	49	45	37	48	37	32
5	36	41	45	56	40	40	49	44	37	40	29	32
6	36	42	45	58	42	49	48	43	38	33	28	29
7	37	42	45	45	46	56	47	43	41	27	28	29
8	37	42	45	49	50	62	47	43	45	30	23	29
9	37	42	44	45	56	78	46	41	42	29	21	34
10	37	42	46	43	62	71	45	40	42	27	19	38
11	37	42	45	45	58	68	46	39	41	26	17	36
12	37	43	46	47	70	66	48	40	40	24	18	38
13	37	43	45	47	72	67	48	41	38	22	22	40
14	37	44	46	46	74	64	47	43	37	26	26	43
15	38	44	49	45	76	60	48	45	35	27	23	42
16	38	44	48	46	78	57	48	44	33	26	25	41
17	39	44	45	48	62	56	47	46	33	26	24	41
18	39	43	47	50	54	54	46	49	32	26	25	39
19	39	43	45	52	54	52	45	53	31	26	55	38
20	39	43	48	54	58	53	46	55	29	26	38	37
21	40	44	51	58	64	52	46	51	27	22	35	35
22	41	43	51	50	56	53	46	51	26	20	29	35
23	41	43	51	49	52	55	46	49	26	22	26	34
24	41	43	49	49	56	57	46	45	43	25	24	34
25	41	44	48	49	48	57	46	42	485	23	24	34
26	40	46	46	49	51	57	45	41	116	20	54	35
27	41	46	44	53	54	56	45	39	86	20	190	35
28	41	48	43	55	54	56	44	38	64	20	430	34
29	41	46	45	51	---	54	43	38	50	18	133	34
30	41	45	48	51	---	53	42	37	58	20	78	34
31	41	---	52	51	---	52	---	37	---	36	48	---
TOTAL	1204	1296	1445	1546	1531	1754	1404	1352	1724	914	1632	1071
MEAN	38.8	43.2	46.6	49.9	54.7	56.6	46.8	43.6	57.5	29.5	52.6	35.7
MAX	41	48	52	58	78	78	52	55	485	63	430	43
MIN	36	41	43	43	25	40	42	37	26	18	17	29
AC-FT	2390	2570	2870	3070	3040	3480	2780	2680	3420	1810	3240	2120
CAL YR 1988	TOTAL 18695	MEAN 51.1	MAX 877	MIN 19	AC-FT 37080							
WTR YR 1989	TOTAL 16873	MEAN 46.2	MAX 485	MIN 17	AC-FT 33470							

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, 37,900 acre-ft July 3, elevation, 2,367.26 ft; minimum, 16,260 acre-ft Sept. 8, elevation, 2,351.85 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 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21420	23450	25800	28380	31170	33680	35340	36100	37240	37740	24070	17340
2	21490	23550	25880	28470	31220	33780	35320	36190	37320	37780	23960	17240
3	21580	23620	25950	28530	31240	33910	35300	36270	37240	37820	23910	17210
4	21580	23700	26050	28650	31290	33930	35210	36380	37170	37780	23810	17010
5	21610	23750	26140	28720	31390	34000	35210	36420	37220	37660	23550	16730
6	21690	23820	26210	28840	31450	34070	35200	36450	37330	37450	23180	16500
7	21770	23900	26290	28920	31570	34190	35320	36600	37300	37090	22710	16290
8	21880	23960	26360	28980	31620	34320	35160	36720	37300	36720	22090	16320
9	21960	24050	26450	29040	31710	34500	35160	36620	37180	36310	21420	16380
10	22020	24080	26530	29140	31800	34680	35130	36640	37200	35610	20750	16490
11	22090	24180	26630	29230	31850	34860	35180	36660	37260	34820	20170	16510
12	22160	24260	26710	29310	31940	34930	35200	36640	37240	34070	19560	16690
13	22230	24340	26830	29370	32010	35040	35250	36700	37170	33350	19060	16800
14	22340	24420	26870	29450	32100	35070	35290	36870	37030	32780	18570	16920
15	22400	24520	26920	29530	32180	35070	35290	36960	37070	32080	18160	17040
16	22470	24570	27020	29620	32270	35130	35380	37090	37200	31520	17770	17150
17	22500	24650	27110	29730	32390	35130	35250	37110	37110	31090	17450	17230
18	22570	24760	27210	29820	32470	35110	35300	37240	36870	30700	17220	17320
19	22600	24800	27390	29920	32610	35180	35430	37330	36720	30350	17180	17400
20	22670	24860	27440	30000	32700	35200	35590	37370	36490	30000	17140	17470
21	22740	24960	27540	30100	32800	35200	35690	37490	36010	29640	17100	17480
22	22840	25050	27630	30210	32900	35270	35820	37550	35650	29220	17010	17500
23	22880	25110	27750	30280	32990	35300	35880	37600	35380	28050	16910	17500
24	22960	25220	27800	30390	33130	35380	36010	37530	36770	28240	16740	17570
25	22960	25300	27920	30470	33270	35320	36010	37430	37240	27530	16620	17660
26	23070	25400	28010	30570	33370	35390	36120	37320	37350	26840	16520	17720
27	23120	25450	28050	30700	33510	35430	36160	37330	37470	26220	16560	17790
28	23130	25570	28080	30810	33570	35430	36080	37450	37430	25680	17180	17880
29	23180	25650	28120	30930	---	35380	36020	37510	37620	25140	17420	17940
30	23260	25720	28200	31030	---	35360	35990	37320	37660	24610	17480	18010
31	23360	---	28320	31170	---	35270	---	37170	---	24260	17450	---
MEAN	22400	24560	27070	29690	32230	34860	35510	36970	37040	31880	19310	17170
MAX	23360	25720	28320	31170	33570	35430	36160	37600	37660	37820	24070	18010
MIN	21420	23450	25800	28380	31170	33680	35130	36100	35380	24260	16520	16290
(†)	2358.08	2359.86	2361.67	2363.49	2364.91	2365.86	2366.25	2366.88	2367.14	2358.77	2353.01	2353.53
(‡)	+2040	+2360	+2600	+2850	+2400	+1700	+720	+1180	+490	-13400	-6810	+560
CAL YR 1988	MEAN	29010	MAX	38480	MIN	19690	(†)	-960				
WTR YR 1989	MEAN	29040	MAX	37820	MIN	16290	(‡)	-3310				

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

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 fair. Flow regulated by Harry Strunk Lake (station 06842000).

AVERAGE DISCHARGE.--40 years, 59.3 ft³/s, 42,960 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft³/s Mar. 23, 1960, gage height, 5.97 ft; minimum daily, 0.06 ft³/s Sept. 24-26, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 357 ft³/s July 10, 25, 26, gage height, 3.03 ft; minimum daily, 0.16 ft³/s Oct. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	.27	.33	.48	.45	.52	44	1.9	30	40	126	84
2	.26	.27	.34	.52	.41	.53	44	2.4	30	42	91	74
3	.25	.27	.36	.72	.37	.52	44	3.6	31	42	78	83
4	.16	.29	.42	.38	.45	.53	44	6.1	30	42	96	146
5	.16	.32	.43	.38	.47	.53	44	6.7	30	69	134	175
6	.17	.34	.47	.38	.47	.53	37	7.2	31	109	154	168
7	.17	.43	.46	.38	.47	.55	32	8.0	33	186	255	131
8	.17	.45	.42	.37	.47	.56	33	9.9	32	194	309	13
9	.17	.50	.44	.37	.47	.56	33	9.7	32	211	324	.30
10	.18	.58	.47	.38	.49	.59	34	9.6	31	296	312	.27
11	.18	.59	.47	.38	.52	.61	34	9.8	31	334	301	.27
12	.18	.66	.48	.38	.53	.67	34	11	32	335	290	.41
13	.18	.72	.52	.38	.52	17	34	13	32	312	285	.30
14	.20	.75	.50	.42	.52	29	35	14	31	273	274	.27
15	.27	.61	.51	.42	.52	29	36	15	29	257	257	.26
16	.30	.19	.52	.43	.52	29	36	16	28	256	251	.25
17	.36	.19	.53	.43	.52	30	30	22	28	235	217	.25
18	.38	.21	.59	.42	.52	30	26	27	76	200	161	.24
19	.34	.21	.67	.43	.52	29	10	29	168	173	89	.23
20	.30	.22	.59	.43	.52	29	.60	29	111	179	64	.22
21	.30	.24	.47	.50	.52	29	.56	31	134	188	64	.25
22	.32	.24	.47	.51	.52	28	.54	32	151	190	64	.34
23	.38	.27	.46	.52	.52	28	.56	33	186	200	89	.48
24	.47	.30	.45	.52	.54	36	.57	35	174	269	117	.54
25	.52	.31	.47	.46	.57	44	.56	35	76	339	98	.47
26	.57	.33	.47	.42	.53	44	.55	34	28	340	91	.49
27	.43	.31	.44	.45	.52	44	.74	33	31	305	104	.46
28	.27	.29	.44	.59	.52	44	1.6	32	33	282	77	.44
29	.27	.33	.46	.55	---	44	1.6	33	35	274	61	.43
30	.24	.32	.47	.49	---	44	1.6	33	40	282	87	.39
31	.26	---	.47	.49	---	44	---	32	---	220	101	---
TOTAL	8.65	11.01	14.59	13.98	13.97	657.70	673.48	613.9	1764	6674	5021	881.56
MEAN	.28	.37	.47	.45	.50	21.2	22.4	19.8	58.8	215	162	29.4
MAX	.57	.75	.67	.72	.57	44	44	35	186	340	324	175
MIN	.16	.19	.33	.37	.37	.52	.54	1.9	28	40	61	.22
AC-FT	17	22	29	28	28	1300	1340	1220	3500	13240	9960	1750

CAL YR 1988 TOTAL 18551.03 MEAN 50.7 MAX 417 MIN .06 AC-FT 36800
WTR YR 1989 TOTAL 16347.84 MEAN 44.8 MAX 340 MIN .16 AC-FT 32430

KANSAS RIVER BASIN

253

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: Dec. 9-13 and Dec. 24 to Mar. 9. 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.--40 years (water years 1950-89, since storage in Harry Strunk Lake), 261 ft³/s, 189,100 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, 1,080 ft³/s July 1, gage height, 6.07 ft; minimum daily, 57 ft³/s Apr. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	95	98	100	120	140	167	61	95	741	402	169
2	75	94	98	110	110	135	169	63	94	434	285	155
3	77	95	99	110	100	130	170	67	92	255	222	145
4	80	95	100	120	80	125	169	96	87	195	202	181
5	84	94	102	130	66	120	171	79	83	175	222	201
6	87	93	102	124	64	125	168	73	77	197	202	203
7	90	94	101	120	76	135	157	70	78	247	296	179
8	94	94	100	110	86	140	152	66	77	261	348	139
9	90	94	100	104	90	150	156	65	75	251	367	109
10	90	94	98	100	98	155	160	62	76	317	359	95
11	89	95	100	110	100	151	163	61	76	375	346	88
12	89	99	106	120	106	147	160	63	73	397	349	109
13	90	98	104	126	110	142	151	73	65	399	326	118
14	91	99	103	120	116	164	144	73	62	417	315	109
15	91	101	105	120	120	163	137	73	83	429	310	102
16	89	102	107	128	126	159	132	72	81	386	292	96
17	88	102	109	136	130	157	122	92	66	357	297	93
18	91	100	109	140	130	156	106	125	60	324	242	90
19	92	99	110	150	135	155	100	143	194	279	265	87
20	95	98	124	155	140	155	75	118	153	259	402	81
21	99	96	123	160	145	154	69	152	131	271	263	76
22	99	97	119	160	140	155	66	305	172	267	199	77
23	99	96	114	150	130	154	64	207	223	266	186	76
24	99	94	100	140	135	156	65	161	247	331	214	77
25	99	94	98	130	140	171	64	143	505	396	215	77
26	101	97	98	130	150	170	62	133	572	424	169	73
27	98	97	90	135	150	171	57	118	337	404	182	70
28	97	95	70	140	145	171	57	106	224	361	323	67
29	99	96	60	140	---	169	59	103	188	325	267	66
30	99	96	70	135	---	168	61	98	184	323	200	67
31	97	---	90	130	---	170	---	96	---	392	197	---
TOTAL	2833	2893	3107	3983	3238	4713	3553	3217	4530	10455	8464	3275
MEAN	91.4	96.4	100	128	116	152	118	104	151	337	273	109
MAX	101	102	124	160	150	171	171	305	572	741	402	203
MIN	75	93	60	100	64	120	57	61	60	175	169	66
AC-FT	5620	5740	6160	7900	6420	9350	7050	6380	8990	20740	16790	6500

CAL YR 1988 TOTAL 61641 MEAN 168 MAX 1070 MIN 42 AC-FT 122300
WTR YR 1989 TOTAL 54261 MEAN 149 MAX 741 MIN 57 AC-FT 107600

KANSAS RIVER BASIN

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: Dec. 9, 12, 16, 17, 25, 27, 28, Jan. 8-10, 13, 16, 20-22, 26, 27, and Feb. 2 to Mar. 7. 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.--33 years (1951-72, 1978-89), 14.6 ft³/s, 10,580 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)
June 25	1745	*5610	*25.60	No other peak above base discharge.			
Minimum daily discharge, 3.8 ft ³ /s June 23.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	6.1	6.5	6.7	7.1	7.0	6.6	6.1	5.3	44	29	8.1
2	6.4	6.2	6.3	7.1	6.0	6.8	6.6	6.3	5.6	28	15	7.3
3	6.2	6.1	6.2	6.6	5.2	6.6	6.6	6.4	5.5	18	10	7.1
4	6.2	6.0	6.1	6.5	4.5	6.2	6.5	6.6	5.4	13	9.1	7.1
5	6.2	5.9	6.1	6.7	5.0	6.0	6.5	6.7	5.3	12	8.6	7.0
6	6.4	5.9	6.1	6.9	5.8	6.4	6.6	6.5	5.3	11	8.6	7.0
7	6.5	5.9	6.2	6.9	6.8	7.0	6.6	6.2	5.3	11	8.5	6.7
8	6.5	5.7	6.0	6.8	8.0	7.8	6.6	6.1	5.3	11	8.6	6.9
9	6.4	5.7	5.8	7.0	8.8	8.5	6.6	6.0	5.1	10	8.9	6.9
10	6.3	5.7	6.0	7.2	8.2	11	6.6	6.2	5.3	9.8	8.7	8.2
11	6.3	5.8	6.2	6.8	9.8	13	6.6	5.8	5.2	9.8	8.6	7.5
12	6.4	6.0	6.2	6.8	8.2	12	6.8	5.9	5.2	36	8.2	7.6
13	6.4	6.1	6.2	6.8	7.6	11	6.8	6.2	5.1	27	8.2	8.0
14	6.4	5.9	6.1	6.6	7.2	8.9	6.8	6.7	4.8	14	7.8	8.1
15	5.9	6.0	6.1	6.7	7.0	7.6	6.8	6.9	4.7	12	8.4	7.6
16	5.7	6.2	6.2	7.0	7.2	7.4	6.8	6.9	4.8	10	9.2	7.1
17	5.4	6.2	6.2	6.8	8.0	7.3	6.8	7.4	4.8	10	8.6	6.9
18	5.9	6.4	6.1	6.6	7.0	7.2	6.6	8.3	4.5	30	8.7	6.5
19	5.6	6.2	6.1	6.4	6.0	7.0	6.6	9.0	14	38	13	6.3
20	5.7	6.2	6.6	6.2	6.2	7.0	6.6	9.1	19	18	17	6.2
21	6.0	6.2	7.6	6.0	7.0	7.2	6.8	8.1	4.2	14	11	6.1
22	5.9	6.2	12	6.4	8.0	7.3	6.8	7.3	4.0	10	8.9	6.0
23	6.0	6.3	7.1	8.7	7.4	7.3	6.6	6.8	3.8	9.6	7.7	5.9
24	6.0	6.4	6.8	6.4	8.0	7.3	6.8	6.3	4.7	9.7	7.4	5.8
25	5.9	6.6	7.0	6.2	8.8	7.2	6.6	5.8	2150	10	7.3	5.8
26	6.0	6.8	6.6	6.0	8.2	7.1	6.4	5.6	635	9.8	7.0	5.9
27	6.0	6.7	6.6	5.8	7.6	7.2	6.4	5.5	120	9.1	7.0	5.9
28	6.2	6.9	6.8	7.0	7.4	7.0	6.4	5.4	46	9.0	13	5.8
29	6.1	6.6	6.8	6.9	---	6.9	6.2	5.3	27	8.9	20	5.9
30	6.1	6.6	6.8	6.6	---	6.7	6.1	5.4	41	11	12	6.0
31	6.2	---	6.7	6.7	---	6.7	---	5.3	---	18	10	---
TOTAL	190.1	185.5	204.1	207.8	202.0	239.6	198.1	202.1	3161.2	491.7	324.0	203.2
MEAN	6.13	6.18	6.58	6.70	7.21	7.73	6.60	6.52	105	15.9	10.5	6.77
MAX	6.9	6.9	12	8.7	9.8	13	6.8	9.1	2150	44	29	8.2
MIN	5.4	5.7	5.8	5.8	4.5	6.0	6.1	5.3	3.8	8.9	7.0	5.8
AC-FT	377	368	405	412	401	475	393	401	6270	975	643	403

CAL YR 1988 TOTAL 4935.1 MEAN 13.5 MAX 545 MIN 5.2 AC-FT 9790
WTR YR 1989 TOTAL 5809.4 MEAN 15.9 MAX 2150 MIN 3.8 AC-FT 11520

KANSAS RIVER BASIN

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06844210 TURKEY CREEK AT EDISON, NE

LOCATION.--Lat 40°16'15", long 99°44'00", in the center of sec.31, T.4 N., R.21 W., Furnas County, Hydrologic Unit 10250009, on left bank 10 ft downstream from bridge on State Highway 136, 2 mi east of Edison and 5 mi upstream from mouth.

DRAINAGE AREA.--74.9 mi².

PERIOD OF RECORD.--October 1977 to current year.

REVISED RECORDS.--WDR NE-81-1: 1978-80(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: Feb. 6-8 and Mar. 4-6. 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.--12 years, 7.16 ft³/s, 5,190 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, 795 ft³/s June 25, gage height, 12.91 ft from floodmark; minimum daily, 2.2 ft³/s Jan. 9.

REVISIONS.--The maximum discharge for the water year 1981 has been revised to 790 ft³/s, July 18, 1981, gage height 11.95 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	6.6	8.4	9.0	18	8.9	9.7	9.3	8.4	17	20	4.3
2	5.4	6.7	8.1	9.3	4.0	7.7	10	9.1	8.4	14	6.5	4.3
3	5.3	6.6	8.2	5.3	2.8	5.8	10	9.3	8.1	19	5.5	4.3
4	5.5	6.8	8.4	7.2	5.3	7.0	10	9.8	8.3	13	5.2	4.3
5	5.4	7.1	8.3	8.7	9.1	9.0	9.9	9.8	8.4	10	4.5	4.3
6	5.5	7.2	8.4	8.0	13	12	9.8	9.3	8.5	9.0	5.8	4.3
7	5.7	7.1	8.6	7.1	15	15	10	9.4	8.3	8.7	6.2	4.8
8	5.9	7.2	6.8	5.3	16	16	9.7	9.6	8.4	8.4	7.4	4.3
9	6.0	7.3	6.9	2.2	17	16	10	9.3	8.1	8.2	8.7	4.3
10	6.1	7.1	11	4.8	17	14	9.7	9.0	8.2	8.0	8.5	4.4
11	5.9	6.9	8.6	7.6	14	14	9.8	8.8	8.4	9.4	5.7	4.1
12	5.9	6.9	8.4	7.8	13	14	10	8.9	8.4	11	6.4	4.7
13	5.9	7.0	10	6.1	12	13	10	9.9	8.2	11	6.1	5.5
14	5.9	7.2	8.8	3.9	12	10	10	10	7.8	10	6.9	5.4
15	5.9	7.1	7.5	5.9	12	9.7	9.9	9.8	7.9	9.4	4.8	4.6
16	6.0	7.0	6.7	8.8	11	10	9.9	9.7	8.1	7.4	5.1	4.5
17	6.2	7.0	8.2	5.1	11	10	10	9.7	7.9	8.2	4.7	4.5
18	5.9	7.6	9.1	7.8	11	10	10	11	7.8	14	4.4	4.4
19	6.1	7.6	9.6	8.8	11	10	9.6	12	7.8	8.7	5.6	4.3
20	6.4	7.6	11	8.2	12	10	9.7	11	7.1	7.2	4.5	4.3
21	6.4	6.7	11	6.0	13	11	10	9.5	6.9	7.4	4.1	4.1
22	6.7	8.4	8.7	6.1	12	10	10	9.7	6.9	7.0	3.4	4.1
23	6.6	8.6	8.4	8.5	11	11	10	9.3	7.0	6.5	3.7	4.1
24	6.3	8.3	7.3	8.4	8.4	11	10	8.9	7.8	6.7	3.9	4.1
25	6.4	8.0	7.4	8.5	15	11	10	8.7	300	7.2	5.4	4.2
26	6.5	8.1	10	7.9	12	11	10	8.4	220	8.7	5.4	4.4
27	6.4	8.1	8.4	4.0	11	11	9.8	8.4	68	5.4	4.7	4.5
28	6.4	6.1	7.8	11	10	10	9.5	8.4	28	5.4	17	4.5
29	6.5	10	7.5	9.5	---	10	9.3	8.4	17	4.4	20	4.5
30	6.3	8.8	8.5	9.0	---	10	9.1	8.4	43	4.7	6.2	4.5
31	6.4	---	9.3	8.6	---	9.9	---	8.2	---	18	4.7	---
TOTAL	187.5	222.7	265.3	224.4	328.6	338.0	295.4	291.0	867.1	293.0	211.0	132.9
MEAN	6.05	7.42	8.56	7.24	11.7	10.9	9.85	9.39	28.9	9.45	6.81	4.43
MAX	6.7	10	11	11	18	16	10	12	300	19	20	5.5
MIN	5.3	6.1	6.7	2.2	2.8	5.8	9.1	8.2	6.9	4.4	3.4	4.1
AC-FT	372	442	526	445	652	670	586	577	1720	581	419	264

CAL YR 1988 TOTAL 3719.6 MEAN 10.2 MAX 127 MIN 3.9 AC-FT 7380
WTR YR 1989 TOTAL 3656.9 MEAN 10.0 MAX 300 MIN 2.2 AC-FT 7250

KANSAS RIVER BASIN

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: Dec. 29 to Mar. 11. 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.--42 years, 281 ft³/s, 203,600 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, 3,270 ft³/s June 27, gage height, 8.48 ft; minimum daily, 37 ft³/s Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	114	131	130	205	250	214	89	102	331	119	83
2	81	112	132	145	210	240	212	88	100	406	190	66
3	82	108	135	150	160	200	214	88	99	511	192	59
4	77	108	131	155	130	190	213	89	94	301	138	49
5	79	108	133	170	106	195	213	89	93	213	91	41
6	81	107	134	170	94	200	213	96	88	159	63	42
7	87	107	131	160	86	210	211	86	82	118	57	43
8	94	106	134	100	92	220	203	82	82	103	47	47
9	94	108	138	105	135	235	196	77	80	88	48	59
10	94	108	139	120	150	250	195	74	82	74	49	77
11	91	109	139	140	160	260	192	72	85	63	42	83
12	90	112	153	155	170	246	189	70	82	62	37	99
13	89	113	146	160	175	234	188	73	78	64	40	106
14	93	115	148	160	180	224	183	76	70	96	46	112
15	93	115	143	165	185	218	175	79	70	97	40	115
16	94	121	140	170	190	224	170	80	66	115	51	109
17	96	122	141	175	195	216	162	99	70	142	61	101
18	93	126	150	180	200	210	155	114	71	148	50	95
19	93	127	152	190	205	210	148	122	64	135	74	86
20	95	125	155	200	210	211	141	134	55	145	90	81
21	95	126	158	205	210	205	133	146	67	95	127	74
22	98	127	159	215	215	211	115	137	75	70	176	70
23	98	128	162	220	220	214	106	165	48	65	126	66
24	100	128	157	210	225	218	108	225	42	55	81	66
25	101	126	155	205	230	220	105	179	97	56	70	68
26	102	129	153	195	235	220	103	151	1970	102	67	67
27	105	131	127	185	240	220	102	138	1720	91	61	68
28	101	134	89	190	245	220	96	128	677	69	52	68
29	104	139	100	200	---	222	93	118	426	66	62	68
30	105	130	110	210	---	217	89	106	344	47	167	65
31	113	---	120	210	---	217	---	103	---	86	126	---
TOTAL	2901	3569	4295	5345	5058	6827	4837	3373	7079	4173	2640	2233
MEAN	93.6	119	139	172	181	220	161	109	236	135	85.2	74.4
MAX	113	139	162	220	245	260	214	225	1970	511	192	115
MIN	77	106	89	100	86	190	89	70	42	47	37	41
AC-FT	5750	7080	8520	10600	10030	13540	9590	6690	14040	8280	5240	4430

CAL YR 1988 TOTAL 58956.9 MEAN 161 MAX 1370 MIN 6.0 AC-FT 116900
WTR YR 1989 TOTAL 52330 MEAN 143 MAX 1970 MIN 37 AC-FT 103800

KANSAS RIVER BASIN

257

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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	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)
OCT											
12...	1300	88	675	--	15.0	713	9.1	--	74	520	--
12...	1305	--	--	--	--	--	--	17	--	--	290
NOV											
02...	0900	111	787	8.68	6.5	702	10.9	19	80	470	320
DEC											
02...	1430	133	585	--	4.0	712	11.2	--	K10	110	--
02...	1435	--	--	--	--	--	--	14	--	--	310
JAN											
09...	1315	104	845	8.49	0.5	707	13.6	--	8	44	--
09...	1320	--	--	--	--	--	--	10	--	--	310
FEB											
08...	1100	92	997	--	0.0	728	12.1	11	30	33	400
28...	1000	227	617	8.50	0.5	715	13.0	--	K15	110	--
28...	1005	--	--	--	--	--	--	<8	--	--	210
APR											
05...	1600	211	611	8.62	13.5	711	10.4	--	52	56	--
05...	1605	--	--	--	--	--	--	20	--	--	260
MAY											
05...	1050	86	--	8.50	14.5	710	10.4	13	38	80	340
JUN											
12...	1200	81	--	8.60	24.5	707	9.7	--	110	260	--
12...	1205	--	--	--	--	--	--	42	--	--	200
JUL											
11...	1600	62	577	8.50	33.5	708	8.5	--	220	160	--
11...	1605	--	--	--	--	--	--	42	--	--	210
AUG											
07...	1345	60	660	8.90	25.5	715	10.4	48	300	120	240
28...	1300	54	614	8.80	26.5	708	9.9	--	310	280	--
28...	1305	--	--	--	--	--	--	23	--	--	250

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)	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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT											
12...	--	--	48	--	13	--	--	0.80	42	--	--
12...	79	23	49	1	--	87	23	--	--	261	0.35
NOV											
02...	85	26	51	1	--	92	26	--	--	280	0.38
DEC											
02...	--	--	46	--	15	--	--	0.70	42	--	--
02...	83	25	46	1	--	80	23	--	--	257	0.35
JAN											
09...	--	--	47	--	14	--	--	0.70	46	--	--
09...	85	23	47	1	--	72	25	--	--	252	0.34
FEB											
08...	110	31	59	1	--	110	34	--	--	344	0.47
28...	--	--	33	--	13	--	--	--	37	--	--
28...	60	15	32	1	--	38	20	--	--	165	0.22
APR											
05...	--	--	40	--	14	--	--	0.70	39	--	--
05...	72	20	39	1	--	34	21	--	--	186	0.25
MAY											
05...	83	32	54	1	--	78	24	--	--	271	0.37
JUN											
12...	--	--	46	--	17	--	--	0.60	36	--	--
12...	47	21	45	1	--	73	26	--	--	212	0.29
JUL											
11...	--	--	38	--	19	--	--	0.60	32	--	--
11...	55	18	34	1	--	67	19	--	--	193	0.26
AUG											
07...	63	19	36	1	--	71	19	--	--	208	0.28
28...	--	--	38	--	19	--	--	0.70	29	--	--
28...	66	20	37	1	--	68	20	--	--	211	0.29

KANSAS RIVER BASIN
06844500 REPUBLICAN RIVER NEAR ORLEANS, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)
OCT										
12...	--	--	--	2.20	--	--	--	--	--	0.180
12...	--	95	2.10	--	<0.020	--	1.0	3.1	0.460	--
NOV										
02...	83.9	41	1.90	--	<0.020	--	0.86	2.8	0.430	--
DEC										
02...	--	41	--	2.70	<0.020	--	--	--	--	0.140
02...	--	41	1.30	--	<0.020	--	0.66	2.0	0.180	--
JAN										
09...	--	--	--	3.10	--	--	--	--	--	0.160
09...	--	19	3.10	--	0.090	--	<0.50	--	0.140	--
FEB										
08...	85.4	12	3.50	--	0.140	--	<0.50	--	0.160	--
28...	--	--	--	2.40	--	--	--	--	--	0.120
28...	--	36	1.80	--	0.120	0.58	0.70	2.5	0.160	--
APR										
05...	--	--	--	1.50	--	--	--	--	--	0.070
05...	--	89	1.50	--	<0.020	--	0.69	2.2	0.170	--
MAY										
05...	62.9	31	0.700	--	0.090	0.91	1.0	1.7	0.090	--
JUN										
12...	--	--	--	<0.100	--	--	--	--	--	0.020
12...	--	158	<0.020	--	0.160	1.4	1.6	--	0.270	--
JUL										
11...	--	--	--	<0.100	--	--	--	--	--	0.060
11...	--	112	<0.020	--	0.020	0.71	0.73	--	0.240	--
AUG										
07...	33.7	170	<0.020	--	0.190	1.6	1.8	--	0.320	--
28...	--	--	--	0.380	--	--	--	--	--	0.120
28...	--	153	0.430	--	0.060	1.6	1.7	2.1	0.410	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	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)
OCT							
12...	1300	--	150	--	--	--	12
12...	1305	--	--	--	--	--	--
NOV							
02...	0900	50	--	<15	<10	<10	--
DEC							
02...	1430	--	130	--	--	--	9
02...	1435	--	--	--	--	--	--
JAN							
09...	1315	--	130	--	--	--	9
09...	1320	--	--	--	--	--	--
FEB							
08...	1100	17	--	<15	10	<10	--
28...	1000	--	100	--	--	--	8
28...	1005	--	--	--	--	--	--
APR							
05...	1600	--	120	--	--	--	7
05...	1605	--	--	--	--	--	--
MAY							
05...	1050	16	--	<15	<10	<10	--
JUN							
12...	1200	--	140	--	--	--	11
12...	1205	--	--	--	--	--	--
JUL							
11...	1600	--	110	--	--	--	5
11...	1605	--	--	--	--	--	--
AUG							
07...	1345	12	--	<15	<10	<10	--
28...	1300	--	130	--	--	--	7
28...	1305	--	--	--	--	--	--

KANSAS RIVER BASIN

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06844500 REPUBLICAN RIVER NEAR ORLEANS, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	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)
OCT							
12...	--	7	--	--	--	--	--
12...	--	--	--	--	--	--	3.9
NOV							
02...	40	--	<0.10	10	<1	<30	5.2
DEC							
02...	--	8	--	--	--	--	--
02...	--	--	--	--	--	--	3.9
JAN							
09...	--	6	--	--	--	--	--
09...	--	--	--	--	--	--	6.0
FEB							
08...	<20	--	<0.10	25	<1	<30	6.0
28...	--	3	--	--	--	--	--
28...	--	--	--	--	--	--	2.9
APR							
05...	--	5	--	--	--	--	--
05...	--	--	--	--	--	--	5.5
MAY							
05...	<20	--	<0.50	17	<1	<30	4.4
JUN							
12...	--	7	--	--	--	--	--
12...	--	--	--	--	--	--	6.3
JUL							
11...	--	4	--	--	--	--	--
11...	--	--	--	--	--	--	7.9
AUG							
07...	<20	--	<0.50	--	<1	<30	7.6
28...	--	3	--	--	--	--	--
28...	--	--	--	--	--	--	5.8

KANSAS RIVER BASIN

06846500 BEAVER CREEK AT CEDAR BLUFFS, KS

LOCATION.--Lat 39°59'06", long 100°33'35", in NW1/4 NE1/4 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.

WATER-DISCHARGE RECORDS

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.--44 years, 15.6 ft³/s, 11,300 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 2	0200	*888	*11.43	No other peak greater than base discharge.			

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	438	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	817	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	578	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	400	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	186	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	69	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	42	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	28	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	21	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	13	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	12	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	13	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	15	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	12	.00	.00
15	.0	.00	.00	.00	.00	.00	.00	.00	.00	7.5	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.3	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.5	5.3	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.8	3.8	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.4	6.2	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.0	2.6	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.0	4.1	3.0	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.3	5.2	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.7	2.5	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.4	.47	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	e6.1	2.2	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	e8.2	1.8	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	3.7	1.1	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	e.90	.84	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	e.25	.37	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	e.13	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.28	2696.31	29.07	0.00
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.64	87.0	.94	.00
MAX	.00	.00	.00	.00	.00	.00	.00	.00	8.2	817	6.2	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	.0	.0	.0	.0	.0	38	5350	58	.0

CAL YR 1988 TOTAL 345.46 MEAN .94 MAX 216 MIN .00 AC-FT 685
WTR YR 1989 TOTAL 2744.66 MEAN 7.52 MAX 817 MIN .00 AC-FT 5440

e Estimated

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: Feb. 3-6 and Mar. 2-7. Records good except for periods of estimated record which is fair.

AVERAGE DISCHARGE.--53 years, 21.4 ft³/s, 15,500 acre-ft/yr; median of yearly mean discharges, 12 ft³/s, 8,690 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.

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)
July 9	1130	*44	*4.53	No peaks greater than base discharge.			

Minimum daily discharge, 0.07 ft³/s July 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.23	.49	.51	.28	.35	.26	.24	.25	.14	.10	.12
2	.28	.22	.52	.51	.27	.30	.26	.26	.26	.16	.09	.12
3	.28	.25	.52	.53	.30	.30	.27	.27	.33	.14	.09	.12
4	.28	.23	.55	.53	.30	.30	.28	.26	.25	.13	.09	.12
5	.28	.27	.54	.54	.30	.30	.31	.26	.23	.12	.08	.11
6	.28	.25	.54	.51	.40	.30	.29	.26	.23	.11	.08	.11
7	.28	.25	.51	.49	.41	.40	.31	.25	.24	.10	.10	.11
8	.28	.28	.51	.43	.42	.40	.30	.22	.21	.09	.09	.11
9	.32	.29	.56	.43	.40	.33	.35	.20	.21	.30	.09	.12
10	.32	.27	.60	.45	.44	.32	.36	.21	.22	.31	.09	.12
11	.28	.30	.56	.45	.46	.32	.34	.20	.22	.21	.08	.12
12	.29	.30	.51	.43	.44	.34	.32	.22	.21	.13	.09	.15
13	.33	.29	.63	.41	.41	.32	.32	.24	.19	8.6	.09	.14
14	.36	.30	.47	.44	.40	.30	.32	.26	.18	5.7	.09	.14
15	.36	.34	.45	.39	.37	.30	.31	.26	.20	3.8	.13	.14
16	.35	.36	.45	.38	.36	.34	.29	.24	.20	1.7	.12	.14
17	.36	.39	.45	.41	.36	.32	.27	.34	.19	.73	.11	.14
18	.39	.37	.46	.40	.36	.32	.24	.38	.19	.29	.11	.14
19	.39	.39	.47	.39	.37	.34	.25	.33	.16	.15	.21	.12
20	.37	.41	.46	.38	.36	.36	.27	.59	.14	.11	.14	.12
21	.33	.42	.45	.38	.37	.36	.30	18	.14	.10	.13	.12
22	.33	.42	.45	.35	.38	.36	.25	9.5	.23	.09	.13	.12
23	.32	.42	.47	.35	.41	.37	.23	1.6	.23	.09	.14	.14
24	.31	.41	.48	.35	.40	.37	.21	.45	.27	.09	.12	.14
25	.30	.42	.48	.36	.43	.38	.21	.25	12	.09	.13	.12
26	.28	.43	.48	.34	.39	.32	.24	.26	9.3	.08	.12	.12
27	.26	.46	.46	.35	.36	.31	.28	.26	1.2	.08	.13	.12
28	.25	.48	.46	.39	.35	.30	.45	.25	.35	.08	.14	.11
29	.25	.49	.50	.33	---	.28	.27	.23	.18	.07	.14	.10
30	.24	.46	.53	.32	---	.28	.23	.22	.14	.10	.14	.09
31	.22	---	.53	.31	---	.28	---	.24	---	.48	.13	---
TOTAL	9.49	10.40	15.54	12.84	10.50	10.17	8.59	36.75	28.35	118.42	3.52	3.69
MEAN	.31	.35	.50	.41	.37	.33	.29	1.19	.94	3.82	.11	.12
MAX	.39	.49	.63	.54	.46	.40	.45	18	12	31	.21	.15
MIN	.22	.22	.45	.31	.27	.28	.21	.20	.14	.07	.08	.09
AC-FT	19	21	31	25	21	20	17	73	56	235	7.0	7.3

CAL YR 1988 TOTAL 276.90 MEAN .76 MAX 4.8 MIN .06 AC-FT 549
WTR YR 1989 TOTAL 268.26 MEAN .73 MAX 31 MIN .07 AC-FT 532

KANSAS RIVER BASIN

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.--Estimated daily discharges: Dec. 14-16, 19-27, Dec. 29 to Jan. 1 and Jan. 5 to Mar. 20. Records fair except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--44 years, 50.7 ft³/s, 36,730 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)
May 21	1330	*243	*6.72	No peaks greater than base discharge.			
No flow for many days.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.70	.80	.70	4.1	1.2	4.6	16	16	.00
2	.00	.00	.00	.72	.70	.70	4.1	1.1	6.0	9.5	39	.00
3	.00	.00	.00	.63	.70	.70	3.6	.63	4.9	2.4	.55	.00
4	.00	.00	.28	.67	.60	.70	3.3	.81	3.1	.16	.03	.00
5	.00	.00	.61	.80	.60	.70	2.9	.91	2.1	2.4	.03	.00
6	.00	.00	.81	.80	.70	.80	3.0	.90	1.1	1.8	.03	.00
7	.00	.00	.77	.80	.70	1.5	3.3	.77	.85	1.5	.01	.00
8	.00	.00	.62	.70	.80	1.9	1.8	.56	.51	1.5	.00	.00
9	.00	.00	.49	.80	.80	1.9	1.8	.62	.41	.00	.00	.00
10	.00	.00	.48	.80	.80	1.8	2.0	.68	.34	.00	.00	.00
11	.00	.00	.51	.80	.70	1.8	1.2	.58	.28	.00	.00	.00
12	.00	.00	.53	.80	.70	1.8	1.4	.81	.30	.00	.00	.00
13	.00	.00	.72	.80	.70	1.8	1.6	.87	.22	.00	.00	.00
14	.00	.00	.80	.80	.70	1.8	1.6	.90	.10	.00	.00	.00
15	.00	.00	.90	.80	.70	1.9	1.1	.84	.07	.00	.00	.00
16	.00	.00	.80	.80	.70	2.5	1.3	.79	.04	.00	.00	.00
17	.00	.00	.76	.80	.70	4.0	2.0	1.9	.03	.00	.00	.00
18	.00	.00	.73	.80	.70	6.0	1.1	2.1	.01	.00	.00	.00
19	.00	.00	.80	.80	.70	9.0	1.3	1.3	.00	.00	.00	.00
20	.00	.00	.80	.80	.70	14	1.6	1.0	.00	.00	.00	.00
21	.00	.00	.80	.80	.70	24	.97	62	.00	.00	.00	.00
22	.00	.00	.80	.80	.70	19	1.1	44	.00	.00	.00	.00
23	.00	.00	.80	.80	.70	6.0	.96	91	.00	.00	.00	.00
24	.00	.00	.80	.80	.80	5.4	.95	58	.00	.00	3.6	.00
25	.00	.00	.80	.80	1.0	5.6	.90	40	12	.00	32	.00
26	.00	.00	.70	.80	.80	5.0	.79	26	4.3	.00	19	.00
27	.00	.00	.70	.70	.70	5.0	.74	18	1.4	.00	10	.00
28	.00	.00	.63	.70	.70	4.8	.72	13	12	.00	2.2	.00
29	.00	.00	.70	.80	---	4.5	1.0	8.1	15	.00	.03	.00
30	.00	.00	.80	.80	---	4.3	1.1	5.9	22	.00	.00	.00
31	.00	---	.80	.80	---	4.1	---	4.4	---	11	.00	---
TOTAL	0.00	0.00	19.74	24.02	20.30	143.70	53.33	389.67	91.66	46.26	122.48	0.00
MEAN	.00	.00	.64	.77	.72	4.64	1.78	12.6	3.06	1.49	3.95	.00
MAX	.00	.00	.90	.80	1.0	24	4.1	91	22	16	39	.00
MIN	.00	.00	.00	.63	.60	.70	.72	.56	.00	.00	.00	.00
AC-FT	.0	.0	39	48	40	285	106	773	182	92	243	.0

CAL YR 1988 TOTAL 2843.13 MEAN 7.77 MAX 315 MIN .00 AC-FT 5640
WTR YR 1989 TOTAL 911.16 MEAN 2.50 MAX 91 MIN .00 AC-FT 1810

KANSAS RIVER BASIN

263

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 except those for estimated daily discharges, which are poor. 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.--49 years, (water years 1929-32, 1945-89), 30.8 ft³/s, 22,310 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, 561 ft³/s Aug. 1, gage height, 12.27 ft; no flow many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.00	e.60	.14	.00	.00	.37	449	.04
2	.00	.00	.00	.00	e.00	e.90	.10	.00	.00	.20	80	.00
3	.00	.00	.00	.00	e.00	e.60	.04	.00	.00	.10	23	.57
4	.00	.00	.00	.00	e.00	e.50	.00	.00	.00	.03	9.5	.68
5	.00	.00	.00	.00	.00	e.45	.00	.00	.00	.00	2.7	.30
6	.00	.00	.00	.00	.00	e.60	.00	.00	.00	.00	1.0	.17
7	.00	.00	.00	.00	.00	.83	.00	.00	.00	.00	.57	.10
8	.00	.00	.00	.00	.00	e1.2	.00	.00	.00	.00	.36	.06
9	.00	.00	.00	.00	.00	e1.5	.00	.00	.00	.00	.24	.01
10	.00	.00	.00	.00	.00	2.1	.00	.00	.00	.00	.16	.00
11	.00	.00	.00	.00	.00	e1.2	.00	.00	.00	.00	.09	.00
12	.00	.00	.00	.00	.00	e.90	.00	.00	.00	.00	.05	.07
13	.00	.00	.00	.00	.00	e.90	.00	.00	.00	.00	.00	.04
14	.00	.00	.00	.00	.00	e1.0	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	e1.5	.00	.00	.00	.00	.07	.00
16	.00	.00	.00	.00	.00	e3.0	.00	.00	.00	2.2	.01	.00
17	.00	.00	.00	.00	.00	e.90	.00	.00	.00	77	.00	.01
18	.00	.00	.00	.00	.00	e.80	.00	.62	.00	27	.01	2.5
19	.00	.00	.00	.00	.00	e.75	.00	.02	.00	11	.06	1.5
20	.00	.00	.00	.00	.00	e.70	.00	.00	.00	3.3	.00	.57
21	.00	.00	.00	.00	.00	.43	.00	35	.00	.97	3.6	.27
22	.00	.00	.00	.00	.00	.39	.00	56	.00	1.9	21	.15
23	.00	.00	.00	.00	.00	.33	.00	32	.00	1.3	13	.10
24	.00	.00	.00	.00	.00	.35	.00	15	.00	1.4	17	.04
25	.00	.00	.00	.00	.00	.34	.00	2.9	8.0	1.6	30	.00
26	.00	.00	.00	.00	.00	.36	.00	.66	7.4	.23	5.2	.00
27	.00	.00	.00	.00	.00	.37	.00	.26	1.2	1.9	2.0	.00
28	.00	.00	.00	.00	.34	.30	.00	.09	4.4	.10	.87	.00
29	.00	.00	.00	.00	---	.24	.00	.01	4.3	.02	.35	.00
30	.00	.00	.00	.00	---	.23	.00	.00	1.2	.44	.19	.00
31	.00	---	.00	e.00	---	.19	---	.00	---	217	.11	---
TOTAL	0.00	0.00	0.00	0.00	0.34	24.46	0.28	142.56	26.50	348.06	660.14	7.18
MEAN	.00	.00	.00	.00	.012	.79	.009	4.60	.88	11.2	21.3	.24
MAX	.00	.00	.00	.00	.34	3.0	.14	.56	8.0	217	449	2.5
MIN	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	.0	.7	.49	.6	283	53	690	1310	14

CAL YR 1988 TOTAL 1899.81 MEAN 5.19 MAX 793 MIN .00 AC-FT 3770
WTR YR 1989 TOTAL 1209.52 MEAN 3.31 MAX 449 MIN .00 AC-FT 2400

e Estimated

KANSAS RIVER BASIN

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, 271,800 acre-ft June 3, 8, elevation, 1,941.47 ft; minimum, 204,400 acre-ft Sept. 27-29, elevation, 1,935.06 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 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225600	226500	231400	236600	243400	249100	259900	265500	271300	265000	234400	207300
2	225600	226700	231500	236800	243500	249600	260200	265300	271600	265100	234300	207300
3	225300	226900	231600	236900	243600	250100	260800	265600	271700	265000	234000	207300
4	225300	227200	232100	237200	243600	249900	260900	265800	271600	264400	233000	207200
5	225300	227100	232200	237500	243800	250000	261000	265300	271300	263300	232000	207000
6	225400	227000	232400	237800	243900	250100	261200	265500	271000	262400	230100	206600
7	225500	227100	232500	238000	243900	250200	261700	265500	271700	261100	228900	206200
8	225600	227000	232700	238000	244000	250500	261900	265500	271700	259700	227300	205700
9	225700	227200	232800	238200	244100	250800	262100	265500	271200	258100	225700	205500
10	225800	227300	233000	238300	244300	251300	262400	265300	270900	256300	223800	205200
11	225800	227400	233100	238400	244500	252200	262400	265100	271000	254900	222400	204800
12	225600	227800	233300	238400	244500	252700	262700	265400	270600	253500	220800	205100
13	225800	227800	233600	238500	244700	253200	263000	265600	270200	252100	219300	205200
14	225900	227900	233700	238700	244800	253400	262900	265800	269600	252200	217900	205300
15	225900	228400	233900	239000	244900	253700	263400	266100	269100	251100	216700	205300
16	226000	228700	234100	239000	245000	253600	263600	266200	268000	249900	215000	205400
17	226000	228600	234100	239300	245200	254200	263800	266400	267700	249600	213500	205300
18	226100	228900	234300	239300	245400	254400	264100	267000	266800	249900	212100	205200
19	225900	228900	234600	239700	245900	255000	264300	267300	265500	249300	211400	205200
20	226200	228900	234900	239800	246100	255300	264500	267300	264100	248600	210100	205200
21	226200	229200	235100	240200	246300	255500	264600	269400	262300	247700	209400	205300
22	226300	229400	235600	240200	246700	256100	265000	269700	261100	246400	208700	204900
23	226400	229600	235700	240600	246800	256500	265200	270400	259800	244900	207700	204900
24	226400	229800	235900	240700	247200	256700	265400	270800	258600	243400	206800	204700
25	226400	230200	235700	241200	247600	257200	265500	271200	259900	241700	207000	204700
26	226400	230700	236300	241300	247700	257800	265600	271200	261600	240200	207000	204700
27	226300	230900	236400	241600	248100	258200	265800	271100	264500	238400	206800	204400
28	226300	230800	236300	242300	248500	258500	266100	271300	265600	236600	206800	204400
29	226200	231200	236500	242800	---	258800	265800	271300	265500	235000	206700	204400
30	226300	231300	236500	243000	---	259200	265600	271300	264900	235100	206700	204500
31	226400	---	236500	243400	---	259500	---	271400	---	234900	206900	---
MEAN	225900	228500	234100	239400	245300	254000	263400	267600	267300	250800	217500	205500
MAX	226400	231300	236500	243400	248500	259500	266100	271400	271000	265100	234400	207300
MIN	225300	226500	231400	236600	243400	249100	259900	265100	258600	234900	206700	204400
(†)	1937.28	1937.76	1938.26	1938.91	1939.38	1940.38	1940.93	1941.44	1940.86	1938.10	1935.31	1935.07
(‡)	+800	+4900	+5200	+6900	+5100	+11000	+6100	+5800	-6500	-30000	-28000	-2400
CAL YR 1988	MEAN	272800	MAX	336900	MIN	224500	(†)	-42100				
WTR YR 1989	MEAN	241600	MAX	271700	MIN	204400	(‡)	-21100				

(†) Elevation, in feet, at end of month.

(‡) Change in contents, in acre-feet.

KANSAS RIVER BASIN

265

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.--36 years (1953-89), 238 ft³/s, 172,400 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, 1.5 ft³/s Apr. 28, 29, 1957.

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, 615 ft³/s June 21, gage height, 2.89 ft; minimum daily, 2.5 ft³/s May 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	3.7	4.0	8.9	8.2	7.1	3.3	2.7	20	254	366	7.7
2	4.1	3.4	4.0	7.9	7.5	4.4	3.2	2.9	75	330	394	7.5
3	3.6	3.2	4.0	9.7	9.0	4.0	2.9	2.9	126	432	395	7.7
4	4.1	3.2	4.0	9.4	9.6	3.7	2.9	3.1	126	444	397	6.8
5	4.1	3.4	4.1	10	11	3.7	3.0	2.9	126	480	453	6.7
6	4.1	3.6	9.6	10	14	3.8	3.2	3.1	126	479	498	7.1
7	4.1	3.8	11	8.1	16	3.9	3.1	3.2	126	482	503	5.9
8	4.1	3.8	11	6.4	16	4.0	3.0	3.0	126	485	518	6.6
9	4.1	3.6	11	6.6	16	4.0	3.2	2.9	126	509	521	5.6
10	4.7	3.6	12	7.7	17	4.0	3.2	2.9	126	537	522	5.3
11	4.7	3.6	12	8.1	14	4.0	3.2	2.9	126	544	517	5.0
12	4.7	3.4	12	6.4	10	4.0	3.3	3.0	126	545	511	5.0
13	4.4	3.4	12	4.6	10	4.0	3.6	3.6	126	535	495	5.1
14	4.1	3.2	12	11	9.8	3.6	3.6	3.5	157	546	491	5.1
15	4.0	3.6	12	10	9.9	3.5	3.8	3.1	241	550	492	4.8
16	3.7	4.1	10	9.7	9.4	3.5	3.5	2.8	261	460	490	5.0
17	3.9	4.0	10	11	9.4	3.3	2.9	3.0	318	375	481	5.1
18	4.0	4.0	10	11	9.4	3.2	3.3	3.0	359	393	472	5.3
19	4.0	3.6	10	11	9.4	3.2	3.8	2.9	403	276	451	5.3
20	4.0	3.6	10	11	9.4	3.1	4.0	2.9	516	297	401	5.2
21	3.9	3.6	10	11	9.2	3.2	4.4	9.3	599	332	378	5.0
22	3.6	3.6	10	11	8.6	3.2	5.1	9.2	572	366	362	5.0
23	3.6	3.6	10	11	7.9	3.2	5.0	3.1	504	459	343	5.3
24	3.8	3.6	8.2	11	8.9	3.0	4.2	2.8	502	507	312	5.1
25	4.0	3.6	8.2	11	9.0	3.1	3.8	2.6	313	516	187	4.8
26	3.6	3.6	8.4	10	9.4	3.2	3.1	2.6	49	553	59	4.8
27	3.2	3.8	7.8	9.9	9.4	3.1	3.0	2.6	119	587	56	4.8
28	3.2	4.0	7.7	11	9.2	3.4	2.9	2.7	248	575	34	4.8
29	3.3	4.0	8.1	10	---	3.4	2.8	2.5	362	567	12	4.8
30	3.4	4.0	9.2	10	---	3.5	2.6	2.7	408	571	9.9	4.6
31	3.7	---	9.0	10	---	3.2	---	3.3	---	495	8.6	---
TOTAL	122.5	109.2	281.3	294.4	296.6	113.5	102.9	103.7	7412	14481	11129.5	166.8
MEAN	3.95	3.64	9.07	9.50	10.6	3.66	3.43	3.35	247	467	359	5.56
MAX	4.7	4.1	12	11	17	7.1	5.1	9.3	599	587	522	7.7
MIN	3.2	3.2	4.0	4.6	7.5	3.0	2.6	2.5	20	254	8.6	4.6
AC-FT	243	217	558	584	588	225	204	206	14700	28720	22080	331

CAL YR 1988 TOTAL 57229.4 MEAN 156 MAX 1130 MIN 2.8 AC-FT 113500
WTR YR 1989 TOTAL 34613.4 MEAN 94.8 MAX 599 MIN 2.5 AC-FT 68660

KANSAS RIVER BASIN

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: Feb. 2-5, 9, and Mar. 4-6. Records fair. Two small diversions above station for irrigation.

