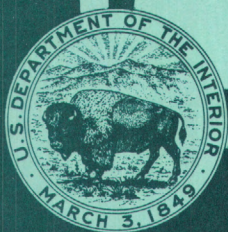
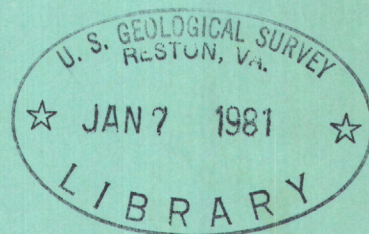


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Water Resources Data for North Dakota

Part 2. Water Quality Records



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of North Dakota
and with other agencies

CALENDAR FOR WATER YEAR 1972

OCTOBER 1971

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

NOVEMBER 1971

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

DECEMBER 1971

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

JANUARY 1972

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

FEBRUARY 1972

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

MARCH 1972

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

APRIL 1972

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

MAY 1972

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

JUNE 1972

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

JULY 1972

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

AUGUST 1972

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

SEPTEMBER 1972

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

1972

Water Resources Data
for
North Dakota

Part 2. Water Quality Records



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of North Dakota
and with other agencies

Prepared in cooperation with
North Dakota State Water Commission,
Surveillance and Analysis Division, U.S. Environmental
Protection Agency,
International Joint Commission, U.S. Department
of State

Water resources records, 1972, for North Dakota are in
the following reports of the U.S. Geological Survey:

1. Water Resources Data for North Dakota
Part 1. Surface Water Records
2. Water Resources Data for North Dakota
Part 2. Water Quality Records

Copies of this report may be obtained from
District Chief, Water Resources Division
U.S. Geological Survey
Room 332, Federal Building
P. O. Box 778
Bismarck, North Dakota 58501

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IV WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED

[Letters after station name designate type of data:
(c), chemical; (t), water temperature; (s) sediment]

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Lake Winnipeg (Head of Nelson River)

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WATER RESOURCES DATA FOR NORTH DAKOTA, 1972

Part 2. Water Quality Records

INTRODUCTION

Water resources data for the 1972 water year for North Dakota include records of the chemical and physical characteristics of surface and ground water. Data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as continuous, once daily, weekly, monthly or less frequently. Records are given for 129 sampling stations of which 34 are continuous-record stations and 95 are partial-record stations. Records of chemical analyses are also given for 8 miscellaneous ground-water sites. Locations of surface water-quality stations and counties where wells were sampled for ground-water quality are shown in figure 1. The records were collected by the Water Resources Division of the U.S. Geological Survey under the direction of R. C. Williams, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in North Dakota.

The Geological Survey has published records of chemical quality, water temperatures, and sediment since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Beginning with the 1964 water year, water-quality records have been released by the Geological Survey in annual reports on a State-boundary basis. These reports are for limited distribution and are designed primarily for rapid release of data shortly after the end of the water year. These records will be published later in Geological Survey water-supply papers.

COOPERATION

This report was prepared by the U.S. Geological Survey under cooperative agreement with the following organization:

1. North Dakota State Water Commission
Milo W. Hoisveen, Chief Engineer.

Agencies furnishing assistance in the form of funds or services were:

1. Other Federal agencies of the U.S. Department of Interior for the development of the Missouri River basin.
2. Surveillance and Analysis Division, U.S. Environmental Protection Agency.
3. International Joint Commission, U.S. Department of State.

DEFINITION OF TERMS

Terms related to water-quality and hydrologic data, as used in this report are defined below. See also table for converting English units to International System (SI) on page 18.

Acre-foot (ac-ft, AC-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 325,851 gallons.

Bed material is the shifting portion of fragmented alluvial material of which the streambed is composed.

Biochemical oxygen demand (BOD) is the amount of oxygen required by bacteria while stabilizing decomposable organic matter under aerobic conditions.

Cfs-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, 1.9835 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate incubation membrane filter method.

Cubic foot per second (cfs, CFS) 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.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

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

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the tables is "Discharge (cfs)."

Drainage area of a stream at the 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 river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

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 body of impounded surface water together with all tributary surface stream and bodies of impounded surface water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is a physical-chemical characteristic attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Micrograms per liter ($\mu\text{g/l}$, UG/L) is a unit expressing the concentration of chemical constituents in solution as weight (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 weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted

to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 5. Concentration of suspended sediment also is expressed in mg/l, and is based on the weight of sediment per liter of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, p. 5.

Partial-record station is a particular site where limited streamflow 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 suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, visual-accumulation tube) determine fall diameter of particles in distilled water (chemically dispersed) (Guy, 1969).

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

Classification	Size (mm)	Method of analysis
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 material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water.

pH indicates the degree of acidity or alkalinity of water and is expressed in terms of pH units. The pH value of a solution is the negative logarithm of the concentration of hydrogen ions, in moles per liter. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8.

WATER RESOURCES DATA FOR NORTH DAKOTA

PART 2. WATER QUALITY RECORDS

1972

ERRATA SHEET

Page 5

Please correct the conversion factors as follows:

<u>Ion</u>	<u>Multiply by</u>
Ammonia as NH_4^{+1}	.05544
Nitrate as NO_3^{-1}	.01613
Nitrite as NO_2^{-1}	.02174

Table 1.--Factors for conversion of selected chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

<u>Ion</u>	<u>Multi- ply by</u>	<u>Ion</u>	<u>Multi- ply by</u>
Aluminum (Al^{+3})*...	0.11119	Iodide (I^{-1}).....	0.00788
Ammonia as NH_4^{+1} ...	.07139	Iron (Fe^{+3})*.....	.05372
Barium (Ba^{+2})*.....	.01456	Lead (Pb^{+2})*.....	.00965
Bicarbonate (HCO_3^{-1})	.01639	Lithium (Li^{+1})*.....	.14411
Bromide (Br^{-1}).....	.01251	Magnesium (Mg^{+2})....	.08226
Calcium (Ca^{+2}).....	.04990	Manganese (Mn^{+2})*...	.03640
Carbonate (CO_3^{-2})..	.03333	Nickel (Ni^{+2})*.....	.03406
Chloride (Cl^{-1}).....	.02821	Nitrate (NO_3^{-1}).....	.07139
Chromium (Cr^{+6})*...	.11539	Nitrite (NO_2^{-1})....	.07139
Cobalt (Co^{+2})*.....	.03394	Phosphorus (PO_4^{-3})..	.03229
Copper (Cu^{+2})*.....	.03148	Potassium (K^{+1}).....	.02557
Cyanide (CN^{-1})*.....	.03844	Sodium (Na^{+1}).....	.04350
Fluoride (F^{-1}).....	.05264	Strontium (Sr^{+2})*...	.02283
Hydrogen (H^{+1}).....	.99209	Sulfate (SO_4^{-2}).....	.02082
Hydroxide (OH^{-1})...	.05880	Zinc (Zn^{+2})*.....	.03060

* Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in milligrams per liter to parts per million*
(All values calculated to three significant figures)

<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

* Based on water density of 1.000 grams per milliliter and a specific gravity of sediment of 2.65.

Sediment is solid material that originates mostly from disintegrated rocks and is transformed 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.

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 discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. It is computed by multiplying discharge times the concentration in milligrams per liter times 0.0027.

Total sediment discharge or total sediment load is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that is discharged during a given time (Colby and Hembree, 1955).

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.

Sodium-adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farmland.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the dissolved-solids content in the water. Commonly, the amount of dissolved solids (mg/l) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream

or from well to well and it may even vary in the same source with changes in the composition of the water.

Stage is the height of a water surface above an established datum plane; also gage height.

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." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph or a digital mechanism that automatically records water temperatures on paper tape.

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 water year.

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

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

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.

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

Irrigation network stations are water-quality stations located at or near certain streamflow gaging stations west of the main stem of the Mississippi River. Data collected at these stations are used to evaluate the chemical quality of surface waters used for irrigation and the changes resulting from the drainage of irrigated lands. Prior to water year 1966, the data for these stations were published in the annual water-supply paper series, "Quality of Surface Water for Irrigation, Western States."

Pesticide program is a network of regularly sampled water-quality stations where additional monthly samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

Pesticides are chemical compounds used to control the growth of undesirable plants and animals. Major categories of pesticides includes insecticides, miticides, fungicides, herbicides, and rodenticides. Since the first application of DDT as an insecticide in the early 1930's, there have been almost 60,000 pesticide formulations registered, each containing at least one of the approximately 800 different basic pesticide compounds (Goerlitz and Brown, 1972, p. 24). The United States annually produces about 1 billion pounds of these compounds. Although efforts are being made to substitute many of the chlorinated hydrocarbon pesticides with more specific, fast-acting, and easily degradable compounds, chlorinated hydrocarbon pesticides are still commonly used in many areas of the country.

Radiochemical program is a network of regularly sampled water-quality stations where additional samples are collected twice a year (at high and low flow) to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Radioisotopes are isotope forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus. For example: Ordinary chlorine is a mixture of isotopes having atomic weights 35 and 37, with the natural mixture having atomic weight about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron (Rose, 1966). There are 275 isotopes of the 81 stable elements in addition to over 800 radioactive isotopes.

Radioisotopes that are determined in this program are those of uranium in micrograms per liter, radium as radium-226 in picocuries per liter, gross beta radiation as strontium/yttrium-90 in picocuries per liter, and gross alpha radiation as micrograms of uranium equivalent per liter.

A picocurie (PC/L, pCi/l) is one millionth of the amount of radioactivity represented by a microcurie, which is the quantity of radiation represented by one millionth of a gram of radium-226. A picocurie of radium results in 2.22 disintegration per minute.

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 05051700, which appears to the left of the station name, includes the

2-digit part number "05" plus the 6-digit downstream order number "051700." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 5 (Hudson Bay and upper Mississippi River basins) and Part 6 (Missouri River basin). All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports.

Downstream order station numbers are not assigned to sites where only random water-quality samples are taken. These sites are classified as water-quality miscellaneous sites and as a means of location and identification a 15-digit number consisting of a latitude and longitude coordinates to the nearest second for each site plus a 2-digit sequential number are assigned. For example, the station number for a water-quality miscellaneous site with lat $47^{\circ}01'25''$, long $101^{\circ}55'27''$ would be 470125101552701.

WELL-NUMBERING SYSTEM

The well-numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude. The next seven digits denote degrees, minutes, and seconds of longitude. The last two digits are sequential numbers for wells having the same latitude and longitude to the nearest second. The latitude and longitude of each well is that of the southeast corner of the 10-acre tract described in the following paragraph. The system provides the geographic location of the well and a unique number for each well. See figure 2.

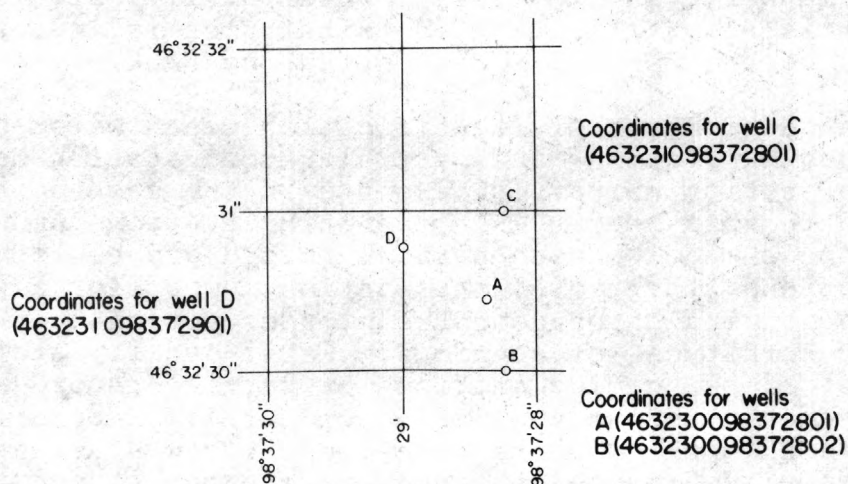


FIGURE 2.-- System of numbering wells (Latitude and Longitude)

In order to compare data for wells in other publications, such as the county ground-water studies, the wells in this report are also numbered according to a system based on the location in the public land classification of the U.S. Bureau of Land Management. The system is illustrated in figure 3. The first numeral denotes the township north of a base line, the second numeral denotes the range west of the fifth principal meridian, and the third numeral denotes the section in which the well is located. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section, quarter-quarter section, and quarter-quarter-quarter section (10-acre tract). For example, well 150-51-15AAA is in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 15, T. 150 N., R. 51 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract.

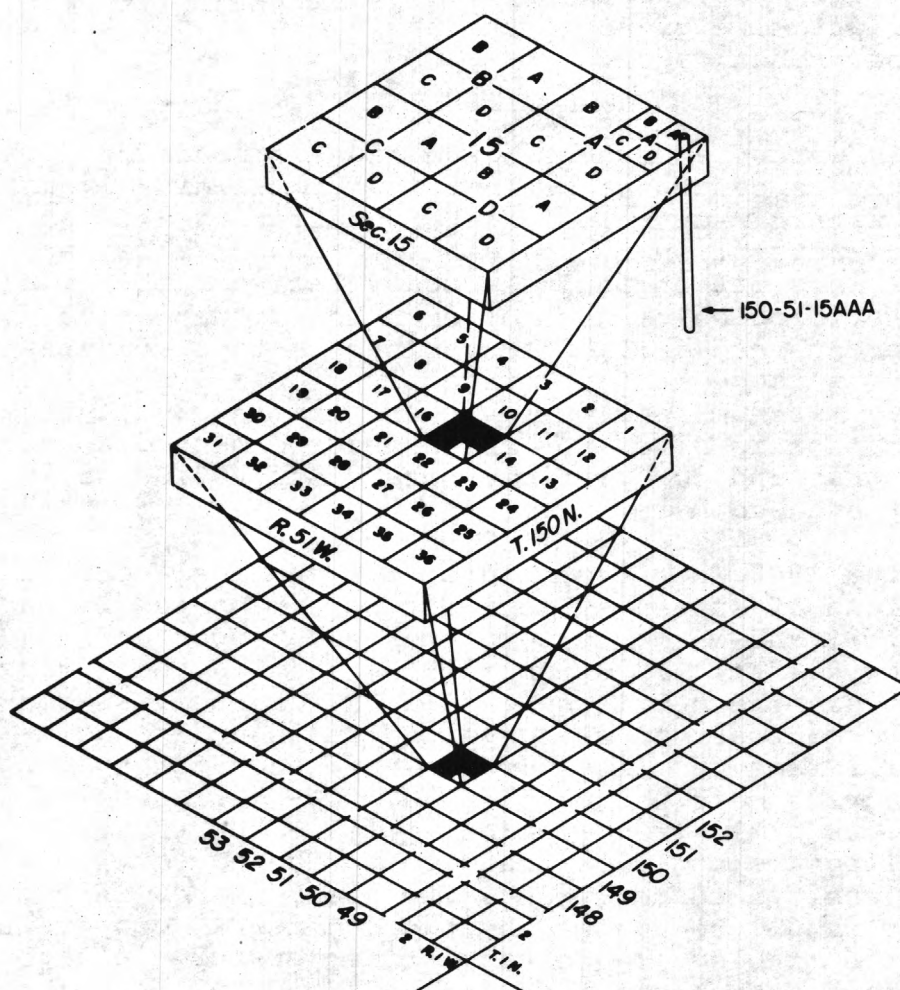


FIGURE 3.-- System of numbering wells (Township and Range)

COLLECTION AND EXAMINATION OF DATA

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads. Discharge records for streams in North Dakota have been released in the report, "Water Resources Data for North Dakota, 1972, Part 1. Surface Water Records."