AVERAGE DISCHARGE.--27 years (1948-56, 1968-75, 1978-89) 8.07 ft³/s, 5,850 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 2	1045	*1420	*6.83	July 30	2130	183	2.88
July 18	0545	124	2.28	July 31	0845	174	2.80

Minimum daily discharge, 3.3 ft³/s June 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	6.1	6.5	6.3	6.7	6.4	6.7	6.6	5.5	75	27	5.5
2	4.6	6.1	6.6	6.2	6.0	6.4	6.8	6.3	5.4	570	7.2	5.5
3	4.8	6.2	6.7	6.4	5.8	6.6	6.7	6.3	5.6	116	6.4	5.7
4	4.9	6.3	6.6	6.3	5.8	6.2	6.7	6.4	5.3	17	6.5	4.5
5	5.3	6.2	6.7	6.2	6.0	6.0	6.7	6.2	5.5	6.9	6.4	3.3
6	5.7	6.2	6.6	6.3	7.2	6.2	6.7	6.2	5.5	6.3	5.1	3.6
7	5.8	6.2	6.5	6.2	6.2	6.4	6.7	6.2	5.5	5.9	5.2	3.7
8	5.8	6.2	6.7	6.2	6.3	6.4	6.7	6.2	5.0	5.7	5.2	4.2
9	5.9	6.1	6.5	6.2	6.8	6.4	6.7	6.2	5.2	11	5.1	4.0
10	5.8	5.8	6.5	6.2	6.4	6.4	6.6	6.1	5.4	9.1	4.9	3.9
11	6.2	5.9	6.7	6.2	6.4	6.4	6.6	5.8	5.3	8.5	4.8	4.3
12	6.2	5.9	6.5	6.2	6.4	6.4	6.5	6.1	4.8	9.3	4.7	6.6
13	6.2	5.9	6.4	6.2	6.4	6.4	6.5	6.1	4.6	10	4.3	5.2
14	5.9	5.9	6.6	6.2	6.4	6.4	6.5	5.9	4.6	16	4.0	4.9
15	5.8	6.0	6.5	6.2	6.4	6.4	6.5	5.9	4.6	37	5.3	4.8
16	5.7	6.5	6.4	6.2	6.4	6.4	6.5	5.9	4.4	34	6.2	4.6
17	5.6	6.4	6.5	6.2	6.4	6.4	6.4	5.9	4.3	13	6.1	4.4
18	5.4	6.5	6.5	6.2	6.4	6.5	6.4	5.9	4.1	52	6.0	4.3
19	5.4	6.7	6.4	6.2	6.4	6.4	6.5	5.9	3.9	26	6.5	4.4
20	5.4	6.5	6.5	6.2	6.4	6.4	6.5	5.9	3.8	12	6.0	4.4
21	5.4	6.5	6.4	6.2	6.4	6.4	6.5	5.9	3.7	11	5.9	4.4
22	5.6	6.6	6.4	6.1	6.4	6.4	6.5	5.9	3.7	8.5	5.7	4.4
23	5.6	6.6	6.4	6.2	6.4	6.4	6.6	5.9	3.5	8.9	5.3	4.6
24	5.5	6.4	6.4	6.2	6.4	6.5	6.6	5.8	4.4	8.6	4.8	4.6
25	5.3	6.6	6.4	6.2	6.4	6.6	6.6	5.7	7.0	8.0	8.3	4.6
26	5.4	6.6	6.4	6.2	6.4	6.6	6.5	5.7	5.3	8.0	5.6	4.5
27	5.7	6.5	6.3	6.2	6.4	6.6	6.6	5.7	5.5	7.8	6.0	4.7
28	5.7	6.7	6.4	6.2	6.4	6.7	6.5	5.7	3.7	7.0	6.1	4.8
29	5.6	6.6	6.3	6.2	---	6.7	6.5	5.7	3.3	6.3	6.0	4.8
30	5.9	6.6	6.2	6.2	---	6.7	6.6	5.7	3.7	14	5.9	4.9
31	6.0	---	6.4	6.2	---	6.7	---	5.7	---	104	5.6	---
TOTAL	172.6	189.3	200.9	192.6	178.4	199.8	197.4	185.4	142.1	1232.8	198.1	138.1
MEAN	5.57	6.31	6.48	6.21	6.37	6.45	6.58	5.98	4.74	39.8	6.39	4.60
MAX	6.2	6.7	6.7	6.4	7.2	6.7	6.8	6.6	7.0	570	27	6.6
MIN	4.5	5.8	6.2	6.1	5.8	6.0	6.4	5.7	3.3	5.7	4.0	3.3
AC-FT	342	375	398	382	354	396	392	368	282	2450	393	274

CAL YR 1988 TOTAL 2605.8 MEAN 7.12 MAX 180 MIN 2.7 AC-FT 5170
WTR YR 1989 TOTAL 3227.5 MEAN 8.84 MAX 570 MIN 3.3 AC-FT 6400

KANSAS RIVER BASIN

267

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: Oct. 2-12, Dec. 28, Jan. 8, 9, Feb. 2-10, and Mar. 4-6. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--27 years (1948-56, 1968-75, 1978-89), 31.0 ft³/s, 22,460 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)
July 1	0030	*3360	*11.24	July 31	0145	2060	9.91
July 11	0930	1690	9.36	Aug. 25	0645	301	5.89
July 15	0815	704	7.20				

Minimum daily discharge, 12 ft³/s June 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	22	20	19	21	19	20	20	17	865	58	16
2	17	22	21	24	18	20	20	19	17	368	22	16
3	17	21	20	19	18	19	20	19	19	148	17	17
4	17	21	20	21	18	18	20	19	18	99	16	17
5	17	21	22	23	19	17	20	18	18	42	15	17
6	17	21	21	22	20	18	20	17	18	22	16	17
7	17	20	21	20	20	19	20	17	20	21	16	16
8	17	20	21	19	20	19	19	17	33	20	15	17
9	17	20	21	20	21	19	20	16	17	20	16	17
10	17	20	22	20	20	20	20	16	16	18	17	16
11	17	20	21	20	18	20	19	16	17	516	18	15
12	18	21	22	20	20	19	20	16	16	87	19	18
13	18	20	22	22	19	18	20	18	15	33	20	17
14	17	19	21	19	19	18	19	16	14	32	19	17
15	17	19	20	20	18	17	19	17	14	376	20	16
16	18	18	21	21	19	18	19	17	14	83	19	16
17	18	19	21	21	19	18	19	18	14	50	19	15
18	18	19	22	20	18	18	18	22	14	29	18	14
19	18	19	22	20	19	19	19	18	13	16	32	14
20	19	19	23	21	19	18	19	17	13	16	34	14
21	20	19	21	21	19	18	20	19	13	17	24	14
22	21	19	21	21	18	19	20	18	13	17	19	14
23	22	19	21	21	20	19	20	18	12	16	20	14
24	20	19	21	20	19	20	20	17	15	17	20	14
25	20	19	21	21	21	20	20	16	127	17	84	15
26	20	21	21	23	22	20	20	16	24	20	23	15
27	21	20	21	21	21	21	20	15	16	21	17	14
28	20	19	21	21	20	20	19	16	13	19	17	15
29	20	20	20	21	---	20	18	17	13	20	17	15
30	20	20	21	19	---	21	19	16	310	48	17	15
31	21	---	19	19	---	20	---	17	---	496	17	---
TOTAL	574	596	652	639	543	589	586	538	893	3569	701	467
MEAN	18.5	19.9	21.0	20.6	19.4	19.0	19.5	17.4	29.8	115	22.6	15.6
MAX	22	22	23	24	22	21	20	22	310	865	84	18
MIN	17	18	19	19	18	17	18	15	12	16	15	14
AC-FT	1140	1180	1290	1270	1080	1170	1160	1070	1770	7080	1390	926

CAL YR 1988 TOTAL 9227.4 MEAN 25.2 MAX 605 MIN 9.6 AC-FT 18300
WTR YR 1989 TOTAL 10347 MEAN 28.3 MAX 865 MIN 12 AC-FT 20520

KANSAS RIVER BASIN

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: Feb. 2-8 and Mar. 4-5. Records good except for periods of estimated record, which are fair. Natural flow affected by pump irrigation development above station.

AVERAGE DISCHARGE.--17 years (water years 1949-53, 1978-89), 21.3 ft³/s, 15,430 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, 6.7 ft³/s July 30, 1986.

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 25	2345	214	10.73	July 15	0400	553	12.52
July 1	1000	*2340	*14.57	Sept. 3	2300	370	11.85
July 12	0415	249	11.05				

Minimum daily discharge, 9.2 ft³/s Feb. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	13	13	15	15	15	13	14	1370	28	11
2	13	14	13	13	13	15	14	12	13	127	14	11
3	12	15	13	13	12	15	14	12	16	45	12	120
4	12	15	13	13	9.2	14	14	13	14	28	11	188
5	12	14	13	14	11	14	14	13	14	21	11	28
6	13	14	13	14	12	14	14	12	14	19	11	16
7	13	13	13	14	12	14	14	12	14	18	12	13
8	13	13	12	13	13	15	14	12	13	17	12	13
9	12	14	12	13	13	15	14	11	13	16	11	13
10	12	13	13	13	13	16	13	11	17	15	10	12
11	12	13	13	14	14	16	14	11	20	18	12	12
12	12	15	13	14	14	15	14	12	18	109	11	13
13	12	14	13	14	14	15	14	14	16	20	13	14
14	12	13	13	14	14	15	14	13	15	18	12	13
15	12	14	12	14	14	14	14	12	16	160	12	12
16	12	14	12	14	14	15	15	12	15	34	12	11
17	13	13	12	14	14	14	14	13	15	17	12	11
18	13	14	13	14	14	14	14	19	15	15	12	11
19	13	13	13	14	14	15	14	16	13	13	17	11
20	13	12	14	14	14	14	14	13	12	12	13	11
21	13	13	13	14	14	14	14	15	12	12	11	11
22	13	13	13	14	14	14	14	15	13	11	10	11
23	13	13	13	15	14	15	14	13	13	12	10	10
24	13	13	13	15	15	15	13	13	15	12	11	11
25	13	13	13	15	16	15	13	12	56	12	23	12
26	14	13	14	15	15	16	13	12	101	12	15	11
27	14	13	13	15	15	16	13	12	21	10	13	11
28	14	12	13	17	15	15	13	13	14	11	13	11
29	14	12	13	17	---	14	12	13	11	11	12	11
30	14	13	13	16	---	15	12	13	220	12	12	11
31	14	---	13	16	---	14	---	13	---	71	12	---
TOTAL	399	402	400	442	381.2	457	412	400	773	2278	400	654
MEAN	12.9	13.4	12.9	14.3	13.6	14.7	13.7	12.9	25.8	73.5	12.9	21.8
MAX	14	15	14	17	16	16	15	19	220	1370	28	188
MIN	12	12	12	13	9.2	14	12	11	11	10	10	10
AC-FT	791	797	793	877	756	906	817	793	1530	4520	793	1300

CAL YR 1988 TOTAL 5338.8 MEAN 14.6 MAX 115 MIN 7.1 AC-FT 10590
WTR YR 1989 TOTAL 7398.2 MEAN 20.3 MAX 1370 MIN 9.2 AC-FT 14670

KANSAS RIVER BASIN

269

06852500 COURTLAND CANAL AT NEBRASKA-KANSAS STATE LINE

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.

PERIOD OF RECORD.--October 1954 to current year.

GAGE.--Water-stage recorder and concrete Parshall flume. Datum of gage is 1,612.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 15. Records good. Canal diverts from Republican River at Courtland diversion dam in sec.7, T.1 N., R.9 W. Water is used for irrigation in Nebraska and Kansas; figures published herein represent that portion which flows into Kansas.

AVERAGE DISCHARGE.--35 years, 78.4 ft³/s, 56,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 781 ft³/s Sept. 2, 1973, gage height, 5.05 ft; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 410 ft³/s June 26; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	4.5	.00	.00	.00	.00	.00	60	20	323	354	120
2	88	5.5	.00	.00	.00	.00	.00	63	24	253	327	114
3	79	.30	.00	.00	.00	.00	.00	64	30	305	310	111
4	71	.00	.00	.00	.00	.00	.00	64	32	325	299	147
5	68	.00	.00	.00	.00	.00	.00	63	37	323	288	153
6	70	.00	.00	.00	.00	.00	.00	62	86	328	279	140
7	75	.00	.00	.00	.00	.00	.00	59	91	334	303	155
8	79	13	.00	.00	.00	.00	.00	34	92	330	313	150
9	78	8.4	.00	.00	.00	.00	.00	9.6	105	327	294	123
10	75	.22	.00	.00	.00	.00	.00	8.0	115	330	286	118
11	70	.00	.00	.00	.00	.00	.00	7.8	115	334	290	132
12	68	.00	.00	.00	.00	.00	.00	7.7	121	363	297	130
13	67	.00	.00	.00	.00	.00	.00	7.5	127	351	300	148
14	67	.00	.00	.00	.00	.00	.00	28	126	347	301	154
15	67	.00	.00	.00	.00	.00	.00	34	94	358	300	116
16	68	.00	.00	.00	.00	.00	.00	34	82	360	312	98
17	60	.00	.00	.00	.00	.00	.00	33	114	295	315	91
18	11	.00	.00	.00	.00	.00	.00	39	138	234	315	86
19	1.5	.00	.00	.00	.00	.00	.00	43	176	204	317	80
20	.00	.00	.00	.00	.00	.00	42	41	221	200	321	76
21	.00	.00	.00	.00	.00	.00	60	38	279	196	299	73
22	.00	.00	.00	.00	.00	.00	61	41	380	194	279	71
23	.00	.00	.00	.00	.00	.00	61	45	401	193	267	67
24	.00	.00	.00	.00	.00	.00	60	46	384	257	240	67
25	.00	.00	.00	.00	.00	.00	63	44	406	323	307	70
26	.00	.00	.00	.00	.00	.00	63	36	410	320	339	70
27	.00	.00	.00	.00	.00	.00	62	31	327	303	324	69
28	.00	.00	.00	.00	.00	.00	46	29	211	320	283	67
29	.00	.00	.00	.00	---	.00	59	29	185	331	186	67
30	.00	.00	.00	.00	---	.00	59	26	252	330	128	66
31	.00	---	.00	.00	---	.00	---	22	---	357	145	---
TOTAL	1275.50	31.92	0.00	0.00	0.00	0.00	636.00	1148.6	5181	9348	8918	3129
MEAN	41.1	1.06	.00	.00	.00	.00	21.2	37.1	173	302	288	104
MAX	113	13	.00	.00	.00	.00	63	64	410	363	354	155
MIN	.00	.00	.00	.00	.00	.00	.00	7.5	20	193	128	66
AC-FT	2530	63	.0	.0	.0	.0	1260	2280	10280	18540	17690	6210

CAL YR 1988 TOTAL 40120.72 MEAN 110 MAX 651 MIN .00 AC-FT 79580
WTR YR 1989 TOTAL 29668.02 MEAN 81.3 MAX 410 MIN .00 AC-FT 58850

KANSAS RIVER BASIN

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, Dec. 16, Dec. 27 to Jan. 3, and Jan. 8 to Mar. 8. 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.--39 years, 314 ft³/s, 227,500 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, 5,510 ft³/s July 1, gage height, 12.25 ft; minimum daily, 1.6 ft³/s July 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	43	97	116	100	96	64	5.3	8.8	4930	665	30
2	5.0	63	97	106	78	90	62	5.3	8.2	1580	216	25
3	4.1	83	97	120	66	82	60	6.1	7.9	1190	145	56
4	4.1	84	96	123	54	82	49	7.4	5.9	484	108	62
5	4.2	85	97	124	58	84	57	6.9	7.0	243	60	13
6	4.8	86	97	125	60	94	58	5.7	12	137	50	11
7	4.8	65	97	125	60	104	59	5.2	8.3	71	56	9.2
8	5.0	50	98	120	64	118	60	4.4	6.2	33	49	8.5
9	4.6	85	98	96	66	140	62	4.0	18	11	48	8.6
10	4.6	69	98	74	70	124	62	4.4	19	6.0	48	8.5
11	4.5	62	97	84	94	109	62	5.1	24	26	48	8.7
12	4.9	89	98	86	108	108	62	5.5	21	1110	47	9.2
13	4.7	91	98	88	98	105	64	7.1	31	238	46	8.9
14	4.8	92	98	90	96	104	64	6.1	22	93	46	9.5
15	4.5	93	100	92	94	101	64	5.8	14	835	45	9.0
16	4.5	94	100	94	92	98	63	6.1	13	672	47	3.9
17	17	95	104	96	84	96	63	7.0	14	305	49	3.7
18	68	96	105	96	74	94	62	11	12	248	51	3.7
19	69	97	105	100	76	91	44	11	34	207	87	6.8
20	77	95	106	108	78	89	17	7.7	25	110	168	19
21	80	95	107	114	78	87	12	8.8	47	77	133	12
22	80	96	108	114	72	85	8.5	8.5	54	52	106	11
23	79	97	109	116	66	84	8.2	9.6	45	50	70	4.7
24	80	97	110	116	72	83	8.1	9.6	28	64	80	4.7
25	81	97	112	108	80	82	6.9	9.0	98	47	160	4.5
26	84	98	113	94	90	78	6.0	7.6	330	6.2	400	4.1
27	85	96	112	104	110	74	5.8	7.3	32	1.6	64	3.8
28	84	90	108	112	104	72	15	7.6	7.5	14	51	3.6
29	81	91	100	120	---	69	6.0	7.0	5.6	20	46	3.6
30	82	96	104	122	---	67	5.3	7.2	255	23	40	3.3
31	66	---	110	120	---	65	---	9.0	---	667	35	---
TOTAL	1187.8	2570	3176	3303	2242	2855	1239.8	218.3	1213.4	13550.8	3264	369.5
MEAN	38.3	85.7	102	107	80.1	92.1	41.3	7.04	40.4	437	105	12.3
MAX	85	98	113	125	110	140	64	11	330	4930	665	62
MIN	4.1	43	96	74	54	65	5.3	4.0	5.6	1.6	35	3.3
AC-FT	2360	5100	6300	6550	4450	5660	2460	433	2410	26880	6470	733

CAL YR 1988 TOTAL 40658.4 MEAN 111 MAX 2450 MIN 2.8 AC-FT 80650
WTR YR 1989 TOTAL 35189.6 MEAN 96.4 MAX 4930 MIN 1.6 AC-FT 69800

KANSAS RIVER BASIN

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06853020 REPUBLICAN RIVER AT GUIDE ROCK, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to September 1989 (discontinued). Prior to October 1985 published as Republican River near Guide Rock (06853000).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 19...	1245	72	645	8.13	9.5	10.5	15	260	380
NOV 16...	1315	93	530	8.34	3.0	14.5	12	67	160
DEC 14...	1130	98	695	8.30	3.0	13.2	8	K50	100
JAN 11...	1120	83	693	8.29	0.0	13.2	<8	<10	92
FEB 08...	1045	63	742	7.42	0.0	7.3	9	K53	K63
MAR 08...	1315	118	675	8.19	3.0	13.4	<8	10	16
APR 04...	1350	29	627	8.39	13.5	10.5	14	K14	150
MAY 02...	1330	5.5	552	8.44	22.0	11.0	15	90	190
JUL 23...	1430	9.4	620	8.30	28.0	9.0	11	120	280
AUG 17...	1540	319	520	8.33	24.0	7.4	98	3500	1600
SEP 15...	1125	25	607	8.05	22.0	8.0	<8	K570	1100
SEP 13...	1300	11	580	8.12	13.0	9.8	14	17000	9800

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 19...	270	80	17	33	0.9	110	21	261	0.35
NOV 16...	250	79	14	30	0.9	88	19	230	0.31
DEC 14...	300	92	17	33	0.9	91	22	255	0.35
JAN 11...	310	98	17	33	0.8	97	22	267	0.36
FEB 08...	320	100	18	35	0.9	89	22	264	0.36
MAR 08...	270	86	14	27	0.7	52	22	201	0.27
APR 04...	250	76	14	32	0.9	82	22	226	0.31
MAY 02...	240	75	13	25	0.7	70	26	209	0.28
JUL 23...	240	76	13	28	0.8	--	21	--	--
AUG 17...	170	43	14	32	1	75	21	185	0.25
SEP 15...	220	57	19	42	1	89	27	234	0.32
SEP 13...	250	78	14	26	0.7	61	23	202	0.27

KANSAS RIVER BASIN

06853020 REPUBLICAN RIVER AT GUIDE ROCK, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE		SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)
OCT									
19...		50.7	30	0.570	<0.020	--	<0.50	--	0.150
NOV									
16...		57.8	14	0.960	<0.020	--	0.64	1.6	0.080
DEC									
14...		67.5	32	1.70	0.220	--	<0.50	--	0.340
JAN									
11...		59.8	<4	2.90	0.140	--	<0.50	--	0.120
FEB									
08...		44.9	<4	2.40	0.170	--	<0.50	--	0.160
MAR									
08...		64.0	32	1.70	0.260	--	<0.50	--	0.160
APR									
04...		17.7	23	0.470	<0.020	--	<0.50	--	0.080
MAY									
02...		3.10	6	0.430	<0.020	--	<0.50	--	0.120
23...		--	10	0.620	0.170	0.93	1.1	1.7	0.210
JUL									
17...		159	--	0.830	0.330	1.2	1.5	2.3	0.510
AUG									
15...		15.8	34	0.580	<0.020	--	<0.50	--	0.140
SEP									
13...		6.00	98	1.60	0.070	0.84	0.91	2.5	1.80

DATE		TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	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												
16...		1315	37	<15	<10	<10	<20	<0.10	5	<1	<30	4.1
FEB												
08...		1045	11	<15	<10	<10	<20	<0.10	18	<1	<30	4.0
MAY												
02...		1330	12	<15	<10	<10	<20	<0.50	10	<1	<30	4.5
AUG												
15...		1125	7	<15	<10	<10	<20	<0.50	4	<1	<30	5.1

KANSAS RIVER BASIN

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06853500 REPUBLICAN RIVER NEAR HARDY, NE

LOCATION.--Lat 39°59'33", long 97°55'53", in NE1/4 NE1/4 SE1/4 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; 32 years (water years 1958-89, since conservation pool at Harlan County Lake was first filled), 364 ft³/s, 263,700 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, 4,630 ft³/s July 2, gage height, 9.51 ft; minimum discharge, 21 ft³/s Sept. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	88	122	105	135	e180	120	37	25	912	746	40
2	38	63	121	107	e85	169	120	36	25	3820	591	35
3	33	103	118	92	e76	152	122	36	30	1290	316	53
4	32	103	117	115	e80	e122	118	49	27	1020	245	107
5	31	93	117	139	e90	e111	107	39	25	544	199	214
6	31	93	121	174	e100	e113	113	32	24	350	166	104
7	32	93	121	173	e92	e128	117	31	24	236	130	64
8	32	86	e110	115	e102	163	116	31	26	162	121	54
9	32	71	e92	e90	e94	207	114	28	30	116	83	293
10	30	122	e114	e80	e110	195	113	27	33	88	57	181
11	29	101	e104	e96	e180	185	114	25	49	71	44	82
12	27	82	e111	e107	e175	165	116	25	49	425	42	57
13	28	101	e120	e111	e170	152	118	30	42	770	42	67
14	27	101	132	e90	e145	140	116	34	32	351	53	59
15	26	106	e94	e80	e170	133	115	32	41	315	77	48
16	26	112	e92	e108	e155	129	111	30	70	1010	77	40
17	26	111	e98	e100	e170	125	111	34	53	804	64	35
18	26	116	120	e96	e182	123	111	45	59	602	70	31
19	35	115	135	e110	e190	123	110	43	56	424	121	28
20	70	113	143	e127	e190	124	103	38	41	351	175	26
21	88	111	150	e130	e160	124	68	46	40	269	248	25
22	93	112	138	e106	e140	123	57	53	41	210	232	24
23	94	115	132	e120	e110	126	47	55	95	176	203	22
24	95	115	127	146	e170	127	45	34	138	150	142	22
25	95	118	125	147	e220	125	44	30	232	129	224	24
26	95	124	126	135	e200	126	40	27	236	100	251	24
27	95	124	123	124	e188	126	37	28	384	65	346	23
28	91	e97	89	137	e180	127	35	27	176	51	151	22
29	90	133	74	154	---	126	38	26	73	42	79	22
30	91	129	84	161	---	126	36	25	48	41	59	21
31	94	---	92	150	---	122	---	24	---	112	50	---
TOTAL	1684	3151	3562	3725	4059	4317	2732	1057	2224	15006	5404	1847
MEAN	54.3	105	115	120	145	139	91.1	34.1	74.1	484	174	61.6
MAX	95	133	150	174	220	207	122	55	384	3820	746	293
MIN	26	63	74	80	76	111	35	24	24	41	42	21
AC-FT	3340	6250	7070	7390	8050	8560	5420	2100	4410	29760	10720	3660

CAL YR 1988 TOTAL 62832 MEAN 172 MAX 4560 MIN 26 AC-FT 124600
WTR YR 1989 TOTAL 48768 MEAN 134 MAX 3820 MIN 21 AC-FT 96730

e Estimated

KANSAS RIVER BASIN

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 1,520 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec 13-16, Dec. 29 to Jan. 15, and Feb. 2 to Mar. 7. Records good except for periods of estimated record and those below 5 ft³/s which are poor.

AVERAGE DISCHARGE.--25 years, 28.0 ft³/s, 20,290 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)
Sept. 9	0249	*1450	*8.21	No other peak greater than base discharge.			

Minimum daily discharge, 0.44 ft³/s Oct. 28-30, Sept. 28-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	1.4	1.6	1.4	6.9	8.2	4.1	2.2	1.1	2.6	2.3	3.2
2	3.8	.94	1.6	1.2	3.2	8.0	3.7	2.1	1.5	3.2	2.3	1.3
3	1.9	1.2	1.6	1.2	1.5	8.2	3.7	2.1	1.8	3.7	4.0	1.2
4	.53	2.5	1.6	1.4	1.0	5.0	3.6	3.0	1.9	4.7	5.2	30
5	.49	2.8	1.5	2.2	1.5	3.7	3.3	3.4	3.4	4.5	6.6	76
6	1.1	.78	1.4	2.6	1.8	3.4	3.2	2.5	4.6	3.3	4.7	56
7	1.9	.62	1.4	2.6	.73	7.5	3.3	2.2	4.3	2.4	5.5	33
8	2.0	.91	1.4	1.5	.89	24	3.1	2.9	4.4	2.3	6.0	388
9	1.4	.73	1.3	1.2	.73	86	3.2	3.4	4.2	1.6	4.6	1080
10	2.0	.73	1.2	.97	.45	142	3.2	2.6	2.3	1.6	3.8	641
11	2.1	1.4	1.2	.99	.63	121	3.3	2.3	2.1	1.2	3.0	662
12	.76	2.0	1.2	1.4	.87	102	3.1	2.3	3.1	2.9	5.2	693
13	.73	1.3	1.2	1.4	1.4	54	2.8	2.8	1.9	5.2	5.0	276
14	1.1	1.1	1.1	1.6	1.4	29	2.6	3.4	1.6	10	4.2	95
15	1.2	1.5	1.0	1.6	1.4	20	2.6	3.4	1.8	7.5	1.8	54
16	1.8	1.7	1.1	1.6	1.4	12	2.4	3.0	1.4	3.3	2.1	35
17	2.1	1.5	1.2	1.7	1.6	7.3	3.2	3.3	2.2	2.2	2.1	25
18	2.6	2.3	1.2	1.8	1.6	6.1	3.7	5.2	4.5	2.4	2.1	18
19	1.8	2.8	1.4	1.9	1.0	7.2	2.6	5.2	4.0	4.7	7.3	11
20	1.3	3.2	2.7	1.9	.90	7.5	2.6	4.9	3.0	7.1	5.8	7.0
21	.60	2.7	2.1	1.8	.90	5.9	2.5	4.6	2.7	3.8	2.6	5.5
22	.67	2.0	2.8	1.8	.88	6.1	2.5	4.4	2.4	2.0	1.6	2.7
23	1.9	1.9	2.5	1.8	.88	5.5	3.0	3.3	3.4	2.1	2.3	1.6
24	2.9	1.8	1.7	1.8	1.1	4.7	3.4	2.8	5.0	4.2	2.6	1.2
25	2.1	1.8	1.6	1.8	2.5	4.3	3.0	2.4	136	4.2	2.3	1.5
26	2.0	2.3	1.9	1.8	10	3.7	4.0	2.3	66	3.6	1.9	1.5
27	1.8	1.9	1.5	1.9	20	4.6	3.3	2.0	21	2.1	24	.60
28	.44	1.7	1.2	3.0	10	4.6	2.5	1.9	7.4	3.4	53	.44
29	.44	2.1	1.2	6.3	---	5.0	2.3	1.8	4.1	4.1	64	.44
30	.44	1.6	1.2	12	---	4.4	2.3	1.7	3.1	3.5	23	.44
31	.55	---	1.5	12	---	4.1	---	1.4	---	2.3	9.0	---
TOTAL	50.75	51.21	47.1	78.16	77.16	715.0	92.1	90.8	306.2	111.7	269.9	4201.62
MEAN	1.64	1.71	1.52	2.52	2.76	23.1	3.07	2.93	10.2	3.60	8.71	140
MAX	6.3	3.2	2.8	12	20	142	4.1	5.2	136	10	64	1080
MIN	.44	.62	1.0	.97	.45	3.4	2.3	1.4	1.1	1.2	1.6	.44
AC-FT	101	102	93	155	153	1420	183	180	607	222	535	8330
CAL YR 1988	TOTAL 2303.41 MEAN 6.29 MAX 120 MIN .44 AC-FT 4570											
WTR YR 1989	TOTAL 6091.70 MEAN 16.7 MAX 1080 MIN .44 AC-FT 12080											

KANSAS RIVER BASIN

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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.

WATER-DISCHARGE RECORDS

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: Nov. 28, Dec. 9-20, Dec. 25 to Jan. 20, Jan. 26-29, and Feb. 2 to Mar. 8. Records good except for periods of estimated record, which are poor. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--35 years, (1953-73, 1975-89) 52.6 ft³/s, 38,110 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)
June 25	0930	478	10.31	Sept. 9	1930	*2810	*18.45
Sept. 4	2200	601	11.40				

Minimum daily discharge, 13 ft³/s June 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	17	18	18	22	19	26	21	17	47	24	50
2	33	17	18	17	18	18	25	21	17	40	23	42
3	44	17	18	19	15	17	25	21	17	33	22	67
4	34	18	18	19	16	17	25	22	17	30	22	476
5	25	17	18	21	18	17	24	22	17	27	21	439
6	22	17	18	22	18	18	24	21	16	25	19	198
7	19	17	18	20	18	19	24	22	16	23	19	156
8	19	17	18	19	19	50	24	22	17	21	18	569
9	18	17	18	18	19	108	23	21	56	21	17	2180
10	18	17	18	17	19	104	23	21	46	22	14	2660
11	18	17	19	17	19	76	23	21	27	22	16	2140
12	18	17	21	18	19	57	23	21	20	25	16	1530
13	18	17	19	18	19	47	24	21	18	25	16	1050
14	18	17	18	18	19	56	23	22	17	25	15	680
15	18	18	18	19	19	55	23	22	17	33	17	356
16	18	19	19	20	19	44	23	23	16	34	18	183
17	17	18	20	20	19	35	23	22	16	36	18	102
18	17	18	21	18	19	38	23	26	16	32	16	70
19	18	18	20	18	19	32	23	30	16	30	18	53
20	18	18	20	18	19	31	23	24	15	29	32	42
21	17	18	19	18	18	30	23	22	14	27	33	36
22	17	18	19	18	17	30	23	22	13	23	23	32
23	17	18	19	18	16	29	23	21	14	22	20	29
24	17	18	18	18	20	29	22	20	28	20	19	27
25	17	18	18	18	15	29	22	19	365	18	17	25
26	17	18	18	18	30	28	22	19	237	17	17	24
27	17	18	18	18	25	28	21	18	123	15	23	23
28	17	18	17	20	20	27	22	18	58	15	57	23
29	17	18	18	23	---	26	21	18	42	19	150	22
30	17	18	18	27	---	26	21	18	40	21	110	21
31	17	---	18	26	---	25	---	17	---	24	63	---
TOTAL	681	528	575	596	533	1165	694	658	1348	801	913	13305
MEAN	22.0	17.6	18.5	19.2	19.0	37.6	23.1	21.2	44.9	25.8	29.5	443
MAX	84	19	21	27	30	108	26	30	365	47	150	2660
MIN	17	17	17	17	15	17	21	17	13	15	14	21
AC-FT	1350	1050	1140	1180	1060	2310	1380	1310	2670	1590	1810	26390

CAL YR 1988 TOTAL 11396 MEAN 31.1 MAX 347 MIN 12 AC-FT 22600
WTR YR 1989 TOTAL 21797 MEAN 59.7 MAX 2660 MIN 13 AC-FT 43230

KANSAS RIVER BASIN
06880000 LINCOLN CREEK NEAR SEWARD, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-70, 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML) (31673)
OCT									
26...	1200	18	558	8.21	8.0	10.9	31	220	1000
NOV									
21...	1415	17	613	8.48	2.5	15.2	<8	K57	160
DEC									
19...	1215	17	--	8.09	0.5	18.8	<8	K71	K150
JAN									
17...	1000	16	--	7.80	0.0	13.2	<8	K12	K58
FEB									
14...	1040	29	578	7.57	0.0	12.2	12	<10	160
MAR									
15...	1345	38	417	7.91	4.0	12.0	--	K80	260
APR									
11...	0930	24	630	8.31	3.0	12.1	14	40	230
MAY									
09...	0900	20	617	8.24	14.0	7.2	19	190	5800
JUN									
05...	1215	E17	612	8.22	18.0	9.0	37	570	3800
JUL									
03...	1115	29	462	8.04	23.5	5.8	76	4100	3200
AUG									
09...	1430	16	676	8.36	22.0	9.1	42	540	3900
SEP									
12...	1000	1560	--	7.24	13.5	6.3	64	60000	75000

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT									
26...	270	84	14	30	0.8	53	8.2	189	0.26
NOV									
21...	260	83	14	32	0.9	56	8.0	193	0.26
DEC									
19...	280	87	15	32	0.9	57	8.0	199	0.27
JAN									
17...	270	84	15	30	0.8	54	7.3	190	0.26
FEB									
14...	250	79	14	29	0.8	35	8.1	165	0.22
MAR									
15...	150	46	8.5	21	0.8	14	18	107	0.15
APR									
11...	240	75	14	30	0.9	22	7.9	149	0.20
MAY									
09...	100	16	15	33	1	26	8.4	98	0.13
JUN									
05...	250	78	14	30	0.9	54	8.2	184	0.25
JUL									
03...	160	48	9.3	26	0.9	32	24	139	0.19
AUG									
09...	240	73	14	31	0.9	45	12	175	0.24
SEP									
12...	28	7.9	2.1	2.1	0.2	<10	1.8	--	--

KANSAS RIVER BASIN

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06880000 LINCOLN CREEK NEAR SEWARD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 26...	9.20	23	2.80	<0.020	--	0.54	3.3	0.280	10
NOV 21...	8.86	<4	2.70	<0.020	--	0.71	3.4	0.220	4.0
DEC 19...	9.13	<4	3.30	0.090	0.23	0.32	3.6	0.310	3.8
JAN 17...	8.22	7	3.70	0.020	--	<0.50	--	0.430	5.0
FEB 14...	12.9	10	3.10	0.080	--	<0.50	--	0.240	2.9
MAR 15...	11.0	124	2.50	0.420	2.5	2.9	5.4	0.700	--
APR 11...	9.65	42	2.10	<0.020	--	<0.50	--	0.190	3.4
MAY 09...	5.31	144	2.50	0.260	1.0	1.3	3.8	0.450	4.6
JUN 05...	0.0	182	2.80	0.300	1.1	1.4	4.2	0.600	3.7
JUL 03...	10.9	620	3.50	0.220	2.7	2.9	6.4	1.10	9.5
AUG 09...	7.56	139	3.00	0.210	2.8	3.0	6.0	0.610	6.5
SEP 12...	--	234	0.990	0.300	2.1	2.4	3.4	0.860	12

KANSAS RIVER BASIN

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.

WATER-DISCHARGE RECORDS

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. 10-12, 16, 17, Dec. 25 to Jan. 27, and Feb. 2 to Mar. 6. 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.--36 years, 132 ft³/s, 95,630 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)
June 25	1230	990	8.55	Sept. 10	1900	*4080	*18.75

Minimum daily discharge, 9.8 ft³/s July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	29	41	32	75	130	50	33	44	90	24	91
2	107	30	33	33	44	100	48	34	39	73	24	64
3	83	30	34	34	40	90	49	34	38	58	23	65
4	64	31	40	35	36	70	50	37	37	50	22	499
5	49	31	41	36	35	68	47	38	35	43	20	532
6	40	31	57	37	37	68	46	37	34	38	18	202
7	34	32	44	34	41	73	46	34	34	30	18	162
8	30	31	41	32	40	114	45	32	39	21	16	738
9	28	31	36	35	39	193	43	29	72	19	16	3070
10	28	48	34	38	40	244	42	32	77	17	12	4000
11	28	31	32	38	40	319	41	35	57	17	11	3820
12	28	28	36	37	40	315	41	35	46	20	15	2970
13	28	28	44	34	40	229	41	36	40	20	17	2100
14	28	28	42	32	40	195	40	37	36	24	17	1520
15	28	29	39	32	41	160	41	37	31	35	20	665
16	27	34	27	32	41	128	41	38	29	36	21	276
17	26	33	32	32	40	102	41	40	28	41	18	155
18	25	34	42	33	39	85	42	46	28	41	17	113
19	25	35	41	34	37	81	42	63	22	40	22	86
20	25	35	42	33	35	77	41	56	14	38	37	68
21	25	37	42	32	35	71	41	61	10	33	46	60
22	26	38	42	34	34	70	40	49	11	26	39	53
23	26	40	45	36	32	69	40	45	12	24	38	47
24	26	40	44	37	33	68	39	43	49	21	34	43
25	26	40	42	38	40	67	37	43	768	15	29	40
26	25	41	40	40	72	65	37	44	375	12	26	37
27	26	44	35	45	120	64	36	40	305	12	31	34
28	27	38	34	53	160	61	36	39	191	9.8	55	31
29	27	44	32	66	---	58	35	39	139	16	112	30
30	28	43	32	70	---	57	35	83	98	18	123	30
31	28	---	32	91	---	53	---	61	---	21	114	---
TOTAL	1242	1044	1198	1225	1346	3544	1253	1310	2738	958.8	1035	21601
MEAN	40.1	34.8	38.6	39.5	48.1	114	41.8	42.3	91.3	30.9	33.4	720
MAX	221	48	57	91	160	319	50	83	768	90	123	4000
MIN	25	28	27	32	32	53	35	29	10	9.8	11	30
AC-FT	2460	2070	2380	2430	2670	7030	2490	2600	5430	1900	2050	42850

CAL YR 1988 TOTAL 22739 MEAN 62.1 MAX 654 MIN 16 AC-FT 45100
WTR YR 1989 TOTAL 38494.8 MEAN 105 MAX 4000 MIN 9.8 AC-FT 76350

KANSAS RIVER BASIN

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06880500 BIG BLUE RIVER AT SEWARD, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 26...	0930	26	--	8.13	7.0	9.5	19	350	680
NOV 21...	1445	37	704	8.26	2.5	14.1	10	67	K67
DEC 19...	1145	41	--	7.92	0.5	16.5	17	K100	K81
JAN 17...	0930	32	760	7.87	0.0	15.6	10	K19	K64
FEB 14...	1000	48	--	7.66	0.0	11.7	14	K23	350
MAR 15...	1420	144	--	7.79	4.0	11.7	61	K77	230
APR 11...	0845	45	702	8.40	3.0	12.2	33	60	130
MAY 09...	0800	<26	647	8.23	13.5	7.5	30	250	4700
JUN 05...	1130	E33	583	7.98	18.0	6.0	45	410	2900
JUL 03...	1030	80	446	7.88	23.5	4.9	63	4800	3600
AUG 09...	1515	18	702	8.26	22.5	8.6	36	1300	3200
SEP 12...	1100	3020	115	7.26	13.0	6.0	74	140000	100000

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 26...	280	86	17	36	1	81	9.8	230	0.31
NOV 21...	300	89	18	37	1	80	8.6	233	0.32
DEC 19...	320	96	20	42	1	93	10	261	0.35
JAN 17...	300	91	18	39	1	83	10	241	0.33
FEB 14...	290	89	17	35	0.9	52	12	205	0.28
MAR 15...	130	38	7.7	16	0.6	19	9.9	91	0.12
APR 11...	270	81	17	36	1	59	10	203	0.28
MAY 09...	260	77	16	37	1	50	9.4	189	0.26
JUN 05...	230	70	14	29	0.9	61	8.3	182	0.25
JUL 03...	160	48	10	24	0.9	42	17	141	0.19
AUG 09...	250	76	15	34	1	66	12	203	0.28
SEP 12...	36	9.8	2.7	3.4	0.3	11	2.1	29	0.04

KANSAS RIVER BASIN

06880500 BIG BLUE RIVER AT SEWARD, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 26...	16.1	32	2.40	<0.020	--	0.79	3.2	0.440	5.7
NOV 21...	23.2	<4	2.40	<0.020	--	<0.50	--	0.590	5.5
DEC 19...	28.9	14	2.50	0.110	1.1	1.2	3.7	0.290	7.8
JAN 17...	20.8	8	3.60	0.020	--	<0.50	--	0.250	4.5
FEB 14...	26.6	<4	2.90	0.180	1.1	1.3	4.2	0.250	5.5
MAR 15...	35.2	142	2.10	1.70	1.5	3.2	5.3	0.860	15
APR 11...	24.7	61	1.50	<0.020	--	0.95	2.4	0.300	5.4
MAY 09...	0.0	136	1.80	0.180	1.4	1.6	3.4	0.440	6.5
JUN 05...	0.0	223	2.70	0.400	1.4	1.8	4.5	0.630	5.7
JUL 03...	30.5	490	3.10	0.250	2.4	2.7	5.8	0.950	12
AUG 09...	9.87	137	2.30	0.160	1.3	1.5	3.8	0.530	6.0
SEP 12...	236	284	0.870	0.330	2.1	2.4	3.3	0.880	20

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, 12, 15-17, Dec. 27 to Jan. 16, and Feb. 1 to Mar. 8. 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.--31 years, 184 ft³/s, 133,300 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 26	2327	1910	12.21	Sept. 10	1603	*3170	*15.75
Sept. 6	1202	1820	12.35				

Minimum daily discharge, 44 ft³/s Feb. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	526	54	54	52	56	72	70	65	52	530	132	252
2	392	54	54	50	48	72	69	64	50	600	127	170
3	296	56	53	54	44	70	70	62	56	513	132	143
4	191	58	52	58	44	68	68	63	58	805	147	1370
5	134	56	52	54	46	66	68	62	54	963	145	1660
6	106	55	52	54	48	70	68	62	52	959	123	1800
7	90	56	52	52	49	76	69	60	51	604	113	1680
8	78	58	51	52	48	98	68	60	57	292	105	1220
9	69	58	50	56	46	113	69	58	68	198	103	2080
10	64	57	48	60	64	131	67	59	58	153	108	2940
11	59	57	46	64	62	130	68	60	56	124	110	2630
12	54	57	52	62	60	128	68	60	54	113	117	2410
13	53	57	53	56	58	121	69	58	73	113	130	2370
14	53	55	55	58	56	120	68	57	82	117	131	1860
15	53	56	52	60	58	108	68	57	59	149	127	708
16	53	59	47	62	58	98	70	57	49	207	127	508
17	52	62	50	63	60	90	70	57	50	197	122	365
18	51	60	52	65	60	78	68	61	49	301	112	257
19	50	61	57	67	62	77	70	68	48	547	122	198
20	52	58	56	68	64	75	72	73	48	513	175	162
21	54	55	55	67	68	71	75	70	47	315	166	138
22	54	55	56	68	52	71	71	63	45	229	133	120
23	52	55	55	71	60	72	74	61	45	173	129	104
24	50	56	54	73	70	71	73	60	56	142	123	92
25	52	55	52	74	74	69	69	58	1130	125	118	84
26	52	57	57	72	72	70	70	54	1760	121	98	75
27	54	56	54	70	72	71	68	53	1790	122	124	69
28	51	54	52	87	70	70	68	54	1800	122	266	66
29	51	54	50	89	---	69	67	65	1070	123	465	62
30	51	54	56	87	---	70	66	58	577	128	390	65
31	53	---	56	89	---	69	---	53	---	135	330	---
TOTAL	3050	1695	1635	2014	1629	2634	2078	1872	9444	9733	4850	25658
MEAN	98.4	56.5	52.7	65.0	58.2	85.0	69.3	60.4	315	314	156	855
MAX	526	62	57	89	74	131	75	73	1800	963	465	2940
MIN	50	54	46	50	44	66	66	53	45	113	98	62
AC-FT	6050	3360	3240	3990	3230	5220	4120	3710	18730	19310	9620	50890

CAL YR 1988 TOTAL 30792 MEAN 84.1 MAX 1010 MIN 31 AC-FT 61080
WTR YR 1989 TOTAL 66292 MEAN 182 MAX 2940 MIN 44 AC-FT 131500

KANSAS RIVER BASIN

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 CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily, 3,000 mg/L Sept. 28; minimum daily, 30 mg/L Sept. 11.

SEDIMENT LOADS: Maximum daily, 6,910 tons Sept. 29; minimum daily, 2.6 tons Sept. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
12...	1230	55	--	467	7.83	11.5	--	10.6	--	--
12...	1235	--	--	--	--	--	--	--	32	3200
NOV										
07...	1200	57	--	--	8.28	8.0	--	11.3	--	--
07...	1205	--	--	--	--	--	--	--	18	180
DEC										
06...	1000	53	--	--	8.20	3.5	--	10.7	--	--
06...	1005	--	--	--	--	--	3.4	--	10	1300
JAN										
03...	1130	59	--	684	7.81	0.0	--	13.8	--	--
03...	1135	--	--	--	--	--	3.6	--	<8	1700
FEB										
07...	1000	49	--	668	7.85	0.0	--	10.8	--	--
07...	1005	--	--	--	--	--	3.7	--	<8	K820
MAR										
07...	1400	108	--	539	7.96	0.0	--	13.1	--	--
07...	1405	--	--	--	--	--	12	--	26	1100
APR										
04...	0955	70	--	632	8.10	7.0	--	12.7	--	--
04...	1000	--	--	--	--	--	17	--	18	77
MAY										
02...	0830	50	--	609	8.29	9.5	--	9.7	--	--
02...	0835	--	--	--	--	--	15	--	26	300
JUN										
21...	1020	50	--	593	8.15	22.5	--	7.1	--	--
21...	1025	--	--	--	--	--	68	--	46	1900
27...	1030	1830	--	130	8.80	20.5	--	4.8	--	--
28...	1200	1470	--	127	7.37	22.5	870	5.9	--	--
29...	1130	1130	--	153	7.09	24.5	730	5.4	--	--
30...	0915	E589	--	--	7.77	23.5	745	5.0	--	--
JUL										
11...	1435	105	--	330	7.94	25.5	460	5.0	--	--
AUG										
22...	1010	123	--	462	8.04	24.0	--	6.2	42	2900
22...	1015	--	--	--	--	--	71	--	42	3300
SEP										
05...	1030	1670	--	95	7.47	18.5	620	5.5	--	--
05...	1035	--	--	--	--	--	--	--	130	24000

E Estimated value.

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

KANSAS RIVER BASIN

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06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
OCT										
12...	--	180	16	55	11	23	0.8	11	166	44
12...	1400	170	--	53	9.8	24	0.8	--	--	42
NOV										
07...	--	260	30	79	15	38	1	8.3	228	66
07...	340	250	--	80	13	38	1	--	--	64
DEC										
06...	--	240	23	74	14	39	1	7.4	219	55
06...	1600	250	--	78	13	38	1	--	--	65
JAN										
03...	--	260	0	81	14	41	1	8.3	274	68
03...	2600	250	--	79	13	40	1	--	--	66
FEB										
07...	--	250	18	78	14	39	1	7.8	236	63
07...	1100	250	--	78	13	37	1	--	--	62
MAR										
07...	--	220	17	68	12	34	1	8.4	--	54
07...	1900	220	--	69	11	31	1	--	--	35
APR										
04...	--	250	15	75	14	37	1	8.0	229	61
04...	140	240	--	78	11	36	1	--	--	58
MAY										
02...	--	260	17	79	14	39	1	8.0	239	59
02...	520	250	--	79	13	37	1	--	--	48
JUN										
21...	--	220	8	67	12	37	1	9.7	--	55
21...	4900	210	--	66	11	36	1	--	--	--
27...	--	37	8	11	2.4	4.8	0.4	12	29	7.0
28...	--	32	0	9.2	2.2	4.5	0.4	13	33	9.0
29...	--	42	6	12	2.9	5.4	0.4	14	35	12
30...	--	48	4	14	3.2	6.6	0.4	13	--	12
JUL										
11...	4700	120	--	36	7.0	15	0.6	--	--	15
AUG										
22...	--	180	5	55	11	28	0.9	12	--	46
22...	K7000	190	--	58	11	28	0.9	--	--	46
SEP										
05...	--	28	0	7.9	2.0	4.1	0.4	9.4	30	7.0
05...	70000	28	--	7.8	2.1	3.7	0.3	--	--	<10

KANSAS RIVER BASIN

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CHLORIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUORIDE, 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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT										
12...	11	--	28	300	294	0.41	44.5	--	1.85	0.050
12...	13	--	--	--	--	--	--	98	--	--
NOV										
07...	19	0.30	27	396	401	0.54	60.9	--	1.97	0.030
07...	20	--	--	--	--	--	--	7	--	--
DEC										
06...	20	0.30	23	394	378	0.54	56.4	--	2.57	0.030
06...	20	--	--	--	--	--	--	<4	--	--
JAN										
03...	25	0.30	30	417	442	0.57	66.4	--	2.17	0.030
03...	25	--	--	--	--	--	--	9	--	--
FEB										
07...	22	0.30	31	404	409	0.55	53.4	--	2.18	0.020
07...	20	--	--	--	--	--	--	8	--	--
MAR										
07...	19	0.30	29	356	363	0.48	104	--	2.77	0.030
07...	23	--	--	--	--	--	--	36	--	--
APR										
04...	19	0.30	23	382	385	0.52	72.2	--	1.58	0.020
04...	22	--	--	--	--	--	--	59	--	--
MAY										
02...	21	0.30	28	407	400	0.55	54.9	--	1.57	0.030
02...	24	--	--	--	--	--	--	48	--	--
JUN										
21...	19	0.40	31	370	370	0.50	49.9	--	2.45	0.050
21...	25	--	--	--	--	--	--	264	--	--
27...	4.6	0.20	12	84	92	0.11	415	--	4.07	0.130
28...	5.2	0.30	11	120	95	0.16	476	--	4.04	0.160
29...	5.3	0.30	13	127	106	0.17	387	--	3.91	0.190
30...	5.6	0.30	15	149	113	0.20	--	--	3.11	0.290
JUL										
11...	19	--	--	--	92	0.13	26.1	432	--	--
AUG										
22...	15	0.40	22	298	306	0.41	99.0	--	1.88	0.020
22...	18	--	--	--	--	--	--	222	--	--
SEP										
05...	3.3	0.30	9.9	77	70	0.10	347	--	1.27	0.030
05...	3.2	--	--	--	--	--	--	1260	--	--

KANSAS RIVER BASIN

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06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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, 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)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT									
12...	--	1.90	--	0.120	--	1.0	--	0.550	0.500
12...	1.80	--	0.050	--	1.0	1.1	2.9	0.870	--
NOV									
07...	--	2.00	--	0.040	--	0.50	--	0.450	0.350
07...	1.90	--	<0.020	--	--	<0.50	--	0.390	--
DEC									
06...	--	2.60	--	0.060	--	0.60	--	0.570	0.480
06...	2.20	--	<0.020	--	--	<0.50	--	0.520	--
JAN									
03...	--	2.20	--	0.530	--	1.1	--	0.740	0.650
03...	3.70	--	0.560	--	0.64	1.2	4.9	0.960	--
FEB									
07...	--	2.20	--	0.610	--	1.0	--	0.640	0.560
07...	3.10	--	0.410	--	0.22	0.63	3.7	0.570	--
MAR									
07...	--	2.80	--	1.10	--	1.6	--	0.790	0.730
07...	2.30	--	1.50	--	0.10	1.6	3.9	1.00	--
APR									
04...	--	1.60	--	0.010	--	0.40	--	0.470	0.350
04...	1.60	--	0.030	--	0.59	0.62	2.2	0.450	--
MAY									
02...	--	1.60	--	0.040	--	0.30	--	0.450	0.340
02...	1.60	--	<0.020	--	--	0.84	2.4	0.540	--
JUN									
21...	--	2.50	--	0.150	--	0.90	--	1.10	0.620
21...	2.50	--	0.280	--	1.1	1.4	3.9	1.00	--
27...	--	4.20	--	0.420	--	2.3	--	0.660	0.390
28...	--	4.20	--	0.310	--	2.2	--	0.640	0.400
29...	--	4.10	--	0.310	--	2.3	--	0.660	0.310
30...	--	3.40	--	0.290	--	2.0	--	0.700	0.370
JUL									
11...	1.60	--	0.320	--	1.1	1.4	3.0	1.00	--
AUG									
22...	--	1.90	--	0.050	--	1.0	--	0.640	0.400
22...	2.20	--	<0.020	--	--	1.4	3.6	0.750	--
SEP									
05...	--	1.30	--	0.170	--	1.9	--	0.590	0.280
05...	1.20	--	0.120	--	3.9	4.0	5.2	1.80	--

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

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06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	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)
OCT 12... 12...	4.3 --	1.4 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.50 --	<0.10 --	<0.10 --
NOV 07... 07...	3.2 --	0.4 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.20 --	<0.10 --	<0.10 --
DEC 06... 06...	2.1 --	0.3 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.10 --	<0.10 --	<0.10 --
JAN 03... 03...	3.1 --	0.7 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.10 --	<0.10 --	<0.10 --
FEB 07... 07...	2.8 --	0.4 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.20 --	<0.10 --	<0.10 --
MAR 07... 07...	4.3 --	--	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.30 --	<0.10 --	0.10 --
APR 04... 04...	3.3 --	1.5 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.10 --	<0.10 --	0.10 --
MAY 02... 02...	2.9 --	1.9 --	<0.10 --	<0.10 --	<0.1 --	<0.10 --	<0.1 --	<0.1 --	0.20 --	<0.10 --	<0.10 --
JUN 21... 21...	3.9 --	3.7 --	<0.10 --	<0.10 --	<0.1 --	0.10 --	0.9 --	<0.1 --	3.2 --	0.10 --	0.40 --
27... 28...	9.5 8.6	>5.6 >8.4	0.30 0.20	<0.10 <0.10	<0.1 <0.1	<0.10 1.0	<0.1 <0.1	<0.1 <0.1	29 18	3.40 2.50	1.3 1.6
29... 30...	8.5 8.5	>8.4 >8.4	0.30 0.20	<0.10 <0.10	<0.1 <0.1	0.70 0.80	<0.1 0.3	<0.1 <0.1	25 27	2.70 2.10	1.9 2.1
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 22... 22...	6.2 --	4.6 --	<0.10 --	<0.10 --	<0.1 --	0.10 --	0.1 --	<0.1 --	1.9 --	0.10 --	0.10 --
SEP 05... 05...	9.0 --	>10 --	<0.10 --	<0.10 --	<0.1 --	0.10 --	<0.1 --	<0.1 --	2.3 --	0.20 --	0.10 --

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06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		METRI- BUZIN WATER WHOLE	METOLA- CHLOR WATER WHOLE	SEDI- MENT, SUS- PENDEd (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEd (T/DAY)	SED. SUSP. FALL DIAm. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAm. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAm. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAm. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAm. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAm. %.062 MM THAN (70331)
DATE	AME- TRYNE TOTAL (82184)	TOT.REC (UG/L) (82611)	TOT.REC (UG/L) (82612)								
OCT 12... 12...	<0.10 --	<0.1 --	0.1 --	106 --	16 --	-- --	-- --	-- --	-- --	-- --	99 --
NOV 07... 07...	<0.10 --	<0.1 --	<0.1 --	14 --	2.2 --	-- --	-- --	-- --	-- --	-- --	98 --
DEC 06... 06...	<0.10 --	<0.1 --	<0.1 --	9 --	1.3 --	-- --	-- --	-- --	-- --	-- --	100 --
JAN 03... 03...	<0.10 --	<0.1 --	<0.1 --	12 --	1.9 --	-- --	-- --	-- --	-- --	-- --	95 --
FEB 07... 07...	<0.10 --	<0.1 --	<0.1 --	12 --	1.6 --	-- --	-- --	-- --	-- --	-- --	97 --
MAR 07... 07...	<0.10 --	<0.1 --	0.1 --	41 --	12 --	-- --	-- --	-- --	-- --	-- --	96 --
APR 04... 04...	<0.10 --	<0.1 --	<0.1 --	120 --	23 --	-- --	-- --	-- --	-- --	-- --	74 --
MAY 02... 02...	<0.10 --	<0.1 --	<0.1 --	43 --	5.8 --	-- --	-- --	-- --	-- --	-- --	97 --
JUN 21... 21... 27... 28... 29... 30...	<0.10 -- <0.10 0.10 0.10	<0.1 -- 0.2 0.1 0.3 0.3	1.0 -- 2.3 2.8 2.9 3.1	291 -- 1960 1420 1140 1060	39 -- 9680 5640 3480 0.0	-- -- -- 83 78 72	46 -- -- 86 83 86	98 -- 95 -- -- --	100 -- 95 -- -- --	-- -- 97 -- -- --	91 -- 93 99 97 99
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 22... 22...	0.20 --	<0.1 --	0.2 --	211 --	70 --	-- --	74 --	-- --	-- --	-- --	98 --
SEP 05... 05...	0.20 --	<0.1 --	0.1 --	1520 --	6850 --	59 --	65 --	91 --	94 --	99 --	84 --

06880800 WEST FORK BIG BLUE RIVER NEAR DORCHESTER, NE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1290	1830	40	5.8	16	2.3	e10	1.4	e17	2.6	e68	13
2	1130	1200	30	4.4	12	1.7	e8	1.1	e10	1.3	e61	12
3	1110	887	31	4.7	15	2.1	12	1.7	e8	.95	e54	10
4	780	402	e30	4.7	14	2.0	e12	1.9	e6	.71	e77	14
5	510	185	e24	3.6	12	1.7	12	1.7	e6	.75	e70	12
6	380	109	18	2.7	9	1.3	17	2.5	e8	1.0	e54	10
7	300	73	14	2.1	9	1.3	e15	2.1	12	1.6	46	9.4
8	260	55	11	1.7	11	1.5	e10	1.4	e11	1.4	82	22
9	230	43	10	1.6	9	1.2	e6	.91	e10	1.2	e225	69
10	190	33	14	2.2	12	1.6	e6	.97	e14	2.4	290	103
11	150	24	15	2.3	63	7.8	e8	1.4	e14	2.3	255	90
12	108	16	21	3.2	e60	8.4	e8	1.3	e12	1.9	e245	85
13	106	15	25	3.8	61	8.7	e8	1.2	e12	1.9	238	78
14	121	17	16	2.4	33	4.9	e10	1.6	e10	1.5	e225	73
15	136	19	24	3.6	e20	2.8	e10	1.6	e10	1.6	177	52
16	103	15	26	4.1	e20	2.5	e11	1.8	e10	1.6	150	40
17	86	12	20	3.3	e32	4.3	e12	2.0	e12	1.9	e163	40
18	80	11	18	2.9	e26	3.7	e12	2.1	e12	1.9	e135	28
19	52	7.0	22	3.6	e20	3.1	e11	2.0	e10	1.7	90	19
20	42	5.9	27	4.2	23	3.5	8	1.5	e10	1.7	73	15
21	52	7.6	12	1.8	21	3.1	9	1.6	e10	1.8	60	12
22	71	10	11	1.6	18	2.7	7	1.3	e8	1.1	66	13
23	68	9.5	e16	2.4	21	3.1	11	2.1	e8	1.3	83	16
24	37	5.0	20	3.0	12	1.7	10	2.0	e10	1.9	92	18
25	26	3.7	26	3.9	e5	.70	e12	2.4	e14	2.8	e150	28
26	32	4.5	17	2.6	6	.92	e12	2.3	e12	2.3	250	47
27	35	5.1	10	1.5	e10	1.5	e12	2.3	54	10	210	40
28	34	4.7	e9	1.3	e8	1.1	e18	4.2	81	15	160	30
29	27	3.7	13	1.9	e10	1.4	e20	4.8	--	----	140	26
30	14	1.9	15	2.2	e12	1.8	23	5.4	--	----	140	26
31	28	4.0	--	---	e10	1.5	32	7.7	--	----	120	22
TOTAL	---	5018.6	--	89.1	---	85.92	--	68.28	--	68.11	---	1072.4

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/ DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	165	31	108	19	192	27	1200	1720	300	107	900	612
2	178	33	115	20	220	30	1500	2430	300	103	740	340
3	163	31	198	33	260	39	1250	1730	270	96	760	293
4	150	28	182	31	240	38	1600	3480	300	119	2390	8840
5	182	33	e134	22	240	35	1300	3380	e355	139	1500	6720
6	120	22	130	22	225	32	1100	2850	340	113	1050	5100
7	120	22	163	26	280	39	880	1440	320	98	1560	7080
8	135	25	172	28	305	47	e710	560	260	74	1100	3620
9	135	25	100	16	405	74	650	347	205	57	1350	7580
10	82	15	98	16	430	67	620	256	210	61	1100	8730
11	120	22	208	34	353	53	600	201	230	68	725	5150
12	120	22	187	30	370	54	500	153	235	74	645	4200
13	227	42	e158	25	1240	244	460	140	240	84	1440	9210
14	150	28	200	31	920	204	500	158	255	90	2430	12200
15	73	13	185	28	570	91	967	389	235	81	675	1290
16	113	21	245	38	670	89	959	536	240	82	640	878
17	138	26	284	44	e670	90	800	426	230	76	470	463
18	95	17	335	55	490	65	1150	935	205	62	472	328
19	83	16	315	58	420	54	1740	2570	245	81	395	211
20	98	19	e260	51	420	54	1080	1500	420	198	320	140
21	228	46	318	60	280	36	820	697	400	179	276	103
22	278	53	230	39	320	39	680	420	250	90	252	82
23	298	60	230	38	240	29	590	276	280	98	183	51
24	240	47	280	45	349	53	e500	192	250	83	155	39
25	244	45	318	50	6690	20400	460	155	230	73	139	32
26	258	49	285	42	3590	17100	390	127	255	67	128	26
27	225	41	174	25	1950	9420	350	115	1000	335	120	22
28	e103	19	273	40	1500	7290	310	102	1000	718	88	16
29	e85	15	400	70	1200	3470	290	96	1040	1310	74	12
30	e82	15	223	35	1100	1710	285	98	890	937	78	14
31	---	--	235	34	---	---	e340	124	870	775	---	---
TOTAL	---	881	---	1105	---	60973	---	27603	---	6528	---	83382
YEAR	186874.31											

KANSAS RIVER BASIN

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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. 10-19, Dec. 28 to Jan. 4, and Feb. 1 to Mar. 6. 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.--36 years (1953-89), 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)
June 26	1335	3160	17.20	Sept. 12	0250	*7370	*24.07
Sept. 5	0751	3350	18.22				

Minimum daily discharge, 81 ft³/s June 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1640	102	136	110	140	250	149	130	149	919	173	461
2	874	102	138	100	120	260	147	130	130	832	171	371
3	576	102	138	110	100	240	143	126	129	727	163	288
4	429	102	131	120	110	200	140	122	113	646	164	1370
5	312	104	129	134	110	180	138	127	111	915	176	3150
6	232	103	132	137	120	160	137	126	110	1020	176	2660
7	190	103	135	137	130	168	135	125	107	976	161	2130
8	166	103	146	114	120	196	134	127	125	575	143	2900
9	151	105	136	116	130	290	132	123	165	328	126	5600
10	143	105	110	135	120	569	131	118	136	245	123	6140
11	136	106	82	139	120	618	131	114	150	205	125	6990
12	131	122	90	132	110	578	130	114	149	182	128	7210
13	127	120	100	136	110	522	131	115	132	169	132	6560
14	125	115	92	126	100	422	132	116	128	158	144	5260
15	122	118	90	127	100	360	132	114	138	179	146	3240
16	118	126	88	127	110	299	133	115	120	221	144	1560
17	116	125	94	129	110	251	134	111	108	354	145	1090
18	114	127	110	131	110	211	133	116	104	372	142	809
19	111	131	130	135	110	192	132	124	100	468	139	631
20	111	128	161	129	110	181	132	132	96	627	149	526
21	109	128	146	131	120	176	133	146	88	549	203	457
22	109	130	149	135	120	172	134	147	86	377	238	403
23	108	129	143	138	100	168	133	140	81	297	229	355
24	106	129	144	138	94	167	133	129	83	241	203	315
25	104	131	131	139	100	165	132	123	674	204	190	288
26	104	134	142	129	110	163	133	119	2880	183	177	270
27	103	136	111	134	130	161	130	116	2500	170	173	252
28	102	137	92	165	200	160	131	110	2060	162	260	238
29	101	143	100	216	---	158	129	111	1580	158	440	222
30	101	133	120	213	---	155	128	116	1120	157	551	209
31	101	---	120	200	---	150	---	150	---	164	517	---
TOTAL	7072	3579	3766	4262	3264	7942	4022	3832	13652	12780	6151	61955
MEAN	228	119	121	137	117	256	134	124	455	412	198	2065
MAX	1640	143	161	216	200	618	149	150	2880	1020	551	7210
MIN	101	102	82	100	94	150	128	110	81	157	123	209
AC-FT	14030	7100	7470	8450	6470	15750	7980	7600	27080	25350	12200	122900
CAL YR 1988	TOTAL	67873	MEAN 185	MAX 1830	MIN 57	AC-FT 134600						
WTR YR 1989	TOTAL	132277	MEAN 362	MAX 7210	MIN 81	AC-FT 262400						

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.

WATER-DISCHARGE RECORDS

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: Dec. 8-12, 15-18, 27, 28, Jan. 7-9, Feb. 1-5, and Feb. 13 to Mar. 12. Records good except for periods of estimated record, which are poor. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--30 years, 95.8 ft³/s, 69,410 acre-ft/yr; median of yearly mean discharges, 64.0 ft³/s, 46,400 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 27	0845	1220	11.30	Sept. 4	2100	1300	11.89
July 1	1500	1930	13.28	Sept. 9	1200	*2200	*13.82

Minimum daily discharge, 3.8 ft³/s Oct. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	8.6	7.3	13	10	14	15	12	10	1080	14	11
2	103	11	7.5	12	6.0	11	16	13	10	158	19	9.6
3	73	12	7.5	12	5.0	10	16	13	10	78	40	8.2
4	44	5.8	7.2	12	5.4	9.0	15	14	16	218	31	676
5	28	11	7.4	15	7.0	9.0	15	14	18	157	20	1230
6	20	5.0	7.7	18	8.9	7.2	14	14	11	58	13	888
7	15	6.0	7.5	18	8.7	6.8	15	13	14	35	9.3	656
8	12	5.7	7.0	14	8.5	30	15	13	14	26	10	496
9	10	6.0	5.6	10	9.4	46	14	12	14	20	9.0	1870
10	8.6	5.9	6.4	12	8.9	60	14	13	14	16	8.3	1930
11	6.9	6.0	5.0	13	7.5	80	14	12	11	15	9.8	1550
12	5.8	6.7	6.0	15	7.6	104	14	12	11	16	8.4	508
13	5.6	7.8	8.7	14	7.4	69	14	12	11	17	9.0	260
14	4.8	7.0	12	13	6.4	48	14	12	11	19	7.3	195
15	4.8	8.2	5.6	13	8.0	35	14	13	10	20	5.8	148
16	5.2	10	6.0	14	9.8	28	14	13	9.3	27	11	99
17	6.6	9.2	6.4	15	9.0	25	14	12	8.6	124	12	63
18	7.3	11	6.4	15	8.6	19	14	13	9.0	210	9.0	41
19	4.7	9.9	10	16	8.4	20	14	14	9.0	198	8.7	29
20	3.8	9.0	13	14	9.0	19	14	15	9.3	112	9.5	20
21	8.0	8.4	9.4	14	10	16	13	15	7.7	59	13	15
22	8.0	7.8	13	15	10	16	13	14	7.8	33	18	12
23	5.9	7.6	9.2	15	5.4	16	13	13	7.1	23	21	11
24	4.1	7.3	9.6	16	6.4	17	14	13	9.8	20	14	9.4
25	5.9	7.1	7.3	15	8.0	17	13	12	160	17	11	8.2
26	5.5	7.2	14	11	9.4	18	13	10	931	16	7.6	7.9
27	8.4	7.6	15	15	10	17	13	10	1150	13	8.6	7.9
28	6.6	6.5	10	18	11	17	12	9.6	937	14	25	7.1
29	6.7	9.2	12	24	---	17	12	10	403	16	26	7.5
30	8.5	7.7	12	37	---	16	13	10	155	17	17	6.3
31	10	---	13	27	---	16	---	10	---	15	15	---
TOTAL	693.7	238.2	274.7	485	229.7	833.0	418	385.6	3998.6	2847	440.3	10780.1
MEAN	22.4	7.94	8.86	15.6	8.20	26.9	13.9	12.4	133	91.8	14.2	359
MAX	247	12	15	37	11	104	16	15	1150	1080	40	1930
MIN	3.8	5.0	5.0	10	5.0	6.8	12	9.6	7.1	13	5.8	6.3
AC-FT	1380	472	545	962	456	1650	829	765	7930	5650	873	21380

CAL YR 1988 TOTAL 9507.15 MEAN 26.0 MAX 544 MIN .25 AC-FT 18860
WTR YR 1989 TOTAL 21623.9 MEAN 59.2 MAX 1930 MIN 3.8 AC-FT 42890

KANSAS RIVER BASIN
06881200 TURKEY CREEK NEAR WILBER, NE--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966-70, 1973 to September 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 11...	1245	13	470	7.85	11.0	8.8	47	K5800	7400
NOV 07...	1100	6.0	825	7.45	5.5	8.2	40	330	500
DEC 06...	1225	7.7	710	7.68	3.0	11.2	12	K32	97
JAN 05...	1055	14	738	7.92	1.5	13.2	12	K23	K44
FEB 07...	1330	9.9	905	7.78	0.0	10.2	18	K30	260
MAR 08...	1100	31	507	7.75	0.5	12.7	46	140	3200
APR 03...	1200	16	667	8.32	13.0	8.3	30	K53	80
MAY 01...	1030	12	674	8.35	11.5	10.7	24	K150	250
24...	1015	13	688	7.98	22.0	7.5	23	420	580
JUN 30...	1245	E140	148	7.43	23.0	6.0	85	7200	20000
AUG 22...	1245	15	502	8.18	23.5	7.2	44	240	1500
SEP 12...	1215	513	--	7.35	13.0	7.4	87	370000	120000

E Estimated value.

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 11...	84	24	5.8	53	3	22	82	187	0.25
NOV 07...	230	71	14	86	3	65	87	323	0.44
DEC 06...	240	75	13	70	2	63	66	287	0.39
JAN 05...	250	78	14	60	2	69	60	281	0.38
FEB 07...	280	86	16	74	2	94	76	346	0.47
MAR 08...	180	56	9.6	32	1	38	34	170	0.23
APR 03...	230	73	11	52	2	47	46	229	0.31
MAY 01...	230	71	12	55	2	47	59	244	0.33
24...	210	66	12	61	2	42	67	248	0.34
JUN 30...	37	11	2.4	15	1	9.8	7.1	45	0.06
AUG 22...	200	61	11	45	1	54	40	211	0.29
SEP 12...	29	7.9	2.2	2.6	0.2	<10	3.3	--	--

KANSAS RIVER BASIN

06881200 TURKEY CREEK NEAR WILBER, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 11...	6.56	299	1.30	0.070	1.8	1.9	3.2	1.20	6.6
NOV 07...	5.23	29	0.610	<0.020	--	1.0	1.6	0.780	10
DEC 06...	5.97	<4	0.420	<0.020	--	<0.50	--	0.210	4.7
JAN 05...	10.6	<4	0.850	<0.020	--	<0.50	--	0.240	3.9
FEB 07...	9.25	7	1.20	0.100	--	<0.50	--	0.250	7.1
MAR 08...	14.2	21	1.30	0.380	1.2	1.6	2.9	0.650	13
APR 03...	9.89	92	0.230	<0.020	--	0.83	1.1	0.330	8.0
MAY 01...	7.91	24	0.200	<0.020	--	0.65	0.85	0.350	6.0
24...	8.91	78	0.500	0.110	0.89	1.0	1.5	0.390	5.2
JUN 30...	0.0	802	2.30	0.550	2.9	3.4	5.7	1.30	11
AUG 22...	8.55	50	0.200	0.040	1.6	1.6	1.8	0.460	5.5
SEP 12...	--	644	0.630	0.400	2.9	3.3	3.9	1.20	12

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. 10-20, Dec. 28 to Jan. 19, and Feb. 1 to Mar. 9. Records good except for periods of estimated record, which are poor.

AVERAGE DISCHARGE.--20 years (water years 1911-15, 1975-89), 766 ft³/s, 555,000 acre-ft/yr; median of yearly mean discharges, 626 ft³/s, 454,000 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 27	1900	4030	10.10	Sept. 4	1600	7790	14.42
July 1	1900	6830	13.50	Sept. 12	1401	*8000	*14.56

Minimum daily discharge, 110 ft³/s Jan. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2160	146	175	160	250	270	234	174	165	4270	221	638
2	1920	146	175	170	150	320	234	175	192	4480	208	566
3	1150	146	175	180	170	370	235	175	354	1580	208	561
4	734	149	174	190	180	290	227	184	215	1130	211	4470
5	548	151	175	190	190	240	220	184	182	1030	246	5900
6	413	151	171	190	200	240	217	184	172	1180	236	5140
7	319	151	164	170	200	250	214	178	169	1210	217	4310
8	263	153	159	120	210	260	211	178	172	1130	189	3400
9	228	154	162	110	200	280	210	176	164	767	170	5170
10	208	156	140	120	210	442	210	172	195	479	156	7070
11	193	161	130	140	240	684	208	163	210	349	135	7690
12	183	167	140	150	220	860	207	161	201	280	129	7950
13	179	175	160	150	200	770	207	163	200	251	143	7890
14	175	182	150	160	170	682	207	163	194	211	154	7790
15	170	192	130	170	180	550	205	164	180	328	158	7100
16	164	195	150	170	180	454	203	166	173	715	170	4620
17	160	194	170	180	190	388	203	166	178	454	178	2170
18	157	194	200	190	190	324	203	165	166	688	178	1540
19	156	193	230	200	200	293	201	163	151	760	193	1200
20	154	190	220	197	200	274	200	165	143	650	189	945
21	154	189	216	194	180	252	200	189	137	741	219	777
22	152	187	209	190	180	251	200	200	159	672	293	659
23	151	186	200	194	170	249	198	199	158	484	384	572
24	151	184	202	194	180	243	196	197	163	359	318	512
25	149	184	197	200	190	245	194	189	752	287	305	472
26	146	184	196	203	230	248	191	181	1800	241	284	430
27	146	182	199	210	220	251	184	174	3760	205	365	398
28	146	181	140	233	230	250	181	165	3630	191	1170	370
29	146	178	130	254	---	247	176	163	2940	183	960	349
30	146	178	130	301	---	245	172	163	2080	172	598	329
31	146	---	140	334	---	240	---	163	---	209	642	---
TOTAL	11267	5179	5309	5814	5510	10962	6148	5402	19355	25686	9227	90988
MEAN	363	173	171	188	197	354	205	174	645	829	298	3033
MAX	2160	195	230	334	250	860	235	200	3760	4480	1170	7950
MIN	146	146	130	110	150	240	172	161	137	172	129	329
AC-FT	22350	10270	10530	11530	10930	21740	12190	10710	38390	50950	18300	180500

CAL YR 1988 TOTAL 99663 MEAN 272 MAX 2160 MIN 51 AC-FT 197700
WTR YR 1989 TOTAL 200847 MEAN 550 MAX 7950 MIN 110 AC-FT 398400

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. 11-20, Jan. 10-15, and Feb. 1-10, 14-24. 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.--57 years, 842 ft³/s, 610,000 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)
Sept. 4	2142	*11300	*17.15	No other peak greater than base discharge.			
Minimum daily discharge, 109 ft ³ /s Aug. 12, 13.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1850	157	212	218	250	289	250	194	176	3480	240	823
2	2070	162	206	199	210	382	247	194	204	5610	222	690
3	1460	166	205	199	190	485	252	195	418	2230	216	664
4	922	173	203	199	200	491	240	222	419	1560	203	5630
5	695	174	209	227	210	386	231	201	261	793	212	7570
6	540	159	201	233	220	313	230	200	204	1120	254	6450
7	422	165	181	233	230	303	233	190	199	1210	215	5690
8	341	166	179	173	240	313	227	198	201	1150	207	6160
9	288	168	176	118	250	331	224	187	183	922	173	7490
10	257	171	176	110	280	487	221	184	191	590	155	7290
11	234	175	160	140	300	641	223	177	238	391	130	7510
12	221	190	170	180	259	886	223	171	227	292	109	7630
13	216	189	180	170	222	851	225	175	213	249	109	7570
14	211	200	200	180	190	778	226	169	203	223	128	7480
15	200	228	180	190	190	660	222	171	189	264	148	7060
16	189	232	160	202	200	543	230	174	169	540	154	5600
17	184	211	190	208	210	463	224	175	181	638	167	2690
18	167	210	230	224	220	381	221	189	181	566	166	1670
19	163	202	270	233	220	328	222	188	159	794	184	1260
20	163	199	250	220	220	303	225	183	142	671	172	974
21	162	201	274	214	230	273	224	202	124	711	173	777
22	162	199	267	210	230	261	228	223	139	712	228	655
23	159	200	244	213	200	261	225	226	144	568	345	541
24	157	205	242	217	190	259	227	230	249	411	339	488
25	157	200	224	218	190	251	225	219	374	315	324	448
26	153	199	223	222	245	262	221	200	1430	255	293	410
27	159	201	220	216	224	266	210	183	3290	213	320	378
28	150	202	157	229	262	264	118	183	3780	184	1550	355
29	148	205	134	258	---	265	187	185	3150	170	2300	334
30	151	208	143	280	---	263	186	191	2270	166	1360	319
31	156	---	180	331	---	252	---	178	---	206	945	---
TOTAL	12517	5717	6246	6464	6282	12491	6647	5957	19308	27204	11741	102606
MEAN	404	191	201	209	224	403	222	192	644	878	379	3420
MAX	2070	232	274	331	300	886	252	230	3780	5610	2300	7630
MIN	148	157	134	110	190	251	118	169	124	166	109	319
AC-FT	24830	11340	12390	12820	12460	24780	13180	11820	38300	53960	23290	203500

CAL YR 1988 TOTAL 117618 MEAN 321 MAX 2070 MIN 54 AC-FT 233300
WTR YR 1989 TOTAL 223180 MEAN 611 MAX 7630 MIN 109 AC-FT 442700

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 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
18...	1000	171	--	554	7.78	15.0	--	9.3	--	--
18...	1005	--	--	--	--	--	--	--	29	1200
NOV										
08...	1200	166	--	738	8.83	9.0	15	12.3	--	--
08...	1205	--	--	--	--	--	--	--	40	K71
DEC										
06...	0900	229	--	750	8.74	3.5	9.0	15.6	--	--
06...	0905	--	--	--	--	--	--	--	23	K93
JAN										
04...	1100	200	--	809	8.76	1.5	6.7	17.5	--	--
04...	1105	--	--	--	--	--	--	--	--	K28
31...	1100	329	--	779	7.42	1.0	11	15.9	--	--
31...	1105	--	--	--	--	--	--	--	28	250
MAR										
28...	1130	270	--	689	8.34	12.5	15	11.0	--	--
28...	1135	--	--	--	--	--	--	--	24	K14
APR										
19...	1130	223	--	699	8.95	13.0	24	10.0	--	--
19...	1135	--	--	--	--	--	--	--	37	K40
MAY										
24...	0940	220	--	628	8.63	23.0	6.8	7.8	--	--
24...	0945	--	--	--	--	--	--	--	32	290
JUN										
27...	1245	3380	--	310	7.88	21.5	730	7.5	--	--
27...	1250	--	--	--	--	--	830	--	130	24000
JUL										
11...	0930	591	--	192	7.85	27.5	732	7.0	--	--
11...	0935	--	--	--	--	--	380	--	61	K720
AUG										
16...	0825	144	--	589	8.78	23.5	729	7.6	--	--
16...	0830	--	--	--	--	--	20	--	29	K610
SEP										
06...	1020	6600	--	158	7.44	19.0	732	7.4	--	--
06...	1025	--	--	--	--	--	780	--	220	23000

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

KANSAS RIVER BASIN

06882000 BIG BLUE RIVER AT BARNESTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOCCEI FECAL KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
OCT										
18...	--	180	31	52	12	43	1	11	150	57
18...	250	170	--	51	10	44	2	--	--	56
NOV										
08...	--	270	30	80	17	66	2	8.9	241	82
08...	K20	270	--	82	16	72	2	--	--	75
DEC										
06...	--	270	21	78	17	57	2	6.9	246	78
06...	140	280	--	84	16	60	2	--	--	79
JAN										
04...	--	290	12	85	18	70	2	7.3	273	87
04...	K19	280	--	86	17	71	2	--	--	94
31...	--	250	25	74	16	57	2	6.5	228	74
31...	290	260	--	78	15	56	2	--	--	--
MAR										
28...	--	220	11	64	14	51	2	10	208	69
28...	K40	210	--	65	12	49	2	--	--	64
APR										
19...	--	220	24	58	17	64	2	7.9	191	83
19...	110	190	--	52	15	63	2	--	--	60
MAY										
24...	--	180	0	47	16	61	2	7.1	196	66
24...	160	180	--	47	15	60	2	--	--	59
JUN										
27...	--	97	11	30	5.4	15	0.7	7.9	86	26
27...	6600	96	--	30	5.1	15	0.7	--	--	24
JUL										
11...	--	60	0	18	3.7	10	0.6	13	--	16
11...	640	59	--	18	3.5	9.3	0.5	--	--	20
AUG										
16...	--	210	5	61	13	50	2	12	202	54
16...	20	210	--	63	12	50	2	--	--	60
SEP										
06...	--	49	0	14	3.3	7.9	0.5	9.8	--	13
06...	29000	49	--	14	3.3	7.1	0.5	--	--	11

DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT										
18...	37	--	22	343	337	0.47	158	--	2.54	0.060
18...	40	--	--	--	--	--	--	74	--	--
NOV										
08...	60	0.30	19	484	488	0.66	217	--	1.77	0.030
08...	58	--	--	--	--	--	--	39	--	--
DEC										
06...	42	0.30	19	465	456	0.63	288	--	1.96	0.040
06...	43	--	--	--	--	--	--	22	--	--
JAN										
04...	56	0.30	22	519	524	0.71	280	--	2.67	0.030
04...	60	--	--	--	--	--	--	24	--	--
31...	45	0.30	19	447	444	0.61	397	--	3.25	0.050
31...	48	--	--	--	--	--	--	20	--	--
MAR										
28...	41	0.20	24	398	415	0.54	290	--	3.32	0.080
28...	44	--	--	--	--	--	--	39	--	--
APR										
19...	52	0.30	5.1	417	406	0.57	251	--	0.490	0.040
19...	51	--	--	--	--	--	--	77	--	--
MAY										
24...	48	0.30	1.2	372	364	0.51	221	--	--	<0.010
24...	53	--	--	--	--	--	--	42	--	--
JUN										
27...	9.7	0.30	13	169	170	0.23	1540	--	1.98	0.120
27...	6.3	--	--	--	--	--	--	1950	--	--
JUL										
11...	8.3	0.30	16	125	132	0.17	199	--	--	<0.010
11...	8.1	--	--	--	--	--	--	769	--	--
AUG										
16...	38	0.40	21	373	376	0.51	145	--	0.750	0.020
16...	44	--	--	--	--	--	--	86	--	--
SEP										
06...	5.0	0.30	11	95	104	0.13	1690	--	0.850	0.080
06...	5.6	--	--	--	--	--	--	2160	--	--

DATE	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	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 TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)
8...	<3	--	4	10	--	<5	19	41	--	<0.1	<10
8...	--	--	--	--	--	--	--	--	--	--	--
8...	<3	--	5	6	--	<5	26	2	--	0.2	<10
8...	--	<10	--	--	20	--	--	--	<0.10	--	--
6...	<3	--	3	13	--	<5	24	69	--	<0.1	<10
6...	--	--	--	--	--	--	--	--	--	--	--
4...	<3	--	1	7	--	<5	29	99	--	<0.1	<10
4...	--	--	--	--	--	--	--	--	--	--	--
1...	<3	--	4	10	--	<5	22	63	--	<0.1	<10
1...	--	<10	--	--	<20	--	--	--	<0.10	--	--
8...	<3	--	4	10	--	<5	19	180	--	0.2	<10
8...	--	--	--	--	--	--	--	--	--	--	--
9...	<3	--	2	12	--	<5	24	110	--	<0.1	<10
9...	--	--	--	--	--	--	--	--	--	--	--
4...	<3	--	2	5	--	<1	24	27	--	<0.1	<10
4...	--	<10	--	--	<20	--	--	--	<0.50	--	--
7...	<3	--	5	37	--	1	8	14	--	<0.1	<10
7...	--	--	--	--	--	--	--	--	--	--	--
1...	<3	--	5	89	--	1	6	6	--	0.1	<10
1...	--	--	--	--	--	--	--	--	--	--	--
6...	<3	--	2	7	--	<1	18	12	--	<0.1	<10
6...	--	<10	--	--	<20	--	--	--	<0.50	--	--
6...	<3	--	7	120	--	2	<4	68	--	<0.1	<10
6...	--	--	--	--	--	--	--	--	--	--	--
DATE	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	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, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
8...	10	--	--	--	<1.0	270	7	--	6	--	--
8...	--	--	--	--	--	--	--	--	--	--	4.2
8...	<10	--	4	--	<1.0	390	<6	--	8	1	--
8...	--	12	--	<1	--	--	--	<30	--	--	4.8
6...	<1	--	3	--	<1.0	400	<6	--	5	--	--
6...	--	--	--	--	--	--	--	--	--	--	5.8
4...	1	--	4	--	<1.0	450	<6	--	12	<1	--
4...	--	--	--	--	--	--	--	--	--	--	--
1...	1	--	3	--	<1.0	400	<6	--	11	--	--
1...	--	1	--	<1	--	--	--	<30	--	--	7.6
8...	8	--	4	--	<1.0	340	<6	--	6	--	--
8...	--	--	--	--	--	--	--	--	--	--	7.2
9...	6	--	4	--	<1.0	370	8	--	5	1	--
9...	--	--	--	--	--	--	--	--	--	--	10
4...	4	--	3	--	<1.0	330	<6	--	4	--	--
4...	--	14	--	2	--	--	--	<30	--	--	7.6
7...	2	--	2	--	<1.0	160	7	--	48</		

06882000 BIG BLUE RIVER AT BARNESTON, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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- FLU- 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)
OCT 18...	4.8	1.5	--	--	--	--	--	--	--	--	--
NOV 08...	4.0	2.6	--	--	--	--	--	--	--	--	--
DEC 06...	2.0	2.0	--	--	--	--	--	--	--	--	--
JAN 04...	4.0	4.6	--	--	--	--	--	--	--	--	--
31...	8.3	2.5	--	--	--	--	--	--	--	--	--
MAR 28...	5.7	1.7	--	--	--	--	--	--	--	--	--
APR 19...	4.0	>5.0	<0.10	<0.10	<0.1	0.80	<0.1	<0.1	0.20	<0.10	<0.10
MAY 24...	4.7	>5.0	<0.10	<0.10	<0.1	3.1	<0.1	<0.1	0.50	<0.10	0.10
JUN 27...	6.2	>5.0	0.10	<0.10	<0.1	0.10	<0.1	<0.1	19	0.60	0.30
JUL 11...	6.0	>5.0	0.10	<0.10	<0.1	1.6	<0.1	<0.1	8.9	0.40	0.90
AUG 16...	5.0	4.9	<0.10	<0.10	<0.1	1.0	<0.1	<0.1	2.3	<0.10	0.20
SEP 06...	8.5	>10	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	2.4	0.10	0.10

[illegible]

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.

WATER-DISCHARGE RECORDS

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. 28, Dec. 15-17, Dec. 27-30, Jan. 2, 7-11, 25-27, Feb. 1-24, and Mar. 2-10. Records good except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--34 years (water years 1954-72, 1975-89), 147 ft³/s, 106,500 acre-ft/yr; median of yearly mean discharges, 130 ft³/s, 94,180 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)
June 25	1330	4390	8.98	July 15	0800	4450	8.80
July 1	0936	*6340	*10.60	July 17	1400	4680	9.00

Minimum daily discharge, 35 ft³/s Feb. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	274	52	53	50	54	58	62	59	53	5400	455	52
2	147	53	54	48	45	56	62	60	53	2660	269	44
3	103	53	53	50	35	45	62	59	56	1120	166	53
4	84	54	53	50	35	39	59	62	54	647	123	387
5	74	53	54	52	39	39	59	58	55	441	99	616
6	67	52	55	51	45	40	60	56	55	332	86	306
7	64	52	54	49	56	50	61	57	55	273	78	181
8	62	52	54	41	66	60	59	59	56	238	74	130
9	58	53	55	42	60	64	58	57	54	219	82	286
10	55	52	55	47	70	66	58	55	56	202	87	374
11	53	52	55	56	100	66	59	54	57	192	81	364
12	53	55	55	54	84	64	59	54	55	184	71	234
13	54	52	56	55	76	64	60	57	53	221	68	225
14	54	53	55	55	70	62	60	56	52	272	60	285
15	53	55	52	53	64	60	61	54	51	2690	51	232
16	52	58	50	53	58	61	62	54	46	1130	68	166
17	52	54	52	53	58	60	60	54	46	2420	55	124
18	50	55	55	52	60	60	60	61	47	1280	61	93
19	51	54	57	52	60	61	59	58	45	911	185	80
20	54	53	58	51	60	61	60	55	41	506	132	73
21	53	53	55	51	58	59	62	58	40	264	82	68
22	54	53	56	53	58	62	64	57	39	174	56	64
23	53	55	55	53	56	63	64	101	36	146	44	60
24	52	55	54	52	60	63	63	66	39	139	40	59
25	52	54	53	50	62	63	61	57	2850	130	57	59
26	52	56	55	49	60	64	60	55	2110	128	73	58
27	52	54	50	52	60	64	60	53	1190	127	41	56
28	51	50	40	58	58	63	60	52	631	118	49	55
29	52	54	39	58	---	63	57	52	433	109	46	56
30	51	53	43	56	---	62	57	52	562	106	51	56
31	52	---	51	56	---	61	---	52	---	400	48	---
TOTAL	2088	1604	1636	1602	1667	1823	1808	1794	8970	23179	2938	4896
MEAN	67.4	53.5	52.8	51.7	59.5	58.8	60.3	57.9	299	748	94.8	163
MAX	274	58	58	58	100	66	64	101	2850	5400	455	616
MIN	50	50	39	41	35	39	57	52	36	106	40	44
AC-FT	4140	3180	3250	3180	3310	3620	3590	3560	17790	45980	5830	9710

CAL YR 1988 TOTAL 23532.3 MEAN 64.3 MAX 1740 MIN 3.2 AC-FT 46680
WTR YR 1989 TOTAL 54005 MEAN 148 MAX 5400 MIN 35 AC-FT 107100

KANSAS RIVER BASIN
06883000 LITTLE BLUE RIVER NEAR DEWEESE, NE--Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-70, 1975 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1979 to September 1981.

WATER TEMPERATURES: February 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 508 microsiemens Feb. 14, 1980; minimum daily, 82 microsiemens May 4, 1979.

WATER TEMPERATURES: Maximum, 28.0°C Aug. 8, 9, 10, 1980; minimum, 1.0°C Jan. 29, 30, 31, Feb. 1, 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 19...	0900	50	416	8.11	9.5	9.9	13	200	400
NOV 16...	1500	62	398	8.39	3.0	14.9	<8	73	230
DEC 14...	0910	56	482	8.04	4.5	11.4	<8	K50	100
JAN 11...	0915	59	478	8.11	0.5	13.2	17	K30	100
FEB 08...	1330	66	403	7.21	0.0	11.2	14	K20	K42
MAR 08...	0930	67	444	8.12	1.5	13.7	11	120	18000
APR 04...	1015	60	507	8.11	8.5	11.5	9	K78	K74
MAY 02...	1130	58	450	8.62	14.5	11.1	<8	67	330
23...	1000	86	429	7.96	18.0	6.9	57	K12000	K61000
JUL 17...	1140	4340	79	7.40	19.0	7.2	--	9000	K70000
AUG 15...	0950	84	379	7.87	21.0	8.0	<8	350	840
SEP 13...	1130	245	259	7.92	9.5	9.6	85	52000	K160000

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

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 19...	190	60	9.1	17	0.6	34	17	137	0.19
NOV 16...	190	63	8.7	18	0.6	35	11	136	0.18
DEC 14...	220	70	9.9	19	0.6	36	11	146	0.20
JAN 11...	210	67	9.6	18	0.6	38	12	145	0.20
FEB 08...	210	68	10	17	0.5	36	12	143	0.19
MAR 08...	200	64	8.7	17	0.6	21	12	123	0.17
APR 04...	200	68	8.5	19	0.6	24	12	131	0.18
MAY 02...	200	66	9.5	19	0.6	27	15	136	0.19
23...	170	54	8.6	16	0.6	21	12	112	0.15
JUL 17...	25	7.2	1.6	1.8	0.2	<10	2.0	--	--
AUG 15...	180	55	9.3	17	0.6	32	11	124	0.17
SEP 13...	83	24	5.6	8.0	0.4	10	17	65	0.09

KANSAS RIVER BASIN

06883000 LITTLE BLUE RIVER NEAR DEWEESE, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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- PHOROUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 19...	18.5	10	0.610	<0.020	--	0.50	1.1	0.240	2.4
NOV 16...	22.7	13	1.00	<0.020	--	<0.50	--	0.250	3.1
DEC 14...	22.1	12	1.50	0.180	--	<0.50	--	0.540	3.2
JAN 11...	23.0	19	1.60	0.030	--	<0.50	--	0.190	2.8
FEB 08...	25.5	5	1.50	0.060	--	<0.50	--	0.220	3.9
MAR 08...	22.2	91	1.40	0.130	--	<0.50	--	0.300	2.2
APR 04...	21.3	14	0.810	<0.020	--	<0.50	--	0.190	4.3
MAY 02...	21.4	4	0.770	<0.020	--	<0.50	--	0.190	2.3
MAY 23...	25.9	586	0.950	0.530	2.5	3.0	3.9	0.830	5.6
JUL 17...	--	1120	0.690	0.320	4.3	4.6	5.3	2.80	9.4
AUG 15...	28.2	47	0.210	<0.020	--	<0.50	--	0.370	4.4
SEP 13...	42.7	412	0.710	3.20	3.2	6.4	7.1	1.50	16

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. 27-30, Dec. 7-20, Dec. 25 to Jan. 22, Jan. 26-28, Feb. 1 to Mar. 14, July 3-17, and Aug. 26 to Sept. 5. Records fair except for periods of estimated record, which are poor. Natural flow affected by irrigation development above station.

AVERAGE DISCHARGE.--28 years (water years 1960-72, 1975-89), 248 ft³/s, 179,700 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 26	0834	3710	12.30	July 18	1000	5400	13.63
July 2	1500	*5610	*a13.78				

a From floodmark.

Minimum daily discharge, 32 ft³/s Dec. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	822	66	66	58	70	86	89	79	61	1140	313	64
2	528	67	65	62	60	84	86	78	66	4940	596	64
3	334	67	65	64	47	82	86	79	78	2000	435	62
4	226	68	64	72	47	78	84	85	74	1300	310	380
5	169	65	63	70	52	74	84	82	70	800	234	840
6	133	64	65	64	60	74	84	79	68	600	157	720
7	112	65	64	56	70	90	85	73	66	400	126	465
8	101	64	58	54	78	120	83	72	92	300	109	335
9	92	63	54	68	70	136	80	67	91	230	103	657
10	87	73	52	90	96	150	80	65	79	190	103	1110
11	79	66	56	100	114	138	81	63	85	170	105	673
12	77	71	60	96	110	130	82	59	84	170	119	560
13	74	70	70	100	100	122	81	58	75	190	107	422
14	72	69	76	100	94	116	82	59	67	260	105	365
15	70	76	54	100	86	110	82	61	70	600	109	396
16	70	90	44	98	86	105	84	63	72	1900	105	377
17	70	82	39	100	88	99	84	64	69	2100	105	287
18	68	83	45	98	88	92	84	75	73	4260	101	223
19	67	78	64	96	90	92	81	87	70	2920	276	167
20	65	74	84	94	90	93	83	81	69	1750	310	145
21	66	72	82	94	90	90	82	83	58	1110	287	111
22	68	70	74	90	86	91	83	88	57	646	176	99
23	65	73	70	90	82	91	85	84	65	396	126	84
24	63	72	68	92	92	91	87	79	84	247	70	78
25	64	72	60	91	108	91	86	106	1740	184	66	75
26	64	74	62	84	96	94	88	90	3230	146	130	72
27	63	68	40	86	88	93	85	76	2260	119	260	70
28	60	60	32	100	88	91	80	70	1470	103	130	68
29	62	62	35	103	---	91	80	66	847	99	66	66
30	65	68	47	102	---	91	79	61	560	88	62	66
31	64	---	54	101	---	90	---	61	---	156	66	---
TOTAL	4020	2112	1832	2673	2326	3075	2500	2293	11850	29514	5367	9101
MEAN	130	70.4	59.1	86.2	83.1	99.2	83.3	74.0	395	952	173	303
MAX	822	90	84	103	114	150	89	106	3230	4940	596	1110
MIN	60	60	32	54	47	74	79	58	57	88	62	62
AC-FT	7970	4190	3630	5300	4610	6100	4960	4550	23500	58540	10650	18050

CAL YR 1988 TOTAL 36183 MEAN 98.9 MAX 1350 MIN 11 AC-FT 71770
WTR YR 1989 TOTAL 76663 MEAN 210 MAX 4940 MIN 32 AC-FT 152100

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. 29 to Jan. 4, Jan. 10-16, Feb. 1-5, and Feb. 13 to Mar. 5. Records good except for periods of estimated record, which are poor. Natural flow of stream affected by ground-water withdrawals and return flow from irrigated areas.

AVERAGE DISCHARGE.--10 years, 111 ft³/s, 80,420 acre-ft/yr; median of yearly mean discharges, 89 ft³/s, 64,500 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 25	1523	*2680	*9.85	Sept. 9	1222	821	6.37
June 30	2100	1510	7.92				

Minimum daily discharge, 20 ft³/s Feb. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	24	23	22	22	25	25	24	23	337	95	29
2	36	24	23	22	21	25	25	24	24	361	74	28
3	31	24	23	24	20	25	25	24	25	537	56	40
4	28	24	23	25	21	25	25	25	24	460	45	456
5	29	24	23	26	22	26	25	25	24	302	49	269
6	28	24	23	25	24	26	24	25	24	231	31	127
7	26	25	22	26	24	26	23	25	25	149	31	71
8	25	24	22	25	23	26	23	28	24	104	32	70
9	25	24	22	25	23	24	23	29	23	77	48	578
10	25	25	23	26	23	26	23	28	24	63	46	564
11	24	25	22	25	23	26	24	28	24	59	48	316
12	23	25	22	24	23	25	24	28	24	55	50	152
13	24	25	23	25	23	25	24	28	23	50	50	130
14	24	25	23	26	22	25	25	28	22	49	46	121
15	23	27	22	26	22	24	25	28	22	105	63	101
16	24	26	22	26	23	24	25	27	22	125	97	77
17	23	25	23	26	23	24	25	27	22	216	122	61
18	24	25	23	25	23	24	25	31	23	234	81	52
19	23	25	24	23	23	25	25	28	23	187	281	45
20	23	25	24	23	22	25	25	25	22	131	400	39
21	23	25	23	22	22	24	26	28	21	94	393	35
22	23	25	24	22	22	24	26	26	23	70	180	32
23	24	24	24	23	21	24	26	25	23	62	92	29
24	24	25	24	23	22	25	26	25	30	58	58	28
25	23	24	23	22	23	25	25	25	1990	50	54	27
26	24	24	24	22	24	25	25	24	1870	53	52	27
27	24	24	24	22	24	25	25	24	693	57	43	26
28	24	24	24	23	25	25	25	24	213	58	51	26
29	23	24	23	23	---	25	24	24	160	57	40	26
30	24	23	23	22	---	25	23	24	303	56	33	26
31	25	---	22	22	---	25	---	24	---	74	31	---
TOTAL	795	737	713	741	633	773	739	808	5793	4521	2772	3608
MEAN	25.6	24.6	23.0	23.9	22.6	24.9	24.6	26.1	193	146	89.4	120
MAX	46	27	24	26	25	26	26	31	1990	537	400	578
MIN	23	23	22	22	20	24	23	24	21	49	31	26
AC-FT	1580	1460	1410	1470	1260	1530	1470	1600	11490	8970	5500	7160
CAL YR 1988	TOTAL 13121	MEAN 35.8	MAX 358	MIN 21	AC-FT 26030							
WTR YR 1989	TOTAL 22633	MEAN 62.0	MAX 1990	MIN 20	AC-FT 44890							

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. 27-30, Dec. 9-20, 25-30, Jan. 1-3, 6-22, 26-28, Feb. 1-25, Feb. 27 to Mar. 8, and Mar. 17-19. 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.--68 years, 381 ft³/s, 276,000 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 26	1405	*6880	*9.32	July 16	1530	3180	6.40
July 2	2331	4990	8.07	July 18	2335	6130	8.84

Minimum daily discharge, 60 ft³/s Feb. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1080	105	121	120	90	130	117	120	91	1040	287	108
2	683	105	118	102	74	120	117	115	93	4080	577	100
3	439	105	117	104	66	104	116	115	111	3650	508	137
4	290	106	116	136	60	96	115	128	101	2060	337	1510
5	222	109	116	156	66	88	113	123	127	1330	315	1210
6	186	108	116	150	86	100	112	117	94	993	211	1530
7	162	110	117	90	100	125	113	114	93	716	168	960
8	147	108	116	74	106	160	113	112	127	524	148	690
9	137	108	112	70	100	186	112	106	97	387	137	1110
10	125	110	94	90	130	221	113	103	93	307	139	2330
11	118	113	86	100	140	212	113	102	113	266	138	1520
12	112	116	80	108	134	188	112	101	107	287	141	1020
13	107	117	130	110	125	169	114	98	96	280	144	732
14	105	118	130	110	124	159	117	98	88	426	141	572
15	103	137	100	118	120	149	118	101	85	769	160	515
16	102	157	88	124	114	142	119	101	84	2100	189	517
17	101	140	80	120	110	130	121	103	83	2430	194	403
18	99	134	100	122	110	125	121	112	89	4450	204	313
19	98	131	130	120	114	130	121	126	83	3910	433	258
20	98	128	145	118	122	130	120	121	79	2420	699	216
21	99	124	149	112	130	130	121	128	74	1600	761	184
22	98	123	147	112	125	121	122	132	82	1040	653	159
23	98	121	141	112	116	121	123	123	83	559	289	144
24	97	121	136	111	125	120	124	120	124	379	194	137
25	97	121	130	110	140	120	125	115	2720	293	218	134
26	97	121	120	106	147	120	127	131	5920	248	317	130
27	98	120	100	102	150	122	128	112	3660	223	513	126
28	98	112	82	110	140	121	125	101	2070	207	384	121
29	98	106	74	128	---	121	120	99	1280	192	208	121
30	99	114	92	116	---	122	118	96	914	182	142	120
31	102	---	112	112	---	120	---	91	---	206	122	---
TOTAL	5595	3548	3495	3473	3164	4202	3550	3464	18861	37554	9071	17127
MEAN	180	118	113	112	113	136	118	112	629	1211	293	571
MAX	1080	157	149	156	150	221	128	132	5920	4450	761	2330
MIN	97	105	74	70	60	88	112	91	74	182	122	100
AC-FT	11100	7040	6930	6890	6280	8330	7040	6870	37410	74490	17990	33970

CAL YR 1988 TOTAL 56720 MEAN 155 MAX 2050 MIN 38 AC-FT 112500
WTR YR 1989 TOTAL 113104 MEAN 310 MAX 5920 MIN 60 AC-FT 224300

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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

DRAINAGE AREA.--2,752 mi².

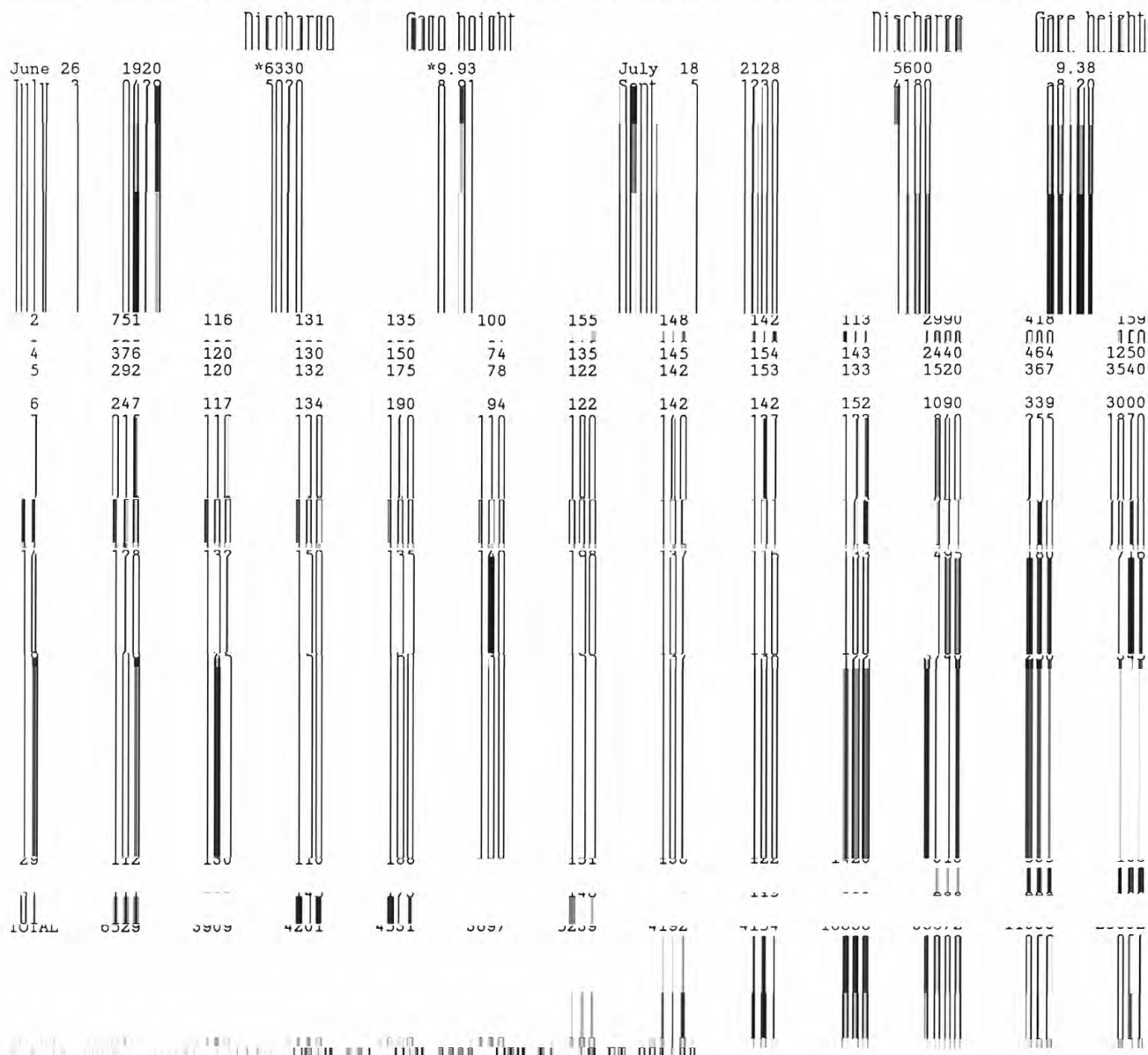


made prior to 1974 water year are published in table of miscellaneous sites in WDR NL-73.



EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 cfs June 18, 1904, gage height, 21.00 ft, minimum daily, 39 cfs June 20, 1900.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 cfs and maximum (ft).