The data in this report include a description of the sampling station and tabulations of the samples analyzed. The description of the sampling station gives the location, drainage area, periods of record for the various water-quality data, extremes of the pertinent data, and general remarks in a format similar to that used for streamflow gaging stations. For groundwater sampling stations, no description statements are given. However, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of ground water.

Water-quality information is presented for chemical quality, microbiological, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, sodium-adsorption-ratio, specific conductance, and pH. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations, except for stations where a continuous temperature recorder furnishes information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations, and for particle-size distribution of suspended sediment and bed material.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm), and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began to use the metric system; data for chemical constituents and concentrations of suspended sediment are now reported in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per million and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in milligrams per liter should be divided by the density to convert to parts per million (table 2). To convert temperature in degrees Celcius to degrees Fahrenheit, see table 3, page 13.

In October 1968, the U.S. Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "Definition of Terms", p. 2 and table for converting English units to International System units, p. 19.

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)*
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	74	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

$$^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32) \text{ or } ^{\circ}\text{F} = 9/5 (^{\circ}\text{C}) + 32.$$

Solutes

The methods of collecting and analyzing water samples for determining the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970); Goerlitz and Brown (1972). 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 the mixing of the stream. Some streams must be sampled at several verticals across the channel to determine accurately the solute load.

The daily chemical quality data in this report generally represent equal-volume composites for 2- to 30-day periods; the composite periods are selected on the basis of specific conductance of the daily samples and fluctuation of water discharge.

For chemical quality stations equipped with noncontinuous-digital monitors the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey district office at the address given on page II of this report.

Ground water does not change significantly during short periods of time; infrequent sampling and analysis of ground water adequately defines ground-water quality at a given site. Water samples from wells are analyzed individually.

Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for surface-water stations. For daily stations, the water temperatures are taken each day at about the same time the sample is collected. Large streams have a small diurnal temperature change; small 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 continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day.

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, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The

published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily loads of suspended-sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream 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 stream-flow and in predicting long-term sediment-discharge characteristics of the stream.

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

WATER-SUPPLY PAPERS

The annual series of water-supply papers that contain information on quality of surface waters in North Dakota are listed below.

<u>Water</u> <u>year</u>	<u>WSP</u> <u>No.</u>	<u>Water</u> <u>year</u>	<u>WSP</u> <u>No.</u>	<u>Water</u> <u>year</u>	<u>WSP</u> <u>No.</u>	<u>Water</u> <u>year</u>	<u>WSP</u> <u>No.</u>
1941	942	1950	1187	1959	1643	1968	2094
1942	950	1951	1198	1960	1743		2095
1943	970	1952	1251	1961	1883	1969	A2144
1944	1022	1953	1291	1962	1943		A2145
1945	1030	1954	1351	1963	1949	1970	A2154
1946	1050	1955	1401	1964	1956		A2155
1947	1102	1956	1451	1965	1963	1971	A2164
1948	1132	1957	1521	1966	1993		A2165
1949	1162	1958	1572	1967	2013		

A - In press.

SELECTED REFERENCES

- American Public Health Association, and others, 1971, Standard methods for the examination of water and wastewater, 13th ed.: Am. Public Health Assoc., New York, 874 p.
- Brown, Eugene, Skougstad, M. W., and Fishman, M. J., 1970, Methods for collection and analysis of water samples for dissolved minerals and gases: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. A1, 160 p.
- Colby, B. R., 1963, Fluvial sediments--a summary of source, transportation, deposition, and measurement of sediment discharge: U.S. Geol. Survey Bull. 1181-A, 47 p.
- Colby, B. R., and Hembree, C. H., 1955, Computations of total sediment discharge, Niobrara River near Cody, Nebraska: U.S. Geol. Survey Water-Supply Paper 1357, 187 p.
- Colby, B. R., and Hubbell, D. W., 1961, Simplified methods for computing total sediment discharge with the modified Einstein procedure: U.S. Geol. Survey Water-Supply Paper 1593, 17 p.
- Goerlitz, D. F., and Brown, Eugene, 1972, Methods for analysis of organic substances in water: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. A3, 40 p.
- Guy, H. P., 1970, Fluvial sediment concepts: U.S. Geol. Survey Techniques of Water-Resources Inv., book 3, chap. C1, 55 p.
- _____, 1969, Laboratory theory and methods for sediment analysis: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C1, 58 p.
- Guy, H. P., and Norman, V. W., 1970, Field methods for measurement of fluvial sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 3, chap. C2, 59 p.
- Hem, J. D., 1970, Study and interpretation of the chemical characteristics of natural water, 2d ed.: U.S. Geological Survey Water-Supply Paper 1473, 363 p.

Langbein, W. B., and Iseri, K. T., 1960, General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1541-A, 29 p.

Porterfield, George, 1972, Computations of fluvial-sediment discharge: U.S. Geol. Survey Techniques of Water Resources Inv., book 3, chap. C3, 66 p.

Ritter, J. R., and Helley, E. J., 1969, Optical method for determining particle sizes of coarse sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C3, 33 p (open file).

Rose, Arthur and Elizabeth, 1966, The condensed chemical dictionary: Reinhold Pub. Corp., New York, 7th ed., p. 257.

U.S. Inter-Agency Committee on Water Resources, Subcommittee on Sedimentation, A study of methods used in measurement and analysis of sediment loads in streams. Published by the St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minn.

_____ 1941, Methods of analyzing sediment samples: Rept. 4.

_____ 1953, Accuracy of sediment size analyses made by the bottom-withdrawal-tube method: Rept. 10.

_____ 1957, The development and calibration of visual accumulation tube: Rept. 11.

_____ 1957, Some fundamentals of particle size analysis: Rept. 12.

_____ 1959, Federal Inter-agency sedimentation instruments and reports: Rept. AA.

_____ 1961, The single stage sampler for suspended sediment: Rept. 13.

_____ 1963, Determinations of fluvial sediment discharge: Rept. 14.

Table 4.--Factors for converting English units to International System (SI) units

The following factors may be used to convert the English units published herein to the International System of Units (SI). Subsequent reports will contain both the English and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

Multiply English units	By	To obtain SI units
<i>Length</i>		
inches (in)	25.4	millimeters (mm)
	.0254	meters (m)
feet (ft)	.3048	meters (m)
yards (yd)	.9144	meters (m)
rods	5.0292	meters (m)
miles (mi)	1.609	kilometers (km)
<i>Area</i>		
acres	4047	square meters (m ²)
	.4047	*hectares (ha)
	.4047	square hectometer (hm ²)
	.004047	square kilometers (km ²)
square miles (mi ²)	2.590	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785	**liters (l)
	3.785	cubic decimeters (dm ³)
	3.785x10 ⁻³	cubic meters (m ³)
million gallons (10 ⁶ gal)	3785	cubic meters (m ³)
	3.785x10 ⁻³	cubic hectometers (hm ³)
cubic feet (ft ³)	28.32	cubic decimeters (dm ³)
	.02832	cubic meters (m ³)
cfs-day (ft ³ /s-day)	2447	cubic meters (m ³)
	2.447x10 ⁻³	cubic hectometers (hm ³)
acre-feet (acre-ft)	1233	cubic meters (m ³)
	1.233x10 ⁻³	cubic hectometers (hm ³)
	1.233x10 ⁻⁶	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	28.32	liters per second (l/s)
	28.32	cubic decimeters per second (dm ³ /s)
	.02832	cubic meters per second (m ³ /s)
gallons per minute (gpm)	.06309	liters per second (l/s)
	.06309	cubic decimeters per second (dm ³ /s)
	6.309x10 ⁻⁵	cubic meters per second (m ³ /s)
million gallons per day (mgd)	43.81	cubic decimeters per second (dm ³ /s)
	.04381	cubic meters per second (m ³ /s)
<i>Mass</i>		
ton (short)	.9072	tonne (t)

*The unit hectare is approved for use with the International System (SI) for a limited time. See NBS Special Bulletin 330, p.15, 1972 edition.

**The unit liter is accepted for use with the International System (SI). See NBS Special Bulletin 330, p. 13, 1972 edition.

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05051510 RED RIVER OF THE NORTH BELOW WAHPETON, N. DAK.

LOCATION.--Lat 46°22'30", long 96°39'25", in NE 1/4 sec.1, T.133 N., R.47 W., Richland County, at county highway bridge about 7 mi (11 km) northwest of Wahpeton, 12.4 mi (20.0 km) downstream from confluence of Bois de Sioux and Otter Tail Rivers, and at mile 536.3 (kilometer 862.9).

DRAINAGE AREA.--4,020 mi² (10,410 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.

REMARKS.--Records of discharge are given for station 05051500 Red River of the North at Wahpeton, N. Dak.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED MAN- GANESE (MG/L)	DIS- SOLVED CAL- CIUM (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (MG/L)	BICAR- BONATE (MG/L)	CAR- BONATE (MG/L)	ALKA- LITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED CHLO- RIDE (MG/L)
OCT.											
28...	1100	319	--	39	29	--	--	--	--	35	5.5
DEC.											
01...	0930	308	--	42	32	--	--	--	--	46	6.3
29...	1130	684	30	38	32	10	--	--	--	33	6.2
FEB.											
02...	1230	447	--	41	32	--	--	--	--	23	6.6
MAR.											
02...	1000	564	--	39	29	--	--	--	--	18	4.7
29...	1100	1300	30	44	23	8.0	--	--	--	63	4.1
APR.											
25...	1430	1680	--	56	34	--	--	--	--	140	7.0
JUNE											
01...	1230	2030	--	55	32	--	--	--	--	110	5.8
29...	1100	1020	0	42	29	11	--	--	--	50	4.0
AUG.											
02...	1200	760	--	50	37	--	--	--	--	130	7.0
30...	1000	572	--	39	28	--	--	--	--	49	5.1
SEP.											
27...	1500	422	--	43	31	--	240	0	197	60	5.6

DATE	DIS- SOLVED FLUO- RIDE (F)	DIS- SOLVED NITRATE (N)	DIS- SOLVED AMMONIA NITRO- GEN (N)	TOTAL PHOS- PHORUS (P)	DIS- SOLVED ORTHO- PHOS- PHORUS (P)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO
OCT.											
28...	--	.16	.25	.13	--	246	.33	212	220	--	--
DEC.											
01...	--	.14	.36	.12	--	320	.44	266	240	--	--
29...	.3	.00	.25	.13	--	260	.35	480	226	--	.3
FEB.											
02...	--	.14	.30	.15	--	322	.44	389	230	--	--
MAR.											
02...	--	.24	.29	.09	--	272	.37	416	220	--	--
29...	.3	1.3	.41	.25	--	298	.41	1050	200	--	.2
APR.											
25...	--	.15	.10	.13	--	406	.55	1840	280	--	--
JUNE											
01...	--	.28	.11	.24	--	380	.52	2080	270	--	--
29...	.2	.18	.12	.11	--	306	.42	843	220	--	.3
AUG.											
02...	--	.05	.12	.16	--	434	.59	891	280	--	--
30...	--	.04	.08	.12	--	306	.42	473	210	--	--
SEP.											
27...	--	--	.12	.10	.02	308	.42	351	230	38	--

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	BIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	CYANIDE (MG/L)	ALDRIN (MG/L)	CHLOR- DANE (MG/L)
OCT.											
28...	440	7.4	8.5	.0	10.2	3.0	--	130	--	--	--
DEC.											
01...	467	8.1	.0	-7.5	13.6	1.9	--	B4	--	--	--
29...	455	7.6	.0	-15.0	11.0	1.0	--	290	.00	.00	.0
FEB.											
02...	469	7.8	.0	-19.0	11.3	2.0	--	1650	--	--	--
MAR.											
02...	431	7.8	.0	-20.0	10.0	1.4	--	250	--	--	--
29...	430	7.6	.0	.0	12.0	2.5	--	F4	.00	.00	.0
APR.											
25...	580	8.4	8.0	9.0	12.8	5.0	--	84	--	--	--
JUNE											
01...	565	7.8	19.0	21.0	6.0	2.2	--	650	--	--	--
29...	457	8.1	21.0	22.5	7.6	--	--	43	.00	.00	.0
AUG.											
02...	604	7.8	22.0	18.5	7.8	4.9	8530	1110	--	--	--
30...	440	8.0	23.0	23.0	7.2	--	1430	160	--	--	--
SEP.											
27...	472	7.8	12.5	15.0	11.4	2.6	--	833	--	--	--

B - Results based on colony count outside the acceptable range.
E - Estimated.