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 current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
18...	1300	113	--	518	8.02	14.0	739	--	9.5	--
18...	1305	--	--	--	--	--	--	--	17	1400
NOV										
09...	1200	118	--	520	8.35	8.0	737	--	10.4	--
09...	1205	--	--	--	--	--	--	--	16	130
DEC										
06...	1300	135	--	564	8.27	3.0	733	6.4	14.5	--
06...	1305	--	--	--	--	--	--	--	10	230
JAN										
10...	1050	86	--	696	8.25	0.0	733	5.0	13.1	--
10...	1055	--	--	--	--	--	--	--	<8	K28
FEB										
07...	1115	109	--	643	7.36	0.0	747	5.4	--	--
07...	1120	--	--	--	--	--	--	--	46	130
MAR										
07...	1100	179	--	537	8.14	0.0	737	12	13.4	--
07...	1105	--	--	--	--	--	--	--	9	K53
APR										
05...	0955	138	--	566	8.35	9.5	736	6.5	13.3	--
05...	1000	--	--	--	--	--	--	--	11	80
MAY										
01...	1200	118	--	593	8.45	12.5	738	12	10.7	--
01...	1205	--	--	--	--	--	--	--	10	170
JUN										
22...	1240	120	--	549	8.44	22.0	730	69	9.2	--
22...	1245	--	--	--	--	--	--	--	40	K4300
26...	1130	4690	--	132	7.31	20.5	730	850	6.4	--
JUL										
11...	1250	332	--	329	8.45	27.5	730	--	7.9	33
AUG										
15...	1800	171	--	--	9.05	24.0	727	34	10.9	--
15...	1805	--	--	--	--	--	--	--	19	240
SEP										
06...	1130	2650	--	--	7.82	21.5	730	1200	6.9	--
06...	1135	--	--	--	--	--	--	--	230	K350000

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

KANSAS RIVER BASIN

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	STREP- TOCOC- FECAL KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WH TOT IT FIELD MG/L AS CACO3 (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
OCT										
18...	--	180	12	57	9.5	38	1	8.2	170	34
18...	270	170	--	56	8.3	39	1	--	--	34
NOV										
09...	--	210	21	64	11	44	1	6.4	188	39
09...	130	190	--	62	8.8	42	1	--	--	--
DEC										
06...	--	200	12	62	10	39	1	5.8	183	35
06...	K47	200	--	65	8.9	40	1	--	--	36
JAN										
10...	--	230	21	72	11	58	2	6.5	200	48
10...	K61	220	--	71	10	58	2	--	--	46
FEB										
07...	--	240	15	77	12	51	1	6.7	228	47
07...	K61	240	--	76	11	49	1	--	--	42
MAR										
07...	--	220	12	68	11	42	1	6.0	--	43
07...	96	210	--	68	9.0	38	1	--	--	--
APR										
05...	--	200	4	63	10	41	1	6.3	197	38
05...	K44	200	--	65	8.1	41	1	--	--	--
MAY										
01...	--	200	4	62	11	43	1	6.5	196	37
01...	100	190	--	62	9.4	42	1	--	--	--
JUN										
22...	--	180	5	57	9.1	42	1	6.7	178	34
22...	2000	180	--	57	8.4	41	1	--	--	33
26...	--	39	15	12	2.1	5.5	0.4	9.3	22	8.0
JUL										
11...	1000	110	--	34	5.8	18	0.8	--	--	19
AUG										
15...	--	160	0	50	8.7	32	1	10	--	29
15...	330	160	--	51	8.3	32	1	--	--	32
SEP										
06...	--	37	0	11	2.2	5.2	0.4	9.3	--	9.0
06...	630000	37	--	11	2.3	4.8	0.4	--	--	<10
DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT										
18...	36	--	27	321	319	0.44	97.9	--	1.28	0.020
18...	37	--	--	--	--	--	--	78	--	--
NOV										
09...	37	0.30	23	336	341	0.46	107	--	0.950	0.020
09...	42	--	--	--	--	--	--	13	--	--
DEC										
06...	37	0.30	22	345	330	0.47	126	--	1.48	0.020
06...	38	--	--	--	--	--	--	9	--	--
JAN										
10...	63	0.30	27	410	419	0.56	95.2	--	1.97	0.030
10...	67	--	--	--	--	--	--	17	--	--
FEB										
07...	49	0.30	32	411	424	0.56	121	--	2.38	0.020
07...	51	--	--	--	--	--	--	12	--	--
MAR										
07...	38	0.30	28	361	368	0.49	174	--	1.60	0.200
07...	43	--	--	--	--	--	--	30	--	--
APR										
05...	37	0.30	18	334	335	0.45	124	--	0.750	0.030
05...	40	--	--	--	--	--	--	21	--	--
MAY										
01...	41	0.30	20	350	343	0.48	112	--	0.690	0.020
01...	43	--	--	--	--	--	--	47	--	--
JUN										
22...	43	0.40	23	324	324	0.44	105	--	0.620	0.020
22...	45	--	--	--	--	--	--	227	--	--
26...	5.1	0.30	11	105	90	0.14	1330	--	4.42	0.080
JUL										
11...	17	--	--	--	94	0.13	84.1	222	--	--
AUG										
15...	26	0.30	16	275	271	0.37	127	--	--	<0.010
15...	32	--	--	--	--	--	--	198	--	--
SEP										
06...	5.1	0.30	10	78	80	0.11	558	--	0.720	0.030
06...	6.4	--	--	--	--	--	--	2940	--	--

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WATER QUALITY DATA. WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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, 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)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 18...	--	1.30	--	0.010	--	0.40	--	0.390	0.330
18...	1.30	--	<0.020	--	--	0.50	1.8	0.380	--
NOV 09...	--	0.970	--	0.030	--	0.40	--	0.300	0.220
09...	0.900	--	0.020	--	2.3	2.3	3.2	0.460	--
DEC 06...	--	1.50	--	<0.010	--	0.30	--	0.250	0.200
06...	1.20	--	<0.020	--	--	<0.50	--	0.330	--
JAN 10...	--	2.00	--	0.120	--	0.50	--	0.230	0.190
10...	2.00	--	0.150	--	--	<0.50	--	0.160	--
FEB 07...	--	2.40	--	0.180	--	0.60	--	0.270	0.210
07...	2.30	--	0.150	--	--	<0.50	--	0.230	--
MAR 07...	--	1.80	--	0.180	--	0.60	--	0.270	0.250
07...	1.60	--	0.280	--	--	<0.50	--	0.270	--
APR 05...	--	0.780	--	0.030	--	0.20	--	0.250	0.210
05...	0.770	--	<0.020	--	--	<0.50	--	0.210	--
MAY 01...	--	0.710	--	0.050	--	<0.20	--	0.230	0.170
01...	0.700	--	<0.020	--	--	<0.50	--	0.230	--
JUN 22...	--	0.640	--	0.040	--	<0.20	--	0.250	0.240
22...	0.620	--	0.130	--	1.5	1.6	2.2	0.530	--
26...	--	4.50	--	0.460	--	2.1	--	0.530	0.250
JUL 11...	0.690	--	0.110	--	1.2	1.3	2.0	13.0	--
AUG 15...	--	<0.100	--	<0.010	--	1.9	--	0.490	0.170
15...	<0.020	--	<0.020	--	--	0.69	--	0.050	--
SEP 06...	--	0.750	--	0.070	--	1.6	--	0.500	0.110
06...	0.750	--	0.150	--	5.8	6.0	6.7	2.50	--

[illegible]

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	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)
OCT 18...	2.9	1.0	--	--	--	--	--	--	--	--	--
NOV 09...	1.9	0.5	--	--	--	--	--	--	--	--	--
DEC 06...	--	0.4	--	--	--	--	--	--	--	--	--
JAN 10...	2.3	0.4	--	--	--	--	--	--	--	--	--
FEB 07...	2.9	0.4	--	--	--	--	--	--	--	--	--
MAR 07...	2.5	0.5	--	--	--	--	--	--	--	--	--
APR 05...	3.5	0.6	--	--	--	--	--	--	--	--	--
MAY 01...	2.4	1.1	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.20	<0.10	<0.10
JUN 22...	3.6	4.8	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	1.1	<0.10	<0.10
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	4.7	>5.0	<0.10	<0.10	<0.1	0.10	<0.1	<0.1	1.7	<0.10	0.10
SEP 06...	8.0	>10	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	1.4	0.10	<0.10

DATE	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. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70331)
OCT 18...	--	--	--	120	37	--	--	60	62	89	57
NOV 09...	--	--	--	20	6.4	--	--	--	--	--	98
DEC 06...	--	--	--	21	7.7	--	--	--	--	--	86
JAN 10...	--	--	--	18	4.2	--	--	--	--	--	91
FEB 07...	--	--	--	46	14	--	--	85	100	--	52
MAR 07...	--	--	--	33	16	--	--	--	--	--	79
APR 05...	--	--	--	79	29	--	--	46	55	91	46
MAY 01...	<0.10	<0.1	<0.1	51	16	--	--	--	--	--	94
JUN 22...	<0.10	<0.1	0.1	231	75	--	63	96	99	100	88
JUL 11...	--	--	--	3720	47100	65	68	94	96	100	92
AUG 15...	0.10	<0.1	0.1	130	60	--	58	--	--	--	94
SEP 06...	<0.10	<0.1	0.2	3410	24400	48	55	99	100	--	86

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 1989

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.	--	1969-88	11-08-88 05-16-89	20 15
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.	--	1969-88	11-08-88 05-16-89	8.8 5.5
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.	--	1969-88	11-08-88 05-16-89	18 14
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.	--	1969-88	11-08-88 05-16-89	9.3 5.7

Platte River basin						
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.	--	1962a 1977-88	11-09-88 05-29-89	.50 16
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.	--	1977-88	11-09-88 05-26-89	.71 1.3

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, 1988	06-01-89 07-07-89	23 504

¹ Also published with additional data elsewhere in this report.

a Gage heights, or gage heights and discharge measurements only.

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 1989

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Tekamah Creek basin							
06608000	Tekamah Creek at Tekamah, NE	Lat 41°46'30", long 96°13'10" in SE1/4 sec.19, T.21 N., R.11 E., Burt County, on left bank upstream from bridge, 1 block east of U.S. Highway 73 in Tekamah.	23	1949-81† 1982-89	09-04-89	15.91	5,600
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	1961-89	--	--	<50
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	1961-89	06-25-89	7.30	90
06850000	Turkey Creek at Naponee, NE	Lat 40°04'34", long 99°08'17", in SW1/4SW1/4 sec.4, T.1 N., R.16 W., Franklin County, on downstream side of county bridge at east side of Naponee.	129	1948-53†, 1954-61b 1962-77c 1978-89b	--	--	<50
06881450	Indian Creek at Beatrice, NE	Lat 40°17'08", long 96°44'47", in SE1/4NE1/4 sec.28, T.4 N., R.6 E., Gage County, at bridge on U.S. Highway 77 at north edge of Beatrice.	74.7	1960-89	07-01-89	12.70	2,300

† Operated as a continuous-record gaging station.

a Approximate.

b Discharge measurements published in table for miscellaneous sites.

c Discharge measurements published in table for low flow partial record sites.

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	
06465050 EAGLE CREEK NEAR MIDWAY NEBR (LAT 42 38 02N LONG 098 46 29W)										
NOV 1988										
08...	1510	20	319	8.33	8.5	4	130	20	41	
MAY 1989										
16...	0920	15	315	8.23	15.0	35	130	17	42	
06465100 EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)										
NOV 1988										
08...	1625	8.8	276	8.39	9.5	4	130	0	43	
MAY 1989										
15...	1050	5.5	256	8.11	15.5	10	120	0	40	
06465398 REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)										
NOV 1988										
08...	1315	18	202	8.17	8.5	10	82	0	27	
MAY 1989										
16...	1400	14	198	8.28	20.5	23	80	0	27	
06465420 BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)										
NOV 1988										
08...	1410	9.3	270	8.39	8.5	10	120	0	40	
MAY 1989										
16...	1515	5.7	267	8.33	21.0	45	110	0	39	
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)
06465050 EAGLE CREEK NEAR MIDWAY NEBR (LAT 42 38 02N LONG 098 46 29W)										
NOV 1988										
08...	5.9	8.8	0.4	5.2	107	15	5.3	0.30	40	
MAY 1989										
16...	6.0	8.9	0.4	5.2	113	13	4.3	0.20	40	
06465100 EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)										
NOV 1988										
08...	4.6	6.5	0.3	4.7	135	5.4	1.6	0.20	51	
MAY 1989										
15...	4.2	6.4	0.3	4.4	128	4.0	1.3	0.30	49	
06465398 REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)										
NOV 1988										
08...	3.5	6.7	0.3	4.3	82	10	2.3	0.20	44	
MAY 1989										
16...	3.1	6.3	0.3	4.1	84	8.0	1.7	0.20	43	
06465420 BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)										
NOV 1988										
08...	4.6	7.9	0.3	4.7	119	10	2.6	0.30	47	
MAY 1989										
16...	4.2	7.4	0.3	4.8	119	8.0	2.2	0.20	47	

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHOROUS 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 1988								
08...	223	0.30	12.0	8.40	0.080	20	11	5
MAY 1989								
16...	231	0.31	9.37	10.0	0.080	20	30	10
06465100	EASTBRANCH EAGLE CREEK NR MIDWAY NEBR (LAT 42 37 30N LONG 098 45 56W)							
NOV 1988								
08...	203	0.28	4.82	1.10	0.020	20	<3	4
MAY 1989								
15...	190	0.26	2.82	0.750	0.020	30	17	9
06465398	REDBIRD CREEK NR MEEK NEBRASKA (LAT 42 39 33N LONG 098 33 31W)							
NOV 1988								
08...	156	0.21	7.58	2.00	0.060	20	26	17
MAY 1989								
16...	152	0.21	5.75	1.90	0.070	20	27	3
06465420	BLACKBIRD CREEK NEAR MEEK NEBR (LAT 42 39 46N LONG 098 34 24W)							
NOV 1988								
08...	196	0.27	4.93	1.80	0.050	20	14	23
MAY 1989								
16...	193	0.26	2.98	2.10	0.070	30	16	6

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	
06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)										
NOV 1988 09...	1640	0.50	772	8.04	9.0	5	340	0	100	
MAY 1989 26...	1115	16	169	8.32	16.0	20	63	0	20	
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)										
NOV 1988 09...	1520	0.70	716	8.12	9.0	11	350	0	96	
MAY 1989 26...	1010	1.3	395	8.04	14.5	25	170	0	48	
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)
06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)										
NOV 1988 09...	21	23	0.6	12	352	43	12	0.30	41	
MAY 1989 26...	3.2	6.5	0.4	5.9	81	4.0	1.1	0.30	28	
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)										
NOV 1988 09...	26	24	0.6	12	373	32	6.4	0.10	44	
MAY 1989 26...	11	13	0.5	10	193	14	3.3	0.30	45	
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, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHOUS 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)	
06788495 DANE C AT ORD, NEBR. (LAT 41 36 31N LONG 098 56 36W)										
NOV 1988 09...	476	0.65	0.64	2.90	0.220	80	20	99		
MAY 1989 26...	118	0.16	5.27	0.140	0.030	20	53	35		
06788990 MIRA C AT NORTH LOUP, NEBR. (LAT 41 29 54N LONG 098 46 46W)										
NOV 1988 09...	466	0.63	0.88	0.470	0.350	80	9	190		
MAY 1989 26...	261	0.35	0.92	0.110	0.020	60	20	360		

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SEDIMENT STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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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)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)
06693000	NORTH PLATTE RIVER AT NORTH PLATTE, NEBR. (LAT 41 09 13N LONG 100 45 16W)							
JUN 1989 27...	1250	918	23.5	121	300	54	0	2
06766000	PLATTE RIVER AT BRADY, NE (TOTFLO) (LAT 41 01 08N LONG 100 22 17W)							
JUN 1989 27...	1520	690	29.5	72	134	45	0	1
06768000	PLATTE RIVER NEAR OVERTON, NEBR. (TOTFLO) (LAT 40 40 57N LONG 099 32 24W)							
JUN 1989 26... 28...	1300 1500	3540 2850	23.5 26.0	296 170	2830 1310	77 73	0 --	6 0
06770500	PLATTE RIVER NEAR GRAND ISLAND, NEBR. (LAT 40 52 28N LONG 098 16 54W)							
JUN 1989 26... 28...	1700 1315	6020 4590	26.5 26.5	1240 395	20200 4900	49 85	-- --	0 0
DATE		BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
06693000	NORTH PLATTE RIVER AT NORTH PLATTE, NEBR. (LAT 41 09 13N LONG 100 45 16W)							
JUN 1989 27...	13	54	81	91	99	100	--	
06766000	PLATTE RIVER AT BRADY, NE (TOTFLO) (LAT 41 01 08N LONG 100 22 17W)							
JUN 1989 27...	11	47	79	95	98	100	--	
06768000	PLATTE RIVER NEAR OVERTON, NEBR. (TOTFLO) (LAT 40 40 57N LONG 099 32 24W)							
JUN 1989 26... 28...	49 6	82 34	95 60	97 81	99 89	100 99	-- 100	
06770500	PLATTE RIVER NEAR GRAND ISLAND, NEBR. (LAT 40 52 28N LONG 098 16 54W)							
JUN 1989 26... 28...	8 8	42 45	70 76	88 90	99 97	100 100	-- --	

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	NITRO- GEN NITRATE SOLVED (MG/L AS N) (00618)	NITRO- GEN NITRITE SOLVED (MG/L AS N) (00613)	NITRO- GEN NITRITE SOLVED (MG/L AS NO ₂) (71856)	NITRO- GEN NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N) (00608)
06879900 BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)												
NOV 1988												
14...	1200	1.4	65	7.96	6.0	718	11.0	0.920	0.020	0.07	0.940	0.200
MAR 1989												
08...	1015	415	33	7.77	0.5	730	8.3	3.00	0.100	0.33	3.10	1.20
MAY 1989												
31...	1445	E1.5	65	8.20	19.5	726	11.2	0.370	0.100	0.33	0.470	0.130
E Estimated value.												
06880000 LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)												
NOV 1988												
14...	1050	19	62	8.28	6.0	723	10.9	2.76	0.040	0.13	2.80	0.050
MAR 1989												
08...	1215	25	40	7.78	0.5	739	11.5	3.00	0.100	0.33	3.10	0.680
MAY 1989												
31...	1600	E17	64	8.07	18.5	727	8.3	2.76	0.140	0.46	2.90	0.190
06880500 BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)												
NOV 1988												
14...	0845	29	68	8.19	5.5	724	11.4	1.87	0.030	0.10	1.90	0.040
MAR 1989												
08...	1130	50	47	7.59	0.5	740	12.2	3.04	0.060	0.20	3.10	0.580
06880800 WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)												
NOV 1988												
15...	1420	58	61	8.05	8.0	711	9.9	1.97	0.030	0.10	2.00	0.070
MAR 1989												
08...	1345	55	48	7.89	1.0	741	13.6	2.45	0.050	0.16	2.50	0.850
MAY 1989												
31...	1430	E54	61	8.19	19.0	725	5.2	2.48	0.120	0.39	2.60	0.110
06881000 BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)												
NOV 1988												
14...	1530	112	71	8.21	8.5	722	13.5	1.57	0.030	0.10	1.60	0.210
MAR 1989												
08...	1500	192	51	7.88	4.0	741	11.6	2.64	0.060	0.20	2.70	0.830
MAY 1989												
31...	1300	E164	62	8.30	20.0	726	7.7	2.14	0.060	0.20	2.20	0.040
06881200 TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)												
NOV 1988												
14...	1445	7.2	86	7.66	8.0	722	9.1	--	<0.010	--	0.640	0.040
MAR 1989												
07...	0855	31	72	7.55	0.5	736	10.3	1.56	0.040	0.13	1.60	0.330
MAY 1989												
31...	1215	E5.4	69	8.01	19.5	726	6.9	0.560	0.030	0.10	0.590	0.060
06881500 BIG BLUE R AT BEATRICE NEBR (LAT 40 15 00N LONG 096 45 00W)												
NOV 1988												
14...	0900	192	80	7.88	7.0	729	11.2	2.72	0.080	0.26	2.80	0.060
14...	0905	--	--	--	--	--	--	--	0.080	0.26	2.80	0.090
14...	1300	192	80	8.23	8.0	726	12.7	2.62	0.080	0.26	2.70	0.040
14...	1305	--	--	--	--	--	--	--	0.080	0.26	2.80	0.040
14...	1700	188	84	8.23	8.0	724	12.3	2.62	0.080	0.26	2.70	0.050
14...	1705	--	--	--	--	--	--	--	0.080	0.26	2.70	0.050
14...	2100	188	77	8.21	8.5	723	11.6	2.62	0.070	0.23	2.70	0.060
14...	2105	--	--	--	--	--	--	--	0.070	0.23	2.70	0.070
15...	0100	185	76	8.24	9.0	720	11.2	2.63	0.070	0.23	2.80	0.080
15...	0105	--	--	--	--	--	--	--	0.070	0.23	2.80	0.080
15...	0500	185	75	8.14	9.5	718	10.4	2.63	0.070	0.23	2.80	0.120
15...	0505	--	--	--	--	--	--	--	0.070	0.23	2.80	0.130
15...	0900	192	76	8.13	9.5	718	10.1	2.63	0.070	0.23	2.80	0.110
15...	0905	--	--	--	--	--	--	--	0.070	0.23	2.80	0.110
MAR 1989												
07...	1000	237	59	7.89	0.0	740	12.8	3.24	0.060	0.20	3.30	0.610
07...	1005	--	--	--	--	--	--	--	0.060	0.20	3.30	0.610
07...	1400	237	59	7.87	1.0	737	13.1	3.14	0.060	0.20	3.20	0.630
07...	1405	--	--	--	--	--	--	--	0.060	0.20	3.30	0.680
07...	1800	237	58	7.84	0.5	736	12.7	3.24	0.060	0.20	3.30	0.640
07...	1805	--	--	--	--	--	--	--	0.060	0.20	3.30	0.650
07...	2200	237	57	7.68	0.5	737	14.0	3.24	0.060	0.20	3.40	0.670
07...	2205	--	--	--	--	--	--	--	0.060	0.20	3.40	0.680
08...	0200	237	53	7.81	0.5	738	13.0	3.04	0.060	0.20	3.30	0.800
08...	0205	--	--	--	--	--	--	--	0.060	0.20	3.30	0.800
08...	0600	2240	54	7.86	0.0	739	12.0	3.15	0.050	0.16	3.20	0.810
08...	0605	--	--	--	--	--	--	--	0.050	0.16	3.40	0.790
08...	1000	237	57	7.90	0.5	739	13.2	3.35	0.050	0.16	3.40	1.10
08...	1005	--	--	--	--	--	--	--	0.050	0.16	3.40	0.720
MAY 1989												
30...	1000	151	74	8.65	23.0	722	7.7	1.34	0.060	0.20	1.40	0.030
30...	1005	--	--	--	--	--	--	--	0.060	0.20	1.70	0.020
30...	1500	E151	73	8.90	25.0	722	13.9	1.62	0.070	0.23	1.50	0.020
30...	1505	--	--	--	--	--	--	--	0.070	0.23	1.80	0.020
30...	1800	E151	70	8.88	25.0	723	13.5	1.43	0.090	0.30	1.80	0.020
30...	1810	--	--	--	--	--	--	--	0.090	0.30	1.80	0.030
30...	2200	E151	72	8.80	25.0	725	10.2	1.81	0.090	0.30	1.90	0.040
30...	2205	--	--	--	--	--	--	--	0.090	0.30	1.90	0.030
30...	0200	E151	72	8.29	24.5	726	8.1	1.81	0.090	0.30	1.90	0.030
30...	0210	--	--	--	--	--	--	--	0.090	0.30	1.90	0.020
31...	0600	E151	73	8.80	22.5	727	6.0	1.33	0.070	0.23	1.40	0.020
31...	0610	--	--	--	--	--	--	--	0.070	0.23	1.90	0.030
31...	1000	E151	73	8.80	21.5	725	7.1	1.71	0.090	0.30	1.80	0.040
31...	1005	--	--	--	--	--	--	--	0.090	0.30	1.90	0.040

DATE	NITRO- GEN AMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	PHOS- PHOROUS ORGANIC DIS- SOLVED (MG/L AS P) (00673)	CARBON ORGANIC TOTAL (MG/L AS C) (00680)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLUA- LIN TOTAL RECOVER (UG/L) (39030)
	06879900		BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)									
NOV 1988												
14...	0.26	1.3	2.3	1.5	0.430	0.190	0.070	0.21	0.12	14	<0.10	<0.10
MAR 1989												
08...	1.5	2.4	3.6	3.6	0.980	0.740	0.690	2.1	0.05	17	<0.10	<0.10
MAY 31...	0.17	0.67	1.1	0.80	0.200	0.060	0.060	0.18	0.0	15	<0.10	<0.10
	06880000		LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)									
NOV 1988												
14...	0.06	0.45	0.5	0.50	0.290	0.260	0.130	0.40	0.13	3.5	<0.10	<0.10
MAR 1989												
08...	0.88	1.4	2.6	2.1	0.650	0.460	0.420	1.3	0.04	14	<0.10	<0.10
MAY 31...	0.24	--	0.4	<0.50	0.370	0.360	0.380	1.2	0.0	7.1	<0.10	<0.10
	06880500		BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)									
NOV 1988												
14...	0.05	0.36	1.5	0.40	0.330	0.230	0.090	0.28	0.14	6.6	<0.10	<0.10
MAR 1989												
08...	0.75	1.4	2.0	2.0	0.580	0.420	0.380	1.2	0.04	9.9	<0.10	<0.10
	06880800		WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)									
NOV 1988												
14...	0.09	0.43	0.5	0.50	0.560	0.440	0.410	1.3	0.03	4.0	<0.10	<0.10
MAR 1989												
08...	1.1	--	1.7	--	0.800	0.620	0.610	1.9	0.01	8.4	<0.10	<0.10
MAY 31...	0.14	0.49	1.1	0.60	0.630	0.540	0.520	1.6	0.02	11	<0.10	<0.10
	06881000		BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)									
NOV 1988												
14...	0.27	--	0.7	<0.20	0.540	0.420	0.370	1.1	0.05	4.8	<0.10	<0.10
MAR 1989												
08...	1.1	1.4	2.2	2.2	0.740	0.570	0.550	1.7	0.02	11	<0.10	<0.10
MAY 31...	0.05	0.66	1.7	0.70	0.440	0.350	0.320	0.98	0.03	13	<0.10	<0.10
	06881200		TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)									
NOV 1988												
14...	0.05	0.16	0.7	0.20	0.500	0.410	0.390	1.2	0.02	7.3	<0.10	<0.10
MAR 1989												
07...	0.43	0.0	0.4	0.30	0.							

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PER- THANE TOTAL (39034)	METHO- MYL TOTAL (39051)	PROPHAM TOTAL (39052)	SIME- TRYNE TOTAL (39054)	SIMA- ZINE TOTAL (39055)	PROME- TONE TOTAL (39056)	PROME- TRYNE TOTAL (39057)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (39250)	ALDRIN, TOTAL (39330)	LINDANE TOTAL (39340)	CHLOR- DANE TOTAL (39350)	DDD TOTAL (39360)
	06879900											
	BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)											
NOV 1988	--	--	-	<0.1	<0.10	0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
	06880000											
	LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)											
NOV 1988	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
	06880500											
	BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)											
NOV 1988	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
	06880800											
	WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)											
NOV 1988	<0.1	<0.5	<0.	<0.1	<0.10	<0.1	<0.1	<0.10	<0.010	<0.010	<0.1	<0.010
MAR 1989	<0.1	<0.5	<0.	<0.1	<0.10	<0.1	<0.1	<0.10	<0.010	<0.010	<0.1	<0.010
MAY 31...	<0.1	<0.5	<0.	<0.1	<0.10	0.1	<0.1	<0.10	<0.010	<0.010	<0.1	<0.010
	06881000											
	BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)											
NOV 1988	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	0.1	<0.1	--	--	--	--	--
	06881200											
	TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)											
NOV 1988	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
	06881500											
	BIG BLUE R AT BEATRICE NEBR (LAT 40 15 00N LONG 096 45 00W)											
NOV 1988	--	--	-	<0.1	0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
NOV 1988	--	--	-	<0.1	0.10	<0.1	<0.1	--	--	--	--	--
MAR 1989	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--
MAY 31...	--	--	-	<0.1	<0.10	<0.1	<0.1	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DDE TOTAL (UG/L) (39365)	DDT TOTAL (UG/L) (39370)	DI- ELDRIN TOTAL (UG/L) (39380)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	TOX- APRENE, TOTAL (UG/L) (39400)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR- EPOXIDE TOTAL (UG/L) (39420)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	PCB TOTAL (UG/L) (39516)
06880800											
NOV 1988											
15											
MAR 1989	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1	<0.010	<0.010	<0.01	<0.1
08	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1	<0.010	<0.010	<0.01	<0.1
MAY	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1	<0.010	<0.010	<0.01	<0.1
31...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<1	<0.010	<0.010	<0.01	<0.1

NOV 1988
15
MAR 1989
08
MAY
31...

WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MALA- THION, TOTAL (UG/L) (39530)	PARA- THION, TOTAL (UG/L) (39540)	DI- AZINON, TOTAL (UG/L) (39570)	METHYL PARA- THION, TOTAL (UG/L) (39600)	ATRA- ZINE, TOTAL (UG/L) (39630)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SEVIN, TOTAL (UG/L) (39750)	MIREX, TOTAL (UG/L) (39755)	SILVEX, TOTAL (UG/L) (39760)	TOTAL TRI- THION (UG/L) (39786)
06879900 BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)											
NOV 1988	--	--	--	--	0.30	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.60	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.40	--	--	--	--	--	--
06880000 LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)											
NOV 1988	--	--	--	--	0.10	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.70	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.10	--	--	--	--	--	--
06880500 BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)											
NOV 1988	--	--	--	--	0.10	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.60	--	--	--	--	--	--
06880800 WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)											
NOV 1988	<0.01	<0.01	<0.01	<0.01	0.20	0.11	<0.01	<0.50	<0.01	<0.01	<0.01
MAR 1989	<0.01	<0.01	<0.01	<0.01	0.30	--	--	<0.50	<0.01	--	<0.01
MAY 31...	<0.01	<0.01	<0.01	<0.01	1.0	0.13	<0.01	<0.50	<0.01	<0.01	<0.01
06881000 BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)											
NOV 1988	--	--	--	--	0.10	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.50	--	--	--	--	--	--
MAY 31...	--	--	--	--	2.2	--	--	--	--	--	--
06881200 TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)											
NOV 1988	--	--	--	--	0.40	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.50	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.30	--	--	--	--	--	--
06881500 BIG BLUE R AT BEATRICE NEBR (LAT 40 15 00N LONG 096 45 00W)											
NOV 1988	--	--	--	--	0.20	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.60	--	--	--	--	--	--
MAY 31...	--	--	--	--	3.2	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	METHYL TRI- THION, TOTAL (UG/L) (39750)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	2, 4-DP TOTAL (UG/L) (82183)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT REC (UG/L) (82612)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
06879900 BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)											
NOV 1988	--	<0.10	0.10	--	<0.10	<0.1	<0.1	16.0	1.00	62	0.23
MAR 1989	--	<0.10	<0.10	--	<0.10	<0.1	0.1	1.10	0.600	86	96
MAY 1989	--	0.20	0.10	--	<0.10	<0.1	<0.1	63.0	21.0	53	0.0
06880000 LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)											
NOV 1988	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	4.90	0.300	70	3.6
MAR 1989	--	<0.10	<0.10	--	<0.10	<0.1	0.2	2.20	0.300	98	6.6
MAY 1989	--	<0.10	0.10	--	<0.10	<0.1	<0.1	45.0	4.40	145	0.0
06880500 BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)											
NOV 1988	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	100	3.00	56	4.4
MAR 1989	--	<0.10	<0.10	--	<0.10	<0.1	0.2	1.60	0.300	73	9.9
06880800 WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)											
NOV 1988	<0.01	<0.10	<0.10	<0.01	<0.10	<0.1	<0.1	5.30	0.100	--	--
MAR 1989	<0.01	<0.10	0.10	--	<0.10	<0.1	<0.1	2.10	0.800	84	12
MAY 1989	<0.01	<0.10	0.20	<0.01	<0.10	<0.1	<0.1	29.0	4.30	258	0.0
06881000 BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)											
NOV 1988	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	20.0	0.400	21	6.4
MAR 1989	--	<0.10	<0.10	--	<0.10	<0.1	0.1	0.500	0.400	72	37
MAY 1989	--	0.10	0.20	--	<0.10	<0.1	0.1	43.0	3.70	413	0.0
06881200 TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)											
NOV 1988	--	<0.10	<0.10	--	<0.10	<0.1	0.1	0.900	<0.100	30	0.58
MAR 1989	--	0.10	<0.10	--	<0.10	<0.1	0.1	0.900	<0.200	32	2.7
MAY 1989	--	<0.10	0.10	--	<0.10	<0.1	0.2	71.0	6.20	155	0.0
06881500 BIG BLUE R AT BEATRICE NEBR (LAT 40 15 00N LONG 096 45 00W)											
NOV 1988	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	25.0	1.00	29	15
MAR 1989	--	<0.10	<0.10	--	<0.10	<0.1	0.1	1.00	0.500	59	38
MAY 1989	--	0.30	0.40	--	<0.10	<0.1	0.3	77.0	9.10	101	41

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N) (00608)
06882000 BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)												
NOV 1988												
14 MAR 1989	1145	193	75	8.24	6.5	726	13.0	1.77	0.030	0.10	1.80	0.090
07...	1435	329	59	8.16	1.0	739	14.4	2.85	0.050	0.16	2.90	0.570
MAY 30...	1245	187	66	8.45	23.0	723	8.6	0.210	0.060	0.20	0.270	0.410
06883000 LITTLE BLUE RIVER NEAR DEWEESE, NEBR. (LAT 40 19 58N LONG 098 04 20W)												
NOV 1988												
15 MAR 1989	0940	65	37	7.55	7.5	706	10.9	0.750	0.030	0.10	0.780	0.010
08...	0920	67	44	8.12	1.5	726	13.7	1.38	0.020	0.07	1.40	0.060
MAY 30...	1320	45	47	8.29	24.0	714	8.6	0.670	0.030	0.10	0.700	0.070
06883570 LITTLE BLUE RIVER NEAR ALEXANDRIA (GILEAD), NEBR (LAT 40 12 27N LONG 097 23 26W)												
NOV 1988												
14 MAR 1989	1655	40	43	8.25	9.0	718	12.2	--	<0.010	--	0.700	0.030
08...	1345	118	44	8.16	0.0	734	16.4	1.58	0.020	0.07	1.60	0.090
MAY 31...	1200	61	50	8.27	20.0	730	8.5	1.18	0.020	0.07	1.20	0.080
06883940 BIG SANDY CR AT ALEXANDRIA, NE (LAT 40 14 06N LONG 097 23 20W)												
NOV 1988												
14 MAR 1989	1730	20	33	7.40	11.0	716	7.9	--	<0.010	--	1.50	0.010
08...	1250	26	35	7.74	12.5	734	11.3	1.39	0.010	0.03	1.40	0.040
MAY 31...	1130	25	38	7.80	15.0	725	9.8	1.28	0.020	0.07	1.30	0.070
06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)												
NOV 1988												
14 MAR 1989	1555	90	45	8.05	7.0	720	13.1	--	<0.010	--	1.00	0.050
08...	1225	133	48	8.21	2.5	738	15.0	1.58	0.020	0.07	1.60	0.270
MAY 31...	1300	91	52	8.20	21.0	730	8.3	1.36	0.040	0.13	1.40	0.320
06884025 LITTLE BLUE R AT HOLLENBERG, KS (LAT 39 58 48N LONG 097 00 16W)												
NOV 1988												
14 MAR 1989	1350	133	52	8.11	9.0	722	12.6	0.990	0.010	0.03	1.00	0.020
08...	1040	140	52	8.14	0.5	740	14.1	1.58	0.020	0.07	1.60	0.200
MAY 31...	1420	110	60	8.40	21.0	730	8.7	1.36	0.040	0.13	1.40	0.060
400359097101400 ROSE CREEK NR FAIRBURY, NE (LAT 40 03 59N LONG 097 10 14W)												
NOV 1988												
14 MAR 1989	1515	8.0	56	8.11	6.5	723	12.9	--	<0.010	--	0.980	0.030
08...	1200	13	59	8.12	1.0	738	15.5	1.58	0.020	0.07	1.60	0.090
MAY 31...	1330	6.8	60	8.04	21.0	730	6.9	1.47	0.130	0.43	1.60	0.160
400632096401600 BIG INDIAN CREEK NR WYMORE, NE (LAT 40 06 32N LONG 096 40 16W)												
NOV 1988												
14 MAR 1989	1020	5.2	106	7.80	6.0	727	10.1	--	<0.010	--	0.350	0.110
07...	1520	4.5	81	8.32	2.5	738	18.9	0.400	0.010	0.03	0.410	0.090
MAY 30...	1345	3.1	93	8.26	27.0	723	8.1	--	<0.010	--	<0.100	0.080

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	PHOS- PHOROUS ORGANIC DIS- SOLVED (MG/L AS P) (00673)	CARBON ORGANIC TOTAL (MG/L AS C) (00680)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLUO- LIN TOTAL RECOVER (UG/L) (39030)
06882000 BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)												
NOV 1988												
MAR 14 1989	0.12	0.51	1.5	0.60	0.550	0.430	0.380	1.2	0.05	7.9	<0.10	<0.10
MAR 07...	0.73	--	0.5	--	0.680	0.560	0.530	1.6	0.03	8.9	<0.10	<0.10
MAY 30...	0.53	0.49	1.3	0.90	0.570	0.380	0.340	1.0	0.04	10	<0.10	<0.10
06883000 LITTLE BLUE RIVER NEAR DEWEESE, NEBR. (LAT 40 19 58N LONG 098 04 20W)												
NOV 15 1988	0.01	0.19	0.3	0.20	0.220	0.200	0.190	0.58	0.01	2.4	<0.10	<0.10
MAR 08 1989	0.08	0.74	1.0	0.80	0.340	0.240	0.230	0.71	0.01	3.6	<0.10	<0.10
MAY 30...	0.09	0.33	0.5	0.40	0.300	0.270	0.260	0.80	0.01	3.4	<0.10	<0.10
06883570 LITTLE BLUE RIVER NEAR ALEXANDRIA (GILEAD), NEBR (LAT 40 12 27N LONG 097 23 26W)												
NOV 14 1988	0.04	0.27	0.7	0.30	0.250	0.240	0.220	0.67	0.02	2.5	<0.10	<0.10
MAR 08 1989	0.12	1.0	1.3	1.1	0.310	0.230	0.220	0.67	0.01	3.7	<0.10	<0.10
MAY 31...	0.10	--	0.3	<0.20	0.460	0.400	0.380	1.2	0.02	8.1	<0.10	<0.10
06883940 BIG SANDY CR AT ALEXANDRIA, NE (LAT 40 14 06N LONG 097 23 20W)												
NOV 14 1988	0.01	0.29	0.3	0.30	0.240	0.230	0.220	0.67	0.01	1.1	<0.10	<0.10
MAR 08 1989	0.05	0.56	0.6	0.60	0.270	0.240	0.250	0.77	0.0	1.0	<0.10	<0.10
MAY 31...	0.09	0.33	0.3	0.40	0.250	0.230	0.220	0.67	0.01	1.5	<0.10	<0.10
06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)												
NOV 14 1988	0.06	0.45	0.8	0.50	0.370	0.300	0.270	0.83	0.03	2.9	<0.10	<0.10
MAR 08 1989	0.35	0.33	0.7	0.60	0.320	0.270	0.270	0.83	0.0	2.9	<0.10	<0.10
MAY 31...	0.41	0.38	0.5	0.70	0.450	0.420	0.400	1.2	0.02	5.2	<0.10	<0.10
06884025 LITTLE BLUE R AT HOLLENBERG, KS (LAT 39 58 48N LONG 097 00 16W)												
NOV 14 1988	0.03	0.28	0.3	0.30	0.240	0.230	0.210	0.64	0.02	2.8	<0.10	<0.10
MAR 08 1989	0.26	0.0	0.4	0.20	0.300	0.240	0.230	0.71	0.01	2.9	<0.10	<0.10
MAY 31...	0.08	0.54	0.4	0.60	0.410	0.360	0.340	1.0	0.02	5.6	<0.10	<0.10
400359097101400 ROSE CREEK NR FAIRBURY, NE (LAT 40 03 59N LONG 097 10 14W)												
NOV 14 1988	0.04	0.27	0.6	0.30	0.130	0.090	0.080	0.25	0.01	3.4	<0.10	<0.10
MAR 08 1989	0.12	0.21	0.8	0.30	0.110	0.070	0.070	0.21	0.0	4.7	<0.10	<0.10
MAY 31...	0.21	0.64	0.7	0.80	0.200	0.150	0.140	0.43	0.01	7.0	<0.10	<0.10
400632096401600 BIG INDIAN CREEK NR WYMORE, NE (LAT 40 06 32N LONG 096 40 16W)												
NOV 14 1988	0.14	0.69	0.8	0.80	0.220	0.200	0.180	0.55	0.02	6.0	<0.10	<0.10
MAR 07 1989	0.12	0.21	0.3	0.30	0.190	0.100	0.100	0.31	0.0	5.5	<0.10	<0.10
MAY 30...	0.10	0.52	0.8	0.60	0.480	0.400	0.370	1.1	0.03	6.7	--	--

	PER- THANE	METHO- MYL	PROPHAM	SIME- TRYNE	SIMA- ZINE	PROME- TONE	PROME- TRYNE	NAPH- THA- LENES POLY- CHLOR.	ALDRIN,	LINDANE	CHLOR- DANE	DDD
DATE	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)	TOTAL (UG/L)
	(39034)	(39051)	(39052)	(39054)	(39055)	(39056)	(39057)	(39250)	(39330)	(39340)	(39350)	(39360)

[illegible]

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MALATHION, TOTAL (UG/L) (39530)	PARATHION, TOTAL (UG/L) (39540)	DIAZINON, TOTAL (UG/L) (39570)	METHYL PARATHION, TOTAL (UG/L) (39600)	ATRAZINE, TOTAL (UG/L) (39630)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SEVIN, TOTAL (UG/L) (39750)	MIREX, TOTAL (UG/L) (39755)	SILVEX, TOTAL (UG/L) (39760)	TOTAL TRI- THION (UG/L) (39786)
06882000 BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)											
NOV 1988											
MAR 1989	<0.01	<0.01	<0.01	<0.01	0.20	0.20	<0.01	<0.50	<0.01	<0.01	<0.01
OCT ..	<0.01	<0.01	<0.01	<0.01	0.40	0.20	<0.01	<0.50	<0.01	<0.01	<0.01
MAY 30...	<0.01	<0.01	<0.01	<0.01	1.0	0.19	<0.01	<0.50	<0.01	<0.01	<0.01
06883000 LITTLE BLUE RIVER NEAR DEWESEE, NEBR. (LAT 40 19 58N LONG 098 04 20W)											
NOV 1988	--	--	--	--	0.30	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.20	--	--	--	--	--	--
OCT ..	--	--	--	--	0.20	--	--	--	--	--	--
MAY 30...	--	--	--	--	0.30	--	--	--	--	--	--
06883570 LITTLE BLUE RIVER NEAR ALEXANDRIA (GILEAD), NEBR (LAT 40 12 27N LONG 097 23 26W)											
NOV 1988	--	--	--	--	0.40	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.20	--	--	--	--	--	--
OCT ..	--	--	--	--	0.20	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.50	--	--	--	--	--	--
06883940 BIG SANDY CR AT ALEXANDRIA, NE (LAT 40 14 06N LONG 097 23 20W)											
NOV 1988	--	--	--	--	<0.10	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.10	--	--	--	--	--	--
OCT ..	--	--	--	--	0.10	--	--	--	--	--	--
MAY 31...	--	--	--	--	<0.10	--	--	--	--	--	--
06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)											
NOV 1988	--	--	--	--	0.30	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.10	--	--	--	--	--	--
OCT ..	--	--	--	--	0.10	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.50	--	--	--	--	--	--
06884025 LITTLE BLUE R AT HOLLENBERG, KS (LAT 39 58 48N LONG 097 00 16W)											
NOV 1988	<0.01	<0.01	<0.01	<0.01	0.20	0.60	<0.01	<0.50	<0.01	<0.01	<0.01
MAR 1989	<0.01	<0.01	<0.01	<0.01	0.10	0.02	<0.01	<0.50	<0.01	<0.01	<0.01
OCT ..	<0.01	<0.01	<0.01	<0.01	0.10	0.02	<0.01	<0.50	<0.01	<0.01	<0.01
MAY 31...	--	--	--	--	0.80	--	--	--	--	--	--
400359097101400 ROSE CREEK NR FAIRBURY, NE (LAT 40 03 59N LONG 097 10 14W)											
NOV 1988	--	--	--	--	0.10	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.10	--	--	--	--	--	--
OCT ..	--	--	--	--	0.10	--	--	--	--	--	--
MAY 31...	--	--	--	--	0.30	--	--	--	--	--	--
400632096401600 BIG INDIAN CREEK NR WYMORE, NE (LAT 40 06 32N LONG 096 40 16W)											
NOV 1988	--	--	--	--	0.70	--	--	--	--	--	--
MAR 1989	--	--	--	--	0.50	--	--	--	--	--	--
OCT ..	--	--	--	--	0.50	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--

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DATE	METHYL- TRI- THION, TOTAL, (UG/L) (39790)	ALA- CHLOR- TOTAL RECOVER (UG/L) (77825)	CYAN- AZINE TOTAL (UG/L) (81757)	2, 4-DP TOTAL (UG/L) (82183)	AME- TRYNE TOTAL (82184)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	METOLA- CHLOR- WATER WHOLE TOT. REC (UG/L) (82612)	CHLOR-A PHYTO- PLANK- TON CHROMO- FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO- FLUOROM (UG/L) (70954)	SEDI- MENT, SUS- PENDED, (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED, (T/DAY) (80155)
06882000 BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)											
OV 1988											
4. AR 1989	<0.01	<0.10	<0.10	<0.01	<0.10	<0.1	<0.1	62.0	1.10	23	12
7. AY 1989	<0.01	<0.10	0.10	<0.01	<0.10	<0.1	<0.1	1.20	0.600	40	36
0. AY 1989	<0.01	<0.10	0.10	<0.01	<0.10	<0.1	0.1	26.0	4.10	22	11
06883000 LITTLE BLUE RIVER NEAR DEWEESE, NEBR. (LAT 40 19 58N LONG 098 04 20W)											
OV 1988											
4. AR 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	3.30	<0.100	3	0.53
7. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.60	0.400	88	16
0. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.40	0.300	61	7.4
06883570 LITTLE BLUE RIVER NEAR ALEXANDRIA (GILEAD), NEBR (LAT 40 12 27N LONG 097 23 26W)											
OV 1988											
4. AR 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	3.00	<0.100	13	1.4
7. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	0.900	0.500	77	25
0. AY 1989	--	<0.10	0.10	--	<0.10	<0.1	<0.1	6.40	0.700	232	39
06883940 BIG SANDY CR AT ALEXANDRIA, NE (LAT 40 14 06N LONG 097 23 20W)											
OV 1988											
4. AR 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.10	<0.100	6	0.32
7. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	0.500	0.400	7	0.49
0. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.00	0.300	10	0.68
06884000 LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)											
OV 1988											
4. AR 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.80	<0.100	14	3.4
7. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	0.700	0.400	28	10
0. AY 1989	--	0.10	0.10	--	<0.10	<0.1	<0.1	9.60	0.900	113	28
06884025 LITTLE BLUE R AT HOLLENBERG, KS (LAT 39 58 48N LONG 097 00 16W)											
OV 1988											
4. AR 1989	<0.01	<0.10	<0.10	<0.01	<0.10	<0.1	<0.1	2.70	0.100	16	5.7
7. AY 1989	<0.01	<0.10	0.10	<0.01	<0.10	<0.1	<0.1	0.700	<0.200	47	18
0. AY 1989	--	0.10	0.10	--	<0.10	<0.1	<0.1	17.0	2.10	135	40
400359097101400 ROSE CREEK NR FAIRBURY, NE (LAT 40 03 59N LONG 097 10 14W)											
OV 1988											
4. AR 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	1.80	<0.100	94	2.0
7. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	0.600	<0.200	48	1.7
0. AY 1989	--	<0.10	<0.10	--	<0.10	<0.1	<0.1	33.0	5.00	176	3.2
400632096401600 BIG INDIAN CREEK NR WYMORE, NE (LAT 40 06 32N LONG 096 40 16W)											
OV 1988											
4. AR 1989	--	<0.10	0.10	--	<0.10	<0.1	<0.1	5.30	0.300		

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2) (71856)
401243097433500 LITTLE BLUE R NR DESHLER, NE (LAT 40 12 43N LONG 097 43 35W)										
NOV 1988										
15	0815	52	370	7.97	7.5	709	10.2	0.460	0.020	0.07
MAR 1989										
08...	1100	79	444	8.07	0.0	730	12.5	1.28	0.020	0.07
MAY										
31...	1030	45	495	8.75	19.0	722	7.8	0.730	0.030	0.10
401730096500200 CUB CREEK NR BEATRICE, NE (LAT 40 17 30N LONG 096 50 02W)										
NOV 1988										
14	1045	0.75	601	7.21	7.0	728	8.4	0.220	0.010	0.03
MAR 1989										
08...	0900	2.9	518	7.57	0.5	739	9.3	1.64	0.060	0.20
MAY										
30...	1630	0.51	582	7.97	24.0	722	5.1	0.250	0.090	0.30
402348096591100 SWAN CREEK NR DEWITT, NE (LAT 40 23 48N LONG 096 59 11W)										
NOV 1988										
14	1200	11	1000	7.80	8.5	725	12.6	1.88	0.020	0.07
MAR 1989										
07...	1240	30	739	7.76	1.0	736	13.4	1.97	0.030	0.10
MAY										
31...	1100	8.0	913	8.01	19.0	725	9.2	1.34	0.060	0.20
402726098240500 LITTLE BLUE R NR HASTINGS, NE (LAT 40 27 26N LONG 098 24 05W)										
NOV 1988										
15	1100	8.0	380	7.60	7.5	703	10.9	0.640	0.020	0.07
MAR 1989										
08...	0800	11	461	7.65	4.0	722	11.9	1.07	0.030	0.10
MAY										
30...	1200	8.3	476	8.48	20.0	714	11.7	0.290	0.030	0.10
403304097311400 TURKEY CREEK NR GENEVA, NE (LAT 40 33 04N LONG 097 31 14W)										
NOV 1988										
15	1110	0.29	476	7.78	8.5	711	10.0	0.910	0.020	0.07
MAR 1989										
07...	1345	1.5	290	7.85	0.5	730	--	3.15	0.050	0.16
MAY										
30...	1445	E0.50	860	8.58	29.5	715	17.5	0.290	0.120	0.39
E Estimated value.										
403611098200600 WEST FK BIG BLUE R NR HASTINGS, NE (LAT 40 36 11N LONG 098 20 06W)										
NOV 1988										
15	1015	3.0	1030	7.50	14.5	702	0.6	0.090	0.010	0.03
MAR 1989										
07...	1600	6.4	909	7.67	11.5	717	4.0	0.180	0.210	0.69
MAY										
30...	1145	4.4	838	7.62	21.5	--	4.9	0.100	0.050	0.16
403749097503400 SCHOOL CREEK NR SUTTON, NE (LAT 40 37 49N LONG 097 50 34W)										
NOV 1988										
15	1230	262	998	7.76	7.5	707	8.9	4.72	0.180	0.59
MAR 1989										
07...	1445	0.55	828	7.66	0.0	724	12.4	13.8	0.200	0.66
MAY										
30...	1445	0.26	1060	8.52	26.5	717	12.1	2.30	1.00	3.3
404327097354600 WEST FORK BIG BLUE R NR MCCOOL JUNCTION, NE (LAT 40 43 27N LONG 097 35 46W)										
NOV 1988										
15	1300	14	713	8.35	7.5	709	11.2	2.80	0.100	0.33
MAR 1989										
07...	1245	15	630	7.62	0.0	732	14.7	2.48	0.020	0.07
MAY										
31...	1100	15	604	7.81	19.0	723	6.2	3.83	0.570	1.9

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH ₄) (71846)	NITRO- GEN ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00623)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHOROUS TOTAL (MG/L AS P) (00663)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO ₄) (00660)
401243097433500 LITTLE BLUE R NR DESHLER, NE (LAT 40 12 43N LONG 097 43 35W)										
NOV 1988										
MAR 15 1989	0.480	0.020	0.03	0.18	0.40	0.20	0.220	0.190	0.180	0.55
MAR 08...	1.30	0.070	0.09	0.33	0.60	0.40	0.240	0.200	0.190	0.58
MAY 31...	0.760	0.090	0.12	0.41	0.30	0.50	0.390	0.350	0.340	1.0
401730096500200 CUB CREEK NR BEATRICE, NE (LAT 40 17 30N LONG 096 50 02W)										
NOV 14 1988	0.230	0.060	0.08	1.1	--	1.2	0.680	0.610	0.550	1.7
MAR 08 1989	1.70	1.10	1.4	2.0	3.1	3.1	0.610	0.480	0.410	1.3
MAY 30...	0.340	0.280	0.36	0.72	0.90	1.0	0.920	0.800	0.770	2.4
402348096591100 SWAN CREEK NR DEWITT, NE (LAT 40 23 48N LONG 096 59 11W)										
NOV 14 1988	1.90	0.030	0.04	0.67	0.70	0.70	0.310	0.250	0.220	0.67
MAR 07 1989	2.00	0.270	0.35	0.13	0.80	0.40	0.390	0.300	0.280	0.86
MAY 31...	1.40	0.040	0.05	0.36	0.60	0.40	0.400	0.260	0.240	0.74
402726098240500 LITTLE BLUE R NR HASTINGS, NE (LAT 40 27 26N LONG 098 24 05W)										
NOV 15 1988	0.660	0.040	0.05	0.16	0.30	0.20	0.290	0.240	0.220	0.67
MAR 08 1989	1.10	0.170	0.22	0.53	0.70	0.70	0.300	0.270	0.280	0.86
MAY 30...	0.320	0.070	0.09	0.43	0.40	0.50	0.310	0.290	0.270	0.83
403304097311400 TURKEY CREEK NR GENEVA, NE (LAT 40 33 04N LONG 097 31 14W)										
NOV 15 1988	0.930	0.070	0.09	1.1	2.4	1.2	0.850	0.590	0.550	1.7
MAR 07 1989	3.20	0.920	1.2	--	0.20	--	1.60	1.50	1.30	4.0
MAY 30...	0.410	0.240	0.31	0.96	1.5	1.2	0.740	0.550	0.500	1.5
403611098200600 WEST FK BIG BLUE R NR HASTINGS, NE (LAT 40 36 11N LONG 098 20 06W)										
NOV 15 1988	0.100	18.0	23	0.0	21	18	6.60	6.10	4.20	13
MAR 07 1989	0.390	15.0	19	--	18	--	5.90	5.40	4.60	14
MAY 30...	0.150	14.0	18	--	14	--	--	--	4.90	15
403749097503400 SCHOOL CREEK NR SUTTON, NE (LAT 40 37 49N LONG 097 50 34W)										
NOV 15 1988	4.90	0.230	0.30	0.97	1.2	1.2	4.60	4.60	4.00	12
MAR 07 1989	14.0	1.50	1.9	3.0	4.5	4.5	5.30	4.20	4.40	13
MAY 30...	3.30	3.30	4.3	1.0	3.8	4.3	3.70	3.10	2.80	8.6
404327097354600 WEST FORK BIG BLUE R NR MCCOOL JUNCTION, NE (LAT 40 43 27N LONG 097 35 46W)										
NOV 15 1988	2.90	0.050	0.06	1.0	1.0	1.1	1.10	1.00	0.960	2.9
MAR 07 1989	2.50	4.20	5.4	1.1	5.3	5.3	1.70	1.60	1.30	4.0
MAY 31...	4.40	0.470	0.61	--	--	--	1.00	0.860	0.880	2.7