05051510 RED RIVER OF THE NORTH BELOW WAHPETON, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DDB (UG/L)	DDE (UG/L)	DDT (UG/L)	DT- CLIPIM (UG/L)	EMDRI (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)
OCT.										
28...	--	--	--	--	--	--	--	--	--	--
DEC.										
01...	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB.										
02...	--	--	--	--	--	--	--	--	--	--
MAR.										
02...	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00
APR.										
25...	--	--	--	--	--	--	--	--	--	--
JUNE										
01...	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00
AUG.										
02...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
SEP.										
27...	--	--	--	--	--	--	--	--	--	--

DATE	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BERYLLIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CADMIUM (CD) (UG/L)	DIS- SOLVED CHROMIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYBDENUM (MO) (UG/L)
OCT.										
28...	--	--	--	--	--	--	--	--	--	--
DEC.										
01...	--	--	--	--	--	--	--	--	--	--
29...	.00	4	0	70	0	0	3	0	.2	10
FEB.										
02...	--	--	--	--	--	--	--	--	--	--
MAR.										
02...	--	--	--	--	--	--	--	--	--	--
29...	.00	7	0	80	1	0	3	5	.2	1
APR.										
25...	--	--	--	--	--	--	--	--	--	--
JUNE										
01...	--	--	--	--	--	--	--	--	--	--
29...	.00	3	0	70	1	0	2	4	1.2	1
AUG.										
02...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
SEP.										
27...	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELENIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC.				
29...	12	6	1	10
MAR.				
29...	9	6	0	100
JUNE				
29...	6	5	0	20

RED RIVER OF THE NORTH BASIN

05053000 WILD RICE RIVER NEAR ABERCROMBIE, N. DAK.

LOCATION.--Lat 46°28'05", long 96°47'00", in NE¼NE¼ sec.36, T.135 N., R.49 W., Richland County, at gaging station at county highway bridge, 0.8 mi (1.3 km) upstream from rubble masonry dam, 3.2 mi (5.1 km) northwest of Abercrombie, and 7 mi (11 km) downstream from Antelope Creek.

DRAINAGE AREA.--2,080 mi² (5,390 km²), of which 590 mi² (1,530 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1955 to June 1956, October 1966 to current year.
Water temperatures: October 1966 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 2,840 mg/l Feb. 1-29; minimum, 278 mg/l Mar. 1-31.
Hardness: Maximum, 1,200 mg/l Feb. 1-29; minimum, 140 mg/l Mar. 1-31.
Specific conductance: Maximum daily, 3,840 micromhos Mar. 7; minimum daily, 236 micromhos Mar. 17.
Water temperatures: Maximum, 25.5°C Aug. 18-19, 21; minimum, freezing point on many days during winter months.

Period of record: 1966 to current year.

Dissolved solids: Maximum, 2,840 mg/l Feb. 1-29, 1972; minimum, 182 mg/l June 15-19, 1967.
Hardness: Maximum, 1,200 mg/l Feb. 1-29, 1972; minimum, 110 mg/l June 15-19, 1967.
Specific conductance: Maximum daily, 3,840 micromhos Mar. 7, 1972; minimum daily, 141 micromhos Apr. 10, 1969.
Water temperatures: Maximum 26.0°C July 22, 1967, July 16, 17, 1969, June 19, 1971; minimum, freezing point on many days during winter period.

REMARKS.--Daily samples for chemical analysis composited by discharge. Minimum observed during water year:
Dissolved solids, 186 mg/l Mar. 20; hardness, 110 mg/l Mar. 20.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT. 01-31	3.0	89	41	110	13	332	0	272	844
NOV. 01-30	20	130	72	170	15	381	0	313	1260
DEC. 01-31	10	170	90	230	18	523	0	429	1690
JAN. 01-31	2.9	210	120	350	18	682	0	559	2040
FEB. 01-29	.69	230	140	400	19	725	0	595	2840
MAR. 01-31	543	31	14	22	11	119	0	98	278
APR. 01-30	281	74	42	64	12	234	0	192	676
MAY 01-31	499	53	30	45	9.6	218	0	179	482
JUNE 01-30	146	87	52	76	11	352	0	289	816
JULY 01-31	51	79	42	69	9.9	291	0	239	692
AUG. 01-31	15	96	47	78	9.9	323	0	265	856
SEP. 01-30	39	97	51	100	10	373	0	306	860
WTD. AVG. TIME WTD. AVG. TONS PER DAY	--	56	31	49	11	211	0	173	516
	135	112	61	142	13	378	0	310	1100
	--	21	11	18	3.9	77	0	63	188

DATE	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT. 01-31	1.15	6.84	390	120	37	2.4	1180	7.9
NOV. 01-30	1.71	68.0	620	310	37	3.0	1740	7.8
DEC. 01-31	2.30	45.6	790	370	38	3.6	2220	8.1
JAN. 01-31	2.77	16.0	1000	460	42	4.8	2890	7.9
FEB. 01-29	3.86	5.29	1200	560	43	5.1	3290	8.0
MAR. 01-31	.38	408	140	37	24	.8	397	7.1
APR. 01-30	.92	513	360	170	27	1.5	941	7.3
MAY 01-31	.66	649	260	77	27	1.2	696	7.9
JUNE 01-30	1.11	322	430	140	27	1.6	1110	7.8
JULY 01-31	.94	95.3	370	130	28	1.6	999	8.1
AUG. 01-31	1.16	36.7	430	170	28	1.6	1100	8.0
SEP. 01-30	1.17	90.6	450	150	32	2.0	1280	7.8
WTD. AVG. TIME WTD. AVG. TONS PER DAY	.70	--	271	95	--	1.2	728	7.5
	1.50	--	534	223	32	2.4	1480	7.8
	--	--	--	--	--	--	--	--

05053000 WILD RICE RIVER NEAR ABERCROMBIE, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
OCT.												
05...	1600	.25	24	--	--	--	56	29	60	11	256	0
NOV.												
02...	1700	24	23	--	--	--	94	43	110	14	313	0
DEC.												
09...	1330	12	22	400	20	60	150	82	200	15	491	--
JAN.												
06...	1730	4.4	28	--	--	--	220	110	300	21	669	--
FEB.												
10...	1600	.55	35	--	--	--	230	130	370	18	757	--
MAR.												
08...	1200	.62	39	--	--	--	250	150	420	18	822	--
20...	1730	1780	11	300	80	40	27	11	11	8.2	123	--
MAY												
02...	1700	111	15	--	--	--	110	60	110	16	344	--
JUNE												
06...	1200	236	25	--	--	--	90	51	77	12	360	--
JULY												
10...	1200	13	28	--	--	--	120	67	110	12	461	0
AUG.												
09...	1500	24	22	--	--	--	100	51	92	11	363	0
SEP.												
06...	1130	.90	25	--	--	--	95	52	120	13	378	0

DATE	ALKA- LINITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
05...	210	170	18	.5	.12	.32	538	.73	.36	260	49	32
NOV.												
02...	257	340	42	.4	.13	.13	908	1.23	58.8	410	150	36
DEC.												
09...	403	650	77	.6	.06	.19	1590	2.16	51.5	710	310	37
JAN.												
06...	549	950	120	.5	.17	.18	2020	2.75	24.0	1000	450	39
FEB.												
10...	621	1100	140	.6	.07	.00	2380	3.24	3.53	1100	490	42
MAR.												
08...	674	1200	180	.7	.04	.26	2800	3.81	4.69	1200	570	42
20...	101	54	5.6	.2	1.9	.36	186	.25	894	110	12	16
MAY												
02...	282	410	40	.3	.17	.11	1010	1.37	303	520	240	31
JUNE												
06...	295	280	25	.3	.31	.65	828	1.13	528	430	140	27
JULY												
10...	378	410	36	.5	.11	.23	1040	1.41	37.6	580	200	29
AUG.												
09...	298	330	28	.7	.02	.16	864	1.18	56.0	460	160	30
SEP.												
06...	310	360	39	.4	.01	.27	896	1.22	2.18	450	140	36

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT.												
05...	1.6	791	7.4	15.5	30	--	--	--	--	210	--	--
NOV.												
02...	2.4	1220	7.8	2.5	30	--	--	--	--	310	--	--
DEC.												
09...	3.3	2010	--	.0	30	.00	9	0	0	330	0	0
JAN.												
06...	4.1	2760	--	.0	20	--	--	--	--	530	--	--
FEB.												
10...	4.8	3290	--	.0	40	--	--	--	--	610	--	--
MAR.												
08...	5.2	3430	--	.0	20	--	--	--	--	610	--	--
20...	.5	303	--	--	50	.01	5	0	0	110	3	0
MAY												
02...	2.1	1360	--	13.5	40	--	--	--	--	240	--	--
JUNE												
06...	1.6	1120	--	22.5	60	--	--	--	--	280	--	--
JULY												
10...	2.0	1440	8.2	24.5	50	--	--	--	--	330	--	--
AUG.												
09...	1.9	1190	7.7	20.0	--	--	--	--	--	320	--	--
SEP.												
06...	2.5	1280	8.3	18.5	50	--	--	--	--	410	--	--

DATE	DIS- SOLVED COBALT (CN) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC.											
09...	0	5	1	310	.2	6	3	6	770	2.4	20
MAR.											
20...	0	7	2	20	.6	7	7	4	130	4.7	30

RED RIVER OF THE NORTH BASIN

05053000 WILD RICE RIVER NEAR ABERCROMBIE, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 1200)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	790	1100	2040	2690	3060	3830	825	1350	777	1400	875	1280
2	822	1290	1930	2680	3060	3830	844	1340	947	1380	992	1290
3	832	1290	1880	2670	3050	3830	843	1350	956	1440	1010	1280
4	841	1460	1940	2650	3060	3830	843	1360	1010	1460	1040	1280
5	845	1480	2010	2660	3250	3830	840	1350	1120	1460	1040	1290
6	864	1480	2010	2820	3270	3830	865	1380	1130	1470	1120	1280
7	865	1300	2000	2820	3270	3840	866	1400	1200	1470	1220	1280
8	875	1270	2030	2830	3270	3770	869	1450	1240	1490	1240	1280
9	875	1160	2020	2850	3170	3770	870	1440	1260	1490	1200	1290
10	874	2500	2110	2840	3230	3770	810	1420	1290	1490	1190	1280
11	875	2120	2120	2940	3220	3750	810	1450	1320	1500	1140	1280
12	874	2510	2250	2940	3370	3740	810	1430	1320	1480	1060	1280
13	883	2130	2250	2940	3380	3390	810	1390	1340	1440	1100	1280
14	936	1760	2320	2940	3380	3340	812	1220	1350	964	1200	1280
15	935	1750	2330	2940	3380	3400	840	1220	1360	797	1260	1280
16	887	1650	2390	2950	3390	377	946	965	1400	605	1260	1300
17	865	1620	2390	2950	3440	236	1030	945	1380	699	1260	1300
18	888	1590	2380	2950	3570	249	1040	955	1390	1080	1260	1300
19	896	1540	2430	2950	3560	297	1180	935	1390	1120	1280	1300
20	890	1570	2420	2970	3560	318	1180	950	1350	1120	1290	1300
21	912	1860	2430	2970	3400	524	1160	450	1390	1140	1280	1310
22	927	1770	2430	2980	3540	361	1180	430	1400	1110	1280	1320
23	949	1820	2400	2990	3580	389	1190	508	1420	985	1290	1320
24	952	1810	2420	2990	3550	481	1310	555	1400	1110	1330	1330
25	965	2020	2430	3000	3500	550	1300	855	1430	956	1340	1340
26	988	2020	2560	2990	3510	531	1300	715	1410	990	1340	1340
27	1040	2060	2560	2990	3510	527	1300	709	1420	985	1330	1340
28	1260	1950	2550	2990	3510	545	1300	505	1400	800	1320	1340
29	1270	1950	2570	2990	3480	648	1330	503	1400	793	1310	---
30	1140	2040	2570	2990	---	648	1360	695	1360	826	1280	---
31	1240	---	2580	2970	---	752	---	735	---	825	1280	---
MONTH	937	1730	2280	2900	3360	2040	1020	1030	1290	1160	1210	1300

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 1200)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5	1.5	0.5	0.0	0.0	0.0	2.0	12.0	18.5	23.0	23.5	19.5
2	15.5	1.5	0.5	0.0	0.0	0.0	2.0	12.0	19.5	21.0	21.0	18.0
3	14.0	1.5	0.5	0.0	0.0	0.0	1.5	11.5	21.0	20.0	20.0	17.0
4	13.5	1.5	0.5	0.0	0.0	0.0	1.5	10.5	21.0	19.0	20.5	16.5
5	13.5	1.0	0.5	0.0	0.0	0.0	2.0	11.0	21.5	19.0	21.0	16.0
6	12.0	0.5	0.5	0.0	0.0	0.0	3.5	9.5	22.0	19.5	20.5	16.0
7	11.5	0.5	0.5	0.0	0.0	0.0	3.5	9.5	23.5	20.0	20.0	16.0
8	10.0	1.0	0.5	0.0	0.0	0.0	3.5	10.0	24.5	21.0	18.0	16.0
9	9.5	1.0	0.5	0.0	0.0	0.0	3.0	11.0	24.5	23.0	19.0	16.5
10	10.0	1.0	0.5	0.0	0.0	0.0	3.5	13.0	21.0	24.0	20.5	18.0
11	9.0	1.0	0.5	0.0	0.0	0.0	3.5	13.5	20.0	24.0	20.5	20.0
12	8.5	1.0	0.5	0.0	0.0	0.0	4.0	13.5	21.0	24.5	21.0	17.0
13	8.0	1.5	0.5	0.0	0.0	0.5	4.5	12.0	23.0	24.0	21.0	16.0
14	8.0	1.0	0.5	0.0	0.0	0.5	4.5	13.5	21.0	23.5	23.5	15.5
15	8.5	1.0	0.5	0.0	0.0	0.5	6.0	15.5	20.0	23.0	24.0	15.5
16	8.0	1.0	0.5	0.0	0.0	1.5	10.0	17.0	19.5	22.0	23.5	16.5
17	9.0	1.5	0.5	0.0	0.0	1.5	10.0	18.5	19.0	22.0	25.0	15.5
18	11.0	1.0	0.5	0.0	0.0	1.0	9.0	20.0	18.5	22.0	25.5	16.5
19	11.0	1.0	0.5	0.0	0.0	1.0	9.0	22.0	18.5	22.0	25.5	16.5
20	10.0	1.0	0.5	0.0	0.0	1.5	8.5	21.5	15.5	21.0	24.5	17.0
21	9.5	0.5	0.5	0.0	0.0	1.5	8.5	21.0	18.0	21.0	25.5	13.5
22	10.0	0.5	0.5	0.0	0.0	1.5	8.0	20.0	19.0	20.5	21.0	15.0
23	10.0	0.5	0.5	0.0	0.0	1.5	8.0	19.5	20.0	21.0	21.0	13.5
24	10.5	0.5	0.5	0.0	0.0	1.5	8.5	19.5	20.0	22.0	20.0	13.0
25	10.0	0.5	0.5	0.0	0.0	1.0	9.5	20.0	20.5	22.0	20.0	11.0
26	10.0	0.5	0.0	0.0	0.0	1.0	10.0	20.5	21.0	22.0	20.0	11.0
27	9.5	0.5	0.0	0.0	0.0	0.5	11.0	21.0	22.0	22.0	21.0	11.0
28	9.0	0.5	0.0	0.0	0.0	1.0	12.0	20.0	21.5	22.0	21.0	11.0
29	4.5	0.5	0.0	0.0	0.0	1.5	11.5	18.0	23.5	23.0	21.0	---
30	3.5	0.5	0.0	0.0	---	1.5	12.0	15.5	24.5	23.5	21.0	---
31	2.0	---	0.0	0.0	---	1.5	---	16.0	---	24.5	20.5	---
MONTH	9.5	1.0	0.5	0.0	0.0	1.0	6.5	16.0	21.0	22.0	21.5	15.5

05054000 RED RIVER OF THE NORTH AT FARGO, N. DAK.
(Radiochemical station)

LOCATION.--Lat 46°51'40", long 96°47'00", in NW¼NE¼ sec.18, T.139 N., R.48 W., Cass County, at gaging station at city waterplant on 4th St. S. in Fargo, 25 mi (40 km) upstream from mouth of Sheyenne River, and at mile 453 (kilometer 729).