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PHOS- PHOROUS ORGANIC DIS- SOLVED (MG/L AS P) (00673)	CARBON ORGANIC TOTAL (MG/L AS C) (00680)	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)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)
401243097433500 LITTLE BLUE R NR DESHLER, NE (LAT 40 12 43N LONG 097 43 35W)									
NOV 1988									
15...	0.01	2.9	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAR 1989									
08...	0.01	1.7	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.10
MAY 31...	0.01	7.0	<0.10	<0.10	<0.1	0.10	<0.1	<0.1	0.40
401730096500200 CUB CREEK NR BEATRICE, NE (LAT 40 17 30N LONG 096 50 02W)									
NOV 1988									
14...	0.06	8.9	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAR 1989									
08...	0.07	17	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAY 30...	0.03	8.3	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.20
402348096591100 SWAN CREEK NR DEWITT, NE (LAT 40 23 48N LONG 096 59 11W)									
NOV 1988									
14...	0.03	3.6	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.10
MAR 1989									
07...	0.02	7.5	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAY 31...	0.02	8.0	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
402726098240500 LITTLE BLUE R NR HASTINGS, NE (LAT 40 27 26N LONG 098 24 05W)									
NOV 1988									
15...	0.02	2.1	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAR 1989									
08...	0.0	2.3	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.20
MAY 30...	0.02	5.6	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.10
403304097311400 TURKEY CREEK NR GENEVA, NE (LAT 40 33 04N LONG 097 31 14W)									
NOV 1988									
15...	0.04	11	<0.10	<0.10	<0.1	<0.10	0.1	<0.1	3.5
MAR 1989									
07...	0.20	22	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	1.0
MAY 30...	0.05	12	<0.10	<0.10	<0.1	<0.10	0.4	<0.1	3.8
403611098200600 WEST FK BIG BLUE R NR HASTINGS, NE (LAT 40 36 11N LONG 098 20 06W)									
NOV 1988									
15...	1.9	18	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.10
MAR 1989									
07...	0.80	18	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAY 30...	--	15	<0.10	<0.10	<0.1	0.10	<0.1	<0.1	1.6
403749097503400 SCHOOL CREEK NR SUTTON, NE (LAT 40 37 49N LONG 097 50 34W)									
NOV 1988									
15...	0.60	9.2	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.30
MAR 1989									
07...	0.0	9.5	0.30	<0.10	<0.1	0.10	0.1	<0.1	22
MAY 30...	0.30	13	<0.10	<0.10	<0.1	<0.10	0.2	<0.1	3.3
404327097354600 WEST FORK BIG BLUE R NR MCCOOL JUNCTION, NE (LAT 40 43 27N LONG 097 35 46W)									
NOV 1988									
15...	0.04	5.3	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.10
MAR 1989									
07...	0.30	7.5	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	0.40
MAY 31...	0.0	25	0.10	<0.10	<0.1	0.40	0.1	<0.1	11

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
401243097433500 LITTLE BLUE R NR DESHLER, NE (LAT 40 12 43N LONG 097 43 35W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	2.70	<0.100	25	3.5
MAY 1989	<0.10	<0.10	<0.10	<0.1	<0.1	0.700	<0.200	32	6.8
MAY 31...	0.10	<0.10	<0.10	<0.1	0.2	6.20	0.600	201	24
401730096500200 CUB CREEK NR BEATRICE, NE (LAT 40 17 30N LONG 096 50 02W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	0.700	<0.100	2	0.00
MAY 1989	<0.10	0.10	<0.10	3.4	0.1	1.70	<0.200	10	0.08
MAY 30...	<0.10	0.20	<0.10	<0.1	<0.1	14.0	6.50	6	0.01
402348096591100 SWAN CREEK NR DEWITT, NE (LAT 40 23 48N LONG 096 59 11W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	1.40	<0.100	52	1.5
MAY 1989	<0.10	<0.10	<0.10	<0.1	<0.1	0.600	<0.200	29	2.3
MAY 31...	<0.10	<0.10	<0.10	<0.1	<0.1	34.0	3.20	122	2.6
402726098240500 LITTLE BLUE R NR HASTINGS, NE (LAT 40 27 26N LONG 098 24 05W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	6.10	0.100	2	0.04
MAY 1989	<0.10	<0.10	<0.10	<0.1	<0.1	0.800	0.500	6	0.18
MAY 30...	<0.10	<0.10	<0.10	<0.1	<0.1	0.500	0.200	1	0.02
403304097311400 TURKEY CREEK NR GENEVA, NE (LAT 40 33 04N LONG 097 31 14W)									
NOV 1988									
MAR 1989	<0.10	0.10	<0.10	<0.1	0.2	29.0	3.50	75	0.06
MAY 1989	0.10	<0.10	<0.10	<0.1	0.3	3.10	0.600	53	0.21
MAY 30...	0.10	0.50	0.10	<0.1	0.2	50.0	11.0	128	0.0
403611098200600 WEST FK BIG BLUE R NR HASTINGS, NE (LAT 40 36 11N LONG 098 20 06W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	4.60	0.700	2	0.02
MAY 1989	<0.10	<0.10	<0.10	<0.1	<0.1	1.30	1.80	21	0.36
MAY 30...	<0.10	<0.10	<0.10	<0.1	<0.1	17.0	4.50	3	0.04
403749097503400 SCHOOL CREEK NR SUTTON, NE (LAT 40 37 49N LONG 097 50 34W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	5.40	0.300	42	30
MAY 1989	4.10	0.10	0.10	0.1	0.2	0.800	<0.500	183	0.27
MAY 30...	0.50	0.20	0.10	<0.1	0.3	57.0	17.0	87	0.06
404327097354600 WEST FORK BIG BLUE R NR MCCOOL JUNCTION, NE (LAT 40 43 27N LONG 097 35 46W)									
NOV 1988									
MAR 1989	<0.10	<0.10	<0.10	<0.1	<0.1	8.90	0.300	29	1.1
MAY 1989	<0.10	0.10	<0.10	<0.1	0.2	0.700	0.400	24	0.97
MAY 31...	2.60	2.5	<0.10	0.8	7.9	29.0	3.10	525	21

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2) (71856)
405029097322100 BEAVER CREEK NR YORK, NE (LAT 40 50 29N LONG 097 32 21W)										
NOV 1988										
14.	1425	2.5	980	8.28	8.5	716	17.8	8.40	0.100	0.33
MAR 1989										
07...	1145	2.9	8850	7.43	0.0	737	--	9.82	0.180	0.59
MAY...										
31...	1245	2.2	870	7.57	18.5	724	4.9	2.38	0.320	1.1
405221097582100 LINCOLN CREEK NR AURORA, NE (LAT 40 52 21N LONG 097 58 21W)										
NOV 1988										
15.	0815	1.4	1130	7.80	6.5	705	4.4	0.420	0.070	0.23
MAR 1989										
07...	1015	E0.01	452	5.92	0.5	773	2.0	2.63	0.570	1.9
MAY...										
31...	0930	0.40	964	7.51	16.0	718	1.0	--	0.030	0.10
E Estimated value.										
405438097354800 LINCOLN CREEK NR YORK, NE (LAT 40 54 38N LONG 097 35 48W)										
NOV 1988										
14.	1345	--	513	7.98	7.0	715	10.4	--	<0.010	--
MAR 1989										
07...	1000	0.88	680	7.61	0.0	735	--	1.55	0.050	0.16
MAY...										
31...	1330	0.19	586	7.63	16.5	724	6.1	0.130	0.040	0.13
DATE		NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4) (00660)
405029097322100 BEAVER CREEK NR YORK, NE (LAT 40 50 29N LONG 097 32 21W)										
NOV 1988										
14.	8.50	<0.010	--	--	2.1	1.4	3.60	3.30	3.10	9.5
MAR 1989										
07...	10.0	0.800	1.0	0.0	0.80	0.80	3.90	3.50	3.50	11
MAY...										
31...	2.70	0.550	0.71	1.0	1.6	1.6	3.60	3.10	2.50	7.7
405221097582100 LINCOLN CREEK NR AURORA, NE (LAT 40 52 21N LONG 097 58 21W)										
NOV 1988										
15.	0.490	7.20	9.3	5.8	22	13	4.60	4.20	3.90	12
MAR 1989										
07...	3.20	3.40	4.4	0.0	--	0.60	2.20	1.90	1.50	4.6
MAY...										
31...	<0.100	6.90	8.9	0.0	11	6.4	--	--	2.80	8.6
405438097354800 LINCOLN CREEK NR YORK, NE (LAT 40 54 38N LONG 097 35 48W)										
NOV 1988										
14.	0.110	0.060	0.08	1.3	1.4	1.4	0.380	0.150	0.050	0.15
MAR 1989										
07...	1.60	3.20	4.1	2.0	5.4	5.2	1.00	0.770	0.710	2.2
MAY...										
31...	0.170	0.350	0.45	0.75	1.0	1.1	0.580	0.520	0.470	1.4

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00673)	CARBON ORGANIC TOTAL (MG/L AS C) (00680)	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)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE TOTAL (UG/L) (39630)
405029097322100 BEAVER CREEK NR YORK, NE (LAT 40 50 29N LONG 097 32 21W)									
NOV 1988									
14.	0.20	9.5	<0.10	<0.10	<0.1	<0.10	0.1	<0.1	0.10
MAR 1989									
07...	0.0	10	<0.10	<0.10	<0.1	<0.10	0.1	<0.1	0.30
MAY									
31...	0.60	12	<0.10	<0.10	<0.1	0.10	1.2	<0.1	0.90
405221097582100 LINCOLN CREEK NR AURORA, NE (LAT 40 52 21N LONG 097 58 21W)									
NOV 1988									
15.	0.30	25	0.10	<0.10	<0.1	0.10	3.7	<0.1	11
MAR 1989									
07...	0.40	54	<0.10	<0.10	<0.1	<0.10	0.3	<0.1	2.6
MAY									
31...	--	26	0.20	<0.10	<0.1	0.10	1.2	<0.1	32
405438097354800 LINCOLN CREEK NR YORK, NE (LAT 40 54 38N LONG 097 35 48W)									
NOV 1988									
14.	0.10	20	<0.10	<0.10	<0.1	<0.10	0.8	<0.1	4.7
MAR 1989									
07...	0.06	24	0.10	<0.10	<0.1	<0.10	1.2	<0.1	5.6
MAY									
31...	0.05	11	<0.10	<0.10	<0.1	<0.10	0.1	<0.1	2.0
DATE	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)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
405029097322100 BEAVER CREEK NR YORK, NE (LAT 40 50 29N LONG 097 32 21W)									
NOV 1988									
14.	<0.10	<0.10	<0.10	<0.1	<0.1	5.50	<0.100	21	0.14
MAR 1989									
07...	<0.10	<0.10	<0.10	<0.1	<0.1	7.40	1.10	76	0.60
MAY									
31...	0.20	0.40	<0.10	0.1	0.2	10.0	1.00	60	0.36
405221097582100 LINCOLN CREEK NR AURORA, NE (LAT 40 52 21N LONG 097 58 21W)									
NOV 1988									
15.	0.10	1.2	1.7	<0.1	0.1	11.0	0.900	33	0.12
MAR 1989									
07...	<0.10	0.20	0.20	<0.1	0.2	9.90	7.60	107	0.0
MAY									
31...	1.10	4.1	0.40	<0.1	1.3	71.0	12.0	39	0.04
405438097354800 LINCOLN CREEK NR YORK, NE (LAT 40 54 38N LONG 097 35 48W)									
NOV 1988									
14.	<0.10	0.40	0.20	<0.1	0.2	12.0	1.00	52	0.0
MAR 1989									
07...	<0.10	0.50	0.40	<0.1	0.1	1.70	0.800	44	0.10
MAY									
31...	<0.10	1.4	0.10	<0.1	0.1	1.50	0.200	10	0.01

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	E COLI MTEC MF WATER WHOLE TOTAL (COL / 100 ML) (31648)
06879900		BIG BLUE RIVER AT SURPRISE, NEBR. (LAT 41 06 05N LONG 097 18 35W)						
JUL 1989 18...	1300	3.7	488	7.44	21.5	--	6.3	800
06880000		LINCOLN CREEK NEAR SEWARD, NEBR. (LAT 40 54 57N LONG 097 08 43W)						
JUL 1989 17...	1440	35	516	7.94	22.0	725	5.0	2600
06880500		BIG BLUE RIVER AT SEWARD, NEBR. (LAT 40 54 05N LONG 097 05 55W)						
JUL 1989 17...	1505	49	520	7.75	22.5	726	5.0	2600
06880800		WEST FORK BIG BLUE RIVER NR DORCHESTER, NEBR. (LAT 40 43 52N LONG 097 10 38W)						
JUL 1989 18...	1450	352	433	7.74	22.0	722	6.3	5200
06881000		BIG BLUE RIVER NEAR CRETE, NEBR. (LAT 40 35 47N LONG 096 57 36W)						
JUL 1989 17...	1145	416	392	7.64	20.5	729	6.3	13000
06881200		TURKEY CREEK NEAR WILBER, NEBR. (LAT 40 28 48N LONG 097 00 43W)						
JUL 1989 17...	1120	E168	395	7.39	20.0	730	6.7	3400
		E Estimated value.						
06882000		BIG BLUE R AT BARNESTON NEBR (LAT 40 03 11N LONG 096 35 16W)						
JUL 1989 18...	1330	627	321	7.90	24.0	732	7.7	6200
06883000		LITTLE BLUE RIVER NEAR DEWEESE, NEBR. (LAT 40 19 58N LONG 098 04 20W)						
JUL 1989 17...	1020	3240	79	7.40	19.0	717	7.2	50000
06883940		BIG SANDY CR AT ALEXANDRIA, NE (LAT 40 14 06N LONG 097 23 20W)						
JUL 1989 17...	0850	190	268	7.70	19.5	723	8.1	8500
06884000		LITTLE BLUE RIVER NEAR FAIRBURY, NEBR. (LAT 40 06 54N LONG 097 10 13W)						
JUL 1989 17...	1545	1890	137	7.50	22.0	724	8.1	18000
06884025		LITTLE BLUE R AT HOLLENBERG, KS (LAT 39 58 48N LONG 097 00 16W)						
JUL 1989 18...	1040	2260	173	7.50	23.5	728	7.0	10000
400359097101400		ROSE CREEK NR FAIRBURY, NE (LAT 40 03 59N LONG 097 10 14W)						
JUL 1989 17...	1445	114	216	7.70	22.0	725	7.9	9200
400632096401600		BIG INDIAN CREEK NR WYMORE, NE (LAT 40 06 32N LONG 096 40 16W)						
JUL 1989 16...	1355	4.0	550	8.00	22.5	734	5.3	K640
		K Results based on colony count outside the acceptable range (non-ideal colony count).						

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	E. COLI MTEC MF WATER WHOLE TOTAL (COL / 100 ML) (31648)
401730096500200 CUB CREEK NR BEATRICE, NE (LAT 40 17 30N LONG 096 50 02W)								
JUL 1989 18...	0755	26	175	7.40	21.5	727	6.6	95000
403611098200600 WEST FK BIG BLUE R NR HASTINGS, NE (LAT 40 36 11N LONG 098 20 06W)								
JUL 1989 18...	1630	16	328	7.42	23.5	718	5.6	K790000
K Results based on colony count outside the acceptable range (non-ideal colony count).								
403749097503400 SCHOOL CREEK NR SUTTON, NE (LAT 40 37 49N LONG 097 50 34W)								
JUL 1989 18...	1135	17	124	7.30	21.5	720	4.9	K880
405029097322100 BEAVER CREEK NR YORK, NE (LAT 40 50 29N LONG 097 32 21W)								
JUL 1989 18...	1025	57	172	7.92	21.5	722	6.2	4700

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPE- CIFIC DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	DI- SYSTON TOTAL (UG/L) (39011)	PHORATE OTAL (UG/L) (39023)	PRO- PAZINE TOTAL (UG/L) (39024)	TRI- FLURA- LIN TOTAL RECOVER (UG/L) (39030)	PER- THANE TOTAL (UG/L) (39034)	DEF TOTAL (UG/L) (39040)	
404247097104000 BLUE R NAWQA EDGE OF FIELD, IRR. CORN (LAT 40 42 47N LONG 097 10 40W)											
JUN 1989											
25...	0845	64	7.03	18.0	--	--	0.50	<0.10	--	--	
AUG 27...	1345	70	7.28	--	<0.01	<0.01	<0.10	<0.10	<0.1	<0.01	
404432097111100 BLUE R NAWQA EDGE OF FIELD, NON-IRR. CORN (LAT 40 44 32N LONG 097 11 11W)											
JUN 1989											
25...	0945	46	7.01	18.0	--	--	0.40	<0.10	--	--	
AUG 27...	1330	33	6.66	--	<0.01	<0.01	<0.10	<0.10	<0.1	<0.01	
405128097032000 BLUE R NAWQA EDGE OF FIELD, MILO (LAT 40 51 28N LONG 097 03 20W)											
JUN 1989											
24...	1230	48	7.05	20.0	--	--	0.20	<0.10	--	--	
AUG 27...	1310	94	7.11	--	<0.01	<0.01	<0.10	<0.10	<0.1	<0.01	
405220097024000 BLUE R NAWQA EDGE OF FIELD, BEANS (LAT 40 52 20N LONG 097 02 40W)											
JUN 1989											
24...	1200	18	7.30	20.0	--	--	<0.10	<0.10	--	--	
AUG 27...	1255	56	7.73	--	--	--	<0.10	<0.10	--	--	
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)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	LINDANE TOTAL (UG/L) (39340)	CHLOR- DANE TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)
404247097104000 BLUE R NAWQA EDGE OF FIELD, IRR. CORN (LAT 40 42 47N LONG 097 10 40W)											
JUN 1989											
25...		<0.1	0.10	<0.1	<0.1	--	--	--	--	--	--
AUG 27...		<0.1	<0.10	<0.1	<0.1	<0.10	<0.001	<0.001	<0.1	<0.001	<0.001
404432097111100 BLUE R NAWQA EDGE OF FIELD, NON-IRR. CORN (LAT 40 44 32N LONG 097 11 11W)											
JUN 1989											
25...		<0.1	0.10	<0.1	<0.1	--	--	--	--	--	--
AUG 27...		<0.1	<0.10	<0.1	<0.1	<0.10	<0.001	0.001	<0.1	<0.001	<0.001
405128097032000 BLUE R NAWQA EDGE OF FIELD, MILO (LAT 40 51 28N LONG 097 03 20W)											
JUN 1989											
24...		<0.1	0.10	<0.1	<0.1	--	--	--	--	--	--
AUG 27...		<0.1	<0.10	<0.1	<0.1	<0.10	<0.001	<0.001	<0.1	<0.001	<0.001
405220097024000 BLUE R NAWQA EDGE OF FIELD, BEANS (LAT 40 52 20N LONG 097 02 40W)											
JUN 1989											
24...		<0.1	<0.10	<0.1	<0.1	--	--	--	--	--	--
AUG 27...		<0.1	<0.10	<0.1	<0.1	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DDT, TOTAL (UG/L) (39370)	DI- ELDRIN, TOTAL (UG/L) (39380)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	TOX- APHENE, TOTAL (UG/L) (39400)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, EPOXIDE TOTAL (UG/L) (39420)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	PCB, TOTAL (UG/L) (39516)
404247097104000 BLUE R NAWQA EDGE OF FIELD, IRR. CORN (LAT 40 42 47N LONG 097 10 40W)										
JUN 1989	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--
AUG 27...	<0.001	0.013	<0.001	<0.001	<0.01	<1	<0.001	<0.001	<0.01	<0.1
404432097111100 BLUE R NAWQA EDGE OF FIELD, NON-IRR. CORN (LAT 40 44 32N LONG 097 11 11W)										
JUN 1989	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--
AUG 27...	<0.001	0.007	<0.001	<0.001	<0.01	<1	<0.001	<0.001	<0.01	<0.1
405128097032000 BLUE R NAWQA EDGE OF FIELD, MILO (LAT 40 51 28N LONG 097 03 20W)										
JUN 1989	--	--	--	--	--	--	--	--	--	--
AUG 24...	--	--	--	--	--	--	--	--	--	--
AUG 27...	<0.001	0.001	<0.001	<0.001	<0.01	<1	<0.001	<0.001	<0.01	<0.1
405220097024000 BLUE R NAWQA EDGE OF FIELD, BEANS (LAT 40 52 20N LONG 097 02 40W)										
JUN 1989	--	--	--	--	--	--	--	--	--	--
AUG 24...	--	--	--	--	--	--	--	--	--	--
AUG 27...	--	--	--	--	--	--	--	--	--	--
DATE	MALA- THION, TOTAL (UG/L) (39530)	PARA- THION, TOTAL (UG/L) (39540)	DI- AZINON, TOTAL (UG/L) (39570)	METHYL PARA- THION, TOTAL (UG/L) (39600)	ATRA- ZINE, TOTAL (UG/L) (39630)	PICLO- RAM (TOR- DON) (ANDON) TOTAL (UG/L) (39720)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	MIREX, TOTAL (UG/L) (39755)	SILVEX, TOTAL (UG/L) (39760)
404247097104000 BLUE R NAWQA EDGE OF FIELD, IRR. CORN (LAT 40 42 47N LONG 097 10 40W)										
JUN 1989	--	--	--	--	51	<0.01	<0.01	<0.01	--	<0.01
AUG 25...	--	--	--	--	51	<0.01	<0.01	<0.01	--	<0.01
AUG 27...	<0.01	0.01	<0.01	<0.01	2.5	<0.10	<0.10	<0.10	<0.01	<0.10
404432097111100 BLUE R NAWQA EDGE OF FIELD, NON-IRR. CORN (LAT 40 44 32N LONG 097 11 11W)										
JUN 1989	--	--	--	--	47	<0.01	30	<0.01	--	<0.01
AUG 25...	--	--	--	--	47	<0.01	30	<0.01	--	<0.01
AUG 27...	<0.01	0.02	<0.01	<0.01	3.5	<0.01	0.48	<0.01	<0.01	<0.01
405128097032000 BLUE R NAWQA EDGE OF FIELD, MILO (LAT 40 51 28N LONG 097 03 20W)										
JUN 1989	--	--	--	--	26	<0.01	<0.01	<0.01	--	<0.01
AUG 24...	--	--	--	--	26	<0.01	<0.01	<0.01	--	<0.01
AUG 27...	<0.01	0.01	<0.01	<0.01	2.3	<0.10	<0.10	<0.10	<0.01	<0.10
405220097024000 BLUE R NAWQA EDGE OF FIELD, BEANS (LAT 40 52 20N LONG 097 02 40W)										
JUN 1989	--	--	--	--	0.50	<0.01	<0.01	<0.01	--	<0.01
AUG 24...	--	--	--	--	0.50	<0.01	<0.01	<0.01	--	<0.01
AUG 27...	--	--	--	--	0.40	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT NATIONAL WATER QUALITY ASSESSMENT (NAWQA) STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TOTAL TRI- THION (UG/L) (39786)	METHYL TRI- THION, TOTAL (UG/L) (39790)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	DRAIN- AGE AREA (SQ. MI) (81024)	CYAN- AZINE TOTAL (UG/L) (81757)	DICAMBA (MED- IBEN) (BAN- VEL D) TOTAL (UG/L) (82052)	2, 4-DP TOTAL (UG/L) (82183)	AME- TRYNE TOTAL (UG/L) (82184)	METRI- BUZIN WATER WHOLE TOT REC (UG/L) (82611)	METOLA- CHLOR WATER WHOLE TOT REC (UG/L) (82612)
404247097104000 BLUE R NAWQA EDGE OF FIELD, IRR. CORN (LAT 40 42 47N LONG 097 10 40W)										
JUN 1989	--	--	<0.10	0.04	6.8	<0.01	<0.01	<0.10	<0.1	13.0
AUG 25...	--	--	<0.10	0.04	6.8	<0.01	<0.01	<0.10	<0.1	13.0
AUG 27...	<0.01	<0.01	<0.10	0.04	0.10	<0.10	<0.10	<0.10	<0.1	0.3
404432097111100 BLUE R NAWQA EDGE OF FIELD, NON-IRR. CORN (LAT 40 44 32N LONG 097 11 11W)										
JUN 1989	--	--	1.10	0.06	0.10	26	<0.01	<0.10	<0.1	<0.1
AUG 25...	--	--	1.10	0.06	0.10	26	<0.01	<0.10	<0.1	<0.1
AUG 27...	<0.01	<0.01	<0.10	0.06	<0.10	0.06	<0.01	<0.10	0.1	<0.1
405128097032000 BLUE R NAWQA EDGE OF FIELD, MILO (LAT 40 51 28N LONG 097 03 20W)										
JUN 1989	--	--	<0.10	0.02	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
AUG 24...	--	--	<0.10	0.02	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
AUG 27...	<0.01	<0.01	<0.10	0.02	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
405220097024000 BLUE R NAWQA EDGE OF FIELD, BEANS (LAT 40 52 20N LONG 097 02 40W)										
JUN 1989	--	--	56.0	0.02	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
AUG 24...	--	--	56.0	0.02	<0.10	<0.01	<0.01	<0.10	<0.1	<0.1
AUG 27...	--	--	0.60	0.02	<0.10	--	--	<0.10	<0.1	<0.1

Low-flow investigations were made in certain areas of Nebraska during water year 1989 to obtain data on ground-water/surface-water relationships. These data may be used to help calibrate models of the hydrologic system. The numbers and letters for the location of these sites refer to: Township, Range, Section, placement within a given section.

MISSOURI RIVER BASIN

Santee Indian Reservation

Site	Location	Observation of zero flow or measured discharge in cubic feet per second November 2-3, 1988	Specific conductance in microsiemens per centimeter
Bazile Cr, 2.7 mi S of Center	30-5-14 CDCC	23.2	525
Little Bazile Cr, 2.5 mi S of Center	30-5-13 CBCC	15.2	601
Tributary to Little Bazile Cr, 2.4 mi S of Center	30-5-13 CBBD	0.28	544
Tributary to Bazile Cr, 0.2 mi S of Center	30-5-3 ADBD	0.84	539
Tributary to Bazile Cr, 3.0 mi SW of Center	30-5-7 DACA	0.24	945
Tributary to Bazile Cr, 2.0 mi SW of Center	30-5-9 BBCD	0.07	1197
Tributary to Bazile Cr, 0.5 mi W of Center	30-5-3 BDBA	0.63	866
Bazile Cr, 0.4 mi n of Center	31-5-34 DADB	36.4	577
Tributary to Bazile Cr, 2.0 mi W of Center	31-5-33 CCCA	No flow	---
Tributary to Bazile Cr, 0.6 mi NW of Center	31-5-34 BDDC	No flow	---
Tributary to Bazile Cr, 1.0 mi N of Center	31-5-34 AABD	No flow	---
Tributary to Bazile Cr, 1.3 mi N of Center	31-5-27 DBDD	No flow	---
Tributary to Bazile Cr, 1.4 mi N of Center	31-5-26 CBAD	No flow	---
Tributary to Bazile Cr, 1.7 mi N of Center	31-5-26 BCAB	No flow	---
Bazile Cr, 1.7 mi n of Center	31-5-26 BCAC	37.5	581
Tributary to Bazile Cr, 2.0 mi N of Center	31-5-26 BBBB	No flow	---
Tributary to Bazile Cr, 2.2 mi N of Center	31-5-22 CDAD	No flow	---
Tributary to Bazile Cr, 2.8 mi N of Center	31-5-22 AAD	No flow	---
Tributary to Bazile Cr, 3.0 mi N of Center	31-5-15 CDDD	No flow	---
Tributary to Bazile Cr, 3.7 mi N of Center	31-5-15 ADAA	No flow	---
Bazile Cr, 4.0 mi N of Center and 0.3 mi S of Howe Cr, confluence with Bazile Cr	31-5-15 ABBA	38.2	594
Sand Cr, 4.2 mi N of Center	31-5-10 CBBC	0.37	1042
Tributary to Howe Cr, 7.1 mi NE of mouth of Howe Cr	32-4-27 AABA	No flow	---
Tributary to Howe Cr, 7.0 mi NE of mouth of Howe Cr	32-4-26 BCCC	No flow	---
Tributary to Howe Cr (Hoboe Cr), 4.5 NW of Lindy	33-4-34 CCDD	No flow	---
Tributary to Howe Cr, 8.0 mi NE of mouth of Howe Cr	32-4-26 AAAA	No flow	---
Tributary to Howe Cr, 8.3 mi NE of mouth of Howe Cr	32-4-25 BBCE	0.21	1256
Howe Cr, 6.9 mi NE of mouth of Howe Cr	32-4-34 AABC	0.61	911
Tributary to Howe Cr, 6.5 mi NE of mouth of Howe Cr	31-4-3 ADAD	No flow	---
Howe Cr, 5.3 mi NE of mouth of Howe Cr	31-4-4 ABCC	2.4	767
Tributary to Howe Cr, 4.2 mi NE of mouth of Howe Cr	31-4-5 DBAA	0.56	769
Tributary to Howe Cr, 4.0 mi NE of mouth of Howe Cr	31-4-5 DBCB	0.10 est	Not collected
Tributary to Howe Cr, 4.0 mi NE of mouth of Howe Cr	31-4-5 CDAC	0.10 est	Not collected
Howe Cr, 4.0 mi E of mouth	31-4-8 BDAB	5.5	729
Tributary to Howe Cr, 3.9 mi E of mouth of Howe Cr	31-4-7 DAAD	0.3-0.4 est	Not collected
Tributary to Howe Cr, 3.8 mi NE of mouth of Howe Cr	31-4-7 AABA	No flow	---
Howe Cr, 3.0 mi E of mouth	31-4-7 BADA	7.7	663
Tributary to Howe Cr, 3.0 mi E of mouth of Howe Cr	31 4 7 BADB	1.3	659
Tributary to Howe Cr, 2.5 mi E of mouth of Howe Cr	31-5-13 AAAA	No flow	---
Tributary to Howe Cr, 1.7 mi E of mouth of Howe Cr	31-5-12 CCAA	No flow	---
Howe Cr, 1.7 mi E of mouth	31-5-12 CBDC	8.4	615
Tributary to Howe Cr, 1.7 mi E of mouth of Howe Cr	31-5-12 CBAC	No flow	---
Tributary to Howe Cr, 1.5 mi E of mouth of Howe Cr	31-5-12 CCCC	No flow	---
Tributary to Howe Cr, 1.0 mi E of mouth of Howe Cr	31-5-14 ABBA	No flow	---
Howe Cr, 0.75 mi from mouth and 4 mi N of Center	31-5-14 BBAA	7.0	668
Tributary to Bazile Cr, 4.7 mi NW of Center	31-5-10 BCBB	No flow	---
Bazile Cr, 5.5 mi N of Center	31-5-4 DAA	46.4	655
Tributary to Bazile Cr, 5.4 mi NW of Center	31-5-8 ABDD	No flow	---
Tributary to Bazile Cr, 5.5 mi N of Center	31-5-4 DAB	0.03 est	---
Tributary to Bazile Cr, 7.0 mi N of Center	32-5-28 CDCC	No flow	---
Bazile Cr, 7.0 mi N of Center	32-5-28 CCDA	45.4	668
Tributary to Bazile Cr, 7.0 mi N of Center	32-5-28 CCBD	No flow	---
Tributary to Bazile Cr, 8.0 mi N of Center	32-5-29 AACD	No flow	---

LOW-FLOW INVESTIGATIONS

MISSOURI RIVER BASIN

Santee Indian Reservation-continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second November 2-3, 1988	Specific conductance in microsiemens per centimeter
Bazile Cr, approx. 3.6 mi S of mouth	32-5-20 DBD	48.6	657
Tributary to Bazile Cr, 9.0 mi N of Center	32-5-20 ACBB	No flow	---
Tributary to Bazile Cr, 9.5 mi N of Center	32-5-17 CDBA	No flow	---
Bazile Cr near Niobrara, NE (Gaging Station)		38.2	652
Tributary to Lost Cr, 5.8 mi from mouth of Lost Cr	33-4-32 CCCD	No flow	---
Tributary to Lost Cr, 4.7 mi from mouth of Lost Cr	33-5-36 DDDD	No flow	---
Lost Cr, 5.5 mi from mouth	32-5-1 AABB	0.27	994
Lost Cr, 4.5 mi from mouth	32-5-2 ADCB	0.23	1022
Tributary to Lost Cr, 3.4 mi from mouth of Lost Cr	32-5-3 ADDA	No flow	---
Tributary to Lost Cr, 3.0 mi from mouth of Lost Cr	32-5-3 DABC	No flow	---
Tributary to Lost Cr, 2.2 mi from mouth of Lost Cr	32-5-3 CCCA	No flow	---
Tributary to Lost Cr, 2.0 mi from mouth of Lost Cr	32-5-4 DDDC	No flow	---
Lost Cr, 1.0 mi S from mouth	32-5-8 ADB	0.89	1484

MISSOURI RIVER BASIN

Omaha and Winnebago Indian Reservations

Site	Location	Observation of zero flow or measured discharge in cubic feet per second Nov. 28-30, 1988	Specific conductance in microsiemens per centimeter
S Omaha Creek	24-8-2 CCDD	0.30 est	763
Tributary to S Omaha Creek	25-8-35 CBCB	0.10 est	654
Tributary to S Omaha Creek	25-8-34 BBBB	0.10 est	765
Tributary to S Omaha Creek	25-8-34 BCBC	0.10 est	659
Tributary to S Omaha Creek	25-8-35 BCBA	0.20 est	699
Tributary to S Omaha Creek	25-8-28 ABBA	0.17	693
Tributary to S Omaha Creek	25-8-27 BAAA	0.10 est	683
S Omaha Creek	25-8-23 DCCD	1.8	699
Cow Creek	26-7-32 CBCB	0.16	802
Tributary to Cow Creek	26-7-29 BBBC	0.10	860
Cow Creek	26-7-33 BBBB	0.63	738
Tributary to Cow Creek	26-7-33 AAAB	0.09	827
Cow Creek	26-7-34 BCBC	0.40	840
Tributary to Cow Creek	26-7-34 BCCB	0.22	750
Cow Creek	25-7-2 BBBA	0.72	774
Tributary to Cow Creek	25-7-2 CCCC	0.20	733
Cow Creek	25-7-12 BAAA	1.7	721
Tributary to Cow Creek	25-7-12 CBBC	1.1	650
Tributary to Cow Creek	25-7-12 CDDD	No flow	---
Cow Creek	25-8-17 AABBB	1.6	716
Tributary to Cow Creek	25-8-17 ACBC	No flow	---
Tributary to Cow Creek	25-8-17 ABAC	0.10 est	878
Tributary to Cow Creek	25-8-17 AD	No flow	---
Cow Creek	25-8-16 BBBC	1.2	723
Tributary to Cow Creek	25-8-16 DDDA	No flow	---
Cow Creek	25-8-23 DBB	4.2	785
S Omaha Creek	25-8-11 DDDD	5.6	765
Tributary to N Omaha Creek	27-6-36 CCBC	No flow	---
N Omaha Cr	26-7-7 AABA	0.20	720
Tributary to N Omaha Creek	26-7-7 AABD	0.14	750
Tributary to N Omaha Creek	26-7-8 CDDC	No flow	---
Tributary to N Omaha Creek	26-7-8 AABD	0.76	766
Tributary to N Omaha Creek	27-7-33 BCBC	No flow	---
Tributary to N Omaha Creek	27-7-33 ABAD	No Flow	---
Tributary to N Omaha Creek	27-7-34 BAA	No flow	---
Tributary to N Omaha Creek	26-7-3 ABBA	0.90	685
Tributary to N Omaha Creek	26-7-3 ABAB	0.60	660
Tributary to N Omaha Creek	26-7-3 DDDD	1.6	688
N Omaha Cr	26-7-14 ABBB	2.9	730
Tributary to N Omaha Creek	26-7-22 BCBB	No flow	---
Tributary to N Omaha Creek	26-7-14 DDDC	0.52	688
N Omaha Creek	26-7-24 BABB	3.4	738
Tributary to N Omaha Creek	26-7-24 ABAA	0.45	731
N Omaha Creek	26-7-24 DDDD	5.9	748
N Omaha Creek	26-8-28 CDAA	8.0	756
Tributary to N Omaha Creek	26-8-33 DCCB	0.42	662
N Omaha Creek	25-8-3 BAAB	6.1	738
Tributary to N Omaha Creek	25-8-3 ABBA	No flow	---
Tributary to N Omaha Creek	25-8-3 ACCC	No flow	---
Tributary to N Omaha Creek	25-8-3 ACDA	0.01	1033
N Omaha Creek	25-8-2 ADDA	5.1	770
Tributary to Omaha Creek	26-8-36 BAAA	0.32	687
Tributary to Omaha Creek	26-8-22 BBBB	0.04	620
Tributary to Omaha Creek	26-8-22 BCCB	No flow	---
Tributary to Omaha Creek	26-8-22 DDCB	0.17	712
Tributary to Omaha Creek	26-8-25 CCBC	0.23	767

MISSOURI RIVER BASIN

Omaha and Winnebago Indian Reservations--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second Nov. 28-30, 1988	Specific conductance in microsiemens per centimeter
Morgan Creek	26-8-15 BAAB	0.35	628
Tributary to Morgan Creek	26-8-15 BABB	0.10	683
Morgan Creek	26-8-13 C	0.52	718
Tributary to Omaha Creek	26-9-8 DDDD	No flow	---
Tributary to Omaha Creek	26-9-17 CDD	No flow	---
Tributary to Omaha Creek	26-8-13 BDAA	0.20 est	733
Turtle Creek	26-8-3 ADCB	0.29	678
Tributary to Turtle Creek	26-8-11 BBBB	0.11	648
Tributary to Turtle Creek	26-8-11 BBAB	No flow	---
Turtle Creek	26-8-12 BBCB	0.39	722
Tributary to Omaha Creek	26-9-6 BDAA	0.53	756
Tributary to Omaha Creek	26-8-1 CAAB	0.62	785
Tributary to Omaha Creek	27-8-35 ADDB	0.31	779
Omaha Cr at N boundary of Winnebago Res	27-8-35 AACA	19.4	720
Omaha Cr at Homer (Gaging Station)		18.0	Not collected
Omaha Creek	27-9-7 ADCC	18.3	774
Honey Creek	27-9-35 BACD	No flow	---
Big Bear Creek	29-9-1 CBDC	No flow	---
Tributary to Missouri River	26-9-13 ACAA	No flow	---
Horsehead Creek	25-9-2 ABBA	No flow	---
Horsehead Creek	25-9-12 CDDD	0.14	982
Tributary to Horsehead Creek	25-9-11 BBBC	No flow	---
Tributary to Horsehead Creek	25-9-13 ABAA	0.09	900
Horsehead Creek	25-10-18 ABCC	0.04	992
S Blackbird Creek	24-9-8 BBBB	No flow	---
S Blackbird Creek	24-9-17 BAAA	0.01 est	Not collected
S Blackbird Creek	24-9-29 ABAA	0.70	744
S Blackbird Creek	24-9-32 ABBA	0.89	652
Tributary to S Blackbird Creek	24-9-32 CCBB	0.10 est	Not collected
S Blackbird Creek	24-9-35 BBCC	4.6	652
Tributary to S Blackbird Creek	24-9-23 CCBC	0.10 Est	Not collected
Tributary to S Blackbird Creek	24-9-23 BBBC	No flow	---
Tributary to S Blackbird Creek	24-9-26 BABA	0.54	653
S Blackbird Creek	24-10-7 CCCC	6.6	692
S Blackbird Creek	25-10-30 CDDC	10.1	666
N Blackbird Creek	26-9-16 BDBD	No flow	---
N Blackbird Creek	26-9-21 AABA	0.10 est	Not collected
N Blackbird Creek	26-9-22 CDBD	0.34	618
N Blackbird Creek	25-9-3 BAAB	0.62	618
N Blackbird Creek	25-9-15 DBCB	2.0	723
Tributary to N Blackbird Creek	25-9-8 BACC	No flow	---
Tributary to N Blackbird Creek	25-9-16 BBAA	0.20 est	Not collected
Tributary to N Blackbird Creek	25-9-15 DCCC	0.36	729
Tributary to N Blackbird Creek	25-9-20 BACC	No flow	---
Tributary to N Blackbird Creek	25-9-20 AABA	0.30 est	Not collected
Tributary to N Blackbird Creek	25-9-22 CBCB	0.85	665

MISSOURI RIVER BASIN

Omaha and Winnebago Indian Reservations--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second Nov. 28-30, 1988	Specific conductance in microsiemens per centimeter
N Blackbird Creek	25-9-26 CAAA	2.9	671
Tributary to N Blackbird Creek	25-9-32 CBCB	No flow	---
Tributary to N Blackbird Creek	25-9-33 CCBB	0.20 est	Not collected
Tributary to N Blackbird Creek	25-9-34 CCBC	1.7	669
N Blackbird Creek	25-10-30 CBBD	7.8	666
Blackbird Creek	25-10-29 DBCB	18.3	660
Blackbird Creek	25-10-34 CDAB	15.6	667
Wood Creek	24-10-26 CCAB	No flow	---
Wood Creek	24-10-28 AABC	0.10	759
Wood Creek at Decatur	24-10-26 DCDC	0.32	856
Logan Creek	26-5-11 BBBB	67.7	848
Tributary to Logan Creek	27-5-35 AABA	0.05	787
Tributary to Logan Creek	26-5-11 AAAB	0.01	828
Coon Creek	26-5-15 ABBC	1.4	829
Logan Creek	26-5-14 CBDD	122	832
Tributary to Logan Creek	26-5-35 CBCC	No flow	---
Logan Creek	25-6-6 AB BB	40.1 (ice)	930
Tributary to Logan Creek	25-5-11 CCDC	No flow	---
Tributary to Logan Creek	25-5-1 CCCC	0.02	Not collected
Tributary to Logan Creek	25-6-6 BCBB	0.05	1218
Rattlesnake Creek	25-5-23 CCBB	0.02	1830
Rattlesnake Creek	25-6-18 CCDD	0.04	1547
Tributary to Rattlesnake Creek	25-6-18 BCCB	No flow	---
Rattlesnake Creek	25-6-16 BBBB	0.47	1081
Middle Creek	27-6-33 AB BB	0.50	965
Middle Creek	26-6-10 AAB B	1.0	1142
Tributary to Middle Creek	26-6-11 DDAA	Trace	Not collected
Tributary to Middle Creek	26-6-11 CDCD	Trace	Not collected
Tributary to Middle Creek	26-6-9 CBCB	Trace	Not collected
Tributary to Middle Creek	26-6-9 AB BB	No flow	---
Tributary to Middle Creek	26-6-9 CDDD	No flow	---
Tributary to Middle Creek	26-6-14 BBBC	0.08	1019
Tributary to Middle Creek	26-6-23 CCBB	0.34	811
Middle Creek	26-6-26 ABAA	1.5	1019
Tributary to Middle Creek	25-6-11 AAAD	No flow	---
Tributary to Middle Creek	25-6-2 DDCD	0.01	Not collected
Middle Creek	25-6-10 ADDA	1.8	920
Middle Creek	25-6-15 CCBD	0.57	994
Tributary to Logan Creek	25-6-36 DDC	0.28	1028
Tributary to Logan Creek	25-6-22 CDBD	No flow	---
Tributary to Logan Creek	25-6-22 DDCD	0.08	815
Logan Cr at Pender (Gaging Station)	25-6-26	33.0	870
Old Logan Creek Channel	25-6-36 DDCC	No flow	---
Stage Creek	24-6-1 BABA	No flow	---
Stage Creek	24-7-7 AACB	No flow	---
Tributary to Logan Creek	25-7-29 BAAA	0.03	780
Tributary to Logan Creek	24-7-5 AAB B	0.11	797
Tributary to Logan Creek	24-7-9 AB BB	0.16	694

MISSOURI RIVER BASIN

Omaha and Winnebago Indian Reservations--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second Nov. 28-30, 1988	Specific conductance in microsiemens per centimeter
Logan Creek	24-7-10 CCCB	62.8	Not collected
Tributary to Logan Creek	24-7-22 BECB	0.33	774
Logan Creek	24-7-25 CBCB	52.1	865
Big Slough	25-7-21 AABA	0.07	737
Big Slough	25-7-26 CCBB	0.21	734
Big Slough	24-8-8 ABAA	No flow	---
Big Slough	24-8-27 ABAA	0.90	635
Big Slough	24-8-27 AADD	1.1	666
Big Slough	24-8-34 ABAB	1.0	660
Logan Creek	24-8-34 AADA	64.8	861

KANSAS RIVER BASIN
Republican River and tributaries

Site	Location	Observation of zero flow or measured discharge in cubic feet per second March, 1989	Specific conductance in microsiemens per centimeter
Arikaree River	41-1-30 CDDC	4.5	713
Arikaree River	41-1-28 CAAA	8.6	744
N.F. Republican River	43-1-4 ABCC	42.4	356
Tributary to N.F. Republican River	43-1-3 BDAD	No flow	---
Bloom Creek	43-2-27 CDBA	No flow	---
Bloom Creek	43-2-35 CCBB	0.92	344
N.F. Republican R above Haigler Canal	43-1-2 ADBC	45.1	359
Haigler Canal at Div	43-1-2 ADBC	7.6	360
Tributary to Haigler Canal	43-1-1 CACC	No flow	---
Tributary to Haigler Canal	42-1-7 BD	0.21	967
Haigler Canal	42-1-6 CCBC	No flow	---
Tributary to Haigler Canal	42-1-7 CDCC	No flow	---
Haigler Canal	42-1-9 CBBB	No flow	---
Tributary to Laird Canal	42-2-36 ABAA	No flow	---
Laird Canal	42-1-6 BBCB	No flow	---
Rush Creek	43-2-13 CDAA	No flow	---
Rush Creek	42-1-30 BDDD	1.2	317
Rush Creek	42-1-5 DACB	1.6	353
Tributary to N.F. Republican River	42-1-4 ADAD	No flow	---
N.F. Republican River	42-1-10 CABA	55.8	396
Tributary to N.F. Republican River	42-1-15 AAAA	Trace	---
N.F. Republican River	41-1-28 ABDC	67.1	444
N.F. Republican River	41-1-27 BCBC	67.5	547
Sullivan Draw	41-1-33 AACD	No flow	---
Porter Canyon	41-1-36 BBAA	No flow	---
Sand Canyon	40-1-30 CDBA	No flow	---
Buffalo Creek	41-2-8 ABCC	No flow	---
Buffalo Creek	41-2-35 BAAA	6.4	318
Canal above Buffalo Creek gage	40-1-17 CBCC	1.4	341
Buffalo Creek (gage)	40-1-20 CABB	6.1	331
Trail Canyon	40-1-29 DABB	No flow	---
Colter Canyon	40-1-27 BDBB	No flow	---
Republican River	39-1-20 CCDA	82.8	536
Hay Canyon	39-1-29 BAAC	No flow	---
Rock Creek	40-29-13 CDAC	0.80	Not collected
Rock Creek	39-2-30 CCBD	6.6	313
Rock Creek	39-2-31 ACBB	10.0	300
Rock Creek (gage)	39-1-21 ACBA	11.2	355
Tributary to Rock Creek	39-1-21 AACB	No flow	---

KANSAS RIVER BASIN

Republican River and tributaries--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second March, 1989	Specific conductance in microsiemens per centimeter
Nesbit Creek	39-1-26 AACA	No flow	---
Horse Creek	39-1-11 BBAB	0.20	530
Horse Creek	39-1-23 AACA	0.56	503
Republican River	38-1-29 ADAD	90.0	513
Republican R near Benkelman (gage)	37-1-19 CDAC	78.2	Not collected
Spring Creek	38-2-27 ABBA	No flow	---
Spring Creek	38-2-34 AABA	0.13	658
Spring Creek	38-1-11 AABA	0.31	861
Spring Creek	37-1-19 BDBA	0.18	966
S.F. Republican River (gage)	37-1-31 BDDC	20.9	Not collected
Jones Canyon	37-1-10 CCCD	No flow	---
Vogley Canyon	37-1-11 BCB	No flow	---
Cheyenne Canyon	37-1-2 BCAA	No flow	---
Blackwater Canyon	37-2-36 CCBC	No flow	---
Hickman Canyon	36-2-31 BACD	No flow	---
Republican R at Max	36-2-33 BBCB	107	599
Boston Canyon	36-2-33 BACB	No flow	---
Indian Creek	37-2-6 DAAD	0.10	590
Indian Creek	37-2-9 BBBB	0.96	643
Rock Canyon	37-2-12 DCBC	No flow	---
Indian Creek	37-2-12 DCBB	2.9	608
Indian Creek	36-2-17 DADD	3.2	602
Indian Creek	36-2-22 CBAA	3.7	618
Burntwood Creek	35-1-18 CBCD	No flow	---
Unnamed Creek	35-2-28 DDCC	No flow	---
Muddy Creek	37-4-35 BABB	No flow	---
Muddy Creek	36-3-7 CCBC	No flow	---
Muddy Creek	36-3-20 ABAB	0.08	450
Muddy Creek	36-3-27 BCBB	0.63	436
Muddy Creek	36-2-1 CBCB	0.68	464
Milken Canyon	35-3-18 ABAB	No flow	---
Unnamed Canyon	35-3-20 AABB	No flow	---
E Muddy Creek	35-2-4 BAAD	0.55	696
Muddy Creek	35-2-14 ABCB	1.7	702
Republican River at Stratton (gage)	35-2-13 BDCB	106	Not collected
Frenchman Creek (Colorado)	43-7-18 BBCE	No flow	---
Frenchman Creek (Colorado)	43-7-21 CBBC	No flow	---

KANSAS RIVER BASIN

Republican River and tributaries--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second March, 1989	Specific conductance in microsiemens per centimeter
Frenchman Creek	42-7-26 ABDA	No flow	---
Tributary to Frenchman Creek	42-7-26 DBDD	No flow	---
Frenchman Creek	41-7-30 CCBC	No flow	---
Frenchman Creek	41-7-32 BBAA	No flow	---
Frenchman Creek	41-7-33 CBBC	No flow	---
Frenchman Creek	41-6-4 AAAB	No flow	---
Frenchman Creek	41-6-11 BCBC	No flow	---
Frenchman Creek	41-6-11 DDDD	No flow	---
Mariaville Canal	41-6-14 AAAA	No flow	---
Frenchman Creek	40-6-18 DBBB	2.2 est	Not collected
Waln Slough	40-6-17 BCCB	No flow	---
Frenchman Creek	40-6-21 BBBC	4.1	370
McGuire Slough	40-6-21 BCBB	7.6	434
Frenchman Creek	40-6-22 BCBB	5.2	388
Champion Canal Headgate	40-6-23 CBCC	6.0	385
Frenchman Creek	40-6-23 CBCB	0.65	388
Frenchman Creek	39-6-19 CB BB	6.3	379
Davidson Branch	39-6-20 BADD	0.05	450
Frenchman Creek	39-6-21 BBCC	10.9	Not collected
Sand Creek	39-7-19 BBCC	No flow	---
Sand Creek	39-7-19 DDDD	No flow	---
Sand Creek	39-7-32 AABA	No flow	---
Sand Creek	39-7-33 CBBC	No flow	---
Sand Creek	39-6-16 AAB B	No flow	---
Sand Creek	39-6-22 DADD	0.24	442
Frenchman Creek	39-6-23 CBCC	14.2	398
Foerster Branch	39-6-26 BCCC	No flow	---
Frenchman Creek	38-6-32 CCCC	23.2	417
Frenchman Creek near Imperial	38-5-3 BCBD	26.4	404
Frenchman Creek (gage)	37-5-10 BB CA	0.33	440
Tributary to Frenchman Creek	37-5-10 BDBB	No flow	---
Tributary to Frenchman Creek	37-5-10 BDAB	No flow	---
Frenchman Creek	37-5-3 DDAD	4.6	432
Frenchman Creek	37-5-1 CDCB	7.0	425
Frenchman Creek	36-5-8 BB CD	10.1	415
Tributary to Frenchman Creek	36-5-3 CACD	No flow	---
Tributary to Frenchman Creek	36-5-10 ABDD	No flow	---
Frenchman Creek	36-5-11 ACBA	17.6	408
Tributary to Frenchman Creek	36-5-12 DBBC	No flow	---

KANSAS RIVER BASIN

Republican River and tributaries--continued

Site	Location	Observation of zero flow or measured discharge in cubic feet per second March, 1989	Specific conductance in microsiemens per centimeter
Frenchman Creek	36-5-12 DDBA	18.0	418
Horse Canyon Creek	35-5-17 ACCA	No flow	---
Frenchman Creek	35-5-22 BABA	22.4	428
Frenchman Creek	35-5-23 ADCD	24.9	434
Frenchman Creek	34-5-29 BBCB	22.1	440
Stinking Water Creek	37-10-10 BCDC	No flow	---
Stinking Water Creek	36-9-6 BBCC	No flow	---
Stinking Water Creek	36-9-19 ABAA	No flow	---
Stinking Water Creek	36-9-32 BBBA	No flow	---
Stinking Water Creek	36-8-6 BAAA	No flow	---
Tributary to Stinking Water Creek	36-8-6 AABB	No flow	---
Stinking Water Creek	36-8-5 CBCB	No flow	---
Stinking Water Creek	36-8-16 CBBC	0.80	572
Stinking Water Creek	36-8-27 CBCB	3.8	508
Stinking Water Creek	36-7-2 CCCB	5.3	470
Cliff Dwellers Canyon Creek	36-7-11 ABAA	No flow	---
Stinking Water Creek	36-7-26 AAAA	5.6	458
Stinking Water Creek	36-6-1 CDCD	7.0	458
Spring Creek	40-10-31 BAA	No flow	---
Spring Creek	40-9-24 DBBD	No flow	---
Spring Creek	39-9-29 CCBC	No flow	---
Spring Creek	39-8-4 BBAB	No flow	---
Spring Creek	38-7-4 DDDA	1.0 est	603
Spring Creek	38-7-13 CBBC	1.5	430
Spring Creek	37-7-36 BBCA	3.7	469
Spring Creek	36-7-33 CCCB	6.6	442
Spring Creek	36-6-11 AADD	10.4	471
Stinking Water Creek	36-6-12 ADDD	20.1	458
Stinking Water Creek	36-6-27 BDDB	21.1	462
Tributary to Stinking Water Creek	35-6-36 DDDD	0.15 est	Not collected
Stinking Water Creek	34-5-5 CCBC	22.9	448
Blackwood Creek	35-10-35 CCCB	No flow	---
Blackwood Creek	34-9-32 ABAB	No flow	---
Red Willow Creek	35-11-17 CCCB	No flow	---
Red Willow Creek	35-11-26 ABCB	No flow	---
Red Willow Creek	34-10-11 BBCC	No flow	---
Red Willow Creek	34-10-12 BBBD	No flow	---
Red Willow Creek	34-10-24 AAAB	No flow	---
Red Willow Creek	33-10-30 AABB	Marsh	---

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403403098244001. Local number 7N-10W-23AB.

AQUIFER.--Sand and gravel deposits of Pleistocene age.

DATUM.--Altitude of land-surface datum is 1,927 ft. Measuring point: Top of casing 1.0 ft above land-surface datum.

PERIOD OF RECORD.--August 1934 to October 1938; August 1948 to December 1950; and January 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 99.95 ft below land-surface datum, Jan. 22, 1935;
lowest, 128.82 ft below land-surface datum, July 10, 1981.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	117.50	116.66	115.98	117.40	115.58	115.53	116.77	117.08	115.26	116.05	120.86	120.63
10	117.33	116.64	116.00	115.74	115.52	117.04	115.20	117.25	115.23	121.17	123.43	118.10
15	117.15	116.38	116.14	115.73	115.65	115.40	115.15	116.22	115.30	119.39	123.24	117.66
20	116.96	116.41	116.07	115.92	115.37	115.36	115.37	115.30	115.96	116.83	122.11	117.48
25	116.98	116.26	115.81	115.65	115.40	115.35	115.16	116.07	117.84	121.60	122.96	117.36
EOC	116.76	116.31	115.74	115.57	115.47	115.25	115.25	117.78	115.90	121.49	120.86	117.27

WTR YEAR 1989 MAX 114.94 APR 8, 1989 MIN 123.53 AUG 9, 1989

414958100061501. Local number 22N-24W-33CA.

AQUIFER.--Sand and gravel deposits, undifferentiated, of Quaternary age.

DATUM.--Altitude of land-surface datum is 2,618 ft. Measuring point: Top of casing 1.40 ft above land-surface datum.

PERIOD OF RECORD.--December 1934 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.04 ft below land-surface datum, Mar. 8, 1950; lowest, 6.97 ft below land-surface datum, Aug. 8, 1951.

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL
OCT	4	3.35	DEC	29	3.27	FEB	24	3.02	APR	19	3.25	JUN	12	3.66
NOV	1	3.33	JAN	25	3.16	MAR	22	2.71	MAY	15	3.21	JUL	12	4.25
NOV	29	3.20										AUG	9	4.75
												SEP	6	4.37

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.

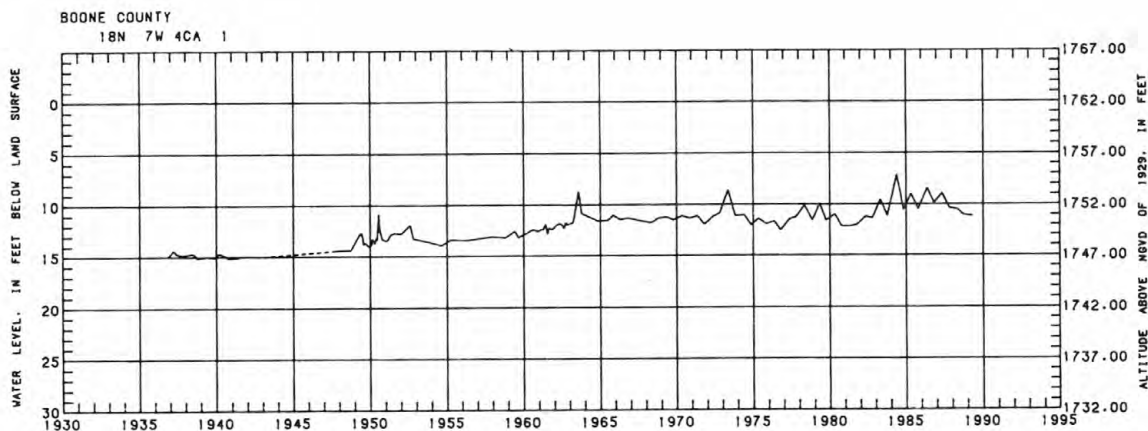
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 22 ft, screened 20 to 22 ft.

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 1988 TO SEPTEMBER 1989			
DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	11.06	MAY 3	11.13



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.

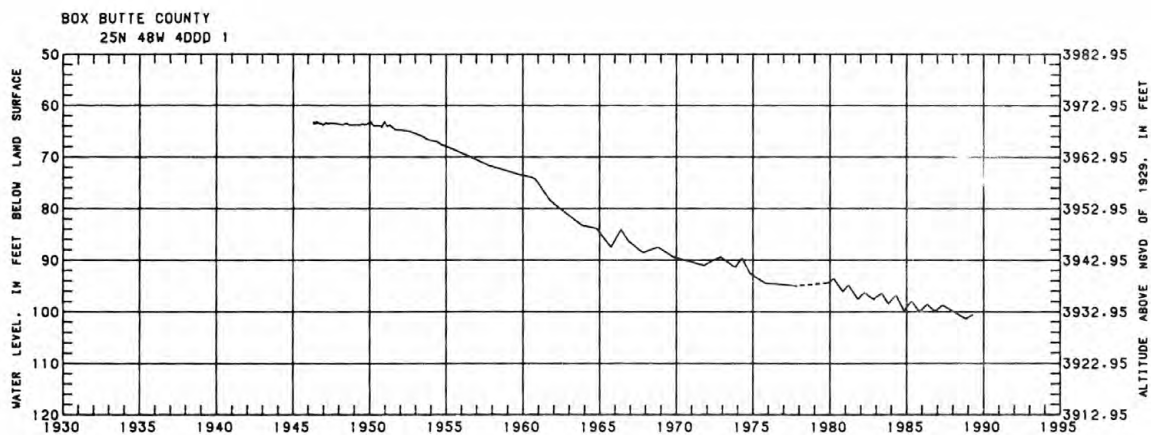
DATUM.--Altitude of land-surface datum is 4,032.95 ft. Measuring point: Top of pipe 2.00 ft above land-surface datum.

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, 100.65 ft below land-surface datum, Apr. 12, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989	
DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL
NOV 2	101.38	APR 12	100.65						



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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	31.18	31.02	31.19	31.40	31.74	32.01	32.23	32.50	32.78	32.65	33.29	33.35
10	31.12	31.06	31.24	31.46	31.78	32.02	32.24	32.54	32.78	32.86	33.31	33.36
15	31.06	31.00	31.34	31.54	31.86	32.06	32.25	32.59	32.70	33.01	33.32	33.32
20	31.04	31.08	31.29	31.61	31.79	32.16	32.28	32.67	32.56	33.07	33.48	33.25
25	31.06	31.05	31.34	31.64	31.93	32.16	32.38	32.72	32.56	33.14	33.35	33.35
EOM	31.02	31.14	31.39	31.68	31.95	32.20	32.45	32.78	32.61	33.24	33.35	33.33

WTR YEAR 1989 MAX 30.91 NOV 3, 1988 MIN 33.53 AUG 8, 1989

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	22.47	22.10	22.01	21.89	21.94	21.97	21.82	21.77	21.71	21.38	22.56	22.41
10	22.36	22.10	21.98	21.92	21.90	21.86	21.86	21.79	21.70	21.41	23.23	22.26
15	22.25	22.04	22.08	21.93	21.95	21.86H	21.75	21.73	21.69	21.45	23.41	22.07
20	22.20	22.07	22.00	21.96	21.80	21.90	21.73	21.77	21.64	21.25	23.56	21.91
25	22.19	22.03	21.98	21.90	21.83	21.81	21.74	21.74	21.62	21.21	23.00	21.78
EOM	22.13	22.04	21.91	21.87	.....	21.84	21.80	21.76	21.50	22.23	22.54	21.67

WTR YEAR 1989 MAX 21.05 JUL 26, 1989 MIN 23.71 AUG 18 AND 19, 1989

H TAPE MEASUREMENT

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.

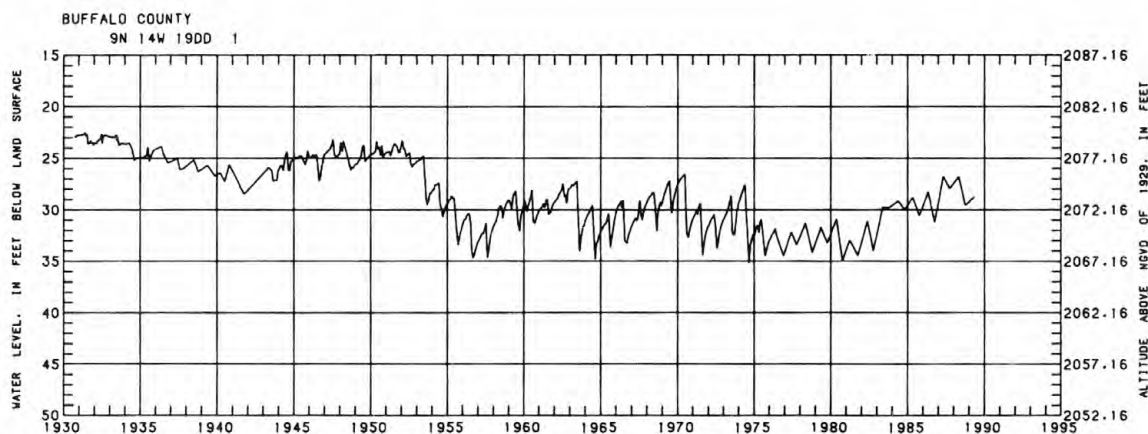
DATUM.--Altitude of land-surface datum is 2,102.16 ft. Measuring point: Hole in pump base 0.70 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989	
DATE	WATER LEVEL
OCT 7	29.57
MAY 9	28.75



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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	.....	102.55	101.12	99.99	99.71	99.13	98.90	.....	101.58	.....	170.51	135.62
10	.....	.....	100.84	99.87	99.55	99.09	99.02	104.55	.....	150.01H	171.95	.....
15	105.81	101.86	100.62	99.79	99.41	98.88	98.89	.....	103.45H	159.45	173.09	.....
20	104.84	.....	100.18	99.80	99.21	99.02	98.89	103.14	.....	.....	.....	.....
25	103.97	101.21	100.25	99.59	99.20	98.85	99.84	100.95	.....	158.94	.....	.....
EOM	103.41	101.10	100.11	99.41	99.10	98.90	.....	100.66	.....	166.82	.....	.....

WTR YEAR 1989 MAX 98.74 APR 17, 1989 MIN 173.62 AUG 13, 1989

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.

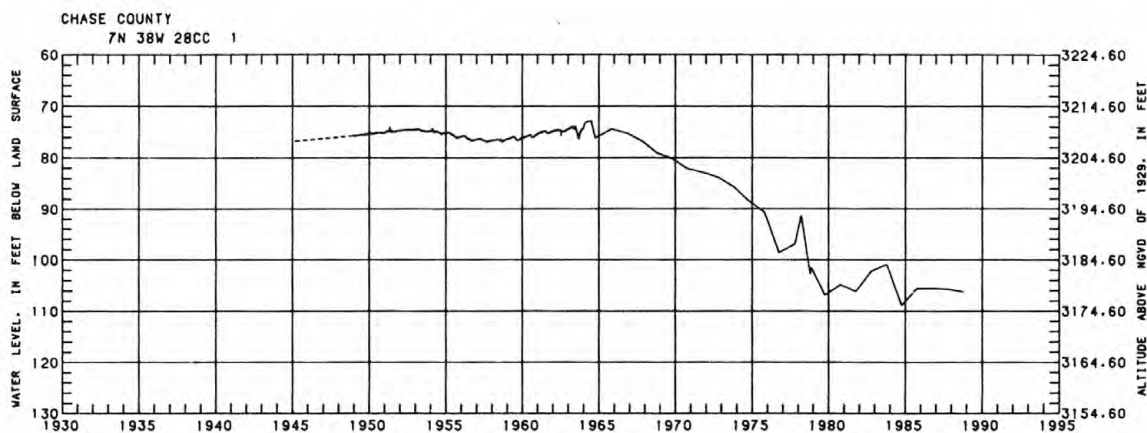
DATUM.--Altitude of land-surface datum is 3,284.6 ft. Measuring point: Top of casing 0.30 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989	
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	106.24						



GROUND-WATER LEVELS

359

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.

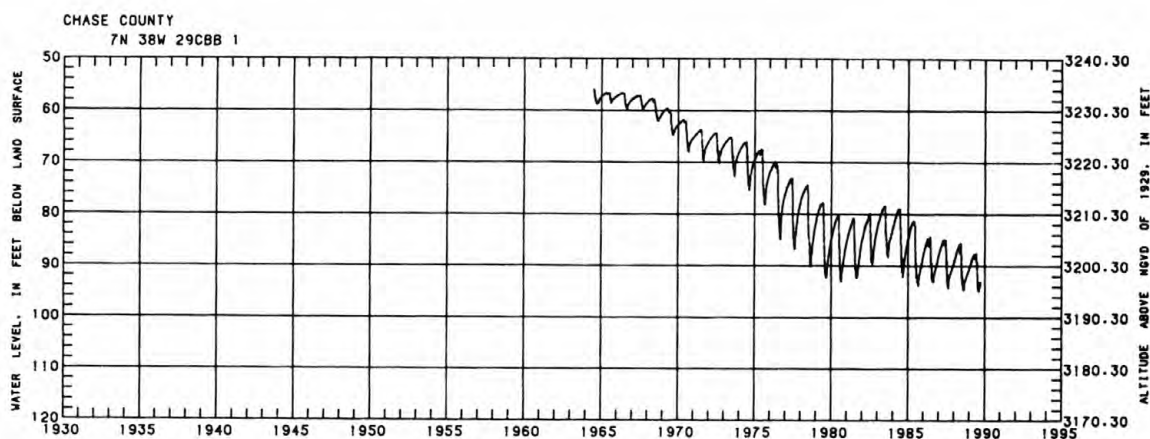
PERIOD OF RECORD.--June 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 55.87 ft below land-surface datum, July 4, 1964; lowest, 95.01 ft below land-surface datum, Aug. 11, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	92.48	91.75	90.87	90.23	89.36	88.89	87.99	88.14	88.05	92.03	93.32	94.10
10	92.37	91.68	90.84	90.06	89.24	88.51	87.89	88.63	87.43	93.06	94.91	93.78
15	92.22	91.51	90.94	90.05	89.27	88.52	87.60	88.09	87.61	92.81	93.77	93.46
20	92.09	91.31	90.80	89.99	89.00	88.48	87.82	87.84	89.15	94.03	93.48	93.35
25	92.03	91.33	90.50	89.74	88.86	88.15	87.61	87.51	89.39	94.53	93.31	93.18
EOM	91.85	91.17	90.30	89.58	88.91	88.16	88.17	87.83	89.05	93.88	93.87	92.97

WTR YEAR 1989 MAX 87.26 JAN 11 AND 12, 1989 MIN 95.01 AUG 11, 1989



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.

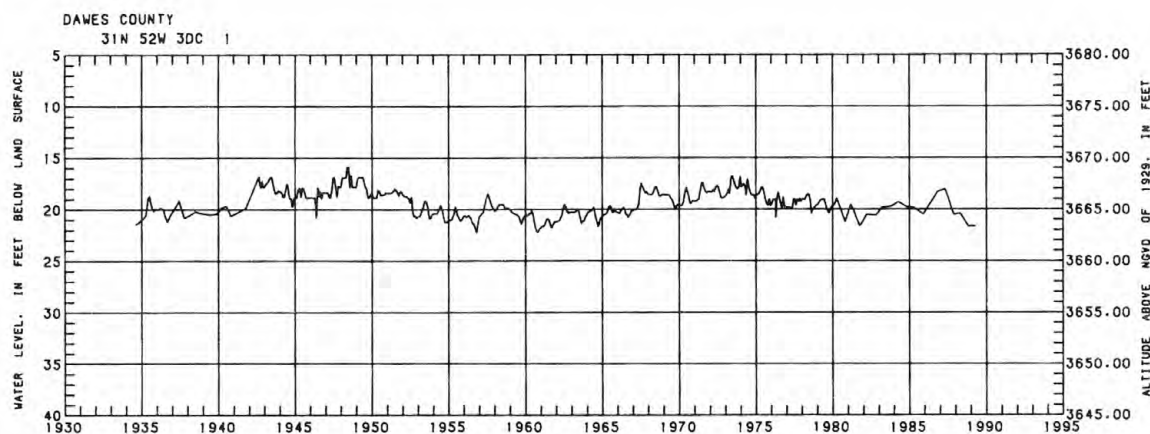
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 39 ft, casing perforated below water table.

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, 22.28 ft below land-surface datum, Oct. 31, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989	
DATE	WATER LEVEL
NOV 7	21.68
APR 14	21.63



DAWSON COUNTY

405250099445501. Local number 10N-21W-18DDD.

LOCATION.--Lat 40°52'50", long 99°44'55", SE1/4SE1/4SE1/4 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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	10.04	10.62	10.99	11.36	11.67	11.98	12.10	12.36	11.99	11.34	10.85	9.42
10	10.10	10.70	11.12	11.41	11.70	11.92	12.14	12.40	11.80	12.42	10.50	9.65
15	10.23	10.77	11.22	11.49	11.80	11.99	12.13	12.42	11.70	16.39	15.54	9.59
20	10.30	10.85	11.23	11.56	11.78	12.06	12.16	12.50	11.78	16.07	15.54	9.72
25	10.42	10.92	11.28	11.58	11.82	12.02	12.24	12.51	11.88	16.20	14.82	9.85
EOM	10.49	10.99	11.31	11.61	.....	12.08	12.31	12.30	11.52	12.10	9.69	9.95

WTR YEAR 1989 MAX 9.25 SEP 12, 1989 MIN 16.39 JUL 15, 1989

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 1988 TO SEPTEMBER 1989											
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	5.66	APR 22	4.99								

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	18.51	18.05	17.76	17.47	17.26	17.09	16.94	17.28	17.83	17.44	19.00	19.82
10	18.42	18.00	17.69	17.43	17.24	17.06	16.93	17.46	17.60	17.75	19.18	19.88
15	18.35	17.94	17.66	17.39	17.21	17.04	16.89	17.62	17.52	18.04	19.31	19.54
20	18.27	17.89	17.61	17.38	17.16	17.01	16.87	17.76	17.45	18.27	19.41	19.33
25	18.20	17.84	17.57	17.33	17.15	16.98	17.11	17.61	17.42	18.53	19.53	19.19
EOM	18.11	17.79	17.52	17.29	17.13	16.97	17.16	17.67	17.38	18.84	19.72	19.08

WTR YEAR 1989 MAX 16.85 MAR 22, 1989 MIN 19.88 SEP 10, 11, AND 12, 1989

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, 98.69 ft below land-surface datum, Sept. 14, 1984.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	96.32	96.13	95.60	95.50	94.95	95.09	94.78	94.72	94.50	95.15	96.93	97.46
10	96.22	96.14	95.81	95.40	94.93	94.85	94.80	94.81	94.64	95.46	97.07	97.47
15	96.24	96.06	95.90	95.36	94.20	95.05	94.62	94.73	94.74	95.79	97.27	97.41
20	96.17	96.00	95.89	95.46	94.90	95.02	94.55	94.70	94.83	95.88	97.32	97.40
25	96.32	95.97	95.55	94.92	94.94	94.85	94.68	94.62	95.02	96.18	97.38	97.50
EOM	96.10	95.84	95.44	.....	95.08	94.81	94.71	94.66	95.10	96.60	97.42	97.36

WTR YEAR 1989 MAX 94.17 APR 9, 1989 MIN 97.60 AUG 27, 1989

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	10.31	10.52	10.76	11.03	11.39	11.63	11.77	12.02	12.26	11.41	11.29	10.95
10	10.19	10.67	10.77	11.10	11.41	11.61	11.83	12.02	12.37	11.12	11.53	8.74
15	10.20	10.64	10.90	11.20	11.49	11.56	11.77	12.05	12.44	11.11	11.72	8.41
20	10.35	10.79	10.83	11.31	11.39	11.64	11.83	12.09	12.48	10.99	11.87	8.37
25	10.42	10.58	10.97	11.31	11.51	11.63	11.81	12.06	12.58	11.00	12.05	8.49
EOM	10.53	10.67	10.98	11.25	11.53	11.74	11.97	12.18	12.00	11.14	11.99	8.51

WTR YEAR 1989 MAX 8.37 SEP 20, 1989 MIN 12.58 JUN 24 AND 25, 1989

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	11.60	MAR 22	12.20	JUN 28	11.90	AUG 23	10.20				

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 12	17.96	APR 14	17.84	JUN 29	17.94	SEP 28	18.13				

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	17.75	17.71	17.74	17.69	17.79	17.85	17.86	17.90	18.09	17.82	18.02	18.89
10	17.71	17.74	17.75	17.74	17.78	17.79	17.88	17.43	18.11	17.83	18.33	18.66
15	17.69	17.66	17.82	17.76	17.84	17.81	17.83	17.97	18.13	17.79	18.59	18.26
20	17.71	17.74	17.74	17.81	17.73	17.85	17.81	18.02	18.08	17.46	18.76	18.06
25	17.74	17.70	17.76	17.77	17.77	17.80	17.83	18.04	18.20	17.55	18.96	17.94
EOM	17.72	17.75	17.72	17.72	.....	17.85	17.90	18.11	18.02	17.75	18.90	17.85

WTR YEAR 1989 MAX 17.44 JUL 9, 1989 MIN 19.05 AUG 27, 1989

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	98.25	97.50	96.76	96.25	95.67	95.40	94.87	94.60	94.28	94.63	98.52	99.53
10	98.12	97.44	96.79	96.12	95.61	95.12	94.87	94.62	94.26	95.78	98.70	99.41
15	97.99	97.30	96.83	96.09	95.65	94.94	94.69	94.48	94.27	96.57	99.12	99.24
20	97.84	97.13	96.68	.....	95.39	95.18	94.60	94.53	94.21	96.42	99.62	99.11
25	97.77	97.09	96.45	95.85	95.40	94.92	94.58	94.50	94.63	96.99	99.94	99.01
EOM	97.57	96.95	96.28	95.65	95.42	94.90	94.66	94.42	94.60	97.75	99.72	98.83

WTR YEAR 1989 MAX 94.10 JUN 20, 1989 MIN 99.94 AUG 25, 1989

GROUND-WATER LEVELS

367

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 1988 TO SEPTEMBER 1989											
WATER		WATER		WATER		WATER		WATER		WATER	
DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL
NOV 2	99.65	APR 18	97.24								

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 1988 TO SEPTEMBER 1989												
LOWEST WATER LEVEL FOR THE DAY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	91.54	91.12	91.14	90.87	90.43	90.41	90.29	90.95	90.06	91.35	97.50	98.09
10	91.36	91.11	91.17	90.61	90.33	90.16	90.83	90.53	90.06	96.06	98.88	95.29
15	91.28	90.91	91.24	90.62	90.47	90.22	90.25	90.71	90.12	97.86	102.50	93.23
20	91.22	91.00	90.88	90.66	90.21	90.25	90.28	90.31	91.17	95.27	100.04	92.98
25	91.25	90.88	90.97	90.54	90.21	90.12	90.28	90.13	90.76	94.77	103.10	92.98
ECM	91.08	91.15	90.87	90.35	90.32	90.18	90.30	90.21	90.27	97.61	96.66	92.88
WTR YEAR 1989 MAX 89.94 MAR 14, 1989 MIN 103.65 AUG 18, 1989												

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.

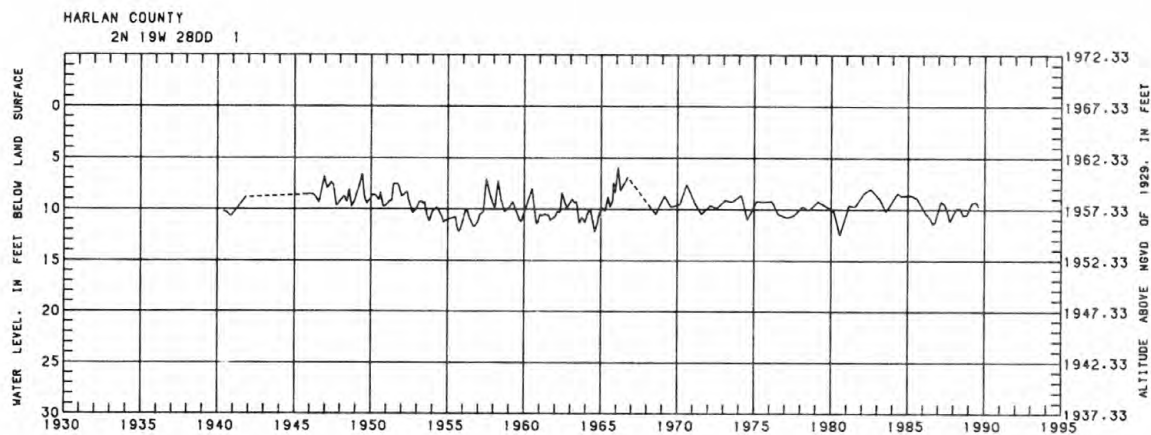
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 22 ft, screened 20 to 22 ft.

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, 5.9 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 1988 TO SEPTEMBER 1989			
DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	10.50	MAR 23	9.30
		JUN 28	9.30
		AUG 23	9.70



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.

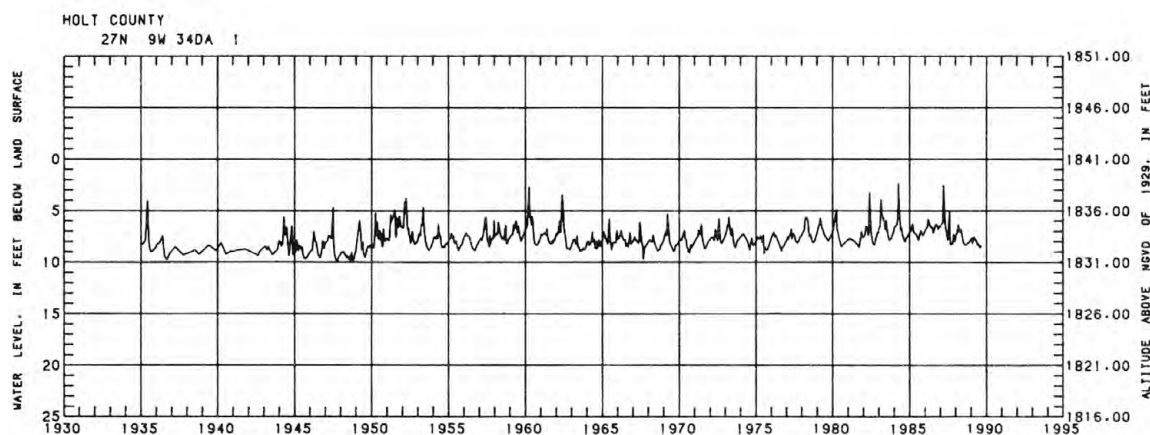
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1 in, depth 17 ft, screened 15 to 17 ft.

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 1988 TO SEPTEMBER 1989									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	8.20	DEC 20	7.84	FEB 15	8.18	APR 11	7.75	JUN 7	8.30
OCT 27	8.14	JAN 18	7.63	MAR 15	7.51	MAY 10	7.92	JUN 27	8.19
NOV 22	8.03							AUG 9	8.65
								AUG 30	8.46



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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	44.80	44.89	44.87	...	44.72	44.66	44.52	44.40	44.57	44.95	45.80	46.60
10	44.80	44.93	44.91	44.77	44.70	44.55	44.54	44.39	44.60	45.06	45.96	46.70
15	44.80	44.85	44.97	44.78	44.74	44.59	44.44	44.41	44.64	45.23	46.13	46.73
20	44.82	44.94	44.87	44.79	44.60	44.60	44.41	44.50	44.67	45.37	46.28	46.78
25	44.88	44.89	44.87	44.73	44.61	44.52	44.42	44.53	44.81	45.50	46.40	46.85
EOM	44.87	44.93	44.79	44.74	44.63	44.53	44.44	44.58	44.88	45.65	46.53	46.86

WTR YEAR 1989 MAX 44.32 MAY 3 AND 8, 1989 MIN 46.88 SEP 29, 1989

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.

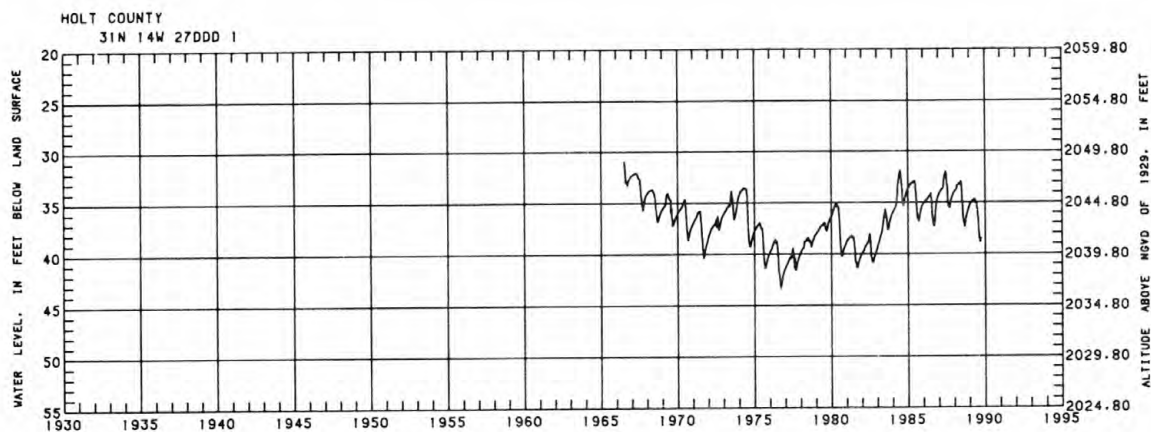
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.91 ft below land-surface datum, July 7, 1966; lowest, 43.30 ft below land-surface datum, Sept. 10, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	36.72	36.06	35.66	.....	35.09	34.95	34.78	34.67	35.00	35.79	37.59	38.89
10	36.60	35.99	35.57	.....	35.03	34.87	34.79	34.71	35.00	35.96	37.96	38.87
15	36.48	35.90	35.54	35.18	35.02	34.87	34.73	34.84	35.15	36.30	38.23	38.88
20	36.38	35.84	35.43	35.16	34.96	34.86	34.72	35.07	35.30	36.37	38.47	38.80
25	36.28	35.75	35.40	35.11	34.94	34.80	34.68	35.07	35.57	36.62	38.56	38.66
EOM	36.16	35.69	35.32	35.07	34.93	34.80	34.70	35.07	35.65	37.13	38.61	38.53

WTR YEAR 1989 MAX 34.66 MAY 4 AND 5, 1989

MIN 38.89 SEP 5, 1989



GROUND-WATER LEVELS

371

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	78.33	76.65	76.10	74.85	74.62	74.09	73.55	74.41	74.48	73.21	113.63	82.74
10	77.76	76.72	75.67	74.86	74.37	73.73	73.63	74.72	74.64	102.84	113.71	81.43
15	77.31	76.08	75.89	74.84	74.38	73.59	73.46	73.94	74.85	98.13	114.23	80.48
20	77.27	76.39	75.31	74.96	73.73	73.75	73.36	73.96	76.90	103.86	109.01	79.70
25	77.15	75.91	75.34	74.60	73.90	73.42	74.15	73.83	84.15	112.56	102.13	79.26
EOM	76.91	76.08	75.03	74.20	73.89	73.58	74.41	74.19	73.21	107.62	84.52	78.75

WTR YEAR 1989 MAX 72.81 JUL 12, 1989 MIN 117.48 JUL 27, 1989

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.

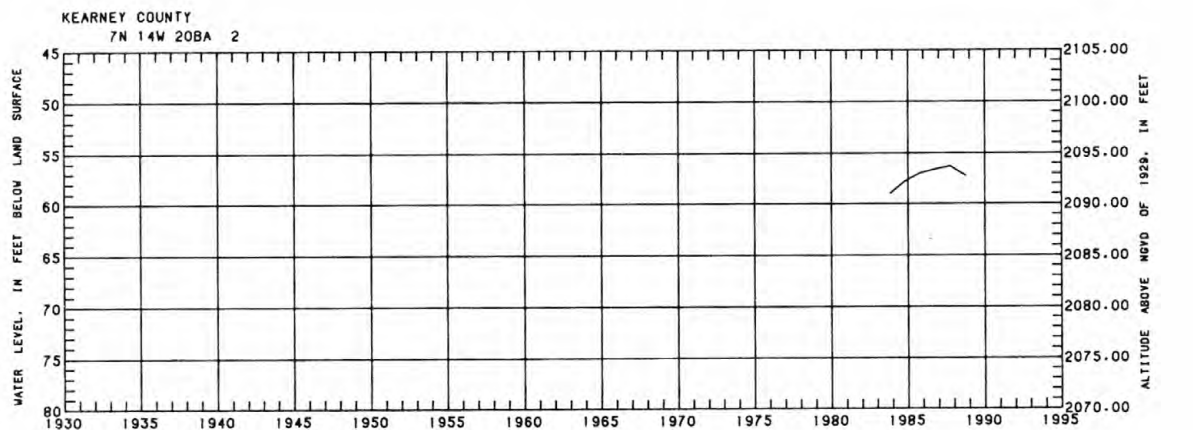
DATUM.--Altitude of land-surface datum is 2,150 ft. Measuring point: 0.30 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	57.21										



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 19th 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.

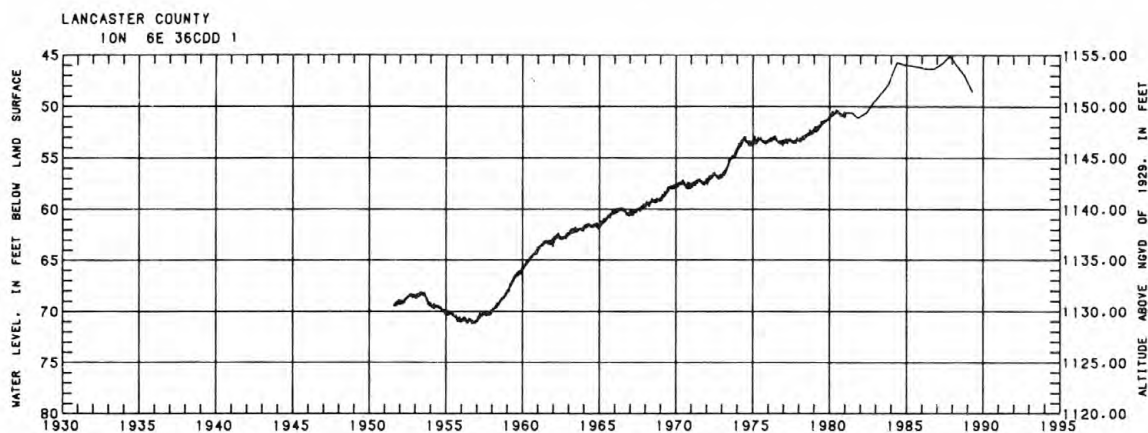
DATUM.--Altitude of land-surface datum is 1,200 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	46.91	APR 18	48.51						



375

410143098090301. Local number 12N-7W-7AA.

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.

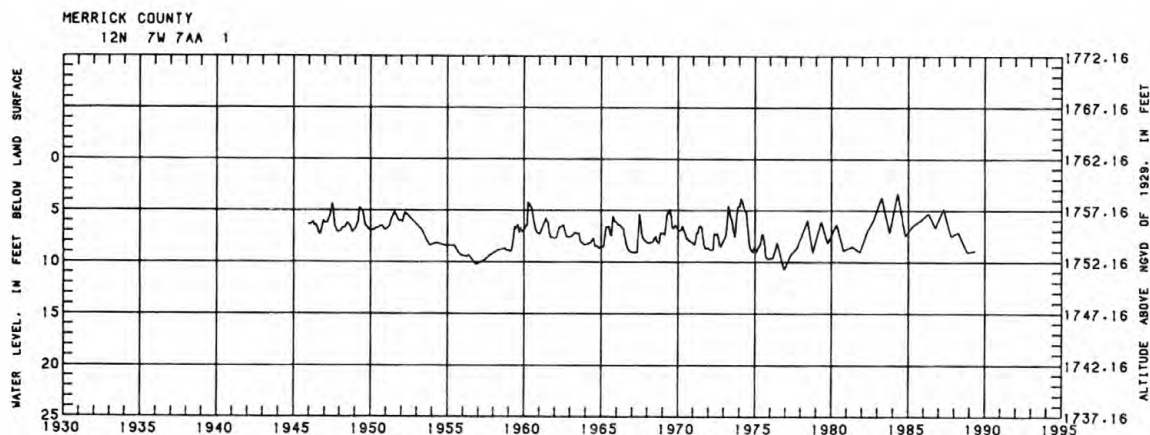
DATUM.--Altitude of land-surface datum is 1,762.16 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	9.09	APR 29	8.92						



414058103054001. Local number 20N-50W-28BBC.

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 1988 TO SEPTEMBER 1989									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	14.95	MAR 30	15.66						

GROUND-WATER LEVELS

377

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.

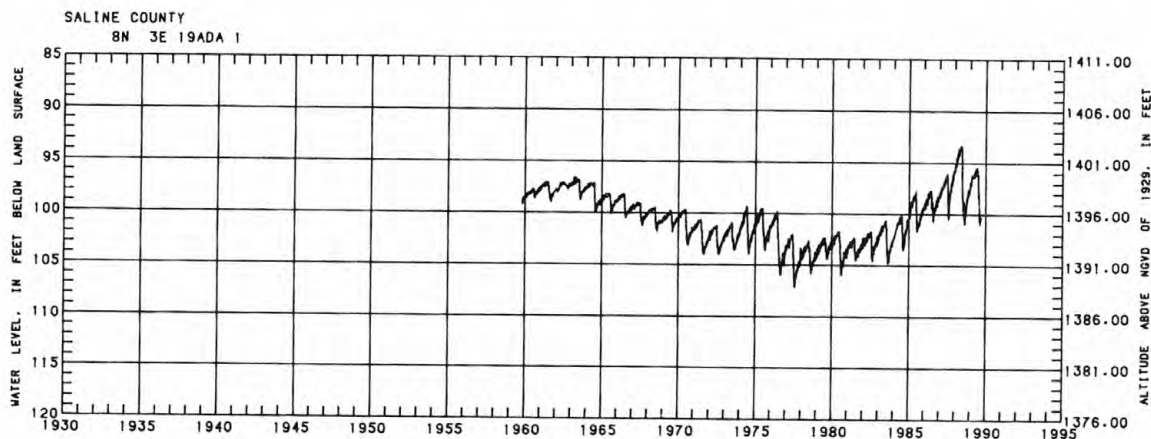
PERIOD OF RECORD.--October 1959 to current year.

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	99.27	98.24	97.70	96.88	.....	.....	96.32	95.95	95.69	96.05	100.16	100.38
10	98.64	98.36	97.55	97.06	.....	96.18	96.37	96.06	95.70	97.14	100.65	100.30
15	98.41	97.63	98.02	96.98	.....	96.36	95.90	95.83	95.70	98.36	100.92	.....
20	98.60	98.14	97.49	97.24	.....	96.42	95.86	96.00	95.60	97.72	100.92	.....
25	98.59	97.65	97.58	96.87	.....	96.07	95.89	95.67	96.30	98.49	100.86	.....
ECM	98.27	97.93	97.11	96.40	.....	96.35	96.21	95.86	96.14	.....	100.32	.....

WTR YEAR 1989 MAX 95.25 MAY 24, 1989 MIN 102.00 AUG 18, 1989



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.

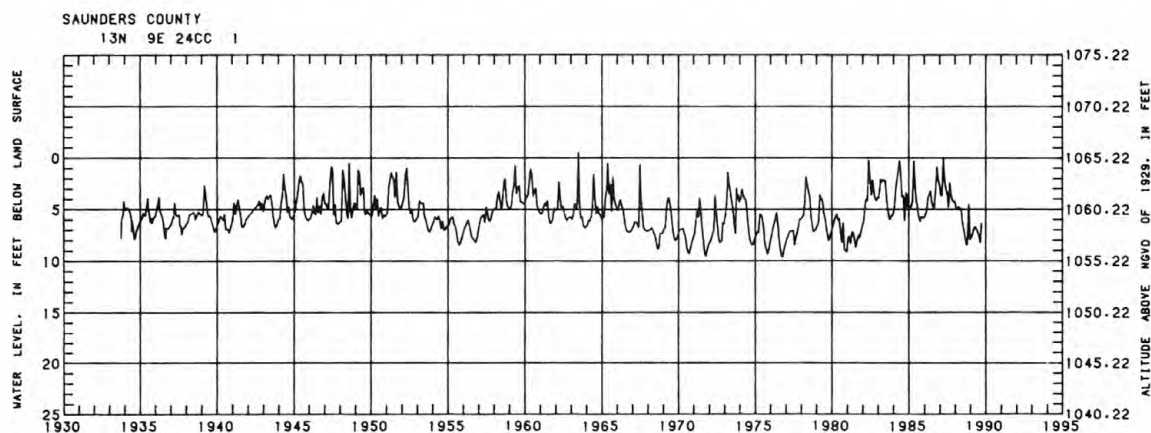
DATUM.--Altitude of land-surface datum is 1,065.22 ft. Measuring point: Top of casing 4.50 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989											
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	8.42	DEC 25	7.97	FEB 25	7.45	APR 25	6.68	JUN 25	7.17	AUG 25	8.26
NOV 25	4.50	JAN 25	7.74	MAR 25	6.90	MAY 25	6.91	JUL 25	7.55	SEP 25	6.40



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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	.....	40.76	40.76	.....	41.28	41.39	40.89	40.89	40.72H	.....	41.14	41.29
10	.....	40.99	40.91	41.05	40.71	40.95	41.21	40.95	40.80	40.65	41.04	41.46
15	40.65	40.61	41.18	41.00	41.51	41.22	40.84	40.71	40.74	40.62	41.13	41.44
20	40.69	40.97	40.78	41.22	40.80	41.24	40.80	41.00	40.69	40.72	41.25	41.47
25	.....	40.71	40.87	40.88	41.03	40.90	40.79	40.92	40.80	40.86	.....	41.41
EOM	.....	40.83	40.65	40.87	41.20	40.95	41.08	40.92	40.92	40.95	41.30	41.30

WTR YEAR 1989 MAX 40.17 APR 7, 1989 MIN 42.70 SEP 23, 1989

H TAPE MEASUREMENT

GROUND-WATER LEVELS

379

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.

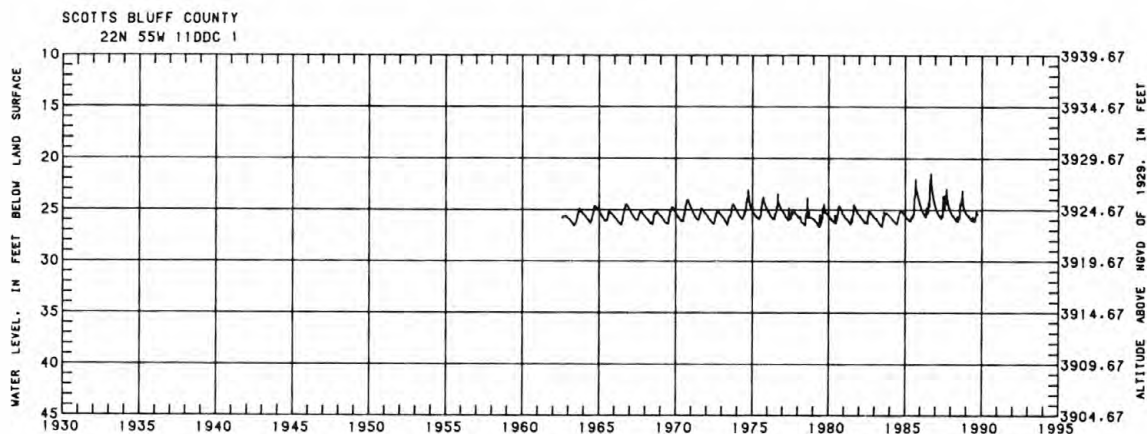
PERIOD OF RECORD.--August 1962 to current year.

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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	23.87	24.90	25.18	25.36	25.50	25.65	25.81	26.02	25.85	.....	25.88	25.15
10	24.17	24.96	25.21	25.39	25.54	25.67	25.83	26.07	25.68	.....	25.65	25.34
15	24.38	25.02	25.25	25.41	25.56	25.69	25.86	25.99	25.95	26.04	25.66	25.39
20	24.55	25.02	25.29	25.43	25.57	25.72	25.88	25.94	26.12	26.08	25.60	25.41
25	24.70	25.06	25.31	25.45	25.61	25.74	25.95	25.68	26.15	26.16	25.29	25.42
EOM	24.83	25.12	25.33	.....	25.62	25.78	25.98	25.95	26.13	25.95	25.21	25.43

WTR YEAR 1989 MAX 23.31 OCT 1, 1988 MIN 26.16 JUN 26, 1989



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, 41.72 ft below land-surface datum, Mar. 14, 1983.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989											
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	38.26	MAR 23	39.46								

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 1988 TO SEPTEMBER 1989 LOWEST WATER LEVEL FOR THE DAY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	.....	76.96	.....	76.04	76.26	75.76	75.43	75.47	75.95	76.88	82.53	82.10
10	.....	77.19	.....	76.12	76.03	75.58	75.61	75.73	75.84	78.52	.....	81.60
15	77.81	76.83	76.76	76.04	75.92	74.97	75.26	75.79	75.79	79.65	.....	81.30
20	77.86	77.00	76.67	76.17	75.50	74.66	75.32	75.86	76.50	79.84	83.66	80.84
25	77.54	.....	76.37	75.87	75.65	75.85	.....	75.55	77.89	81.11	83.02	80.69
EQM	77.57	.....	76.14	75.62	75.52	74.71	75.73	76.01	77.36	82.08	82.49	80.36
WTR YEAR 1989 MAX 74.66 MAR 20, 1989 MIN 83.85 AUG 18, 1989												

GROUND-WATER LEVELS

381

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.

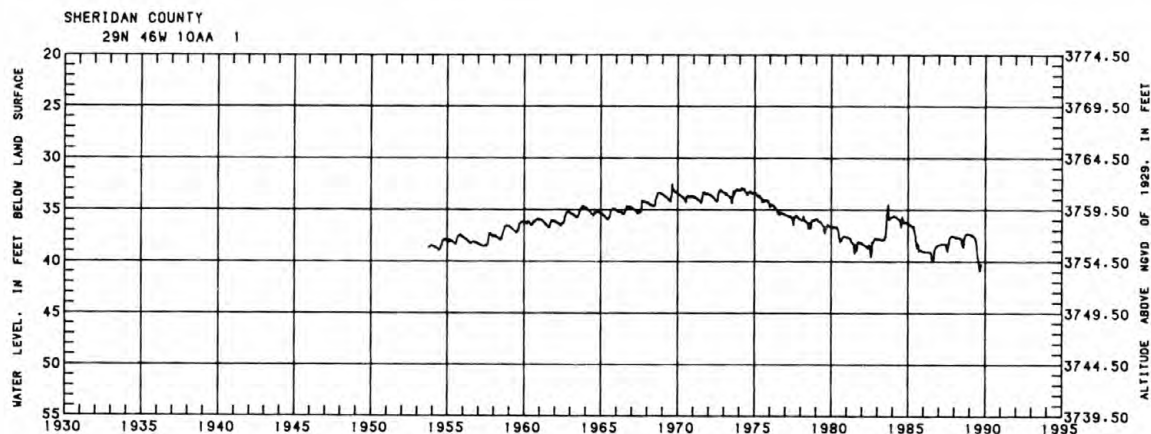
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 32.47 ft below land-surface datum, Aug. 25, 1969; lowest, 40.90 ft below land-surface datum, Sept. 1, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	37.36	37.33	37.30	37.32	37.39	37.50	37.57	37.64	38.02	.....	.....	40.84
10	37.33	37.33	37.29	37.34	37.41	37.48	37.60	37.68	38.07	.....	.....	40.86
15	37.33	37.31	37.35	37.38	37.44	37.48	37.58	37.68	.....	39.61	.....	40.65
20	37.30	37.32	37.33	37.41	37.40	37.54	37.62	37.71	.....	39.61	.....	40.44
25	37.32	37.31	37.35	37.38	37.46	37.48	37.65	37.76	.....	.....	.....	40.32
EOM	37.32	37.33	37.34	37.39	37.46	37.53	37.63	38.00	.....	.....	40.88	40.24

WTR YEAR 1989 MAX 37.20 DEC 11, 1988

MIN 40.90 SEP 1, 1989



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.

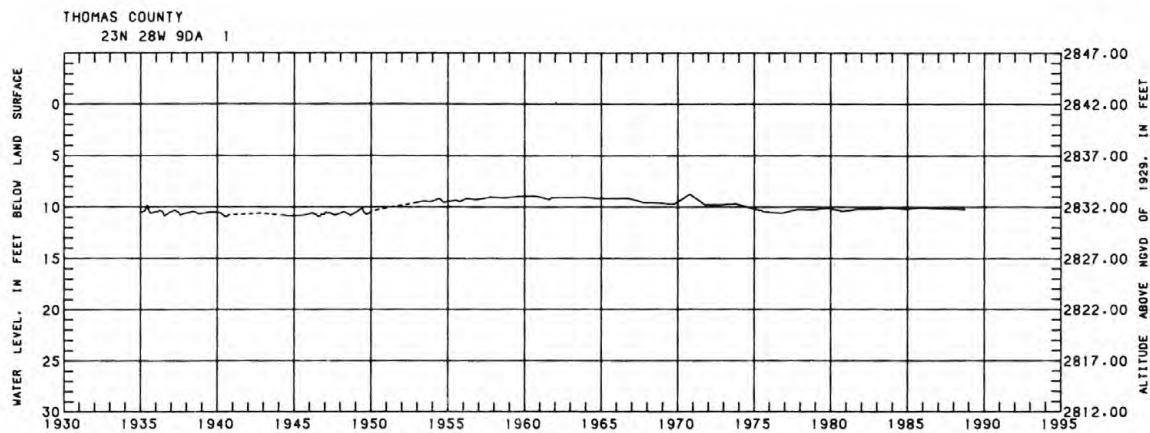
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 15 ft, screened from 13 to 15 ft.

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 1988 TO SEPTEMBER 1989									
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	10.24								



GROUND-WATER LEVELS

383

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.

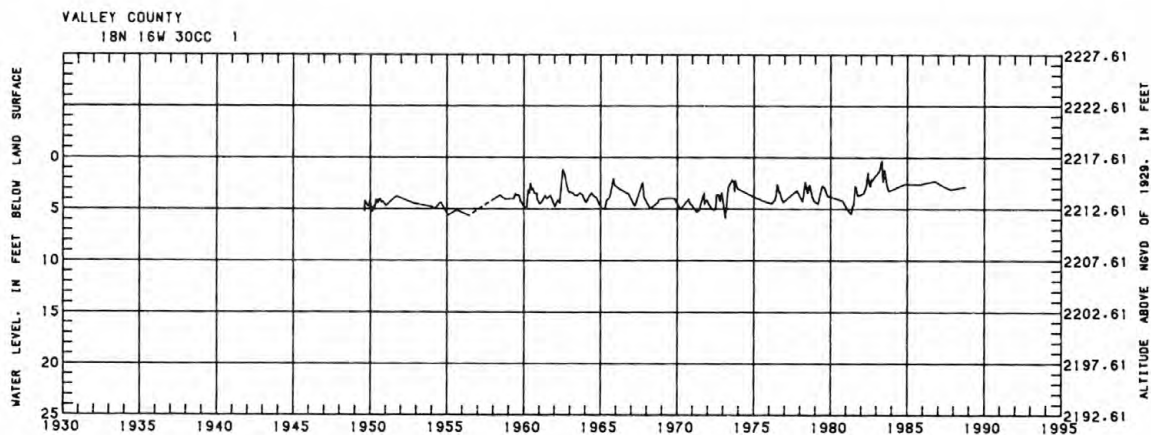
DATUM.--Altitude of land-surface datum is 2,217.61 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989		WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989	
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	2.84								



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 1988 TO SEPTEMBER 1989	
DATE	WATER LEVEL
OCT 17	7.92
MAY 15	8.13

YORK COUNTY

404618097482201. Local number 9N-4W-5CCC.

LOCATION.--Lat 40°46'18", long 97°48'22", SW1/4SW1/4SW1/4 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 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	80.99	80.64	79.97	79.70	79.27	79.33	78.95	.....	79.10	79.20	82.24	82.90
10	80.93	.....	80.12	79.62	79.26	78.98	78.93	.....	78.99	79.73	82.56	82.80
15	80.91	80.44	.....	79.64	79.45	79.20	78.84	79.17	78.96	80.26	82.94	82.58
20	80.76	.....	.....	79.62	79.19	79.15	78.90	79.22	78.86	80.30	82.89	82.59
25	80.85	.....	.....	79.43	79.24	79.90	78.95	79.20	79.39	80.90	82.97	82.50
EOY	80.56	80.27	79.73	79.53	79.33	79.98	.....	79.16	79.25	81.63	82.96	82.31

WTR YEAR 1989 MAX 78.38 APR 7, 1989 MIN 83.11 SEP 2, 1989

GROUND-WATER LEVELS

385

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.