DRAINAGE AREA.--6,800 mi² (17,600 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: October 1955 to current year.
Water temperatures: October 1955 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 462 mg/l Apr. 1-30; minimum, 264 mg/l Mar. 1-31.
Hardness: Maximum, 290 mg/l May 1-31, June 1-30; minimum, 160 mg/l Mar. 1-31.
Specific conductance: Maximum daily, 818 micromhos May 19; minimum daily, 290 micromhos Mar. 20.
Water temperatures: Maximum, 26.5°C Aug. 18,21; minimum, 1.5 on many days during winter months.

Period of record:

Dissolved solids (1955-58, 1959-72): Maximum, 650 mg/l May 6-9, 1958; minimum, 174 mg/l Dec. 1-2, 1955.
Hardness: Maximum, 420 mg/l May 6-9, 1968; 118 mg/l Apr. 6-17, 1962.
Specific conductance: Maximum daily, 960 micromhos May 6, 1958; minimum daily, 220 micromhos Sept. 7, 1971.
Water temperatures: Maximum, 28.0°C on several days in 1957, 1960, and 1964; minimum, 1.0°C on many days during the winter period.

REMARKS.--Daily samples for chemical analysis composited by discharge. Minimum observed during water year:
Dissolved solids, 254 mg/l Mar. 22; hardness, 130 mg/l Mar. 22; temperature, 0.0°C Dec. 1, 28 and Feb. 1.
Water temperature, measured in waterplant, modified slightly in transit.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.								
01-31	263	42	29	13	246	0	202	306
NOV.								
01-30	607	48	35	16	256	0	210	334
DEC.								
01-31	569	43	32	17	258	0	212	328
JAN.								
01-31	554	43	32	13	276	0	226	276
FEB.								
01-29	408	41	31	11	272	0	223	314
MAR.								
01-31	2470	37	17	10	142	0	116	264
APR.								
01-30	2260	58	33	22	203	0	167	462
MAY								
01-31	2020	58	35	23	224	0	184	434
JUNE								
01-30	1790	58	36	21	245	0	201	454
JULY								
01-31	940	42	27	13	223	0	183	308
AUG.								
01-31	695	49	34	17	226	0	185	420
SEP.								
01-30	434	40	30	11	234	0	192	280
WTD. AVG.	--	49	30	17	215	0	176	371
TIME WTD.								
AVG.	1090	47	31	16	234	0	192	348
TONS								
PER DAY	--	144	88	50	630	0	517	1090

DATE	DIS- SOLVED SOLIDS PER AC-FT)	DIS- SOLVED SOLIDS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.							
01-31	.42	217	220	22	.4	474	7.9
NOV.							
01-30	.45	547	260	54	.4	546	7.4
DEC.							
01-31	.45	504	240	27	.5	531	8.0
JAN.							
01-31	.38	413	240	13	.4	482	8.0
FEB.							
01-29	.43	346	230	7	.3	419	8.0
MAR.							
01-31	.36	1760	160	46	.3	375	6.2
APR.							
01-30	.63	2820	280	110	.6	617	7.4
MAY							
01-31	.59	2370	290	110	.6	638	7.9
JUNE							
01-30	.62	2190	290	92	.5	635	7.8
JULY							
01-31	.42	782	220	33	.4	482	8.0
AUG.							
01-31	.57	788	260	77	.5	573	8.0
SEP.							
01-30	.38	328	220	31	.3	471	7.8
WTD. AVG.	.51	--	245	70	.5	537	7.5
TIME WTD.							
AVG.	.48	--	242	52	.4	520	7.7
TONS							
PER DAY	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05054000 RED RIVER OF THE NORTH AT FARGO, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
04...	1830	213	4.7	--	--	--	40	30	12	4.1	246	0
27...	1630	344	6.1	--	--	--	45	30	14	6.6	252	0
DEC.												
01...	1500	430	15	--	--	--	50	39	22	4.9	263	0
28...	1215	598	18	--	--	--	43	33	13	4.6	269	0
FEB.												
01...	1400	510	20	--	--	--	42	33	11	4.5	286	0
MAR.												
03...	1100	480	21	--	--	--	40	31	10	3.8	275	0
22...	1500	6650	12	300	60	150	29	13	9.0	7.4	121	0
24...	1400	1010	--	--	--	--	--	--	--	--	--	--
APR.												
26...	0930	1820	4.9	--	--	--	54	35	23	6.9	197	12
MAY												
31...	0930	4070	15	--	--	--	53	30	21	6.8	191	0
JUNE												
05...	1500	442	--	--	--	--	--	--	--	--	--	--
28...	1600	1040	14	--	--	--	46	34	16	4.9	262	0
AUG.												
01...	1400	1010	18	--	--	--	51	31	16	4.6	219	0
29...	1200	582	18	--	--	--	43	30	12	4.6	236	0
SEP.												
28...	0900	436	14	0	10	0	43	34	15	4.7	243	0

DATE	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLN- RIDE (CL) (MG/L)	DIS- SOLVED FLUN- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT.												
04...	202	60	4.2	.2	.19	.07	298	--	.41	171	--	220
27...	207	60	6.0	.3	.05	.11	272	300	.37	253	72	240
DEC.												
01...	216	110	10	.2	.20	.12	398	420	.54	462	13	290
28...	221	47	7.8	.2	.00	.14	290	310	.39	468	8	240
FEB.												
01...	235	28	6.7	.2	.21	.09	296	290	.40	408	5	240
MAR.												
03...	226	23	5.4	.2	.37	.07	294	290	.40	381	8	230
22...	99	52	5.4	.2	2.1	.30	254	--	.35	4560	--	130
24...	--	--	--	--	--	--	--	260	--	--	160	--
APR.												
26...	182	150	9.3	.2	.13	2.4	436	440	.59	2140	95	280
MAY												
31...	157	130	7.0	.4	.48	.19	386	--	.53	4240	--	260
JUNE												
05...	--	--	--	--	--	--	--	460	--	--	210	--
28...	215	66	6.3	.3	.11	.15	372	350	.51	1050	68	250
AUG.												
01...	180	110	6.0	.3	.21	.09	366	380	.50	998	76	250
29...	194	61	5.5	.4	.06	.09	322	350	.44	506	65	230
SEP.												
28...	199	81	6.4	.3	--	.04	316	360	.43	372	34	250

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
OCT.												
04...	22	10	.4	477	8.0	14.0	20	--	--	--	70	--
27...	29	11	.4	487	7.9	10.5	20	--	--	--	80	--
DEC.												
01...	70	14	.6	613	8.1	.0	20	--	--	--	110	--
28...	23	10	.4	497	7.9	.0	7	--	--	--	70	--
FEB.												
01...	6	9	.3	472	7.9	.0	20	--	--	--	70	--
MAR.												
03...	2	9	.3	459	7.9	.5	5	--	--	--	60	--
22...	27	13	.4	326	7.4	--	100	4	0	0	60	1
24...	--	--	--	--	--	--	--	--	--	--	--	--
APR.												
26...	97	15	.6	621	8.5	8.0	20	--	--	--	90	--
MAY												
31...	99	15	.6	573	7.7	18.5	40	--	--	--	120	--
JUNE												
05...	--	--	--	--	--	--	--	--	--	--	--	--
28...	40	12	.4	529	8.2	22.0	20	--	--	--	80	--
AUG.												
01...	75	12	.4	548	7.4	23.0	30	--	--	--	100	--
29...	37	10	.3	486	8.0	22.5	30	--	--	--	100	--
SEP.												
28...	48	11	.4	532	8.0	12.0	20	1	0	0	110	1

05054000 RED RIVER OF THE NORTH AT FARGO, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)
OCT.											
04...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
DEC.											
01...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
FEB.											
01...	--	--	--	--	--	--	--	--	--	--	--
MAR.											
03...	--	--	--	--	--	--	--	--	--	--	--
22...	0	0	12	6	0	--	2	5	0	0	160
24...	--	--	--	--	--	--	--	--	--	--	--
APR.											
26...	--	--	--	--	--	--	--	--	--	--	--
MAY											
31...	--	--	--	--	--	--	--	--	--	--	--
JUNE											
05...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
AUG.											
01...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
SEP.											
28...	0	2	4	2	30	.6	1	8	2	0	170

DATE	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDED GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS AS SR90 /Y90 (PC/L)	SUS- PENDED GROSS BETA AS AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (PLAN- CHET COUNT) (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED NATURAL URANIUM (U) (UG/L)
OCT.											
04...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	6.5	2.7	15	3.6	12	3.1	--	.11	1.0
DEC.											
01...	--	--	6.9	1.5	14	1.4	11	1.3	--	.09	3.1
28...	--	--	<3.3	<.4	14	.7	11	.6	--	.09	.9
FEB.											
01...	--	--	<2.3	<.4	14	.8	11	.7	--	.07	.6
MAR.											
03...	--	--	<3.0	<.4	15	.7	12	.7	--	.07	.4
22...	4.3	30	--	--	--	--	--	--	--	--	--
24...	--	--	5.0	6.1	15	4.6	12	4.0	--	.05	2.9
APR.											
26...	--	--	7.5	3.7	14	6.2	12	5.3	--	.09	4.2
MAY											
31...	--	--	--	--	--	--	--	--	--	--	--
JUNE											
05...	--	--	6.4	5.3	17	11	14	9.7	--	.10	3.2
28...	--	--	<3.8	2.9	14	3.9	11	3.2	--	.09	<.4
AUG.											
01...	--	--	8.6	2.8	14	3.8	12	3.1	--	.12	1.7
29...	--	--	<4.8	2.8	12	1.5	10	1.3	<.1	--	.9
SEP.											
28...	2.2	10	<5.1	1.9	12	2.9	10	2.5	<.1	--	.8

RED RIVER OF THE NORTH BASIN

05054000 RED RIVER OF THE NORTH AT FARGO, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	435	463	610	494	478	486	463	694	626	512	569	490
2	451	468	630	503	473	482	491	670	638	513	547	514
3	485	475	640	479	470	482	635	621	647	511	522	498
4	468	464	434	482	474	477	630	612	656	530	563	482
5	460	477	698	469	476	482	618	619	647	512	608	482
6	460	480	638	483	476	473	640	611	655	500	611	434
7	463	521	545	483	479	472	638	610	688	487	645	429
8	465	556	572	487	479	472	632	610	697	477	647	477
9	464	602	538	487	481	481	645	604	695	467	658	468
10	457	648	544	490	480	479	638	624	691	464	648	472
11	451	595	550	488	480	481	610	635	696	457	685	459
12	449	574	435	481	481	482	607	649	670	478	672	465
13	451	589	544	478	470	477	582	633	676	450	665	448
14	460	580	523	484	474	481	538	600	675	485	656	466
15	465	509	508	483	475	472	572	497	674	424	648	457
16	400	511	565	485	481	428	632	543	667	423	610	457
17	465	540	513	490	479	350	668	667	661	422	605	470
18	453	588	495	488	470	344	664	758	656	526	603	446
19	468	542	497	490	470	316	667	818	654	525	565	436
20	458	535	498	491	470	290	672	810	650	540	543	443
21	460	528	490	478	465	352	665	768	637	523	613	448
22	461	538	488	477	465	366	658	723	612	480	517	478
23	478	551	527	475	468	388	650	710	592	443	517	447
24	480	576	511	476	468	414	645	548	600	442	523	440
25	479	600	500	476	478	441	641	580	605	483	541	428
26	468	588	486	480	462	460	645	578	601	434	535	425
27	480	577	488	477	462	486	658	683	583	487	505	428
28	510	557	490	481	461	531	665	715	540	579	504	541
29	503	555	493	478	461	533	651	746	538	507	504	599
30	496	561	484	478	---	490	650	675	512	497	498	595
31	480	---	435	478	---	496	---	596	---	520	474	---
MONTH	465	545	528	483	473	447	626	652	638	487	581	471