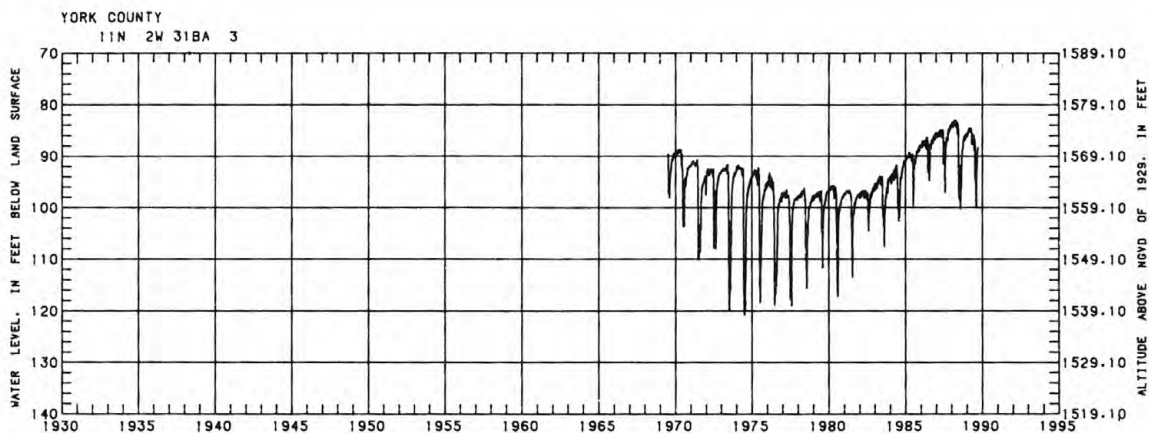
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 83.00 ft below land-surface datum, Apr. 10, 1988; lowest, 120.81 ft below land-surface datum, July 15, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
LOWEST WATER LEVEL FOR THE DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
05	88.24	86.05	86.39	85.47	85.08	84.63	84.63	87.15	86.56	86.81	98.22	89.56
10	86.95	86.07	85.80	86.06	85.27	85.28	84.63	86.75	85.94	92.05	100.05	88.98
15	86.99	86.80	85.81	85.58	84.91	84.50	85.03	86.53	86.40	94.54	100.00	88.67
20	86.65	86.08	85.58	85.82	84.57	84.49	85.53	85.77	88.06	89.40	96.40	88.45
25	86.32	86.58	85.64	85.13	84.66	84.60	87.80	85.87	89.00	93.55	92.19	88.37
EOM	87.00	85.78	86.26	85.46	84.73	85.27	86.82	85.83	86.81	96.18	90.72	88.57

WTR YEAR 1989 MAX 84.31 MAR 14, 1989 MIN 101.47 AUG 12, 1989

H TAPE MEASUREMENT



CHEMICAL ANALYSES OF GROUND WATER

(Local identifier: indicates location by township, range, and section. Geologic unit: 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; 211 NBRR, Cretaceous Niobrara Formation; 319 ADMR, Permian Admire Group; 319 CCGV, Permian Council Grove Group; 319 CHSE, Permian Chase Group; 322 WBNS, Pennsylvanian Wabaunsee Group)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
ADAMS COUNTY									
402724098261901	6N 10W27CB	1	40 27 24 N	098 26 19 W	112SDGV	08-14-89	1125	70.00	--
402753098391801	6N 12W27AB	1	40 27 53 N	098 39 18 W	112SDGV	08-10-89	1625	190.00	398
403710098395101	8N 12W34BC	1	40 37 10 N	098 39 51 W	110SDGV	08-10-89	1430	130.00	--
BUFFALO COUNTY									
404538098430101	9N 13W12DDB	1	40 45 38 N	098 43 01 W	112SDGV	10-28-88	--	60.00	1140
					112SDGV	10-28-88	0900	60.00	--
404538098430102	9N 13W12DDB	2			112SDGV	10-28-88	--	42.00	1110
					112SDGV	10-28-88	0800	42.00	--
404538098430103	9N 13W12DDB	3			112SDGV	10-28-88	--	24.00	1080
					112SDGV	10-28-88	0700	24.00	--
BUTLER COUNTY									
412026097174701	16N 1E22DADB1		41 20 26 N	097 17 47 W	112SDGV	04-19-89	1935	19.00	517
					112SDGV	04-19-89	1940	19.00	--
					112SDGV	05-24-89	1240	19.00	544
					112SDGV	05-24-89	1245	19.00	--
					112SDGV	06-28-89	0940	19.00	528
					112SDGV	06-28-89	0945	19.00	--
					112SDGV	07-24-89	1320	19.00	398
					112SDGV	07-24-89	1325	19.00	--
					112SDGV	09-06-89	1510	19.00	401
					112SDGV	09-06-89	1515	19.00	--
412026097163801	16N 1E23DAAC1		41 20 26 N	097 16 38 W	112SDGV	04-19-89	1845	19.00	416
					112SDGV	04-19-89	1850	19.00	--
					112SDGV	05-24-89	1100	19.00	434
					112SDGV	05-24-89	1105	19.00	--
					112SDGV	06-28-89	1054	19.00	446
					112SDGV	06-28-89	1055	19.00	--
					112SDGV	07-24-89	1150	19.00	413
					112SDGV	07-24-89	1155	19.00	--
					112SDGV	09-06-89	1340	19.00	395
					112SDGV	09-06-89	1345	19.00	--
CLAY COUNTY									
402207097580801	5N 6W26CD	1	40 22 07 N	097 58 08 W	112SDGV	08-09-89	1310	183.00	--
403123098031401	6N 7W 1AA	1	40 31 23 N	098 03 14 W	112SDGV	08-09-89	1415	--	609
403001098152903	6N 8W 8CB	3	40 30 01 N	098 15 29 W	112SDGV	08-10-89	0825	192.00	--
COLFAX COUNTY									
412556097074401	17N 3E19BCDC1		41 25 56 N	097 07 44 W	112SDGV	04-19-89	1700	17.00	960
					112SDGV	04-19-89	1705	17.00	--
					112SDGV	05-24-89	1610	17.00	1100
					112SDGV	05-24-89	1615	17.00	--
					112SDGV	06-27-89	1756	17.00	934
					112SDGV	06-27-89	1805	17.00	--
					112SDGV	07-24-89	1630	17.00	846
					112SDGV	07-24-89	1635	17.00	--
					112SDGV	09-06-89	1745	17.00	799
					112SDGV	09-06-89	1750	17.00	--

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[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	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, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
ADAMS COUNTY												
402724098261901	08-14-89	167		24	6.7	0.30	32	258	--	2.20	--	--
402753098391801	08-10-89	150		36	5.5	0.40	31	254	--	1.70	--	--
403710098395101	08-10-89	130		14	2.7	0.30	33	202	--	2.10	--	--
BUFFALO COUNTY												
404538098430101	10-28-88	--	--	--	--	--	--	--	<0.010	30.0	0.020	0.78
	10-28-88	--	--	--	--	--	--	--	--	--	--	--
404538098430102	10-28-88	--	--	--	--	--	--	--	<0.010	37.0	0.040	0.46
	10-28-88	--	--	--	--	--	--	--	--	--	--	--
404538098430103	10-28-88	--	--	--	--	--	--	--	<0.010	46.0	0.080	0.62
	10-28-88	--	--	--	--	--	--	--	--	--	--	--
BUTLER COUNTY												
412026097174701	04-19-89	--	--	--	--	--	--	--	--	29.0	--	--
	04-19-89	--	--	--	--	--	--	--	--	--	--	--
	05-24-89	--	--	--	--	--	--	--	--	27.0	--	--
	05-24-89	--	--	--	--	--	--	--	--	--	--	--
	06-28-89	--	--	--	--	--	--	--	--	27.0	--	--
	06-28-89	--	--	--	--	--	--	--	--	--	--	--
	07-24-89	--	--	--	--	--	--	--	--	22.0	--	--
	07-24-89	--	--	--	--	--	--	--	--	--	--	--
	09-06-89	--	--	--	--	--	--	--	--	28.0	--	--
	09-06-89	--	--	--	--	--	--	--	--	--	--	--
412026097163801	04-19-89	--	--	--	--	--	--	--	--	26.0	--	--
	04-19-89	--	--	--	--	--	--	--	--	--	--	--
	05-24-89	--	--	--	--	--	--	--	--	26.0	--	--
	05-24-89	--	--	--	--	--	--	--	--	--	--	--
	06-28-89	--	--	--	--	--	--	--	--	28.0	--	--
	06-28-89	--	--	--	--	--	--	--	--	--	--	--
	07-24-89	--	--	--	--	--	--	--	--	28.0	--	--
	07-24-89	--	--	--	--	--	--	--	--	--	--	--
	09-06-89	--	--	--	--	--	--	--	--	31.0	--	--
	09-06-89	--	--	--	--	--	--	--	--	--	--	--
CLAY COUNTY												
402207097580801	08-09-89	260		40	17	0.30	32	433	--	9.30	--	--
403123098031401	08-09-89	241		82	15	0.30	23	419	--	2.60	--	--
403001098152903	08-10-89	141		12	5.7	0.30	27	209	--	2.20	--	--
COLFAX COUNTY												
412556097074401	04-19-89	--	--	--	--	--	--	--	--	19.0	--	--
	04-19-89	--	--	--	--	--	--	--	--	--	--	--
	05-24-89	--	--	--	--	--	--	--	--	19.0	--	--
	05-24-89	--	--	--	--	--	--	--	--	--	--	--
	06-27-89	--	--	--	--	--	--	--	--	20.0	--	--
	06-27-89	--	--	--	--	--	--	--	--	--	--	--
	07-24-89	--	--	--	--	--	--	--	--	19.0	--	--
	07-24-89	--	--	--	--	--	--	--	--	--	--	--
	09-06-89	--	--	--	--	--	--	--	--	23.0	--	--
	09-06-89	--	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	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)	PRO- PAZINE TOTAL (UG/L) (39024)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
ADAMS COUNTY												
402724098261901		08-14-89	--	30	7	6	--	--	--	--	--	--
402753098391801		08-10-89	--	50	5	<1	--	--	--	--	--	--
403710098395101		08-10-89	--	40	5	<1	--	--	--	--	--	--
BUFFALO COUNTY												
404538098430101		10-28-88	0.80	--	--	--	--	--	--	--	--	--
		10-28-88	--	--	--	--	<0.02	<0.02	<0.02	<0.02	1.4	<0.02
404538098430102		10-28-88	0.50	--	--	--	--	--	--	--	--	--
		10-28-88	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.95	<0.02
404538098430103		10-28-88	0.70	--	--	--	--	--	--	--	--	--
		10-28-88	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.12	<0.02
BUTLER COUNTY												
412026097174701		04-19-89	--	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.19	<0.02
		05-24-89	--	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.18	<0.02
		06-28-89	--	--	--	--	--	--	--	--	--	--
		06-28-89	--	--	--	--	<0.02	<0.20	<0.02	<0.20	0.20	<0.30
		07-24-89	--	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	<0.02	<0.20	<0.02	<0.20	0.31	<0.30
		09-06-89	--	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	<0.04	<0.20	<0.04	<0.20	0.32	<0.30
412026097163801		04-19-89	--	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	4.3	<0.02
		05-24-89	--	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	6.8	<0.02
		06-28-89	--	--	--	--	--	--	--	--	--	--
		06-28-89	--	--	--	--	<0.02	<0.20	<0.02	<0.20	3.9	<0.30
		07-24-89	--	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	0.03	<0.20	<0.02	<0.20	3.7	<0.30
		09-06-89	--	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	<0.04	<0.20	<0.04	<0.20	3.6	<0.30
CLAY COUNTY												
402207097580801		08-09-89	--	50	9	<1	--	--	--	--	--	--
403123098031401		08-09-89	--	30	4	18	--	--	--	--	--	--
403001098152903		08-10-89	--	30	5	16	--	--	--	--	--	--
COLFAX COUNTY												
412556097074401		04-19-89	--	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.08	<0.02
		05-24-89	--	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	<0.02	<0.02	<0.02	<0.02	0.10	<0.02
		06-27-89	--	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	<0.02	<0.20	<0.02	<0.20	0.21	<0.30
		07-24-89	--	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	<0.02	<0.20	<0.02	<0.20	0.16	<0.30
		09-06-89	--	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	<0.04	<0.20	<0.04	<0.20	0.31	<0.30

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)
COLFAX COUNTY								
412609097074401	17N	3E19BDDC1	41 26 09 N	097 07 44 W	112SDGV	04-19-89	1620	17.00
					112SDGV	04-19-89	1625	17.00
					112SDGV	05-24-89	1530	17.00
					112SDGV	05-24-89	1535	17.00
					112SDGV	06-27-89	1714	17.00
					112SDGV	06-27-89	1725	17.00
					112SDGV	07-24-89	1600	17.00
					112SDGV	07-24-89	1605	17.00
					112SDGV	09-06-89	1830	17.00
					112SDGV	09-06-89	1835	17.00
FILLMORE COUNTY								
402516097272001	5N	1W 8BA 1	40 25 16 N	097 27 20 W	112SDGV	08-08-89	1625	--
402507097433501	5N	4W12BC 1	40 25 07 N	097 43 35 W	112SDGV	08-09-89	1145	227.00
FRANKLIN COUNTY								
401801098433901	4N	13W24AD 1	40 18 01 N	098 43 39 W	112SDGV	08-10-89	1305	150.00
GAGE COUNTY								
402611096342501	5N	7E 1AAAB1	40 26 11 N	096 34 25 W	319CHSE	07-05-89	1315	67.00
402611096342502	5N	7E 1AAAB2			319CHSE	07-05-89	1330	230.00
402523096280801	5N	8E 1DCDD1	40 25 23 N	096 28 08 W	319CCGV	07-05-89	1605	195.00
402612096322401	5N	8E 5AAAA1	40 26 12 N	096 32 24 W	319CHSE	07-05-89	1430	123.00
					319CHSE	07-05-89	1435	123.00
402507096291601	5N	8E11ACAA1	40 25 07 N	096 29 16 W	319CHSE	06-19-89	1500	174.00
402502096310901	5N	8E12BCBA1	40 25 02 N	096 31 09 W	319ADMR	08-21-89	1500	163.00
403105096355701	6N	7E 2ACCB1	40 31 05 N	096 35 57 W	112SDGV	07-12-89	1630	142.00
402903096280601	6N	8E13DO 1	40 29 03 N	096 28 06 W	112SDGV	06-19-89	1300	301.00
402837096313301	6N	8E24BADO1	40 28 37 N	096 31 33 W	110SDGV	08-21-89	1545	246.00
402746096291201	6N	8E26AACC1	40 27 46 N	096 29 12 W	112SDGV	06-19-89	1415	112.00
					112SDGV	06-19-89	1420	112.00
402704096305001	6N	8E26DDCC1	40 27 04 N	096 30 50 W	112SDGV	08-21-89	1425	40.00
402756096332801	6N	8E29BBBB1	40 27 56 N	096 33 28 W	319CCGV	07-05-89	1225	204.00
GREELEY COUNTY								
412813098420501	17N	12W 4DBCD1	41 28 13 N	098 42 05 W	121OGLL	08-09-89	0950	159.00
412521098401901	17N	12W26BBAA1	41 25 21 N	098 40 19 W	121OGLL	08-08-89	1715	110.00
413121098444101	18N	12W19BA 1	41 31 21 N	098 44 41 W		08-09-89	1030	262.00
HOLT COUNTY								
423550098271101	30N	10W 2CDD 1	42 35 50 N	098 27 11 W	112SDGV	08-24-89	1325	100.00
423614098274401	30N	10W 3ADDD1	42 36 14 N	098 27 44 W	112SDGV	08-24-89	1525	100.00
423601098283401	30N	10W 3CC 1	42 36 01 N	098 28 34 W		07-20-89	1850	260.00
423541098274401	30N	10W10AAAD1	42 35 41 N	098 27 44 W	112SDGV	08-24-89	1715	100.00
423519098274401	30N	10W10DAAA1	42 35 19 N	098 27 44 W	112SDGV	08-24-89	1840	100.00
423510098272201	30N	10W11CA 1	42 35 10 N	098 27 22 W		07-20-89	1700	286.00
423440098275201	30N	10W14B 1	42 34 40 N	098 27 52 W	121OGLL	08-01-89	1010	284.00
423441098283401	30N	10W15BO 1	42 34 41 N	098 28 34 W	112SDGV	07-20-89	1425	116.00
423418098301501	30N	10W17DAC 1	42 34 18 N	098 30 15 W		07-20-89	1230	265.00
423348098283201	30N	10W22BO 1	42 33 48 N	098 28 32 W		07-21-89	0902	269.00

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	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 WH WAT TOT FLD MG/L AS CACO3 (00902)	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)
COLFAX COUNTY											
412609097074401		04-19-89	724	7.33	12.5	6.6	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--
		05-24-89	782	--	16.0	3.6	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		06-27-89	770	7.30	--	4.3	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		07-24-89	703	7.80	15.0	5.6	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		09-06-89	713	7.20	18.5	5.7	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
FILLMORE COUNTY											
402516097272001		08-08-89	997	6.97	12.5	--	490	140	150	28	29
402507097433501		08-09-89	--	6.89	13.5	--	160	1	51	8.1	25
FRANKLIN COUNTY											
401801098433901		08-10-89	--	6.85	13.0	--	270	36	86	13	15
GAGE COUNTY											
402611096342501		07-05-89	1600	7.18	13.0	7.2	--	--	--	--	--
402611096342502		07-05-89	1500	7.41	14.0	4.9	--	--	--	--	--
402523096280801		07-05-89	912	7.89	14.0	0.1	370	160	90	35	61
402612096322401		07-05-89	573	7.53	13.5	0.6	--	--	--	--	--
		07-05-89	--	--	--	--	--	--	--	--	--
402507096291601		06-19-89	597	7.56	13.5	0.1	260	0	65	23	35
402502096310901		08-21-89	396	7.47	13.5	0.1	--	--	--	--	--
403105096355701		07-12-89	447	7.37	13.0	8.0	--	--	--	--	--
402903096280601		06-19-89	--	7.41	15.5	1.4	270	0	81	16	24
402837096313301		08-21-89	--	7.14	13.0	4.2	--	--	--	--	--
402746096291201		06-19-89	464	6.85	17.0	4.1	--	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--
402704096305001		08-21-89	495	6.95	12.5	7.2	--	--	--	--	--
402756096332801		07-05-89	793	7.62	14.0	0.2	220	0	54	21	88
GREELEY COUNTY											
412813098420501		08-09-89	--	6.98	12.0	--	370	39	120	17	19
412521098401901		08-08-89	--	7.18	12.5	--	280	22	90	13	15
413121098444101		08-09-89	--	7.38	13.0	--	370	24	120	17	17
HOLT COUNTY											
423550098271101		08-24-89	219	7.03	12.5	9.5	86	40	26	5.1	11
423614098274401		08-24-89	306	7.10	12.0	10.9	130	76	38	7.5	13
423601098283401		07-20-89	--	--	12.0	9.2	86	9	27	4.6	9.6
423541098274401		08-24-89	348	6.74	12.0	10.1	140	100	43	8.9	12
423519098274401		08-24-89	532	6.73	11.5	10.5	250	200	75	15	15
423510098272201		07-20-89	190	--	14.0	8.4	87	38	27	4.8	11
423440098275201		08-01-89	174	7.46	13.5	--	61	10	19	3.3	8.9
423441098283401		07-20-89	--	--	8.5	--	97	54	30	5.3	9.9
423418098301501		07-20-89	441	6.73	11.0	10.1	210	160	64	13	15
423348098283201		07-21-89	186	6.75	11.5	9.6	69	27	21	4.1	9.0

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
COLFAX COUNTY											
412609097074401		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
FILLMORE COUNTY											
402516097272001		08-08-89	0.6	9.4	352	190	13	0.40	40	--	707
402507097433501		08-09-89	0.9	5.0	160	33	12	0.40	29	--	265
FRANKLIN COUNTY											
401801098433901		08-10-89	0.4	7.3	233	44	9.3	0.20	43	--	373
GAGE COUNTY											
402611096342501		07-05-89	--	--	--	--	--	--	--	--	--
402611096342502		07-05-89	--	--	--	--	--	--	--	--	--
402523096280801		07-05-89	1	3.8	214	270	11	0.50	19	--	619
402612096322401		07-05-89	--	--	--	--	--	--	--	--	--
		07-05-89	--	--	--	--	--	--	--	--	--
402507096291601		06-19-89	1	3.7	280	50	6.6	0.50	20	--	372
402502096310901		08-21-89	--	--	--	--	--	--	--	--	--
403105096355701		07-12-89	--	--	--	--	--	--	--	--	--
402903096280601		06-19-89	0.7	3.3	286	31	8.3	0.30	31	--	367
402837096313301		08-21-89	--	--	--	--	--	--	--	--	--
402746096291201		06-19-89	--	--	--	--	--	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--
402704096305001		08-21-89	--	--	--	--	--	--	--	--	--
402756096332801		07-05-89	3	4.6	245	170	11	0.70	25	--	522
GREELEY COUNTY											
412813098420501		08-09-89	0.4	10	331	65	7.4	0.20	60	--	513
412521098401901		08-08-89	0.4	9.5	257	29	4.7	0.20	56	--	410
413121098444101		08-09-89	0.4	10	346	31	12	0.10	61	--	520
HOLT COUNTY											
423550098271101		08-24-89	0.5	2.7	46	12	5.2	0.10	27	178	170
423614098274401		08-24-89	0.5	3.6	50	14	5.2	0.10	27	242	244
423601098283401		07-20-89	0.5	4.0	77	8.0	4.8	0.20	44	170	168
423541098274401		08-24-89	0.5	5.1	43	22	8.1	0.10	25	280	269
423519098274401		08-24-89	0.4	3.8	50	28	12	0.10	26	462	434
423510098272201		07-20-89	0.5	2.8	49	12	3.6	0.10	31	171	170
423440098275201		08-01-89	0.5	3.0	51	9.0	1.7	0.30	38	--	132
423441098283401		07-20-89	0.5	2.5	43	16	3.5	0.10	29	232	179
423418098301501		07-20-89	0.5	4.4	52	22	16	0.10	29	391	331
423348098283201		07-21-89	0.5	2.5	42	12	3.2	0.10	30	148	137

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L) AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	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)
COLFAX COUNTY											
412609097074401		04-19-89	--	--	--	--	9.60	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	11.0	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	14.0	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	16.0	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	21.0	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
FILLMORE COUNTY											
402516097272001		08-08-89	--	--	--	--	8.10	--	--	--	--
402507097433501		08-09-89	--	--	--	--	1.30	--	--	--	--
FRANKLIN COUNTY											
401801098433901		08-10-89	--	--	--	--	3.40	--	--	--	--
GAGE COUNTY											
402611096342501		07-05-89	--	--	--	--	60.0	--	--	--	--
402611096342502		07-05-89	--	--	--	--	0.320	--	--	--	--
402523096280801		07-05-89	--	--	--	--	<0.100	--	--	--	--
402612096322401		07-05-89	--	--	--	--	0.520	--	--	--	--
		07-05-89	--	--	--	--	--	--	--	--	--
402507096291601		06-19-89	--	--	--	--	<0.100	--	--	--	--
402502096310901		08-21-89	--	--	--	--	<0.100	--	--	--	--
403105096355701		07-12-89	--	--	--	--	3.20	--	--	--	--
402903096280601		06-19-89	--	--	--	--	0.190	--	--	--	--
402837096313301		08-21-89	--	--	--	--	4.70	--	--	--	--
402746096291201		06-19-89	--	--	--	--	7.70	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--
402704096305001		08-21-89	--	--	--	--	23.0	--	--	--	--
402756096332801		07-05-89	--	--	--	--	<0.100	--	--	--	--
GREELEY COUNTY											
412813098420501		08-09-89	--	--	--	--	3.50	--	--	--	--
412521098401901		08-08-89	--	--	--	--	8.70	--	--	--	--
413121098444101		08-09-89	--	--	--	--	10.0	--	--	--	--
HOLT COUNTY											
423550098271101		08-24-89	193	12.0	0.030	12.0	12.0	0.010	0.29	0.30	12
423614098274401		08-24-89	310	--	<0.010	23.0	24.0	<0.010	--	0.40	23
423601098283401		07-20-89	182	--	<0.010	5.10	4.40	<0.010	--	0.30	5.4
423541098274401		08-24-89	326	--	<0.010	24.0	27.0	<0.010	--	0.40	24
423519098274401		08-24-89	505	52.0	0.010	49.0	52.0	0.020	0.88	0.90	50
423510098272201		07-20-89	203	--	<0.010	12.0	11.0	<0.010	--	0.60	13
423440098275201		08-01-89	--	--	--	4.70	4.20	<0.010	--	<0.20	--
423441098283401		07-20-89	224	--	<0.010	14.0	13.0	0.030	0.77	0.80	15
423418098301501		07-20-89	517	--	<0.010	36.0	31.0	<0.010	--	0.50	36
423348098283201		07-21-89	160	--	<0.010	8.00	6.90	<0.010	--	0.40	8.4

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS ORGANIC TOTAL (MG/L AS P) (00670)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	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)
COLFAX COUNTY											
412609097074401		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
FILLMORE COUNTY											
402516097272001		08-08-89	--	--	--	--	--	--	--	--	70
402507097433501		08-09-89	--	--	--	--	--	--	--	--	50
FRANKLIN COUNTY											
401801098433901		08-10-89	--	--	--	--	--	--	--	--	40
GAGE COUNTY											
402611096342501		07-05-89	--	--	--	--	--	--	--	--	--
402611096342502		07-05-89	--	--	--	--	--	--	--	--	--
402523096280801		07-05-89	--	--	--	--	1	--	--	--	--
402612096322401		07-05-89	--	--	--	--	--	--	--	--	--
		07-05-89	--	--	--	--	--	--	--	--	--
402507096291601		06-19-89	--	--	--	--	12	--	--	--	--
402502096310901		08-21-89	--	--	--	--	--	--	--	--	--
403105096355701		07-12-89	--	--	--	--	--	--	--	--	--
402903096280601		06-19-89	--	--	--	--	4	--	--	--	--
402837096313301		08-21-89	--	--	--	--	--	--	--	--	--
402746096291201		06-19-89	--	--	--	--	--	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--
402704096305001		08-21-89	--	--	--	--	--	--	--	--	--
402756096332801		07-05-89	--	--	--	--	2	--	--	--	--
GREELEY COUNTY											
412813098420501		08-09-89	--	--	--	--	--	--	--	--	80
412521098401901		08-08-89	--	--	--	--	--	--	--	--	80
413121098444101		08-09-89	--	--	--	--	--	--	--	--	70
HOLT COUNTY											
423550098271101		08-24-89	0.030	0.03	1500	250	<1	--	300	<10	--
423614098274401		08-24-89	0.040	0.04	320	60	<1	--	300	<10	--
423601098283401		07-20-89	0.060	0.06	110	10	4	--	100	<10	--
423541098274401		08-24-89	0.040	0.04	7200	450	<1	--	300	<10	--
423519098274401		08-24-89	0.040	0.04	170	50	<1	--	500	<10	--
423510098272201		07-20-89	0.060	0.06	10	10	5	--	100	<10	--
423440098275201		08-01-89	0.060	0.06	--	--	4	--	--	<10	--
423441098283401		07-20-89	0.050	0.05	<10	10	1	--	100	<10	--
423418098301501		07-20-89	0.050	0.05	20	<10	2	--	300	<10	--
423348098283201		07-21-89	0.070	0.07	30	<10	3	--	100	<10	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	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)
COLFAX COUNTY											
412609097074401		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	--	--	--	--
		03-06-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	--	--	--	--
FILLMORE COUNTY											
402516097272001		08-08-89	--	--	--	10	--	360	--	--	--
402507097433501		08-09-89	--	--	--	<3	--	1	--	--	--
FRANKLIN COUNTY											
401801098433901		08-10-89	--	--	--	3	--	<1	--	--	--
GAGE COUNTY											
402611096342501		07-05-89	--	--	--	--	--	--	--	--	--
402611096342502		07-05-89	--	--	--	--	--	--	--	--	--
402523096280801		07-05-89	--	--	--	39	--	120	--	--	--
402612096322401		07-05-89	--	--	--	--	--	--	--	--	--
		07-05-89	--	--	--	--	--	--	--	--	--
402507096291601		06-19-89	--	--	--	150	--	95	--	--	--
402502096310901		08-21-89	--	--	--	--	--	--	--	--	--
403105096355701		07-12-89	--	--	--	--	--	--	--	--	--
402903096280601		06-19-89	--	--	--	8	--	2	--	--	--
402837096313301		08-21-89	--	--	--	--	--	--	--	--	--
402746096291201		06-19-89	--	--	--	--	--	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--
402704096305001		08-21-89	--	--	--	--	--	--	--	--	--
402756096332801		07-05-89	--	--	--	22	--	400	--	--	--
GREELEY COUNTY											
412813098420501		08-09-89	--	--	--	<3	--	<1	--	--	--
412521098401901		08-08-89	--	--	--	5	--	<1	--	--	--
413121098444101		08-09-89	--	--	--	22	--	2	--	--	--
HOLT COUNTY											
423550098271101		08-24-89	<1	<1	3	74	1	18	<0.10	1	<1
423614098274401		08-24-89	<1	<1	4	36	2	2	<0.10	3	<1
423601098283401		07-20-89	<1	2	5	14	2	2	<0.10	<1	<1
423541098274401		08-24-89	<1	3	3	150	4	8	<0.10	4	<1
423519098274401		08-24-89	<1	<1	3	20	2	4	<0.10	2	<1
423510098272201		07-20-89	<1	1	3	9	1	1	3.6	<1	<1
423440098275201		08-01-89	1	2	6	4	2	<1	0.10	4	<1
423441098283401		07-20-89	<1	<1	14	8	3	1	<0.10	8	<1
423418098301501		07-20-89	<1	1	2	12	<1	<1	<0.10	<1	<1
423348098283201		07-21-89	<1	2	5	5	1	1	0.30	3	<1

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL, RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	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)
COLFAX COUNTY											
412609097074401		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	<0.02	--	--	<0.02
		05-24-89	--	--	--	--	--	--	--	--	--
		05-24-89	--	--	--	--	--	<0.02	--	--	<0.02
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	<0.02	--	--	<0.20
		07-24-89	--	--	--	--	--	--	--	--	--
		07-24-89	--	--	--	--	--	<0.02	--	--	<0.20
		09-06-89	--	--	--	--	--	--	--	--	--
		09-06-89	--	--	--	--	--	<0.04	--	--	<0.20
FILLMORE COUNTY											
402516097272001		08-08-89	--	--	--	--	--	--	--	--	--
402507097433501		08-09-89	--	--	--	--	--	--	--	--	--
FRANKLIN COUNTY											
401801098433901		08-10-89	--	--	--	--	--	--	--	--	--
GAGE COUNTY											
402611096342501		07-05-89	--	--	--	--	--	--	--	--	--
402611096342502		07-05-89	--	--	--	--	--	--	--	--	--
402523096280801		07-05-89	<1	--	22	--	--	--	--	--	--
402612096322401		07-05-89	--	--	--	--	--	--	--	--	--
		07-05-89	--	--	--	--	--	<0.02	--	--	<0.20
402507096291601		06-19-89	<1	--	23	--	--	--	--	--	--
402502096310901		08-21-89	--	--	--	--	--	--	--	--	--
403105096355701		07-12-89	--	--	--	--	--	--	--	--	--
402903096280601		06-19-89	9	--	25	--	--	--	--	--	--
402837096313301		08-21-89	--	--	--	--	--	--	--	--	--
402746096291201		06-19-89	--	--	--	--	--	--	--	--	--
		06-19-89	--	--	--	--	--	<0.02	--	--	<0.20
402704096305001		08-21-89	--	--	--	--	--	--	--	--	--
402756096332801		07-05-89	<1	--	11	--	--	--	--	--	--
GREELEY COUNTY											
412813098420501		08-09-89	--	--	--	--	--	--	--	--	--
412521098401901		08-08-89	--	--	--	--	--	--	--	--	--
413121098444101		08-09-89	--	--	--	--	--	--	--	--	--
HOLT COUNTY											
423550098271101		08-24-89	--	<10	--	1.2	--	<0.10	<0.10	<0.1	<0.10
423614098274401		08-24-89	--	<10	--	1.0	--	<0.10	<0.10	<0.1	<0.10
423601098283401		07-20-89	--	20	--	1.1	--	<0.10	<0.10	<0.1	<0.10
423541098274401		08-24-89	--	20	--	1.7	--	<0.10	<0.10	<0.1	<0.10
423519098274401		08-24-89	--	<10	--	1.6	--	<0.10	<0.10	<0.1	<0.10
423510098272201		07-20-89	--	10	--	0.5	--	<0.10	<0.10	<0.1	<0.10
423440098275201		08-01-89	--	<10	--	--	0.6	<0.10	<0.10	<0.1	<0.10
423441098283401		07-20-89	--	10	--	0.7	--	<0.10	<0.10	<0.1	<0.10
423418098301501		07-20-89	--	<10	--	1.0	--	<0.10	<0.10	<0.1	<0.10
423348098283201		07-21-89	--	30	--	0.7	--	<0.10	<0.10	<0.1	<0.10

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)
COLFAX COUNTY										
412609097074401		04-19-89	--	--	--	--	--	--	--	--
		04-19-89	<0.02	<0.02	0.15	--	<0.02	--	--	--
		05-24-89	--	--	--	--	--	--	--	--
		05-24-89	<0.02	<0.02	0.15	--	<0.02	--	--	--
		06-27-89	--	--	--	--	--	--	--	--
		06-27-89	<0.02	<0.20	0.15	--	<0.30	--	--	--
		07-24-89	--	--	--	--	--	--	--	--
		07-24-89	<0.02	<0.20	0.20	--	<0.30	--	--	--
		09-06-89	--	--	--	--	--	--	--	--
		09-06-89	<0.04	<0.20	0.10	--	<0.30	--	--	--
FILLMORE COUNTY										
402516097272001		08-08-89	--	--	--	--	--	--	--	--
402507097433501		08-09-89	--	--	--	--	--	--	--	--
FRANKLIN COUNTY										
401801098433901		08-10-89	--	--	--	--	--	--	--	--
GAGE COUNTY										
402611096342501		07-05-89	--	--	--	--	--	--	--	--
402611096342502		07-05-89	--	--	--	--	--	--	--	--
402523096280801		07-05-89	--	--	--	--	--	--	--	--
402612096322401		07-05-89	--	--	--	--	--	--	--	--
		07-05-89	<0.02	<0.20	<0.02	--	<0.30	--	--	--
402507096291601		06-19-89	--	--	--	--	--	--	--	--
402502096310901		08-21-89	--	--	--	--	--	--	--	--
403105096355701		07-12-89	--	--	--	--	--	--	--	--
402903096280601		06-19-89	--	--	--	--	--	--	--	--
402837096313301		08-21-89	--	--	--	--	--	--	--	--
402746096291201		06-19-89	--	--	--	--	--	--	--	--
		06-19-89	<0.02	<0.20	<0.02	--	<0.30	--	--	--
402704096305001		08-21-89	--	--	--	--	--	--	--	--
402756096332801		07-05-89	--	--	--	--	--	--	--	--
GREELEY COUNTY										
412813098420501		08-09-89	--	--	--	--	--	--	--	--
412521098401901		08-08-89	--	--	--	--	--	--	--	--
413121098444101		08-09-89	--	--	--	--	--	--	--	--
HOLT COUNTY										
423550098271101		08-24-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423614098274401		08-24-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423601098283401		07-20-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423541098274401		08-24-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423519098274401		08-24-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423510098272201		07-20-89	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423440098275201		08-01-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423441098283401		07-20-89	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1
423418098301501		07-20-89	<0.10	<0.10	0.40	<0.10	<0.10	<0.10	<0.1	<0.1
423348098283201		07-21-89	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.1	<0.1

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
HOLT COUNTY									
423553098561201	30N	14W 3DD 1	42 35 53 N	098 56 12 W		07-21-89	1104	92.00	314
423717098553601	31N	14W35BBC 1	42 37 17 N	098 55 36 W	112SDGV	08-23-89	1600	100.00	449
423703098553801	31N	14W35BCCC1	42 37 03 N	098 55 38 W	112SDGV	08-23-89	1745	100.00	454
423659098550701	31N	14W35CAAA1	42 36 59 N	098 55 07 W	112SDGV	08-23-89	1941	100.00	404
423637098553801	31N	14W35CCCC1	42 36 37 N	098 55 38 W	112SDGV	08-24-89	0950	100.00	423
HOWARD COUNTY									
411711098213201	15N	9W 9BDCB1	41 17 11 N	098 21 32 W	121OGLL	08-08-89	1350	165.00	--
411616098273301	15N	10W16DAAA1	41 16 16 N	098 27 33 W	121OGLL	08-08-89	1430	110.00	--
411705098341701	15N	11W10CBA 1	41 17 05 N	098 34 17 W	121OGLL	08-08-89	1520	150.00	--
412249098371301	16N	11W 6CDDD1	41 22 49 N	098 37 13 W	110SDGV	08-08-89	1650	80.00	--
411952098341001	16N	11W27BC 1	41 19 52 N	098 34 10 W		08-08-89	1620	90.00	--
411935098364801	16N	11W30DADA1	41 19 35 N	098 36 48 W	121OGLL	08-08-89	1545	120.00	--
JEFFERSON COUNTY									
400422097195901	1N	1E 8AA 1	40 04 22 N	097 19 59 W	112SDGV	08-14-89	1525	--	619
400223097011901	1N	4E19BD 1	40 02 23 N	097 01 19 W	211DKOT	08-08-89	0940	--	387
400751097122001	2N	2E21AB 1	40 07 51 N	097 12 20 W	112SDGV	08-08-89	1040	--	437
JOHNSON COUNTY									
402041096195001	4N	10E 6ADAD1	40 20 41 N	096 19 50 W	319CCGV	06-30-89	1445	177.00	--
401715096074401	4N	11E25ACAB1	40 17 15 N	096 07 44 W	112PLSC	06-30-89	1315	62.00	--
					112PLSC	09-26-89	1345	62.00	676
401616096081401	4N	11E36BCDA1	40 16 16 N	096 08 14 W	112PLSC	08-03-89	1620	57.00	--
					112PLSC	08-03-89	1625	57.00	--
402503096274701	5N	9E 7BCBC1	40 25 03 N	096 27 47 W	319CCGV	07-05-89	1545	171.00	564
402500096263401	5N	9E 8BCCA1	40 25 00 N	096 26 34 W	319CCGV	07-13-89	1215	130.00	489
					319CCGV	07-13-89	1220	130.00	--
402442096182401	5N	10E 9CO 1	40 24 42 N	096 18 24 W	112SDGV	06-19-89	1000	188.00	654
402437096173101	5N	10E10CCBC1	40 24 37 N	096 17 31 W	112SDGV	06-19-89	1130	150.00	630
402338096164501	5N	10E15DCDD1	40 23 38 N	096 16 45 W	112SDGV	06-19-89	1135	150.00	--
403039096274701	6N	9E 6CCCB1	40 30 39 N	096 27 47 W	112SDGV	07-12-89	1030	110.00	394
					112SDGV	08-01-89	1345	170.00	578
					112SDGV	08-01-89	1350	170.00	--
402924096251201	6N	9E16BDBC1	40 29 24 N	096 25 12 W	112SDGV	08-01-89	1430	155.00	551
402807096251901	6N	9E21CCAO1	40 28 07 N	096 25 19 W	112SDGV	08-01-89	1050	130.00	460
					112SDGV	08-01-89	1055	130.00	--
402812096244701	6N	9E21DBDC1	40 28 12 N	096 24 47 W	112SDGV	07-12-89	1330	170.00	--
402727096210801	6N	9E25DABD1	40 27 27 N	096 21 08 W	112SDGV	08-01-89	1140	190.00	461
402707096211601	6N	9E25DCDD1	40 27 07 N	096 21 16 W	112SDGV	08-01-89	1210	150.00	449
403123096115001	6N	11E 5AAAA1	40 31 23 N	096 11 50 W	112SDGV	07-06-89	1330	175.00	456
402952096063401	6N	12E 7DACC1	40 29 52 N	096 06 34 W	112SDGV	06-21-89	0930	156.00	800
403216096081101	7N	11E36BBA1	40 32 16 N	096 08 11 W	112PLSC	08-03-89	1100	91.00	434
					112PLSC	08-03-89	1105	91.00	--
KEARNEY COUNTY									
403055098570001	6N	14W 6CB 1	40 30 55 N	098 57 00 W	112SDGV	08-10-89	1530	--	929

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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 WH WAT TOT FLD MG/L AS CACO3 (00902)	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												
423553098561201		07-21-89	6.73	11.5	7.5	140	85	45	7.1	11	0.4	4.8
423717098553601		08-23-89	6.30	11.5	7.2	230	170	71	13	12	0.4	5.7
423703098553801		08-23-89	6.71	11.0	7.1	200	140	62	10	12	0.4	5.5
423659098550701		08-23-89	6.59	11.5	8.2	180	130	57	9.1	9.8	0.3	5.4
423637098553801		08-24-89	6.71	10.5	7.3	200	150	64	10	12	0.4	7.5
HOWARD COUNTY												
411711098213201		08-08-89	7.10	13.5	--	270	0	88	12	10	0.3	7.2
411616098273301		08-08-89	7.15	14.0	--	270	0	89	12	9.1	0.3	6.1
411705098341701		08-08-89	7.18	14.0	--	310	14	99	15	14	0.4	8.2
412249098371301		08-08-89	7.27	13.0	--	330	23	110	13	9.3	0.2	6.4
411952098341001		08-08-89	6.80	12.0	--	310	0	100	15	16	0.4	9.4
411935098364801		08-08-89	7.03	13.5	--	300	6	100	13	11	0.3	6.8
JEFFERSON COUNTY												
400422097195901		08-14-89	7.16	13.0	--	280	0	96	9.5	28	0.8	2.3
400223097011901		08-08-89	6.43	13.0	--	140	31	43	8.4	29	1	2.3
400751097122001		08-08-89	6.85	13.0	--	200	32	65	8.0	22	0.7	3.2
JOHNSON COUNTY												
402041096195001		06-30-89	7.26	14.5	0.1	390	53	89	40	130	3	6.3
401715096074401		06-30-89	6.91	15.0	2.4	390	76	120	23	51	1	3.8
		09-26-89	6.96	14.5	0.4	--	--	--	--	--	--	--
401616096081401		08-03-89	7.39	13.5	--	260	0	79	16	29	0.8	2.9
		08-03-89	--	--	--	--	--	--	--	--	--	--
402503096274701		07-05-89	7.88	13.5	0.1	--	--	--	--	--	--	--
402500096263401		07-13-89	7.50	15.0	0.1	--	--	--	--	--	--	--
		07-13-89	--	--	--	--	--	--	--	--	--	--
402442096182401		06-19-89	7.30	15.0	1.6	--	--	--	--	--	--	--
402437096173101		06-19-89	7.29	15.0	3.8	280	4	80	19	40	1	3.7
		06-19-89	--	--	--	--	--	--	--	--	--	--
402338096164501		07-12-89	7.47	14.5	0.2	--	--	--	--	--	--	--
403039096274701		08-01-89	7.24	13.0	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402924096251201		08-01-89	7.30	15.5	--	--	--	--	--	--	--	--
402807096251901		08-01-89	7.38	13.0	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402812096244701		07-12-89	7.01	14.0	3.2	280	0	84	17	36	1	2.8
402727096210801		08-01-89	7.16	13.0	3.5	--	--	--	--	--	--	--
402707096211601		08-01-89	7.29	13.5	6.1	--	--	--	--	--	--	--
403123096115001		07-06-89	7.22	13.5	7.9	200	0	63	9.8	23	0.7	2.1
402952096063401		06-21-89	7.11	17.5	2.8	--	--	--	--	--	--	--
403216096081101		08-03-89	6.85	12.5	2.9	--	--	--	--	--	--	--
		08-03-89	--	--	--	--	--	--	--	--	--	--
KEARNEY COUNTY												
403055098570001		08-10-89	7.05	12.5	--	390	140	130	17	54	1	15

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	ALKA- LITY LAB (MG/L AS CACO ₃) (90410)	SULFATE DIS- SOLVED (MG/L AS SO ₄) (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 SiO ₂) (00955)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
HOLT COUNTY												
423553098561201		07-21-89	57	18	8.7	0.20	37	262	267	322	--	<0.010
423717098553601		08-23-89	63	28	22	0.10	28	400	389	447	39.0	0.030
423703098553801		08-23-89	58	25	15	0.10	31	390	367	428	39.0	0.020
423659098550701		08-23-89	55	20	14	0.10	33	322	305	354	28.0	0.010
423637098553801		08-24-89	51	24	16	0.10	32	373	342	393	--	<0.010
HOWARD COUNTY												
411711098213201		08-08-89	272	12	4.4	0.20	58	--	373	--	--	--
411616098273301		08-08-89	278	11	5.3	0.20	60	--	367	--	--	--
411705098341701		08-08-89	295	27	7.5	0.20	57	--	429	--	--	--
412249098371301		08-08-89	306	19	4.8	0.20	62	--	428	--	--	--
411952098341001		08-08-89	324	26	10	0.20	61	--	441	--	--	--
411935098364801		08-08-89	298	13	3.7	0.20	56	--	415	--	--	--
JEFFERSON COUNTY												
400422097195901		08-14-89	279	15	14	0.20	39	--	402	--	--	--
400223097011901		08-08-89	111	48	14	0.20	29	--	273	--	--	--
400751097122001		08-08-89	164	31	10	0.20	32	--	306	--	--	--
JOHNSON COUNTY												
402041096195001		06-30-89	334	290	49	0.80	22	--	829	--	--	--
401715096074401		06-30-89	319	150	18	0.30	20	--	604	--	--	--
		09-26-89	--	--	--	--	--	--	--	--	--	--
401616096081401		08-03-89	276	28	8.1	0.30	23	--	352	--	--	--
		08-03-89	--	--	--	--	--	--	--	--	--	--
402503096274701		07-05-89	--	--	--	--	--	--	--	--	--	--
402500096263401		07-13-89	--	--	--	--	--	--	--	--	--	--
		07-13-89	--	--	--	--	--	--	--	--	--	--
402442096182401		06-19-89	--	--	--	--	--	--	--	--	--	--
402437096173101		06-19-89	274	85	8.3	0.40	30	--	437	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--	--
402338096164501		07-12-89	--	--	--	--	--	--	--	--	--	--
403039096274701		08-01-89	--	--	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402924096251201		08-01-89	--	--	--	--	--	--	--	--	--	--
402807096251901		08-01-89	--	--	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402812096244701		07-12-89	283	69	11	0.30	29	--	427	--	--	--
402727096210801		08-01-89	--	--	--	--	--	--	--	--	--	--
402707096211601		08-01-89	--	--	--	--	--	--	--	--	--	--
403123096115001		07-06-89	208	16	3.3	0.20	32	--	300	--	--	--
402952096063401		06-21-89	--	--	--	--	--	--	--	--	--	--
403216096081101		08-03-89	--	--	--	--	--	--	--	--	--	--
		08-03-89	--	--	--	--	--	--	--	--	--	--
KEARNEY COUNTY												
403055098570001		08-10-89	260	190	41	0.30	26	--	660	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS ORGANIC TOTAL (MG/L AS P) (00670)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
HOLT COUNTY												
423553098561201		07-21-89	19.0	23.0	<0.010	--	0.30	19	0.140	0.14	80	<10
423717098553601		08-23-89	34.0	39.0	0.010	0.49	0.50	34	0.060	0.06	310	30
423703098553801		08-23-89	33.0	39.0	0.010	--	<0.20	--	0.070	0.07	350	60
423659098550701		08-23-89	25.0	28.0	0.010	0.39	0.40	25	0.070	0.07	710	70
423637098553801		08-24-89	30.0	33.0	0.020	0.48	0.50	30	0.070	0.07	250	60
HOWARD COUNTY												
411711098213201		08-08-89	--	4.00	--	--	--	--	--	--	--	--
411616098273301		08-08-89	--	1.80	--	--	--	--	--	--	--	--
411705098341701		08-08-89	--	5.50	--	--	--	--	--	--	--	--
412249098371301		08-08-89	--	4.60	--	--	--	--	--	--	--	--
411952098341001		08-08-89	--	2.00	--	--	--	--	--	--	--	--
411935098364801		08-08-89	--	7.50	--	--	--	--	--	--	--	--
JEFFERSON COUNTY												
400422097195901		08-14-89	--	6.90	--	--	--	--	--	--	--	--
400223097011901		08-08-89	--	7.40	--	--	--	--	--	--	--	--
400751097122001		08-08-89	--	8.30	--	--	--	--	--	--	--	--
JOHNSON COUNTY												
402041096195001		06-30-89	--	0.200	--	--	--	--	--	--	--	--
401715096074401		06-30-89	--	5.60	--	--	--	--	--	--	--	--
		09-26-89	--	--	--	--	--	--	--	--	--	--
401616096081401		08-03-89	--	<0.100	--	--	--	--	--	--	--	--
		08-03-89	--	--	--	--	--	--	--	--	--	--
402503096274701		07-05-89	--	<0.100	--	--	--	--	--	--	--	--
402500096263401		07-13-89	--	<0.100	--	--	--	--	--	--	--	--
		07-13-89	--	--	--	--	--	--	--	--	--	--
402442096182401		06-19-89	--	1.10	--	--	--	--	--	--	--	--
402437096173101		06-19-89	--	1.50	--	--	--	--	--	--	--	--
		06-19-89	--	--	--	--	--	--	--	--	--	--
402338096164501		07-12-89	--	0.120	--	--	--	--	--	--	--	--
403039096274701		08-01-89	--	0.460	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402924096251201		08-01-89	--	0.650	--	--	--	--	--	--	--	--
402807096251901		08-01-89	--	1.50	--	--	--	--	--	--	--	--
		08-01-89	--	--	--	--	--	--	--	--	--	--
402812096244701		07-12-89	--	1.80	--	--	--	--	--	--	--	--
402727096210801		08-01-89	--	0.310	--	--	--	--	--	--	--	--
402707096211601		08-01-89	--	0.310	--	--	--	--	--	--	--	--
403123096115001		07-06-89	--	5.90	--	--	--	--	--	--	--	--
402952096063401		06-21-89	--	7.10	--	--	--	--	--	--	--	--
403216096081101		08-03-89	--	9.80	--	--	--	--	--	--	--	--
		08-03-89	--	--	--	--	--	--	--	--	--	--
KEARNEY COUNTY												
403055098570001		08-10-89	--	7.00	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)
HOLT COUNTY												
423553098561201	07-21-89	5	--	300	<10	--	1	2	5	8	7	
423717098553601	08-23-89	<1	--	600	<10	--	<1	1	3	17	2	
423703098553801	08-23-89	1	--	500	<10	--	<1	<1	3	27	2	
423659098550701	08-23-89	1	--	300	<10	--	<1	2	4	28	3	
423637098553801	08-24-89	<1	--	600	<10	--	<1	1	3	26	1	
HOWARD COUNTY												
411711098213201	08-08-89	--	--	--	--	60	--	--	--	4	--	
411616098273301	08-08-89	--	--	--	--	70	--	--	--	7	--	
411705098341701	08-08-89	--	--	--	--	40	--	--	--	5	--	
412249098371301	08-08-89	--	--	--	--	60	--	--	--	5	--	
411952098341001	08-08-89	--	--	--	--	80	--	--	--	10	--	
411935098364801	08-08-89	--	--	--	--	70	--	--	--	4	--	
JEFFERSON COUNTY												
400422097195901	08-14-89	--	--	--	--	50	--	--	--	10	--	
400223097011901	08-08-89	--	--	--	--	60	--	--	--	15	--	
400751097122001	08-08-89	--	--	--	--	40	--	--	--	<3	--	
JOHNSON COUNTY												
402041096195001	06-30-89	--	<1	--	--	--	--	--	--	33	--	
401715096074401	06-30-89	--	1	--	--	--	--	--	--	38	--	
	09-26-89	--	--	--	--	--	--	--	--	--	--	
401616096081401	08-03-89	--	1	--	--	--	--	--	--	180	--	
	08-03-89	--	--	--	--	--	--	--	--	--	--	
402503096274701	07-05-89	--	--	--	--	--	--	--	--	--	--	
402500096263401	07-13-89	--	--	--	--	--	--	--	--	--	--	
	07-13-89	--	--	--	--	--	--	--	--	--	--	
402442096182401	06-19-89	--	--	--	--	--	--	--	--	--	--	
402437096173101	06-19-89	--	1	--	--	--	--	--	--	4	--	
	06-19-89	--	--	--	--	--	--	--	--	--	--	
402338096164501	07-12-89	--	--	--	--	--	--	--	--	--	--	
403039096274701	08-01-89	--	--	--	--	--	--	--	--	--	--	
	08-01-89	--	--	--	--	--	--	--	--	--	--	
402924096251201	08-01-89	--	--	--	--	--	--	--	--	--	--	
402807096251901	08-01-89	--	--	--	--	--	--	--	--	--	--	
	08-01-89	--	--	--	--	--	--	--	--	--	--	
402812096244701	07-12-89	--	2	--	--	--	--	--	--	4	--	
402727096210801	08-01-89	--	--	--	--	--	--	--	--	--	--	
402707096211601	08-01-89	--	--	--	--	--	--	--	--	--	--	
403123096115001	07-06-89	--	3	--	--	--	--	--	--	<3	--	
402952096063401	06-21-89	--	--	--	--	--	--	--	--	--	--	
403216096081101	08-03-89	--	--	--	--	--	--	--	--	--	--	
	08-03-89	--	--	--	--	--	--	--	--	--	--	
KEARNEY COUNTY												
403055098570001	08-10-89	--	--	--	--	80	--	--	--	160	--	