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	7.0	2.0	1.5	1.5	1.5	3.0	14.0	19.0	23.5	24.5	23.0
2	16.0	6.5	1.5	1.5	1.5	1.5	3.0	14.0	19.5	23.0	24.5	23.0
3	16.0	6.0	2.0	1.5	1.5	1.5	3.0	14.0	20.0	22.0	23.5	23.0
4	15.5	5.0	2.0	1.5	1.5	1.5	3.5	13.5	20.0	22.0	22.0	21.0
5	15.0	4.5	2.0	1.5	1.5	1.5	3.5	13.5	22.0	21.5	23.0	19.5
6	15.0	4.0	2.0	1.5	1.5	1.5	4.0	13.5	23.5	21.0	23.0	19.5
7	15.0	3.0	2.0	1.5	1.5	1.5	3.5	13.5	23.5	21.0	22.0	18.5
8	14.5	3.0	2.0	1.5	1.5	1.5	3.5	12.0	24.0	21.5	21.0	18.5
9	14.5	3.0	1.5	1.5	1.5	1.5	4.5	13.0	24.5	22.0	20.5	18.5
10	14.5	2.0	1.5	1.5	1.5	1.5	6.0	13.0	24.5	24.0	20.5	18.5
11	13.5	2.0	1.5	1.5	1.5	1.5	7.0	13.5	23.5	25.0	20.5	18.5
12	13.0	2.0	1.5	1.5	1.5	1.5	7.0	14.0	23.5	25.5	20.5	19.0
13	11.5	2.0	1.5	1.5	1.5	1.5	6.5	13.5	23.5	25.0	20.0	19.0
14	11.5	2.0	1.5	1.5	1.5	2.0	6.0	14.0	22.0	25.5	22.0	18.5
15	11.5	3.0	2.0	1.5	1.5	2.0	6.5	14.5	21.5	24.5	23.5	18.5
16	11.5	3.5	1.5	1.5	1.5	3.0	7.0	15.5	21.0	24.5	25.0	18.0
17	12.0	3.5	1.5	1.5	1.5	3.5	9.0	17.0	20.5	24.0	26.0	18.0
18	11.5	3.0	1.5	1.5	1.5	3.0	9.5	18.5	20.5	24.0	26.5	18.0
19	13.0	3.0	1.5	1.5	1.5	3.0	10.0	19.0	20.5	24.0	26.0	18.0
20	12.0	3.5	1.5	1.5	1.5	3.0	10.5	19.5	19.0	23.5	26.0	18.5
21	12.0	3.0	1.5	1.5	1.5	3.0	11.0	20.0	19.5	23.5	26.5	18.0
22	12.0	3.0	1.5	1.5	1.5	3.0	11.0	22.0	19.5	23.5	26.0	16.5
23	11.5	3.0	1.5	1.5	1.5	3.0	10.5	22.0	20.0	23.0	25.0	15.5
24	11.0	3.0	1.5	1.5	1.5	2.0	10.5	20.5	22.0	23.0	24.0	15.0
25	11.5	3.0	1.5	1.5	1.5	2.0	10.5	20.5	22.0	23.5	23.5	15.0
26	12.0	3.0	1.5	1.5	1.5	2.0	10.5	21.0	22.0	23.5	23.5	14.5
27	12.0	3.0	1.5	1.5	1.5	1.5	11.5	21.0	23.0	23.5	23.5	13.5
28	10.5	3.0	1.5	1.5	1.5	3.0	11.5	20.5	23.0	23.5	23.5	13.0
29	10.0	3.0	1.5	1.5	1.5	3.0	12.0	20.0	23.5	23.0	24.0	13.0
30	10.0	2.0	1.5	1.5	---	3.0	12.0	16.5	23.5	23.5	24.0	13.0
31	8.5	---	1.5	1.5	---	3.0	---	19.0	---	24.0	23.5	---
MONTH	13.0	3.5	2.0	1.5	1.5	2.0	7.5	16.5	22.0	23.5	23.5	17.5

05054020 RED RIVER OF THE NORTH BELOW FARGO, N. DAK.

LOCATION.--Lat 46°55'50", long 96°47'05", in SW¼NE¼ sec.19, T.140 N., R.48 W., Cass County, at bridge on county highway 2 mi (3.2 km) north of North Dakota State University campus in Fargo, and 12 mi (19 km) above mouth of Sheyenne River.

DRAINAGE AREA.--6,820 mi² (17,660 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.

REMARKS.--Records of discharge are given for station 05054000 Red River of the North at Fargo, N. Dak., and are unadjusted for treated sewage inflow between sites.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.											
28...	1500	339	--	45	34	--	--	--	--	77	11
DEC.											
01...	1500	423	--	52	39	--	--	--	--	100	12
28...	1400	598	20	42	31	21	--	--	--	51	10
FEB.											
01...	1600	510	--	44	33	--	--	--	--	43	8.8
MAR.											
01...	1430	455	--	40	31	--	--	--	--	29	8.6
28...	1600	2130	50	52	22	17	--	--	--	120	7.3
APR.											
26...	1400	1820	--	58	35	--	--	--	--	160	10
MAY											
31...	1130	4150	--	49	27	--	--	--	--	130	8.0
JUNE											
29...	1430	1050	170	47	33	18	--	--	--	73	7.1
AUG.											
01...	1230	1010	--	52	33	--	--	--	--	110	7.0
29...	1400	582	--	44	31	--	--	--	--	68	8.1
SEP.											
28...	1100	436	--	35	28	--	244	0	200	28	6.2

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO
OCT.											
28...	--	.30	.88	.66	--	328	.45	300	250	--	--
DEC.											
01...	--	.41	.98	.52	--	428	.58	489	290	--	--
28...	.4	.00	.55	.39	--	298	.41	481	241	--	.6
FEB.											
01...	--	.32	.94	.49	--	322	.44	443	250	--	--
MAR.											
01...	--	.40	.91	.40	--	310	.42	381	230	--	--
28...	.4	2.7	.50	.34	--	386	.53	2220	220	--	.5
APR.											
26...	--	.28	.17	.31	--	450	.61	2210	290	--	--
MAY											
31...	--	.62	.31	.45	--	402	.55	4500	230	--	--
JUNE											
29...	.3	.28	.09	.37	--	356	.48	1010	250	--	.5
AUG.											
01...	--	.12	.31	.33	--	374	.51	1020	270	--	--
29...	--	.12	.58	.62	--	330	.45	519	240	--	--
SEP.											
28...	--	--	.30	.38	.23	254	.35	299	200	3	--

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHMS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	RIN- CHEN- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	CYANIDE (C) (MG/L)	ALUMINUM (MG/L)	CHLORINE BALANCE (MG/L)
OCT.											
28...	551	7.5	8.5	2.0	10.2	6.6	--	F20	--	--	--
DEC.											
01...	616	8.0	.0	-16.0	12.4	3.8	--	8140	--	--	--
28...	528	7.8	.0	-17.0	10.0	3.2	--	822	.00	.00	.0
FEB.											
01...	505	7.6	.0	-17.0	10.0	4.0	--	822	--	--	--
MAR.											
01...	485	7.8	.5	-17.0	12.0	3.1	--	84	--	--	--
28...	523	7.4	.0	-18.0	11.0	6.9	--	8100	.01	.00	.0
APR.											
26...	639	8.2	9.5	17.0	11.0	8.7	--	826	--	--	--
MAY											
31...	553	8.2	18.5	25.0	5.7	3.7	--	480	--	--	--
JUNE											
29...	544	7.9	23.0	29.5	7.2	--	--	810	.00	.00	.0
AUG.											
01...	568	7.5	23.0	30.5	7.2	2.7	1200	120	--	--	--
29...	518	7.8	23.0	31.5	7.0	--	2000	1300	--	--	--
SEP.											
28...	437	8.0	12.0	10.5	9.2	2.8	440	380	--	--	--

B - Results based on colony count outside the acceptable range.
E - Estimated

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)
OCT. 28...	--	--	--	--	--	--	--	--	--	--
DEC. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
FEB. 01...	--	--	--	--	--	--	--	--	--	--
MAR. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
APR. 26...	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUNE 29...	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00
AUG. 01...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP. 28...	--	--	--	--	--	--	--	--	--	--

DATE	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
OCT. 28...	--	--	--	--	--	--	--	--	--	--
DEC. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	5	0	80	0	0	4	0	.3	0
FEB. 01...	--	--	--	--	--	--	--	--	--	--
MAR. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	6	0	80	2	0	6	5	.0	3
APR. 26...	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUNE 29...	.00	5	0	100	1	0	20	2	1.8	2
AUG. 01...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP. 28...	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 28...	11	5	0	10
MAR. 28...	9	0	1	50
JUNE 29...	7	6	0	60

05056000 SHEYENNE RIVER NEAR WARWICK, N. DAK.
(Irrigation network station)

LOCATION.--Lat 47°48'20", long 98°42'57", on south quarter of line between secs.15 and 16, T.150 N., R.63 W., Eddy County, at gaging station on left bank on downstream side of county highway bridge, 3.3 mi (5.3 km) south of Warwick.

DRAINAGE AREA.--2,070 mi² (5,360 km²), approximately, of which about 1,310 mi² (3,390 km²) is probably noncontributing--includes 227 mi² (588 km²) in closed basins.

PERIOD OF RECORD.--Chemical analyses: January 1951 to current year.

Water temperatures: January 1951 to September 1962, October 1963 to September 1964, October 1965 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 836 mg/l Dec. 1-31; minimum, 264 mg/l Mar. 1-31.

Hardness: Maximum, 370 mg/l Dec. 1-31; minimum, 98 mg/l Mar. 1-31.

Specific conductance: Maximum daily, 1,700 micromhos Mar. 12; minimum daily, 249 micromhos Mar. 19.

Water temperatures: Maximum, 28.0°C July 12, Aug. 16, 18, and 20; minimum, freezing point on many days during winter months.

Period of record:

Dissolved solids: Maximum, 1,230 mg/l Mar. 21-23, 1955; minimum, 150 mg/l Apr. 5-9, 1960.

Hardness: Maximum, 572 mg/l Mar. 20, 1959; minimum, 71 mg/l Apr. 5-9, 1960.

Specific conductance: Maximum daily, 1,940 micromhos Feb. 1, 1955; minimum daily, 182 micromhos Apr. 11, 1969.

Water temperatures (1951-55, 1956-62, 1963-64, 1965-72): Maximum, 30.0°C July 21, 1955, July 10, 1970; minimum, freezing point on many days during winter months.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during the year: Dissolved solids, 908 mg/l Mar. 2; hardness, 450 mg/l Mar. 2. Minimum observed during the year: Hardness, 95 mg/l Mar. 22.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE-AT 180 C) (MG/L)
OCT.									
01-31	32	53	33	110	9.6	445	0	365	664
NOV.									
01-30	24	60	36	110	9.1	450	0	369	632
DEC.									
01-31	9.1	75	44	150	11	568	0	466	836
JAN.									
01-31	4.1	81	39	130	9.3	551	0	452	724
FEB.									
01-29	3.1	82	38	120	8.2	514	0	422	748
MAR.									
01-31	326	21	11	36	12	117	0	96	264
APR.									
01-30	151	33	21	77	10	280	0	230	428
MAY									
01-31	78	53	33	110	9.8	436	0	358	612
JUNE									
01-30	34	57	40	130	10	485	0	398	768
JULY									
01-31	2.9	53	34	100	7.9	223	104	356	604
AUG.									
01-31	2.0	47	32	95	7.8	398	0	326	600
SEP.									
01-30	1.9	45	27	68	5.7	343	0	281	446
WTD. AVG.	--	34	20	68	11	249	0	205	415
TIME WTD.									
AVG.	56	55	32	103	9.2	400	9	343	610
TONS									
PER DAY	--	5.1	3.0	10	1.6	38	0	31	63

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.								
01-31	.90	57.4	270	0	46	2.9	945	8.1
NOV.								
01-30	.86	41.0	300	0	44	2.8	946	7.9
DEC.								
01-31	1.14	20.5	370	0	46	3.4	1290	8.2
JAN.								
01-31	.98	8.01	360	0	43	3.0	1134	8.0
FEB.								
01-29	1.02	6.26	360	0	41	2.7	1080	7.9
MAR.								
01-31	.36	232	98	2	41	1.6	390	7.1
APR.								
01-30	.58	174	170	0	48	2.6	643	7.4
MAY								
01-31	.83	129	270	0	46	2.9	905	8.3
JUNE								
01-30	1.04	70.5	310	0	47	3.2	1120	8.1
JULY								
01-31	.82	4.73	270	0	44	2.6	915	8.5
AUG.								
01-31	.82	3.24	250	0	44	2.6	842	8.2
SEP.								
01-30	.61	2.29	220	0	39	2.0	705	8.1
WTD. AVG.	.56	--	168	1	--	2.2	614	7.5
TIME WTD.								
AVG.	.83	--	270	0	44	2.7	909	8.0
TONS								
PER DAY	--	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05056000 SHEYENNE RIVER NEAR WARWICK, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
OCT.												
07...	1600	37	--	--	--	--	48	33	120	8.3	447	0
29...	1100	37	17	200	20	220	56	30	110	8.3	433	0
DEC.												
01...	1130	16	--	--	--	--	71	35	100	8.2	458	0
29...	1600	4.8	--	--	--	--	81	41	140	13	557	0
FEB.												
03...	1400	2.5	--	--	--	--	79	34	85	7.0	485	0
MAR.												
02...	1200	4.1	--	--	--	--	100	49	140	10	680	0
22...	1600	1070	13	300	60	120	20	11	49	11	183	0
APR.												
26...	1430	78	--	--	--	--	42	23	76	9.5	312	0
JUNE												
01...	1200	116	--	--	--	--	59	38	120	10	474	0
29...	1815	15	--	--	--	--	57	35	120	8.4	469	0
AUG.												
02...	1200	1.1	--	--	--	--	53	30	80	6.2	336	25
29...	1100	.94	--	--	--	--	45	29	81	6.8	369	0

DATE	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.											
07...	367	150	14	--	.05	.54	684	.93	68.3	260	0
29...	355	110	17	.4	.04	.17	636	.87	63.5	260	0
DEC.											
01...	376	140	18	--	.10	.34	672	.91	29.0	320	0
29...	457	190	26	--	.56	.17	800	1.09	10.4	370	0
FEB.											
03...	398	130	17	--	.20	.53	624	.85	4.21	340	0
MAR.											
02...	558	190	28	--	.17	.13	908	1.23	10.1	450	0
22...	150	70	9.4	.3	.00	.26	288	.39	832	95	0
APR.											
26...	256	99	12	--	.02	.11	492	.67	104	200	0
JUNE											
01...	389	160	13	--	.02	.27	632	.86	198	300	0
29...	385	150	13	--	.03	.26	752	1.02	30.5	290	0
AUG.											
02...	317	100	10	--	.00	.15	512	.70	1.52	260	0
29...	303	99	10	--	.01	.12	500	.68	1.27	230	0

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT.											
07...	50	3.3	977	8.0	12.0	--	--	--	--	--	--
29...	47	3.0	862	8.1	4.5	7	100	0	250	0	0
DEC.											
01...	40	2.4	974	8.0	.5	--	--	--	--	--	--
29...	44	3.2	1210	7.7	.5	--	--	--	--	--	--
FEB.											
03...	35	2.0	970	7.7	.5	--	--	--	--	--	--
MAR.											
02...	40	2.9	1390	7.6	.0	--	--	--	--	--	--
22...	49	2.2	436	7.2	.5	10	0	0	190	1	0
APR.											
26...	44	2.3	685	8.2	10.0	--	--	--	--	--	--
JUNE											
01...	45	3.0	1070	7.9	19.5	--	--	--	--	--	--
29...	47	3.1	990	8.4	23.5	--	--	--	--	--	--
AUG.											
02...	40	2.2	856	8.5	19.0	--	--	--	--	--	--
29...	42	2.3	749	8.3	22.5	--	--	--	--	--	--

DATE	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT.											
07...	--	--	--	--	--	--	--	--	--	--	--
29...	0	2	0	720	0	2	6	0	290	1.7	10
MAR.											
02...	--	--	--	--	--	--	--	--	--	--	--
22...	1	7	4	20	4	9	6	0	110	6.6	20

05056000 SHEYENNE RIVER NEAR WARWICK, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1080	867	1080	1270	920	1080	551	754	1060	997	751	641
2	975	872	1120	1330	1130	1140	605	754	1100	1040	751	674
3	1030	870	1160	1290	1080	818	607	782	1160	1000	859	707
4	1090	825	1180	1290	1000	868	637	756	1140	1020	738	658
5	1060	905	1220	1170	920	919	665	790	1140	1050	767	647
6	1080	889	1220	1060	960	1040	688	769	1160	985	788	637
7	1000	874	1250	1040	1000	990	711	783	1120	1060	817	567
8	945	882	1270	1100	870	890	734	820	1120	970	782	635
9	962	885	1320	835	940	915	678	810	1100	830	787	595
10	925	882	1340	1170	980	1210	679	807	1110	902	888	650
11	908	895	1320	1200	1040	1460	639	788	1060	1040	960	635
12	902	946	1340	1180	960	1700	638	850	1060	791	944	648
13	905	997	1360	1260	1160	1340	638	873	1080	875	929	627
14	885	1020	1360	1260	1040	483	622	779	1100	907	848	648
15	865	1030	1360	1250	1000	372	620	885	1020	885	973	708
16	862	1030	1360	1080	860	422	661	915	1100	862	920	617
17	860	1020	1360	1250	1100	295	660	895	1090	840	964	712
18	772	995	1360	1480	1000	275	667	872	1070	990	808	753
19	830	964	1340	1240	1350	249	642	890	1040	801	877	786
20	867	965	1340	1260	1400	339	661	915	976	965	904	826
21	884	967	1320	950	1420	457	632	911	972	742	790	820
22	902	998	1310	1040	1040	455	655	910	944	770	733	819
23	891	982	1270	1000	975	431	715	947	990	796	808	831
24	899	995	1340	1200	1320	439	720	878	990	698	884	798
25	907	1040	1310	1200	890	451	726	864	997	784	697	788
26	889	1030	1290	1250	1190	445	698	902	1000	852	856	790
27	916	1040	1300	1010	1550	439	750	930	1000	855	800	751
28	923	1040	1200	808	930	458	767	1000	977	798	815	768
29	923	1060	1220	860	1180	465	766	1020	1080	853	796	803
30	904	985	1190	1000	---	473	768	1020	1030	795	808	712
31	883	---	1100	980	---	519	---	1070	---	737	608	---
MONTH	927	958	1270	1140	1080	704	673	869	1060	887	827	708

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	1.5	1.0	0.5	0.5	0.5	0.5	4.5	21.0	24.0	20.0	18.0
2	13.5	3.5	1.0	0.5	0.5	0.5	0.5	5.5	21.5	21.0	19.5	18.0
3	12.0	3.5	1.0	0.5	0.5	0.5	0.5	6.0	22.0	23.5	20.5	18.0
4	11.0	2.0	0.5	0.5	0.5	0.5	0.5	6.0	22.0	23.5	22.0	14.0
5	11.5	1.5	0.5	0.5	0.5	0.5	0.5	7.0	22.0	23.5	20.0	14.0
6	13.5	1.0	0.5	0.5	0.5	1.0	0.5	6.5	23.0	24.0	18.5	14.0
7	11.5	1.0	0.5	1.0	0.5	1.0	0.5	6.5	24.0	24.5	16.5	11.5
8	9.5	2.0	0.5	1.0	0.5	1.0	1.0	8.5	24.5	26.0	17.0	16.0
9	9.5	2.0	0.5	0.5	0.5	1.0	1.0	10.0	22.0	25.5	18.5	18.0
10	10.0	3.0	0.5	0.5	0.5	1.0	1.0	10.5	21.0	26.0	18.5	18.0
11	9.0	3.0	0.5	0.5	1.0	1.0	0.5	10.0	24.0	27.0	23.0	17.0
12	9.0	3.5	0.5	0.5	1.0	1.5	0.5	11.0	25.5	28.0	24.5	16.0
13	9.5	3.5	0.5	0.5	1.0	1.5	0.5	12.0	21.0	26.0	26.0	16.0
14	9.5	2.0	0.5	0.5	0.5	1.5	1.0	14.5	19.5	26.0	25.5	14.0
15	8.5	1.5	0.5	0.5	0.5	1.5	1.0	18.0	16.5	25.5	25.0	16.0
16	6.5	1.0	0.5	1.0	0.5	1.5	1.5	18.0	16.5	24.5	28.0	15.5
17	7.0	1.0	0.5	1.0	0.5	1.0	1.5	18.5	17.0	23.5	26.0	15.0
18	11.0	0.5	0.5	0.5	0.5	1.5	1.5	18.5	16.5	24.0	28.0	16.0
19	9.5	0.5	0.5	0.5	0.5	1.0	1.5	19.0	15.5	20.5	27.0	17.0
20	9.5	1.0	0.5	0.5	0.5	1.0	2.0	19.0	15.0	22.0	28.0	15.0
21	9.5	1.0	0.5	0.5	0.5	1.0	3.0	19.0	16.5	20.0	23.0	13.0
22	10.0	1.0	0.5	0.5	0.5	1.0	3.5	18.5	18.0	23.5	21.5	13.0
23	9.5	1.0	0.5	0.5	0.5	1.0	3.5	19.0	19.0	23.0	22.0	11.0
24	9.5	0.5	0.5	0.5	0.5	1.0	4.0	18.0	20.0	23.5	23.0	11.0
25	9.5	0.5	0.5	0.5	0.5	1.0	4.0	17.0	20.0	18.5	20.0	8.0
26	9.5	0.5	0.5	0.5	0.5	1.0	5.0	18.5	20.5	18.0	20.5	8.0
27	7.0	0.5	0.5	0.5	0.5	1.0	5.5	19.5	20.0	20.5	22.0	9.0
28	5.0	0.5	0.5	0.5	0.5	1.0	6.0	20.0	20.5	22.0	24.0	6.0
29	4.5	0.5	1.0	0.5	0.5	1.0	6.5	18.5	22.0	26.0	24.0	6.0
30	3.0	0.5	1.0	0.5	---	1.0	7.0	20.0	23.0	24.5	23.5	7.0
31	2.0	---	0.5	0.5	---	1.0	---	20.0	---	23.0	18.0	---
MONTH	9.0	1.5	0.5	0.5	0.5	1.0	2.5	14.0	20.5	23.5	22.5	13.5

RED RIVER OF THE NORTH BASIN

05056400 BIG COULEE NEAR CHURCHES FERRY, N. DAK.

LOCATION.--Lat 48°10'40", long 99°13'15", in NW¼NW¼ sec.12, T.154 N., R.67 W., Benson County, at gaging station at bridge on U.S. Highway 281, 1 mi (1.6 km) downstream from Little Coulee, and 6 mi (10 km) south of Churches Ferry.

DRAINAGE AREA.--2,510 mi² (6,500 km²), approximately, of which about 690 mi² (1,800 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: June 1954 to current year.

REMARKS.--No flow Jan. 14 to Mar. 9 and on several days during September.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NESIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
06...	1700	22	19	--	--	--	52	37	66	20	295	0
28...	1300	19	18	200	20	10	52	40	75	22	302	0
DEC.												
09...	1600	27	33	--	--	--	94	64	100	30	474	0
JAN.												
05...	1700	.74	57	--	--	--	190	130	220	63	989	0
MAR.												
21...	1500	7.2	16	400	160	160	36	15	32	11	127	0
MAY												
04...	1515	284	5.3	--	--	--	46	24	34	14	206	0
JUNE												
07...	1030	199	15	--	--	--	56	31	45	16	276	0
29...	1400	77	21	--	--	--	57	34	50	17	305	0
AUG.												
02...	1600	6.3	11	--	--	--	52	41	71	21	285	20
29...	1630	1.5	12	--	--	--	44	41	80	25	322	0

DATE	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.											
06...	242	170	26	.3	.29	.83	672	.91	39.9	280	40
28...	248	180	35	.3	1.6	.32	688	.94	35.3	290	47
DEC.											
09...	389	280	45	.7	1.3	2.1	972	1.32	70.9	500	110
JAN.											
05...	811	600	92	.7	2.0	.87	1910	2.60	3.82	1000	200
MAR.											
21...	104	120	13	.2	2.0	.35	314	.43	6.10	150	47
MAY											
04...	169	100	16	.2	.01	.09	396	.54	304	210	45
JUNE											
07...	226	130	20	.3	.51	.33	468	.64	251	270	41
29...	250	140	23	.2	.69	.33	570	.78	119	280	32
AUG.											
02...	267	160	30	.4	.03	.22	620	.84	10.5	300	31
29...	264	170	35	.4	.04	.21	644	.88	2.61	280	15

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT.											
06...	32	1.7	878	7.5	16.0	60	--	--	140	--	--
28...	34	1.9	898	7.7	.5	100	6	200	160	0	0
DEC.											
09...	29	2.0	1320	7.7	.0	50	--	--	220	--	--
JAN.											
05...	31	3.0	2590	7.5	.0	100	--	--	410	--	--
MAR.											
21...	30	1.1	501	7.5	.5	80	10	0	80	0	0
MAY											
04...	24	1.0	581	7.8	12.5	30	--	--	90	--	--
JUNE											
07...	25	1.2	709	7.5	21.5	50	--	--	110	--	--
29...	26	1.3	785	8.3	24.5	60	--	--	140	--	--
AUG.											
02...	32	1.8	865	8.6	22.0	40	--	--	160	--	--
29...	36	2.1	923	8.2	28.0	50	--	--	190	--	--

DATE	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (MG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT.											
06...	--	--	--	--	--	--	--	--	--	--	--
28...	0	7	5	670	.5	0	3	9	280	2.5	30
MAR.											
21...	0	6	2	20	.7	4	4	1	130	8.8	30

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, N. DAK.

LOCATION.--Lat 47°26'01", long 98°01'43", in NE¼NE¼SE¼ sec.27, T.146 N., R.58 W., Griggs County, at gaging station at county bridge, 5 mi (8 km) east of Cooperstown.

DRAINAGE AREA.--6,470 mi² (16,760 km²), approximately, of which 5,200 mi² (13,500 km²) is probably noncontributing--includes 3,800 mi² (9,800 km²) in closed basins.

PERIOD OF RECORD: Chemical analyses: October 1959 to September 1960, October 1966 to current year.
Water temperatures: October 1966 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 876 mg/l Nov. 1-30; minimum, 250 mg/l Mar. 1-31.

Hardness: Maximum, 470 mg/l Jan. 1-31; minimum, 110 mg/l Mar. 1-31.

Specific conductance: Maximum daily, 1,380 micromhos Feb. 8; minimum daily, 262 micromhos Mar. 15.

Water temperatures: Maximum, 26.0°C Aug. 17-18, and 26; minimum, freezing point on many days during winter months.

Period of record: 1966 to current year.

Dissolved solids: Maximum, 1,230 mg/l Mar. 15-18, 1967; minimum, 208 mg/l Mar. 24-25, 1967.

Hardness: Maximum, 681 mg/l Mar. 15-18, 1967; minimum, 102 mg/l Mar. 24-25, 1967.

Specific conductance: Maximum daily, 2,170 micromhos Mar. 18, 1967; minimum daily, 255 micromhos Apr. 9, 1971.