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CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	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												
423553098561201		07-21-89	<0.1	<0.10	<0.10	<0.10	0.90	<0.10	<0.10	<0.10	<0.1	<0.1
423717098553601		08-23-89	<0.1	<0.10	<0.10	<0.10	0.70	<0.10	<0.10	<0.10	<0.1	<0.1
423703098553801		08-23-89	<0.1	<0.10	<0.10	<0.10	0.30	<0.10	<0.10	<0.10	<0.1	<0.1
423659098550701		08-23-89	<0.1	<0.10	<0.10	<0.10	0.70	<0.10	<0.10	<0.10	<0.1	<0.1
423637098553801		08-24-89	<0.1	<0.10	<0.10	<0.10	0.30	<0.10	<0.10	<0.10	<0.1	<0.1
HOWARD COUNTY												
411711098213201		08-08-89	--	--	--	--	--	--	--	--	--	--
411616098273301		08-08-89	--	--	--	--	--	--	--	--	--	--
411705098341701		08-08-89	--	--	--	--	--	--	--	--	--	--
412249098371301		08-08-89	--	--	--	--	--	--	--	--	--	--
411952098341001		08-08-89	--	--	--	--	--	--	--	--	--	--
411935098364801		08-08-89	--	--	--	--	--	--	--	--	--	--
JEFFERSON COUNTY												
400422097195901		08-14-89	--	--	--	--	--	--	--	--	--	--
400223097011901		08-08-89	--	--	--	--	--	--	--	--	--	--
400751097122001		08-08-89	--	--	--	--	--	--	--	--	--	--
JOHNSON COUNTY												
402041096195001		06-30-89	--	--	--	--	--	--	--	--	--	--
401715096074401		06-30-89	--	--	--	--	--	--	--	--	--	--
		09-26-89	--	--	--	--	--	--	--	--	--	--
401616096081401		08-03-89	--	--	--	--	--	--	--	--	--	--
		08-03-89	--	<0.20	<0.04	<0.20	0.07	--	<0.30	--	--	--
402503096274701		07-05-89	--	--	--	--	--	--	--	--	--	--
402500096263401		07-13-89	--	--	--	--	--	--	--	--	--	--
		07-13-89	--	<0.02	<0.02	<0.02	<0.02	--	<0.02	--	--	--
402442096182401		06-19-89	--	--	--	--	--	--	--	--	--	--
402437096173101		06-19-89	--	--	--	--	--	--	--	--	--	--
		06-19-89	--	<0.20	<0.02	<0.20	0.02	--	<0.30	--	--	--
402338096164501		07-12-89	--	--	--	--	--	--	--	--	--	--
403039096274701		08-01-89	--	--	--	--	--	--	--	--	--	--
		08-01-89	--	<0.20	<0.04	<0.20	<0.04	--	<0.30	--	--	--
402924096251201		08-01-89	--	--	--	--	--	--	--	--	--	--
402807096251901		08-01-89	--	--	--	--	--	--	--	--	--	--
		08-01-89	--	<0.20	<0.04	<0.20	<0.04	--	<0.30	--	--	--
402812096244701		07-12-89	--	--	--	--	--	--	--	--	--	--
402727096210801		08-01-89	--	--	--	--	--	--	--	--	--	--
402707096211601		08-01-89	--	--	--	--	--	--	--	--	--	--
403123096115001		07-06-89	--	--	--	--	--	--	--	--	--	--
402952096063401		06-21-89	--	--	--	--	--	--	--	--	--	--
403216096081101		08-03-89	--	--	--	--	--	--	--	--	--	--
		08-03-89	--	<0.20	<0.04	<0.20	0.09	--	<0.30	--	--	--
KEARNEY COUNTY												
403055098570001		08-10-89	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
LANCASTER COUNTY									
403223096342501	7N	7E25DDDB1	40 32 23 N	096 34 25 W	112SDGV	07-13-89	1415	320.00	482
403154096362201	7N	7E35BCDC1	40 31 54 N	096 36 22 W	112SDGV	07-12-89	1530	150.00	448
					112SDGV	07-12-89	1535	150.00	--
403316096340501	7N	8E19CDCB1	40 33 16 N	096 34 05 W	112SDGV	08-01-89	1600	325.00	756
403348096320301	7N	8E21BDBB1	40 33 48 N	096 32 03 W	112SDGV	08-01-89	1445	214.00	515
403358096305501	7N	8E22BABC1	40 33 58 N	096 30 55 W	319ADMR	07-13-89	1530	220.00	--
					319ADMR	07-13-89	1535	220.00	--
MERRICK COUNTY									
410511098024001	13N	6W19ADAD1	41 05 11 N	098 02 40 W	112SDGV	04-18-89	1330	17.00	610
					112SDGV	04-18-89	1335	17.00	--
					112SDGV	05-26-89	1000	17.00	724
					112SDGV	05-26-89	1005	17.00	--
					112SDGV	06-26-89	1451	17.00	627
					112SDGV	06-26-89	1455	17.00	--
					112SDGV	07-26-89	1140	17.00	552
					112SDGV	07-26-89	1145	17.00	--
					112SDGV	09-08-89	1800	17.00	568
					112SDGV	09-08-89	1809	17.00	--
410445098024001	13N	6W19DAAB1	41 04 45 N	098 02 40 W	112SDGV	04-18-89	1230	17.00	735
					112SDGV	04-18-89	1235	17.00	--
					112SDGV	05-26-89	0900	17.00	894
					112SDGV	05-26-89	0905	17.00	--
					112SDGV	06-26-89	1342	17.00	735
					112SDGV	06-26-89	1345	17.00	--
					112SDGV	07-26-89	1040	17.00	679
					112SDGV	07-26-89	1045	17.00	--
					112SDGV	09-08-89	0950	17.00	661
					112SDGV	09-08-89	0953	17.00	--
410655098070901	13N	7W 9AADD1	41 06 55 N	098 07 09 W	112SDGV	04-19-89	1045	22.00	571
					112SDGV	04-19-89	1050	22.00	--
					112SDGV	05-25-89	1320	22.00	620
					112SDGV	05-25-89	1325	22.00	--
					112SDGV	06-27-89	1438	22.00	552
					112SDGV	06-27-89	1445	22.00	--
					112SDGV	07-25-89	1550	22.00	422
					112SDGV	07-25-89	1555	22.00	--
					112SDGV	09-07-89	1515	22.00	--
					112SDGV	09-07-89	1520	22.00	--
410655098063501	13N	7W10ABBA1	41 06 55 N	098 06 35 W	112SDGV	04-19-89	0940	22.00	390
					112SDGV	04-19-89	0945	22.00	--
					112SDGV	05-25-89	1450	22.00	504
					112SDGV	05-25-89	1455	22.00	--
					112SDGV	06-27-89	1334	22.00	480
					112SDGV	06-27-89	1345	22.00	--
					112SDGV	07-25-89	1450	22.00	418
					112SDGV	07-25-89	1455	22.00	--
					112SDGV	09-07-89	1400	22.00	415
					112SDGV	09-07-89	1405	22.00	--
410721098085201	13N	7W11CDBB1	41 06 27 N	098 05 24 W	112SDGV	04-18-89	0845	22.00	332
					112SDGV	04-18-89	0850	22.00	--
					112SDGV	05-25-89	1600	22.00	399
					112SDGV	05-25-89	1605	22.00	--
					112SDGV	06-26-89	1609	22.00	370
					112SDGV	06-26-89	1615	22.00	--
					112SDGV	07-25-89	1650	22.00	323
					112SDGV	07-25-89	1655	22.00	--
					112SDGV	09-07-89	1630	22.00	343
					112SDGV	09-07-89	1635	22.00	--

STATION	NUMBER	DATE	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 WH WAT TOT FLD MG/L AS CACO3 (00902)	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)
LANCASTER COUNTY												
403223096342501	07-13-89	7.40	13.5	--	--	--	--	--	--	--	--	--
403154096362201	07-12-89	7.30	18.5	8.3	--	--	--	--	--	--	--	--
	07-12-89	--	--	--	--	--	--	--	--	--	--	--
403316096340501	08-01-89	7.17	13.5	3.9	--	--	--	--	--	--	--	--
403348096320301	08-01-89	7.25	13.0	0.3	--	--	--	--	--	--	--	--
403358096305501	07-13-89	7.48	15.0	0.1	340	37	78	36	170	--	4	5.1
	07-13-89	--	--	--	--	--	--	--	--	--	--	--
MERRICK COUNTY												
410511098024001	04-18-89	7.04	12.5	9.1	--	--	--	--	--	--	--	--
	04-18-89	--	--	--	--	--	--	--	--	--	--	--
	05-26-89	--	15.0	6.6	--	--	--	--	--	--	--	--
	05-26-89	--	--	--	--	--	--	--	--	--	--	--
	06-26-89	7.20	--	5.6	--	--	--	--	--	--	--	--
	06-26-89	--	--	--	--	--	--	--	--	--	--	--
	07-26-89	7.00	--	6.0	--	--	--	--	--	--	--	--
	07-26-89	--	--	--	--	--	--	--	--	--	--	--
	09-08-89	7.00	--	5.2	--	--	--	--	--	--	--	--
	09-08-89	--	--	--	--	--	--	--	--	--	--	--
410445098024001	04-18-89	7.03	10.5	8.9	--	--	--	--	--	--	--	--
	04-18-89	--	--	--	--	--	--	--	--	--	--	--
	05-26-89	--	13.0	6.8	--	--	--	--	--	--	--	--
	05-26-89	--	--	--	--	--	--	--	--	--	--	--
	06-26-89	7.20	--	5.8	--	--	--	--	--	--	--	--
	06-26-89	--	--	--	--	--	--	--	--	--	--	--
	07-26-89	7.10	14.5	8.6	--	--	--	--	--	--	--	--
	07-26-89	--	--	--	--	--	--	--	--	--	--	--
	09-08-89	7.10	15.5	4.2	--	--	--	--	--	--	--	--
	09-08-89	--	--	--	--	--	--	--	--	--	--	--
410655098070901	04-19-89	6.12	12.5	8.4	--	--	--	--	--	--	--	--
	04-19-89	--	--	--	--	--	--	--	--	--	--	--
	05-25-89	--	--	7.4	--	--	--	--	--	--	--	--
	05-25-89	--	--	--	--	--	--	--	--	--	--	--
	06-27-89	6.50	--	5.9	--	--	--	--	--	--	--	--
	06-27-89	--	--	--	--	--	--	--	--	--	--	--
	07-25-89	6.70	--	5.2	--	--	--	--	--	--	--	--
	07-25-89	--	--	--	--	--	--	--	--	--	--	--
	09-07-89	--	--	--	--	--	--	--	--	--	--	--
	09-07-89	--	--	--	--	--	--	--	--	--	--	--
410655098063501	04-19-89	5.56	14.0	7.6	--	--	--	--	--	--	--	--
	04-19-89	--	--	--	--	--	--	--	--	--	--	--
	05-25-89	--	16.5	5.5	--	--	--	--	--	--	--	--
	05-25-89	--	--	--	--	--	--	--	--	--	--	--
	06-27-89	5.70	--	4.4	--	--	--	--	--	--	--	--
	06-27-89	--	--									

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
LANCASTER COUNTY											
403223096342501		07-13-89	--	--	--	--	--	--	--	--	--
403154096362201		07-12-89	--	--	--	--	--	--	--	--	--
		07-12-89	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
403316096340501		08-01-89	--	--	--	--	--	--	--	--	--
403348096320301		08-01-89	--	--	--	--	--	--	--	--	--
403358096305501		07-13-89	110	<1	21	--	--	--	--	--	--
		07-13-89	--	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
MERRICK COUNTY											
410511098024001		04-18-89	--	--	--	--	--	--	--	--	--
		04-18-89	--	--	--	<0.02	<0.02	<0.02	<0.02	1.0	<0.02
		05-26-89	--	--	--	--	--	--	--	--	--
		05-26-89	--	--	--	<0.02	<0.02	<0.02	<0.02	2.5	<0.02
		06-26-89	--	--	--	--	--	--	--	--	--
		06-26-89	--	--	--	<0.02	<0.20	<0.02	<0.20	1.9	<0.30
		07-26-89	--	--	--	--	--	--	--	--	--
		07-26-89	--	--	--	0.03	<0.20	<0.02	<0.20	2.2	<0.30
		09-08-89	--	--	--	--	--	--	--	--	--
		09-08-89	--	--	--	<0.04	<0.20	<0.04	<0.20	1.9	<0.30
410445098024001		04-18-89	--	--	--	--	--	--	--	--	--
		04-18-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.34	<0.02
		05-26-89	--	--	--	--	--	--	--	--	--
		05-26-89	--	--	--	<0.02	<0.02	<0.02	<0.02	1.2	<0.02
		06-26-89	--	--	--	--	--	--	--	--	--
		06-26-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.77	<0.30
		07-26-89	--	--	--	--	--	--	--	--	--
		07-26-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.65	<0.30
		09-08-89	--	--	--	--	--	--	--	--	--
		09-08-89	--	--	--	<0.04	<0.20	<0.04	<0.20	0.71	<0.30
410655098070901		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.88	<0.02
		05-25-89	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	2.2	<0.02
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	<0.02	<0.20	<0.02	<0.20	2.3	<0.30
		07-25-89	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	0.09	<0.20	<0.02	<0.20	6.9	<0.30
		09-07-89	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	3.6	<0.30
410655098063501		04-19-89	--	--	--	--	--	--	--	--	--
		04-19-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.79	<0.02
		05-25-89	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	3.0	<0.02
		06-27-89	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	<0.02	<0.20	<0.02	<0.20	3.9	<0.30
		07-25-89	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	0.05	<0.20	<0.02	<0.20	2.5	<0.30
		09-07-89	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	7.5	<0.30
410721098085201		04-18-89	--	--	--	--	--	--	--	--	--
		04-18-89	--	--	--	<0.02	<0.02	<0.02	<0.02	2.3	<0.02
		05-25-89	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	3.1	<0.02
		06-26-89	--	--	--	--	--	--	--	--	--
		06-26-89	--	--	--	<0.02	<0.20	<0.02	<0.20	2.3	<0.30
		07-25-89	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	0.02	<0.20	<0.02	<0.20	2.1	<0.30
		09-07-89	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	1.6	<0.30

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
MERRICK COUNTY									
410629098092701	13N	7W15DDDA1	41 05 28 N	098 05 46 W	112SDGV	04-18-89	1520	27.00	1130
					112SDGV	04-18-89	1525	27.00	--
					112SDGV	05-25-89	1740	27.00	1410
					112SDGV	05-25-89	1745	27.00	--
					112SDGV	06-26-89	1702	27.00	1190
					112SDGV	06-26-89	1705	27.00	--
					112SDGV	07-25-89	1740	27.00	987
					112SDGV	07-25-89	1745	27.00	--
					112SDGV	09-07-89	1720	27.00	930
					112SDGV	09-07-89	1725	27.00	--
411538097565601	15N	6W24ADDD1	41 15 38 N	097 56 56 W	112SDGV	04-19-89	1225	17.00	409
					112SDGV	04-19-89	1230	17.00	--
					112SDGV	05-25-89	0900	17.00	472
					112SDGV	05-25-89	0905	17.00	--
					112SDGV	06-27-89	0936	17.00	442
					112SDGV	06-27-89	0945	17.00	--
					112SDGV	07-25-89	1040	17.00	409
					112SDGV	07-25-89	1045	17.00	--
					112SDGV	09-07-89	0940	17.00	409
					112SDGV	09-07-89	0945	17.00	--
411512097565601	15N	6W24DADB1	41 15 12 N	097 56 56 W	112SDGV	04-19-89	1325	17.00	497
					112SDGV	04-19-89	1330	17.00	--
					112SDGV	05-25-89	1040	17.00	572
					112SDGV	05-25-89	1045	17.00	--
					112SDGV	06-27-89	1054	17.00	516
					112SDGV	06-27-89	1055	17.00	--
					112SDGV	07-25-89	1140	17.00	469
					112SDGV	07-25-89	1145	17.00	--
					112SDGV	09-07-89	1030	17.00	464
					112SDGV	09-07-89	1035	17.00	--
NANCE COUNTY									
411732098133001	15N	8W10BAAB1	41 17 32 N	098 13 30 W	112SDGV	08-09-89	0845	195.00	--
412152097581001	16N	6W14ABAC1	41 21 52 N	097 58 10 W	121OGLL	08-08-89	1145	70.00	--
411923098061001	16N	7W27DCD 1	41 19 23 N	098 06 10 W	121OGLL	08-08-89	1220	80.00	--
411850098094701	16N	7W31DDBD1	41 18 50 N	098 09 47 W	121OGLL	08-08-89	1255	210.00	--
NEMAHA COUNTY									
402030095412301	4N	15E 1CBBB1	40 20 30 N	095 41 23 W	112PLSC	08-18-89	1040	64.00	382
402425096011201	5N	12E13BAAB1	40 24 25 N	096 01 12 W	112PLSC	06-22-89	1600	83.00	--
					112PLSC	09-26-89	1115	83.00	473
402422095501101	5N	14E15BBBD1	40 24 22 N	095 50 11 W	112PLSC	06-22-89	1000	46.00	525
402141095382501	5N	16E32BADA1	40 21 41 N	095 38 25 W	112SDGV	06-22-89	1430	62.00	766
403056095580501	6N	13E 4CBAA1	40 30 56 N	095 58 05 W	112SDGV	06-21-89	1330	58.00	578
403018095571601	6N	13E 9ADAA1	40 30 18 N	095 57 16 W	112SDGV	08-02-89	1505	54.00	474
402955095555101	6N	13E11CBBC1	40 29 55 N	095 55 51 W	112SDGV	06-21-89	1130	59.00	--
402846095582101	6N	13E20AAAB1	40 28 46 N	095 58 21 W	112SDGV	06-21-89	1500	77.00	424
403045095442301	6N	15E 4CO 1	40 30 45 N	095 44 23 W	112SDGV	07-07-89	1210	73.00	--
403019095434901	6N	15E 9AO 1	40 30 19 N	095 43 49 W	110SDGV	08-04-89	1050	78.00	530
402955095431701	6N	15E10CBDD1	40 29 55 N	095 43 17 W	110SDGV	08-04-89	1010	84.00	--
402935095443801	6N	15E16BBBC1	40 29 35 N	095 44 38 W	110SDGV	08-07-89	1245	82.00	691

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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 TOT FLD MG/L AS CACO3 (00902)	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)	POTA- SIUM DIS- SOLVE (MG/L AS K) (00935)
MERRICK COUNTY												
410629098092701		04-18-89	6.94	16.5	8.0	--	--	--	--	--	--	--
		04-18-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	16.5	4.9	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-26-89	6.80	--	3.3	--	--	--	--	--	--	--
		06-26-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	7.30	14.5	4.4	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	6.90	--	3.8	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
411538097565601		04-19-89	6.43	12.5	6.7	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	14.0	6.8	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-27-89	6.60	--	5.2	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	7.00	--	5.6	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	6.80	--	5.5	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
411512097565601		04-19-89	5.90	14.0	7.0	--	--	--	--	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	15.5	6.8	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-27-89	6.10	--	5.7	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	6.50	--	3.9	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	6.20	--	6.0	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
NANCE COUNTY												
411732098133001		08-09-89	7.12	13.0	--	280	0	91	12	12	0.3	7.0
412152097581001		08-08-89	7.30	15.0	--	460	68	140	27	38	0.8	15
411923098061001		08-08-89	7.10	13.5	--	290	0	91	16	10	0.3	8.3
411850098094701		08-08-89	7.17	13.5	--	270	0	89	12	8.1	0.2	5.1
NEMAHA COUNTY												
402030095412301		08-18-89	7.14	13.0	1.4	--	--	--	--	--	--	--
402425096011201		06-22-89	7.35	13.5	2.0	260	0	72	20	37	1	1.4
		09-26-89	7.34	13.5	0.8	--	--	--	--	--	--	--
402422095501101		06-22-89	6.84	15.5	0.2	240	56	73	13	21	0.6	2.0
402141095382501		06-22-89	7.26	16.0	0.1	440	22	120	34	20	0.4	5.8
403056095580501		06-21-89	7.22	15.5	1.2	--	--	--	--	--	--	--
403018095571601		08-02-89	6.95	12.0	6.0	--	--	--	--	--	--	--
402955095555101		06-21-89	7.17	13.0	--	220	21	64	15	30	0.9	2.6
402846095582101		06-21-89	7.04	14.5	8.2	--	--	--	--	--	--	--
403045095442301		07-07-89	7.09	12.5	0.2	440	0	120	35	29	0.6	5.8
403019095434901		08-04-89	7.24	13.0	--	--	--	--	--	--	--	--
402955095431701		08-04-89	7.25	13.0	--	--	--	--	--	--	--	--
402935095443801		08-07-89	7.44	12.5	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
MERRICK COUNTY												
410629098092701		04-18-89	--	--	--	--	--	--	19.0	--	--	--
		04-18-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-26-89	--	--	--	--	--	--	19.0	--	--	--
		06-26-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	12.0	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	16.0	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
411538097565601		04-19-89	--	--	--	--	--	--	13.0	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	14.0	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	15.0	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	18.0	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	19.0	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
411512097565601		04-19-89	--	--	--	--	--	--	31.0	--	--	--
		04-19-89	--	--	--	--	--	--	--	--	--	--
		05-25-89	--	--	--	--	--	--	33.0	--	--	--
		05-25-89	--	--	--	--	--	--	--	--	--	--
		06-27-89	--	--	--	--	--	--	31.0	--	--	--
		06-27-89	--	--	--	--	--	--	--	--	--	--
		07-25-89	--	--	--	--	--	--	30.0	--	--	--
		07-25-89	--	--	--	--	--	--	--	--	--	--
		09-07-89	--	--	--	--	--	--	32.0	--	--	--
		09-07-89	--	--	--	--	--	--	--	--	--	--
NANCE COUNTY												
411732098133001		08-09-89	292	14	4.0	0.20	58	382	2.00	--	50	4
412152097581001		08-08-89	393	120	23	0.40	49	669	4.70	--	130	18
411923098061001		08-08-89	305	19	3.5	0.30	60	399	1.70	--	80	7
411850098094701		08-08-89	277	10	3.9	0.20	57	358	1.50	--	50	4
NEMAHA COUNTY												
402030095412301		08-18-89	--	--	--	--	--	--	2.40	--	--	--
402425096011201		06-22-89	301	33	1.4	0.40	24	380	2.40	1	--	9
		09-26-89	--	--	--	--	--	--	--	--	--	--
402422095501101		06-22-89	180	86	11	0.20	26	341	<0.100	2	--	390
402141095382501		06-22-89	418	25	9.3	0.40	31	509	<0.100	12	--	12000
403056095580501		06-21-89	--	--	--	--	--	--	<0.100	--	--	--
403018095571601		08-02-89	--	--	--	--	--	--	<0.100	--	--	--
402955095555101		06-21-89	201	56	10	0.30	23	347	5.90	2	--	9
402846095582101		06-21-89	--	--	--	--	--	--	12.0	--	--	--
403045095442301		07-07-89	490	16	3.4	0.30	33	545	<0.100	3	--	7900
403019095434901		08-04-89	--	--	--	--	--	--	<0.100	--	--	--
402955095431701		08-04-89	487	9.0	5.5	0.30	--	--	<0.100	--	--	--
402935095443801		08-07-89	--	--	--	--	--	--	<0.100	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	MANGANESE, DIS- SOLVED (UG/L AS MN) (01056)	SELENIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	PRO- PAZINE TOTAL (UG/L) (39024)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
MERRICK COUNTY											
410629098092701	04-18-89	--	--	--	--	--	--	--	--	--	--
	04-18-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.30	<0.02	
	05-25-89	--	--	--	--	--	--	--	--	--	
	05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.44	<0.02	
	06-26-89	--	--	--	--	--	--	--	--	--	
	06-26-89	--	--	--	<0.02	<0.20	<0.02	<0.20	1.3	<0.30	
	07-25-89	--	--	--	--	--	--	--	--	--	
	07-25-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.55	<0.30	
	09-07-89	--	--	--	--	--	--	--	--	--	
411538097565601	04-19-89	--	--	--	--	--	--	--	--	--	
04-19-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.96	<0.02		
05-25-89	--	--	--	--	--	--	--	--	--		
05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	1.6	<0.02		
06-27-89	--	--	--	--	--	--	--	--	--		
06-27-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.51	<0.30		
07-25-89	--	--	--	--	--	--	--	--	--		
07-25-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.99	<0.30		
09-07-89	--	--	--	--	--	--	--	--	--		
09-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	1.2	<0.30		
411512097565601	04-19-89	--	--	--	--	--	--	--	--	--	
	04-19-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.28	<0.02	
	05-25-89	--	--	--	--	--	--	--	--	--	
	05-25-89	--	--	--	<0.02	<0.02	<0.02	<0.02	0.50	<0.02	
	06-27-89	--	--	--	--	--	--	--	--	--	
	06-27-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.03	<0.30	
	07-25-89	--	--	--	--	--	--	--	--	--	
	07-25-89	--	--	--	<0.02	<0.20	<0.02	<0.20	0.33	<0.30	
	09-07-89	--	--	--	--	--	--	--	--	--	
09-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	0.32	<0.30		
NANCE COUNTY											
411732098133001	08-09-89	<1	--	--	--	--	--	--	--	--	
412152097581001	08-08-89	9	--	--	--	--	--	--	--	--	
411923098061001	08-08-89	250	--	--	--	--	--	--	--	--	
411850098094701	08-08-89	3	--	--	--	--	--	--	--	--	
NEMAHA COUNTY											
402030095412301	08-18-89	--	--	--	--	--	--	--	--	--	
402425096011201	06-22-89	26	25	8	--	--	--	--	--	--	
	09-26-89	--	26	--	--	--	--	--	--	--	
4024220955501101	06-22-89	230	<1	13	--	--	--	--	--	--	
402141095382501	06-22-89	900	<1	4	--	--	--	--	--	--	
403056095580501	06-21-89	--	--	--	--	--	--	--	--	--	
403018095571601	08-02-89	--	--	--	--	--	--	--	--	--	
402955095555101	06-21-89	1	21	7	--	--	--	--	--	--	
402846095582101	06-21-89	--	--	--	--	--	--	--	--	--	
403045095442301	07-07-89	550	<1	6	--	--	--	--	--	--	
403019095434901	08-04-89	--	--	--	--	--	--	--	--	--	
402955095431701	08-04-89	--	--	--	--	--	--	--	--	--	
402935095443801	08-07-89	--	--	--	--	--	--	--	--	--	

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
NUCKOLLS COUNTY									
400843097522601	2N	5W15BDB1	40 08 43 N	097 52 26 W	112SDGV	08-09-89	0825	180.00	--
401458098035801	3N	7W 1CC 1	40 14 58 N	098 03 58 W	211NBRR	08-09-89	0910	163.00	--
401735098155201	4N	8W19DC 1	40 17 35 N	098 15 52 W	121OGLL	08-14-89	1335	205.00	522
OTOE COUNTY									
403216096175701	7N	10E33ABAB1	40 32 16 N	096 17 57 W	112SDGV	07-06-89	1430	111.00	507
403203096174401	7N	10E33ADBA1	40 32 03 N	096 17 44 W	112SDGV	07-06-89	1515	105.00	686
403403096095601	7N	11E15CDCDC1	40 34 03 N	096 09 56 W	112PLSC	07-11-89	1555	110.00	--
					112PLSC	08-14-89	1550	110.00	--
403620095475901	7N	14E 1BCBD1	40 36 20 N	095 47 59 W	322WBNS	08-02-89	1200	60.00	--
403557095455901	7N	15E 6DDBA1	40 35 57 N	095 45 59 W	112SDGV	08-02-89	0930	85.00	800
403544095463301	7N	15E 7BABA1	40 35 44 N	095 46 33 W	112SDGV	08-02-89	1125	109.00	--
403257095461601	7N	15E30ABCD1	40 32 57 N	095 46 16 W	112SDGV	08-14-89	1215	56.00	--
404058096231601	8N	9E10AAAA1	40 40 58 N	096 23 16 W	112FLSC	07-06-89	1630	54.00	--
403939096114601	8N	11E16CBEB1	40 39 39 N	096 11 46 W	112FLSC	07-06-89	1100	52.00	550
404009096012901	8N	12E12CDCC1	40 40 09 N	096 01 29 W	112PLSC	07-07-89	1450	47.00	244
404142095505901	8N	14E 4BADA1	40 41 42 N	095 50 59 W	110SDGV	08-07-89	1445	74.00	--
					110SDGV	08-07-89	1450	74.00	--
PAWNEE COUNTY									
400500096093101	1N	11E 2BCBD1	40 05 00 N	096 09 31 W	112PLSC	06-29-89	1030	45.00	--
400639096160101	2N	10E26BDCD1	40 06 39 N	096 16 01 W	112PLSC	06-29-89	1130	36.00	568
400612096093501	2N	11E26CCCC1	40 06 12 N	096 09 35 W	112PLSC	06-29-89	1245	42.00	564
401320096073601	3N	11E13DDBB1	40 13 20 N	096 07 36 W	112SDGV	06-29-89	1430	153.00	569
401359096093501	3N	11E14BBBB1	40 13 59 N	096 09 35 W	112SDGV	06-29-89	1330	145.00	--
401119096134601	3N	11E31BABD1	40 11 19 N	096 13 46 W	112SDGV	06-29-89	1335	145.00	--
					112PLSC	06-29-89	1545	39.00	553
RICHARDSON COUNTY									
400101095563301	1N	13E27DCBD1	40 01 01 N	095 56 33 W	319CHSE	06-23-89	1630	102.00	--
400449095425801	1N	15E 3ACCD1	40 04 49 N	095 42 58 W	112PLSC	06-23-89	1315	47.00	--
					112PLSC	08-14-89	1110	47.00	--
					112PLSC	08-14-89	1115	47.00	--
400155095244601	1N	18E20DCAB1	40 01 55 N	095 24 46 W	112SDGV	06-23-89	1115	62.00	--
400026095195101	1N	19E31CBAB1	40 00 26 N	095 19 51 W	110SDGV	08-18-89	1345	53.00	--
400013095190401	1N	19E31DO 1	40 00 13 N	095 19 04 W	110SDGV	08-21-89	1135	72.00	714
					110SDGV	08-21-89	1140	72.00	--
400920095525401	2N	14E 7ADBD1	40 09 20 N	095 52 54 W	319CCGV	06-30-89	1045	105.00	--
					319CCGV	06-30-89	1050	105.00	--
400739095494901	2N	14E22ABCD1	40 07 39 N	095 49 49 W	112PLSC	06-23-89	1515	48.00	728
400859095425501	2N	15E10DBDC1	40 08 59 N	095 42 55 W	112PLSC	06-23-89	1400	42.00	573
					112PLSC	09-20-89	1345	42.00	522
400605095252001	2N	18E32BBAA1	40 06 05 N	095 25 20 W	110SDGV	08-18-89	1235	81.00	494
401359095565901	3N	13E15BBAA1	40 13 59 N	095 56 59 W	112SDGV	06-30-89	1130	124.00	552
401531095493701	3N	14E 3AO 1	40 15 31 N	095 49 37 W	112SDGV	06-30-89	1135	124.00	--
401520095495601	3N	14E 3BDDD1	40 15 20 N	095 49 56 W	112SDGV	08-03-89	1355	147.00	--
401506095531101	3N	14E 6DBCD1	40 15 06 N	095 53 11 W	112SDGV	08-03-89	1515	174.00	478
401424095491801	3N	14E11CDBB1	40 14 24 N	095 49 18 W	112SDGV	08-04-89	1445	193.00	527
								193.00	534
401348095490101	3N	14E14BACC1	40 13 48 N	095 49 01 W	112SDGV	08-04-89	1510	157.00	386
401325095483101	3N	14E14DBDA1	40 13 25 N	095 48 31 W	112SDGV	08-04-89	1550	146.00	--
401453095334101	3N	16E 1DDDC1	40 14 53 N	095 33 41 W	319ADMR	08-04-89	1350	152.00	476
					319ADMR	08-04-89	1355	152.00	--

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STATION	NUMBER	DATE	ALKA-	SULFATE	CHLO-	FLUO-	SILICA,	SOLIDS,	NITRO-	ARSENIC	BORON,	IRON,
			LINITY LAB (MG/L AS CACO3) (90410)	DIS- SOLVED (MG/L AS SO4) (00945)	RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RIDE, DIS- SOLVED (MG/L AS F) (00950)	DIS- SOLVED (MG/L AS SIO2) (00955)	SUM OF CONSTITUENTS, DIS- SOLVED (MG/L AS N) (70301)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS AS) (00631)			
NUCKOLLS COUNTY												
400843097522601		08-09-89	225	24	43	0.20	50	408	6.20	--	50	<3
401458098035801		08-09-89	248	25	27	0.20	44	376	1.70	--	50	3
401735098155201		08-14-89	251	17	19	0.40	45	349	0.810	--	50	10
OTOE COUNTY												
403216096175701		07-06-89	--	--	--	--	--	--	6.10	--	--	--
403203096174401		07-06-89	--	--	--	--	--	--	2.50	--	--	--
403403096095601		07-11-89	--	--	--	--	--	--	--	--	--	--
		08-14-89	241	15	6.7	0.20	27	333	5.80	1	--	6
403620095475901		08-02-89	523	54	11	0.40	24	608	0.770	1	--	17
403557095455901		08-02-89	--	--	--	--	--	--	<0.100	--	--	--
403544095463301		08-02-89	543	33	10	0.30	30	644	<0.100	13	--	9500
403257095461601		08-14-89	--	70	14	0.30	27	412	<0.100	14	--	6200
404058096231601		07-06-89	347	210	7.6	0.30	29	689	5.00	<1	--	14
403939096114601		07-06-89	198	48	9.8	0.30	27	366	11.0	1	--	9
404009096012901		07-07-89	--	--	--	--	--	--	1.10	--	--	--
404142095505901		08-07-89	228	150	19	0.40	18	485	<0.100	11	--	3400
		08-07-89	--	--	--	--	--	--	--	--	--	--
PAWNEE COUNTY												
400500096093101		06-29-89	291	49	18	0.30	32	417	<0.100	5	--	4000
400639096160101		06-29-89	--	--	--	--	--	--	1.30	--	--	--
400612096093501		06-29-89	--	--	--	--	--	--	1.10	--	--	--
401320096073601		06-29-89	--	--	--	--	--	--	0.330	--	--	--
401359096093501		06-29-89	283	42	2.4	0.30	26	370	1.10	2	--	10
		06-29-89	--	--	--	--	--	--	--	--	--	--
401119096134601		06-29-89	--	--	--	--	--	--	0.940	--	--	--
RICHARDSON COUNTY												
400101095563301		06-23-89	327	330	9.6	0.50	16	798	0.930	<1	--	65
400449095425801		06-23-89	247	82	27	0.50	25	436	<0.100	2	--	170
		08-14-89	247	77	44	0.40	25	450	0.260	2	--	130
		08-14-89	--	--	--	--	--	--	--	--	--	--
400155095244601		06-23-89	517	54	5.3	0.40	28	626	<0.100	10	--	9600
400026095195101		08-18-89	--	20	5.7	0.30	27	251	<0.100	10	--	870
400013095190401		08-21-89	--	--	--	--	--	--	<0.100	--	--	--
		08-21-89	--	--	--	--	--	--	--	--	--	--
400920095525401		06-30-89	283	920	11	0.30	16	1570	1.20	<1	--	18
		06-30-89	--	--	--	--	--	--	--	--	--	--
400739095494901		06-23-89	--	--	--	--	--	--	<0.100	--	--	--
400859095425501		06-23-89	--	--	--	--						

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	SIMA- ZINE TOTAL (UG/L) (39055)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
NUCKOLLS COUNTY											
400843097522601		08-09-89	1	--	--	--	--	--	--	--	--
401458098035801		08-09-89	<1	--	--	--	--	--	--	--	--
401735098155201		08-14-89	3	--	--	--	--	--	--	--	--
OTOE COUNTY											
403216096175701		07-06-89	--	--	--	--	--	--	--	--	--
403203096174401		07-06-89	--	--	--	--	--	--	--	--	--
403403096095601		07-11-89	--	--	--	<0.04	<0.20	<0.04	<0.20	0.09	<0.30
		08-14-89	98	6	10	--	--	--	--	--	--
403620095475901		08-02-89	2	5	48	--	--	--	--	--	--
403557095455901		08-02-89	--	--	--	--	--	--	--	--	--
403544095463301		08-02-89	850	<1	7	--	--	--	--	--	--
403257095461601		08-14-89	3200	<1	25	--	--	--	--	--	--
404058096231601		07-06-89	24	3	77	--	--	--	--	--	--
403939096114601		07-06-89	2	9	33	--	--	--	--	--	--
404009096012901		07-07-89	--	--	--	--	--	--	--	--	--
404142095505901		08-07-89	990	<1	16	--	--	--	--	--	--
		08-07-89	--	--	--	<0.04	<0.20	<0.04	<0.20	<0.04	<0.30
PAWNEE COUNTY											
400500096093101		06-29-89	1600	<1	42	--	--	--	--	--	--
400639096160101		06-29-89	--	--	--	--	--	--	--	--	--
400612096093501		06-29-89	--	--	--	--	--	--	--	--	--
401320096073601		06-29-89	--	--	--	--	--	--	--	--	--
401359096093501		06-29-89	3	6	11	--	--	--	--	--	--
		06-29-89	--	--	--	<0.02	<0.20	<0.02	<0.20	<0.02	<0.30
401119096134601		06-29-89	--	--	--	--	--	--	--	--	--
RICHARDSON COUNTY											
400101095563301		06-23-89	5	3	6	--	--	--	--	--	--
400449095425801		06-23-89	2500	<1	110	--	--	--	--	--	--
		08-14-89	1800	2	570	--	--	--	--	--	--
		08-14-89	--	--	--	<0.04	<0.20	<0.04	<0.20	0.46	<0.30
400155095244601		06-23-89	2600	<1	6	--	--	--	--	--	--
400026095195101		08-18-89	2500	<1	12	--	--	--	--	--	--
400013095190401		08-21-89	--	--	--	--	--	--	--	--	--
		08-21-89	--	--	--	<0.04	<0.20	<0.04	<0.20	0.09	<0.30
400920095525401		06-30-89	7	2	94	--	--	--	--	--	--
		06-30-89	--	--	--	<0.02	<0.20	0.02	<0.20	0.14	<0.30
400739095494901		06-23-89	--	--	--	--	--	--	--	--	--
400859095425501		06-23-89	--	--	--	--	--	--	--	--	--
		09-20-89	--	--	--	--	--	--	--	--	--
400605095252001		08-18-89	--	--	--	--	--	--	--	--	--
401359095565901		06-30-89	--	--	--	--	--	--	--	--	--
		06-30-89	--	--	--	<0.02	<0.20	<0.02	<0.20	<0.02	<0.30
401531095493701		08-03-89	11	2	7	--	--	--	--	--	--
401520095495601		08-03-89	--	--	--	--	--	--	--	--	--
401506095531101		08-03-89	--	--	--	--	--	--	--	--	--
401424095491801		08-04-89	--	--	--	--	--	--	--	--	--
401348095490101		08-04-89	--	--	--	--	--	--	--	--	--
401325095483101		08-04-89	1	2	59	--	--	--	--	--	--
401453095334101		08-04-89	--	--	--	--	--	--	--	--	--
		08-04-89	--	--	--	<0.04	<0.20	<0.04	<0.20	<0.04	<0.30

CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	LOCAL IDENT- I- FIER	LAT- I- TUDE	LONG- I- TUDE	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
ROCK COUNTY									
424731099180801	33N 17W34ACAB1		42 47 31 N	099 18 08 W	112SDGV	12-06-88	1215	10.00	281
					112SDGV	12-09-88	0930	10.00	299
424734099180301	33N 17W34ADBB1		42 47 34 N	099 18 03 W	112SDGV	10-12-88	0930	50.00	297
					112SDGV	10-14-88	1100	50.00	324
424720099182101	33N 17W34BDAD1		42 47 20 N	099 18 21 W	112SDGV	10-05-88	0930	80.00	299
424710099182201	33N 17W34BDDA1		42 47 10 N	099 18 22 W	112SDGV	10-20-88	0940	40.00	264
					112SDGV	10-21-88	0900	40.00	261
424728099182201	33N 17W34BDDD1		42 47 28 N	099 18 22 W	110SDGV	10-14-88	1045	14.00	251
					110SDGV	12-06-88	1315	14.00	228
					110SDGV	04-24-89	1140	14.00	260
					110SDGV	06-19-89	1350	14.00	249
					110SDGV	07-17-89	1400	14.00	--
						07-21-89	1400	14.00	--
					110SDGV	08-14-89	1340	14.00	232
424728099182202	33N 17W34BDDD2				110SDGV	10-14-88	1015	29.00	297
					110SDGV	12-06-88	1245	29.00	285
					110SDGV	04-24-89	1210	29.00	234
					110SDGV	06-19-89	1410	29.00	258
					110SDGV	07-17-89	1445	29.00	--
					110SDGV	08-14-89	1410	29.00	289
THAYER COUNTY									
400037097371201	1N 3W35AC 1		40 00 37 N	097 37 12 W	112SDGV	08-08-89	1315	190.00	336
401436097232401	3N 1W11AD 1		40 14 36 N	097 23 24 W	112SDGV	08-08-89	1540	--	--
401238097354601	3N 3W24DA 1		40 12 38 N	097 35 46 W	112SDGV	08-08-89	1425	--	494
401857097484801	4N 4W18BD 1		40 18 57 N	097 48 48 W	112SDGV	08-09-89	1005	--	--
VALLEY COUNTY									
412849098484801	17N 13W 4ABAA1		41 28 49 N	098 48 48 W	121OGLL	08-09-89	1100	300.00	--
413053098541701	18N 14W22DADD1		41 30 53 N	098 54 17 W	121OGLL	08-09-89	1230	195.00	--
413305099034201	18N 15W 8AABC1		41 33 05 N	099 03 42 W	121OGLL	08-09-89	1320	235.00	--
413155098590001	18N 15W13ADDC1		41 31 55 N	098 59 00 W	121OGLL	08-09-89	1250	248.00	--
413639099050501	19N 15W18DCCD1		41 36 39 N	099 05 05 W	112PLSC	08-09-89	1400	--	--
413654099092001	19N 16W16DADC1		41 36 54 N	099 09 20 W	121OGLL	08-09-89	1430	215.00	--
413452099071301	19N 16W35ABAA1		41 34 52 N	099 07 13 W	121OGLL	08-09-89	1345	160.00	--
WEBSTER COUNTY									
401906098354803	4N 11W18AA 3		40 19 06 N	098 35 48 W	112SDGV	08-10-89	1125	168.00	--

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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 WH WAT TOT FLD MG/L AS CACO3 (00902)	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)
ROCK COUNTY												
424731099180801		12-06-88	7.44	12.5	1.0	110	0	37	4.7	10	0.4	8.0
		12-09-88	7.49	12.0	3.1	120	0	40	5.9	13	0.5	6.9
424734099180301		10-12-88	7.25	11.0	0.1	130	0	43	5.1	10	0.4	6.5
		10-14-88	7.66	11.0	0.1	140	0	47	5.8	10	0.4	6.8
424720099182101		10-05-88	7.38	11.5	0.1	120	0	41	5.4	9.0	0.4	6.5
424710099182201		10-20-88	7.40	15.5	0.7	--	--	--	--	--	--	--
		10-21-88	7.40	15.5	0.7	110	0	36	4.9	11	0.5	6.9
424728099182201		10-14-88	7.80	18.5	--	95	0	32	3.6	11	0.5	9.7
		12-06-88	7.94	15.0	--	88	0	30	3.2	8.5	0.4	8.7
		04-24-89	8.26	--	--	110	0	36	3.7	9.6	0.4	6.3
		06-19-89	8.15	18.5	--	97	0	34	2.9	9.0	0.4	10
		07-17-89	8.26	--	8.2	82	0	29	2.4	8.3	0.4	17
		07-21-89	--	--	--	--	--	--	--	--	--	--
		08-14-89	8.21	--	--	84	0	30	2.3	8.3	0.4	14
424728099182202		10-14-88	7.65	12.5	--	130	0	42	5.5	9.7	0.4	5.4
		12-06-88	7.71	14.5	--	120	0	41	5.2	9.5	0.4	5.9
		04-24-89	7.94	--	--	100	0	33	4.2	7.5	0.3	4.1
		06-19-89	7.83	--	--	110	0	37	4.4	8.7	0.4	4.7
		07-17-89	7.86	11.0	8.0	120	0	41	5.1	9.9	0.4	5.3
		08-14-89	7.84	15.0	--	130	0	42	4.9	11	0.4	6.5
THAYER COUNTY												
400037097371201		08-08-89	7.04	13.5	--	140	12	49	4.5	16	0.6	3.2
401436097232401		08-08-89	6.84	13.5	--	110	0	36	6.0	22	0.9	4.1
401238097354601		08-08-89	--	13.5	--	190	0	61	9.4	33	1	5.3
401857097484801		08-09-89	6.89	13.0	--	130	0	42	6.5	14	0.6	4.4
VALLEY COUNTY												
412849098484801		08-09-89	7.27	12.5	--	320	0	100	17	15	0.4	10
413053098541701		08-09-89	7.38	13.0	--	290	8	95	13	9.1	0.2	8.0
413305099034201		08-09-89	7.36	13.0	--	390	110	130	17	11	0.3	11
413155098590001		08-09-89	7.17	13.0	--	360	34	120	15	18	0.4	17
413639099050501		08-09-89	7.14	13.0	--	290	8	95	14	7.7	0.2	8.4
413654099092001		08-09-89	7.43	13.0	--	270	3	85	13	7.6	0.2	7.5
413452099071301		08-09-89	7.16	13.0	--	390	110	130	17	17	0.4	11
WEBSTER COUNTY												
401906098354803		08-10-89	7.12	13.5	--	330	86	110	14	12	0.3	4.8

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	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)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	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)
ROCK COUNTY												
424731099180801	12-06-88	129	14	1.6	0.40	45	197	--	<0.100	--	0.080	
	12-09-88	138	14	1.7	0.40	49	210	--	0.100	--	0.050	
424734099180301	10-12-88	145	8.8	6.9	0.20	49	213	--	0.500	--	0.030	
	10-14-88	163	7.0	1.7	0.20	51	228	--	<0.100	--	0.060	
424720099182101	10-05-88	146	5.7	1.7	0.30	53	201	--	<0.100	--	0.180	
424710099182201	10-20-88	--	--	--	--	--	--	--	--	--	--	--
	10-21-88	134	6.5	2.0	0.40	62	210	--	<0.100	--	0.080	
424728099182201	10-14-88	126	4.7	1.6	0.30	69	207	--	<0.100	--	0.090	
	12-06-88	106	12	1.5	0.40	64	192	--	<0.100	--	0.010	
	04-24-89	117	12	1.6	0.40	24	164	--	0.100	--	0.120	
	06-19-89	117	11	1.3	0.50	53	192	--	<0.100	--	0.190	
	07-17-89	111	8.0	1.1	0.40	62	195	--	<0.100	--	0.250	
	07-21-89	--	--	--	--	--	--	<0.010	--	--	--	--
424728099182202	08-14-89	108	6.0	1.5	0.40	59	186	--	<0.100	--	0.130	
	10-14-88	151	5.5	1.6	0.30	50	211	--	<0.100	--	0.030	
	12-06-88	142	8.9	1.8	0.40	56	214	--	<0.100	--	0.010	
	04-24-89	110	9.5	1.4	0.30	42	168	--	<0.100	--	0.050	
	06-19-89	124	10	1.6	0.40	41	182	--	<0.100	--	0.040	
	07-17-89	143	8.0	1.2	0.30	45	202	--	<0.100	--	0.040	
	08-14-89	142	6.0	1.4	0.40	51	208	--	<0.100	--	0.050	
THAYER COUNTY												
400037097371201	08-08-89	129	13	13	0.20	32	227	--	--	4.20	--	
401436097232401	08-08-89	122	23	7.2	0.30	29	212	--	--	2.60	--	
401238097354601	08-08-89	196	24	16	0.20	33	326	--	--	6.00	--	
401857097484801	08-09-89	139	12	7.6	0.20	38	212	--	--	0.940	--	
VALLEY COUNTY												
412849098484801	08-09-89	325	43	4.2	0.20	66	457	--	--	1.50	--	
413053098541701	08-09-89	283	30	3.9	0.20	63	399	--	--	1.50	--	
413305099034201	08-09-89	285	120	8.5	0.10	55	541	--	--	4.00	--	
413155098590001	08-09-89	328	44	10	0.20	53	516	--	--	9.60	--	
413639099050501	08-09-89	287	33	2.3	0.20	57	391	--	--	<0.100	--	
413654099092001	08-09-89	263	9.0	6.6	0.20	57	362	--	--	4.10	--	
413452099071301	08-09-89	281	130	7.4	0.10	59	577	--	--	8.40	--	
WEBSTER COUNTY												
401906098354803	08-10-89	247	26	38	0.20	44	427	--	--	6.80	--	

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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CHEMICAL ANALYSES OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

STATION	NUMBER	DATE	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)	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)
ROCK COUNTY												
424731099180801	12-06-88	--	<1	<1	<1	36	79	<5	630	<0.10	6	<1
	12-09-88	--	<1	<1	<1	4	140	<5	540	<0.10	3	<1
424734099180301	10-12-88	--	<1	1	12	250	<5	400	<0.10	4	<1	<1
	10-14-88	--	1	<1	7	480	<5	420	<0.10	1	<1	<1
424720099182101	10-05-88	--	<1	<1	2	530	<5	270	0.10	<1	<1	<1
424710099182201	10-20-88	--	--	--	--	--	--	--	--	--	--	--
	10-21-88	--	<1	<1	3	200	<5	200	<0.10	4	<1	<1
424728099182201	10-14-88	--	<1	2	5	--	<5	--	<0.10	4	<1	<1
	12-06-88	--	<1	3	<1	--	<5	--	<0.10	1	<1	<1
	04-24-89	--	<1	40	2	--	<5	--	0.30	30	1	<1
	06-19-89	--	<1	4	<1	--	<1	--	<0.10	3	<1	<1
	07-17-89	--	<1	<1	2	--	1	--	<0.10	2	<1	<1
	07-21-89	--	--	--	--	--	--	--	--	--	--	--
	08-14-89	--	<1	1	2	--	1	--	<0.10	1	<1	<1
424728099182202	10-14-88	--	<1	2	2	--	<5	--	<0.10	3	<1	<1
	12-06-88	--	1	3	1	--	<5	--	<0.10	3	<1	<1
	04-24-89	--	<1	6	1	--	<5	--	0.10	7	<1	<1
	06-19-89	--	<1	7	5	--	9	--	<0.10	7	<1	<1
	07-17-89	--	<1	4	2	--	1	--	<0.10	4	<1	<1
	08-14-89	--	<1	4	9	--	1	--	<0.10	10	<1	<1
THAYER COUNTY												
400037097371201	08-08-89	40	--	--	--	4	--	2	--	--	--	--
401436097232401	08-08-89	40	--	--	--	4	--	<1	--	--	--	--
401238097354601	08-08-89	30	--	--	--	<3	--	<1	--	--	--	--
401857097484801	08-09-89	30	--	--	--	3	--	<1	--	--	--	--
VALLEY COUNTY												
412849098484801	08-09-89	70	--	--	--	7	--	250	--	--	--	--
413053098541701	08-09-89	80	--	--	--	6	--	38	--	--	--	--
413305099034201	08-09-89	50	--	--	--	8	--	2	--	--	--	--
413155098590001	08-09-89	70	--	--	--	5	--	3	--	--	--	--
413639099050501	08-09-89	60	--	--	--	75	--	1000	--	--	--	--
413654099092001	08-09-89	60	--	--	--	5	--	7	--	--	--	--
413452099071301	08-09-89	110	--	--	--	5	--	1	--	--	--	--
WEBSTER COUNTY												
401906098354803	08-10-89	40	--	--	--	<3	--	2	--	--	--	--

CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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STATION	NUMBER	DATE	PROME-	PROME-	NAPH- THA- LENES,	ALDRIN, TOTAL (UG/L) (39330)	LINDANE TOTAL (UG/L) (39340)	CHLOR-	DDD	DDE	DDT	DI-
			TONE TOTAL (UG/L) (39056)	TRYNE TOTAL (UG/L) (39057)	POLY- CHLOR. TOTAL (UG/L) (39250)			DANE, TOTAL (UG/L) (39350)	TOTAL (UG/L) (39360)	TOTAL (UG/L) (39365)	TOTAL (UG/L) (39370)	ELDRIN TOTAL (UG/L) (39380)
ROCK COUNTY												
424731099180801	12-06-88	--	--	--	--	--	--	--	--	--	--	--
	12-09-88	<0.10	<0.10	--	--	--	--	--	--	--	--	--
424734099180301	10-12-88	--	--	--	--	--	--	--	--	--	--	--
	10-14-88	<0.10	<0.10	--	--	--	--	--	--	--	--	--
424720099182101	10-05-88	<0.10	<0.10	--	--	--	--	--	--	--	--	--
424710099182201	10-20-88	--	--	--	--	--	--	--	--	--	--	--
	10-21-88	<0.10	<0.10	--	--	--	--	--	--	--	--	--
424728099182201	10-14-88	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	12-06-88	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.10	<0.010	<0.010
	04-24-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	06-19-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	07-17-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	07-21-89	--	--	--	--	--	--	--	--	--	--	--
424728099182202	08-14-89	<0.10	<0.10	--	--	--	--	--	--	--	--	--
	10-14-88	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	12-06-88	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.10	<0.010	<0.010
	04-24-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	06-19-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	07-17-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
	08-14-89	<0.10	<0.10	<0.10	<0.010	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010
THAYER COUNTY												
400037097371201	08-08-89	--	--	--	--	--	--	--	--	--	--	--
401436097232401	08-08-89	--	--	--	--	--	--	--	--	--	--	--
401238097354601	08-08-89	--	--	--	--	--	--	--	--	--	--	--
401857097484801	08-09-89	--	--	--	--	--	--	--	--	--	--	--
VALLEY COUNTY												
412849098484801	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413053098541701	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413305099034201	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413155098590001	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413639099050501	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413654099092001	08-09-89	--	--	--	--	--	--	--	--	--	--	--
413452099071301	08-09-89	--	--	--	--	--	--	--	--	--	--	--
WEBSTER COUNTY												
401906098354803	08-10-89	--	--	--</								

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CHEMICAL ANALYSES OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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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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