Water temperatures: Maximum, 27.0°C Aug. 5, 6, 1968; minimum, freezing point on many days during winter period.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during the year: Dissolved solids 928 mg/l Feb. 8.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.									
01-31	52	63	32	97	8.6	423	0	347	664
NOV.									
01-30	52	75	39	99	8.3	449	0	368	876
DEC.									
01-31	24	90	42	110	9.9	572	0	469	780
JAN.									
01-31	10	110	47	150	9.8	608	0	499	872
FEB.									
01-29	7.1	99	42	120	8.8	531	0	436	852
MAR.									
01-31	462	24	11	29	11	143	0	117	250
APR.									
01-30	479	36	18	52	9.4	223	0	183	430
MAY									
01-31	267	59	29	74	9.0	324	0	266	528
JUNE									
01-30	131	69	39	100	10	454	0	372	744
JULY									
01-31	21	69	38	99	9.1	436	0	358	672
AUG.									
01-31	16	66	33	85	7.6	376	0	308	608
SEP.									
01-30	7.8	70	31	77	7.9	372	0	305	616
WTD. AVG.	--	44	22	59	9.8	265	0	217	458
TIME WTD.									
AVG.	128	69	33	91	9.1	409	0	335	657
TONS									
PER DAY	--	15	7.6	20	3.4	91	0	75	158

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.								
01-31	.90	93.2	290	0	41	2.5	931	8.1
NOV.								
01-30	1.19	123	350	0	38	2.3	999	7.9
DEC.								
01-31	1.06	50.5	400	0	37	2.4	1210	8.1
JAN.								
01-31	1.19	23.5	470	0	40	3.0	1322	8.0
FEB.								
01-29	1.16	16.3	420	0	38	2.5	1220	7.8
MAR.								
01-31	.34	312	110	0	35	1.2	359	7.1
APR.								
01-30	.58	556	160	0	39	1.8	550	7.4
MAY								
01-31	.72	381	270	1	37	2.0	793	8.1
JUNE								
01-30	1.01	263	330	0	39	2.4	1120	8.0
JULY								
01-31	.91	38.1	330	0	39	2.4	1010	8.3
AUG.								
01-31	.83	26.3	300	0	37	2.1	869	8.3
SEP.								
01-30	.84	13.0	300	0	35	1.9	870	8.0
WTD. AVG.	.62	--	201	0	--	1.8	641	7.6
TIME WTD.								
AVG.	.89	--	311	0	38	2.2	937	7.9
TONS								
PER DAY	--	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
OCT.												
05...	1250	39	18	--	--	--	64	31	94	8.3	395	0
NOV.												
02...	1625	70	16	--	--	--	64	31	86	6.9	386	0
DEC.												
07...	1215	37	22	300	20	340	88	41	110	9.0	516	0
JAN.												
04...	1530	13	26	--	--	--	98	43	120	10	577	0
FEB.												
08...	1500	7.0	29	--	--	--	110	45	130	8.8	622	0
MAR.												
08...	1405	7.5	29	--	--	--	95	37	99	7.2	488	0
27...	1500	1090	15	300	80	250	27	11	37	10	157	0
MAY												
02...	1000	182	16	--	--	--	57	27	70	9.6	325	0
JUNE												
08...	1115	184	25	--	--	--	69	38	100	9.0	466	0
JULY												
05...	1400	28	26	--	--	--	77	39	110	9.5	454	0
AUG.												
09...	0840	14	18	--	--	--	65	33	89	8.5	391	0
SEP.												
01...	0930	6.4	27	--	--	--	64	30	79	8.2	371	0

DATE	ALKA- LINITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
05...	324	150	17	.3	.07	.26	628	.85	66.6	290	0	41
NOV.												
02...	317	140	15	.4	.18	.16	600	.82	113	290	0	39
DEC.												
07...	423	180	23	.6	.18	.13	808	1.10	81.2	390	0	37
JAN.												
04...	473	210	26	.4	1.1	.13	860	1.17	30.2	420	0	38
FEB.												
08...	510	230	29	.3	.40	.17	928	1.26	17.5	460	0	38
MAR.												
08...	400	190	21	.2	1.7	.16	648	.88	13.1	390	0	35
27...	129	58	7.3	.4	.76	.41	314	.43	924	110	0	39
MAY												
02...	267	120	14	.5	.06	.10	550	.75	270	250	0	36
JUNE												
08...	382	180	16	.4	.28	.30	772	1.05	384	330	0	39
JULY												
05...	372	180	17	.4	.66	.25	804	1.09	60.8	350	0	40
AUG.												
09...	321	170	16	.4	.10	.10	640	.87	24.2	300	0	39
SEP.												
01...	304	140	16	.3	.21	.14	564	.77	9.75	280	0	37

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG.C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT.												
05...	2.4	888	7.6	11.5	30	--	--	--	--	260	--	--
NOV.												
02...	2.2	883	8.0	.5	20	--	--	--	--	230	--	--
DEC.												
07...	2.4	1120	7.8	.0	40	.00	10	0	0	240	1	0
JAN.												
04...	2.5	1260	7.4	.0	40	--	--	--	--	230	--	--
FEB.												
08...	2.6	1380	7.5	.0	20	--	--	--	--	260	--	--
MAR.												
08...	2.2	1090	7.4	.0	5	--	--	--	--	130	--	--
27...	1.5	397	7.3	2.0	70	.00	4	0	0	150	1	0
MAY												
02...	1.9	760	8.0	12.0	60	--	--	--	--	180	--	--
JUNE												
08...	2.4	1030	7.8	22.5	70	--	--	--	--	250	--	--
JULY												
05...	2.5	1030	8.1	21.0	40	--	--	--	--	240	--	--
AUG.												
09...	2.2	935	8.0	16.0	40	--	--	--	--	210	--	--
SEP.												
01...	2.0	844	8.0	17.5	20	--	--	--	--	180	--	--

DATE	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC.												
07...	0	8	5	190	.3	1	3	4	0	500	1.2	20
MAR.												
08...	--	--	--	--	--	--	--	--	--	--	--	--
27...	2	9	5	20	.5	2	14	6	0	130	3.3	20

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	880	870	1080	1230	1260	1020	550	799	931	1090	963	890
2	863	914	1110	1210	1270	1020	628	820	995	1060	960	910
3	862	959	1140	1180	1340	1010	501	829	1020	1100	960	923
4	900	951	1140	1200	1340	990	570	851	1020	1080	955	889
5	874	901	1120	1200	1330	980	710	817	1030	1060	959	890
6	917	852	1120	1190	1320	960	463	859	1040	1060	947	900
7	694	950	1240	1180	1320	1020	510	850	1060	970	983	900
8	940	985	1220	1180	1380	1020	558	835	1070	990	964	910
9	927	943	1210	1240	1340	785	530	850	1080	1060	947	913
10	928	902	1200	1290	1300	525	448	867	1100	1060	920	925
11	892	936	1180	1240	1250	265	549	864	1090	1050	925	930
12	883	970	1180	1280	1320	438	482	875	1080	1040	907	925
13	952	1010	1110	1240	1300	272	520	925	1100	1040	894	895
14	888	988	1200	1230	1220	267	548	868	1120	1040	897	900
15	990	1010	1160	1210	1280	262	451	945	1120	985	882	884
16	1030	1000	1190	1210	1290	394	427	967	1120	1030	890	878
17	870	1000	1190	1260	1220	332	508	957	1120	1020	897	880
18	856	996	1190	1260	1220	356	520	949	1120	1030	906	880
19	890	992	1190	1270	1220	361	540	955	1110	1000	900	880
20	927	988	1190	1280	1310	410	555	950	1110	995	900	887
21	926	1010	1190	1290	1160	412	472	720	1080	1120	890	877
22	1010	1000	1200	1280	1180	410	630	601	885	983	890	877
23	1020	1000	1200	1280	1190	410	638	720	1080	988	902	914
24	1000	1010	1200	1280	1200	410	734	832	1060	985	895	903
25	1000	1010	1190	1280	1200	406	700	651	1060	977	880	896
26	940	1090	1180	1300	1200	439	675	670	1040	975	856	925
27	870	1090	1180	1310	1170	454	698	687	1030	1070	864	968
28	935	1100	1180	1300	1170	336	700	754	1100	983	863	976
29	908	1100	1220	1310	1190	333	719	872	1100	970	865	923
30	882	1050	1240	1310	---	449	739	950	1090	976	866	920
31	887	---	1250	1320	---	480	---	953	---	970	866	---
MONTH	914	986	1180	1250	1230	556	576	840	1070	1020	909	906

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	1.0	0.5	0.5	0.5	0.5	1.5	11.5	18.5	20.0	21.0	21.0
2	12.5	1.0	0.5	0.5	0.5	0.5	2.0	11.5	21.0	20.0	21.0	21.0
3	13.0	1.0	0.5	0.0	0.5	0.5	2.0	12.0	23.0	20.0	21.5	21.5
4	13.0	1.0	0.5	0.0	0.5	0.5	2.5	12.0	23.0	19.5	21.5	21.0
5	13.5	1.0	0.5	0.0	0.5	0.5	3.0	12.5	23.0	19.0	20.0	20.0
6	12.5	1.0	0.5	0.0	0.5	0.5	3.0	12.5	23.0	22.0	19.0	19.0
7	11.0	1.0	0.5	0.0	0.5	0.5	3.0	13.0	23.0	22.0	20.0	18.0
8	10.0	1.0	0.5	0.5	0.5	0.5	3.0	13.0	22.5	22.0	18.5	17.0
9	10.0	1.0	0.5	0.5	0.5	0.5	3.0	13.5	22.5	23.0	21.5	16.5
10	10.0	1.0	0.5	0.5	0.5	0.5	3.5	13.5	22.0	23.0	21.0	16.0
11	9.5	1.0	0.5	0.5	0.5	1.0	3.5	13.0	22.0	22.0	23.0	14.0
12	9.5	1.0	0.5	0.5	0.5	1.0	3.5	13.5	22.0	22.0	23.0	13.5
13	9.5	1.0	0.5	0.5	0.5	1.0	3.0	15.5	19.5	23.0	23.0	14.0
14	9.5	1.5	0.5	0.5	0.5	1.0	4.0	16.0	18.5	21.5	21.0	14.5
15	9.5	1.5	0.5	0.5	0.5	1.0	4.0	20.0	18.5	22.0	23.0	15.0
16	9.5	1.5	0.5	0.5	0.5	1.0	4.5	20.0	18.0	22.5	24.5	16.0
17	10.0	1.5	0.5	0.5	0.5	1.0	6.0	20.5	18.0	23.0	26.0	16.5
18	10.5	1.0	0.5	0.5	0.5	1.5	7.0	21.0	17.0	23.0	26.0	17.0
19	10.0	1.0	0.5	0.5	0.5	1.5	8.0	21.0	16.0	23.0	25.0	17.5
20	10.0	1.0	0.5	0.5	0.5	1.5	8.5	21.5	16.0	22.0	24.0	18.0
21	10.0	1.0	0.5	0.5	0.5	2.0	8.5	20.0	16.0	21.0	22.5	18.0
22	10.0	1.0	0.5	0.5	0.5	2.0	8.5	19.0	16.0	21.5	21.0	17.5
23	10.5	1.0	0.5	0.5	0.5	2.0	8.5	19.0	16.0	23.0	21.0	17.0
24	10.0	1.0	0.5	0.5	0.5	2.0	8.5	19.0	16.5	22.0	19.5	12.0
25	11.0	1.0	0.5	0.5	0.5	2.0	8.5	19.0	19.0	22.0	22.5	10.5
26	8.0	1.0	0.5	0.5	0.5	2.0	9.0	19.0	20.0	19.0	26.0	10.0
27	6.5	1.0	0.5	0.5	0.5	2.0	9.5	19.0	19.5	21.0	21.5	11.0
28	6.0	0.5	0.5	0.5	0.5	2.0	10.0	19.0	20.0	22.5	22.0	9.0
29	4.0	0.5	0.5	0.5	0.5	1.5	11.0	17.5	20.0	24.0	21.0	10.5
30	2.0	0.5	0.5	0.5	---	1.0	11.0	16.0	20.0	23.5	21.0	10.5
31	2.0	---	0.5	0.5	---	1.0	---	16.0	---	21.5	21.0	---
MONTH	9.5	1.0	0.5	0.5	0.5	1.0	5.5	16.5	19.5	22.0	22.0	16.0

RED RIVER OF THE NORTH BASIN

05058700 SHEYENNE RIVER AT LISBON, N. DAK.

LOCATION.--Lat 46°26'49", long 97°40'44", on line between secs.1 and 2, T.134 N., R.56 W., Ransom County, at gaging station, 150 ft (46 m) downstream from dam at State fish hatchery at north edge of city of Lisbon, 3 mi (5 km) upstream from Timber Coulee, and at mile 162.1 (kilometer 260.8).

DRAINAGE AREA.--8,190 mi² (21,210 km²), approximately, of which about 5,700 mi² (14,800 km²) is probably noncontributing--includes 3,800 mi² (9,800 km²) in closed basins.

PERIOD OF RECORD.--Chemical analyses: August 1956 to current year. Water temperatures: August 1956 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 716 mg/l Feb. 1-29; minimum, 434 mg/l Apr. 1-30.

Hardness: Maximum, 310 mg/l Feb. 1-29; minimum, 200 mg/l Mar. 1-31.

Specific conductance: Maximum daily, 1,180 micromhos Mar. 8-10; minimum daily, 387 micromhos Mar. 18.

Water temperatures: Maximum, 28.0°C July 10; minimum, freezing point on many days during winter months.

Period of record:

Dissolved solids (1956-58, 1959-72): Maximum, 917 mg/l May 22 to June 15, 1964; minimum, 185 mg/l Apr. 3-5, 1960.

Hardness: Maximum, 458 mg/l May 16-31, 1963; minimum, 102 mg/l Apr. 3-5, 1960.

Specific conductance: Maximum daily, 1,450 micromhos Jan. 30, 1962; minimum daily, 243 micromhos Apr. 2, 1960.

Water temperatures: Maximum, 32.0°C Aug. 23, 1959; minimum, freezing point on many days during winter period.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during the year: Dissolved solids, 820 mg/l Mar. 9; hardness, 370 mg/l Mar. 9. Minimum observed during the year: Dissolved solids, 394 mg/l June 7; hardness, 190 mg/l June 7.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.									
01-31	57	56	25	70	10	257	0	211	532
NOV.									
01-30	107	60	27	77	11	291	0	239	528
DEC.									
01-31	159	55	28	79	11	315	0	258	524
JAN.									
01-31	138	57	31	100	11	362	0	297	556
FEB.									
01-29	79	66	35	110	11	395	0	324	716
MAR.									
01-31	363	47	19	49	9.5	209	0	171	450
APR.									
01-30	928	49	24	62	10	251	0	206	434
MAY									
01-31	289	65	32	78	10	284	0	233	600
JUNE									
01-30	235	51	24	59	9.2	250	0	205	480
JULY									
01-31	40	60	27	29	9.5	263	0	216	572
AUG.									
01-31	25	58	28	83	9.4	248	0	203	596
SEP.									
01-30	19	63	29	77	11	254	0	208	580
MTD. AVG.	--	53	26	67	10	266	0	218	494
TIME MTD.									
AVG.	203	57	27	73	10	281	0	231	547
TONS									
PER DAY	--	29	14	37	5.5	145	0	119	270

non given 29x36.5

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.								
01-31	.72	81.9	240	32	37	2.0	788	7.8
NOV.								
01-30	.72	153	260	22	38	2.1	858	7.9
DEC.								
01-31	.71	225	250	0	39	2.2	816	7.9
JAN.								
01-31	.76	207	270	0	43	2.6	897	7.9
FEB.								
01-29	.97	153	310	0	43	2.7	1020	8.0
MAR.								
01-31	.61	441	200	24	34	1.5	595	7.3
APR.								
01-30	.59	1090	220	15	37	1.8	682	8.0
MAY								
01-31	.82	468	290	61	36	2.0	887	8.0
JUNE								
01-30	.65	305	230	21	35	1.7	724	7.9
JULY								
01-31	.78	61.8	260	45	19	.8	843	8.0
AUG.								
01-31	.81	40.2	260	57	40	2.2	857	7.9
SEP.								
01-30	.79	29.8	280	68	37	2.0	883	7.9
MTD. AVG.	.67	--	238	22	--	1.9	746	7.9
TIME MTD.								
AVG.	.74	--	256	20	36	2.0	820	7.9
TONS								
PER DAY	--	--	--	--	--	--	--	--

05058700 SHEYENNE RIVER AT LISBON, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
06...	1615	63	12	--	--	--	55	25	61	8.8	255	0
NOV.												
03...	1230	83	3.6	--	--	--	60	26	67	9.3	267	0
DEC.												
01...	1630	163	1.6	200	10	40	55	27	72	9.8	--	--
JAN.												
06...	1030	151	5.1	--	--	--	55	31	93	12	350	0
FEB.												
10...	1050	95	11	--	--	--	67	34	100	12	408	0
MAR.												
09...	0900	28	16	--	--	--	81	40	120	11	446	0
APR.												
03...	0930	1000	11	200	30	20	53	26	67	10	--	--
MAY												
03...	1415	240	8.2	--	20	10	58	26	71	13	--	--
JUNE												
07...	1100	479	5.9	--	--	--	43	20	50	8.7	233	0
JULY												
10...	1815	31	18	--	--	--	54	28	70	9.8	251	0
AUG.												
10...	1500	29	13	--	--	--	55	26	76	9.9	262	0
SEP.												
07...	0900	16	16	--	--	--	60	28	77	11	256	0

DATE	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
06...	209	140	23	.4	.04	.16	482	.66	83.2	240	31	35
NOV.												
03...	219	160	28	.3	.08	.08	560	.76	126	260	38	35
DEC.												
01...	--	--	20	.5	--	.17	512	.70	225	250	--	38
JAN.												
06...	287	150	21	.4	.34	.17	564	.77	230	260	0	42
FEB.												
10...	335	190	33	.2	.77	.30	684	.93	175	310	0	40
MAR.												
09...	366	230	42	.3	1.3	.35	820	1.12	62.0	370	1	41
APR.												
03...	--	140	17	.0	--	.15	536	.73	1450	240	--	37
MAY												
03...	--	140	21	.2	--	.08	520	.71	337	250	--	37
JUNE												
07...	191	99	13	.2	.07	.04	394	.54	510	190	0	35
JULY												
10...	206	170	29	.3	.04	.02	500	.68	41.8	250	44	37
AUG.												
10...	215	160	37	.4	.00	.07	524	.71	41.0	240	29	39
SEP.												
07...	210	190	37	.3	.00	.06	532	.72	23.0	260	55	38

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)
OCT.												
06...	1.7	737	7.6	12.5	20	--	--	--	180	--	--	--
NOV.												
03...	1.8	782	7.9	1.0	20	--	--	--	170	--	--	--
DEC.												
01...	2.0	772	--	.0	20	20	0	0	200	0	0	0
JAN.												
06...	2.5	883	7.9	.0	20	--	--	--	230	--	--	--
FEB.												
10...	2.5	1030	7.7	.0	20	--	--	--	290	--	--	--
MAR.												
09...	2.7	1170	7.5	.0	20	--	--	--	240	--	--	--
APR.												
03...	1.9	738	--	1.0	100	2	0	0	190	0	0	2
MAY												
03...	1.9	778	--	11.5	30	6	0	--	180	--	0	--
JUNE												
07...	1.6	590	7.7	22.0	20	--	--	--	140	--	--	--
JULY												
10...	1.9	791	8.3	28.0	20	--	--	--	210	--	--	--
AUG.												
10...	2.1	824	8.0	22.0	30	--	--	--	240	--	--	--
SEP.												
07...	2.1	857	8.2	17.0	20	--	--	--	250	--	--	--

RED RIVER OF THE NORTH BASIN

05058700 SHEYENNE RIVER AT LISBON, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 01...	4	0	120	.3	3	5	5	0	370	1.4	20
APR. 03...	6	0	40	.5	0	7	--	2	300	.9	20
MAY 03...	--	--	50	--	--	--	6	--	330	3.5	20

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	866	830	815	824	970	1090	815	897	957	828	848	863
2	883	805	805	851	975	1140	695	941	795	804	838	884
3	884	790	810	851	970	1130	695	1000	707	812	853	860
4	795	821	833	859	969	1140	755	990	735	812	853	861
5	746	874	795	882	973	1140	765	1160	613	820	858	898
6	750	879	807	885	973	1140	747	977	608	810	863	906
7	759	875	795	892	1000	1120	731	895	597	835	857	906
8	777	882	785	892	1020	1180	741	903	604	815	869	907
9	785	908	795	895	1020	1180	722	826	637	796	864	905
10	780	919	794	885	1030	1180	730	885	818	836	856	887
11	773	840	780	895	1040	1160	715	910	765	855	853	867
12	773	855	772	895	1040	965	710	833	807	865	850	862
13	760	853	772	901	1050	557	745	1090	690	884	850	855
14	739	849	772	910	1060	645	682	915	691	881	857	855
15	730	833	775	915	1060	463	845	862	722	887	865	875
16	697	775	776	916	1060	438	821	862	700	893	858	900
17	696	752	785	914	1060	425	745	882	740	885	861	925
18	698	738	787	905	1060	387	657	1060	758	898	869	938
19	745	755	790	907	1060	465	655	913	758	904	831	938
20	732	753	799	899	1060	412	647	1020	755	915	847	945
21	723	745	813	911	1060	476	603	971	745	908	859	973
22	730	759	813	910	1060	727	604	949	772	892	856	957
23	742	775	819	920	1080	680	595	945	745	930	868	960
24	731	810	835	935	1080	587	602	985	795	906	881	973
25	773	823	839	940	1100	630	587	921	765	906	884	960
26	805	822	839	945	1100	590	604	825	768	867	887	963
27	815	798	836	946	1100	590	570	805	768	851	877	956
28	805	795	846	945	1100	615	570	924	775	847	885	957
29	815	810	855	955	1120	863	598	887	775	838	867	950
30	799	801	853	965	---	875	713	813	805	828	884	973
31	800	---	853	977	---	843	---	845	---	840	875	---
MONTH	771	817	808	907	1040	801	689	925	739	860	862	915

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	3.0	0.0	0.0	0.0	0.0	0.0	10.0	19.0	24.0	23.5	21.5
2	16.0	3.0	0.0	0.0	0.0	0.0	0.0	10.5	20.0	22.0	21.0	20.0
3	14.0	2.0	0.0	0.0	0.0	0.0	0.0	11.0	22.5	21.5	22.0	18.5
4	14.0	2.0	0.0	0.0	0.0	0.0	0.0	13.5	21.0	20.0	23.0	18.5
5	14.0	1.0	0.0	0.0	0.0	0.0	4.0	12.0	22.5	19.5	24.0	19.0
6	13.0	0.5	0.0	0.0	0.0	0.0	4.5	11.5	22.0	25.0	22.0	19.5
7	13.0	0.5	0.0	0.0	0.0	0.0	3.0	10.0	22.0	23.5	20.5	19.0
8	11.0	1.0	0.0	0.0	0.0	0.0	3.0	11.5	22.5	27.0	19.5	18.5
9	11.0	1.0	0.0	0.0	0.0	0.0	3.5	12.0	23.0	23.5	18.0	17.5
10	10.0	1.0	0.0	0.0	0.0	0.0	4.0	12.0	19.0	28.0	18.0	19.5
11	11.0	0.5	0.0	0.0	0.0	1.0	4.5	13.0	21.5	24.5	21.0	18.5
12	10.0	1.0	0.0	0.0	0.0	0.0	4.0	13.0	20.0	25.0	21.0	19.5
13	10.0	0.0	0.0	0.0	0.0	0.5	3.5	11.5	23.0	25.0	21.0	18.5
14	11.0	0.0	0.0	0.0	0.0	0.0	4.0	12.0	23.0	25.0	23.0	19.5
15	9.0	0.5	0.0	0.0	0.0	0.0	7.0	14.0	21.0	23.0	23.5	18.5
16	9.0	0.5	0.0	0.0	0.0	0.5	6.5	16.0	21.0	23.0	25.5	18.0
17	9.0	0.5	0.0	0.0	0.0	0.0	6.5	18.5	19.5	25.0	26.0	17.0
18	12.0	0.5	0.0	0.0	0.0	1.0	7.0	19.0	19.0	25.5	26.5	16.0
19	11.0	0.5	0.0	0.0	0.0	0.5	7.0	20.5	18.0	22.5	25.0	17.0
20	10.0	0.0	0.0	0.0	0.0	0.0	6.5	23.0	16.0	23.0	26.0	18.5
21	10.0	0.0	0.0	0.0	0.0	0.0	6.5	23.5	20.0	21.5	26.5	16.0
22	11.0	0.0	0.0	0.0	0.0	0.5	5.5	21.5	20.0	22.0	21.0	14.0
23	10.0	0.5	0.0	0.0	0.0	0.0	5.5	20.5	19.0	23.0	21.0	14.5
24	10.0	0.5	0.0	0.0	0.0	0.0	5.0	20.5	19.5	23.5	20.5	14.0
25	11.0	0.5	0.0	0.0	0.0	0.0	5.0	21.5	19.5	22.0	20.0	14.0
26	11.0	0.5	0.0	0.0	0.0	0.0	6.5	21.0	20.5	22.0	20.0	11.0
27	9.0	0.5	0.0	0.0	0.0	0.5	7.0	21.0	22.5	23.0	20.5	11.0
28	7.0	0.5	0.0	0.0	0.0	0.0	7.0	19.0	22.0	24.0	23.0	11.0
29	5.0	0.5	0.0	0.0	0.0	0.0	8.5	17.0	21.5	26.0	26.5	10.5
30	5.0	0.0	0.0	0.0	0.0	0.0	11.0	18.5	26.0	23.0	23.5	12.5
31	4.0	---	0.0	0.0	---	0.0	---	19.0	---	25.5	22.0	---
MONTH	10.5	1.0	0.0	0.0	0.0	0.0	5.0	16.0	21.0	23.5	22.5	16.5

05059000 SHEYENNE RIVER NEAR KINDRED, N. DAK.

LOCATION.--Lat 46°37'35", long 97°00'05", in NE¼NW¼ sec.5, T.136 N., R.50 W., Richland County, temperature recorder at gaging station, on right bank 25 ft (7.6 m) downstream from Burlington Northern Railway bridge, 1.5 mi (2.4 km) southeast of Kindred, and at mile 68.1 (kilometer 109.6).

DRAINAGE AREA.--8,800 mi² (22,800 km²), approximately, of which about 5,780 mi² (15,000 km²) is probably noncontributing (includes 3,800 mi² (9,800 km²) in close basins).

PERIOD OF RECORD.--November 1970 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum, 27.0°C August 17, 20, 21; minimum, freezing point on many days during winter months.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	---	---	0.0	0.0	0.5	0.0	0.0	0.0
2	---	---	---	---	---	---	0.0	0.0	---	---	0.0	0.0
3	---	---	---	---	---	---	0.0	0.0	---	---	0.0	0.0
4	---	---	---	---	---	---	0.5	0.5	---	---	0.0	0.0
5	---	---	---	---	---	---	0.5	0.5	---	---	0.0	0.0
6	---	---	---	---	---	---	0.5	0.5	---	---	0.0	0.0
7	---	---	---	---	---	---	0.5	0.5	---	---	0.0	0.0
8	---	---	---	---	0.0	0.0	0.5	0.5	---	---	0.0	0.0
9	---	---	---	---	0.0	0.0	0.5	0.5	0.0	0.0	---	---
10	---	---	---	---	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
11	---	---	---	---	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0
12	---	---	---	---	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0
13	---	---	---	---	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0
14	---	---	---	---	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0
15	---	---	---	---	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0
16	---	---	---	---	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0
17	---	---	---	---	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
18	---	---	---	---	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
19	---	---	---	---	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0
20	---	---	---	---	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0
21	---	---	---	---	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
22	---	---	---	---	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
23	---	---	---	---	1.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0
24	---	---	---	---	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
25	---	---	---	---	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
26	---	---	---	---	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
27	---	---	---	---	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0
28	---	---	---	---	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0
29	---	---	---	---	0.5	0.0	0.5	0.5	0.0	0.0	---	---
30	---	---	---	---	0.0	0.0	0.5	0.5	---	---	---	---
31	---	---	---	---	0.0	0.0	0.5	0.5	---	---	---	---
MONTH	---	---	---	---	---	---	1.0	0.0	---	---	0.0	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	10.0	9.0	19.0	19.0	24.0	23.5	24.0	23.0	21.5	19.0
2	---	---	11.0	10.0	---	---	23.5	22.5	23.0	22.0	19.0	17.5
3	---	---	11.0	11.0	---	---	22.5	20.0	22.0	---	17.5	17.0
4	---	---	11.5	11.5	---	---	20.0	18.5	---	---	17.0	17.0
5	---	---	11.5	11.5	---	---	19.0	19.0	---	---	17.0	16.0
6	---	---	11.5	11.0	---	---	19.5	19.5	---	---	16.0	16.0
7	---	---	11.0	10.0	23.5	23.5	21.0	19.0	---	---	16.5	16.5
8	---	---	11.0	10.5	24.0	23.0	23.5	21.0	---	---	16.5	16.5
9	---	---	12.5	11.0	24.0	23.5	25.5	23.5	17.0	---	17.0	16.5
10	---	---	14.0	12.0	23.5	22.5	26.5	25.0	18.0	17.0	18.5	17.0
11	4.0	4.0	13.5	13.5	22.5	21.0	26.0	25.0	20.5	18.0	18.5	18.5
12	4.5	4.0	13.5	13.5	22.5	21.0	25.5	23.5	22.5	20.5	18.5	18.0
13	5.0	4.5	13.5	13.5	22.5	22.5	23.5	23.0	24.0	22.5	18.0	18.0
14	5.0	5.0	14.0	13.5	23.0	22.0	23.5	23.5	25.5	24.0	18.0	17.0
15	5.5	4.0	16.0	14.0	22.0	20.5	23.5	23.0	25.5	25.0	17.0	17.0
16	6.5	5.0	18.0	16.0	20.5	19.0	23.0	23.0	26.5	26.0	17.0	16.0
17	8.0	7.5	20.0	18.0	19.5	19.0	23.5	23.0	27.0	26.0	16.0	16.0
18	8.5	8.0	20.5	19.5	19.0	19.0	23.0	22.0	26.5	26.0	16.0	16.0
19	8.5	8.5	21.5	20.5	19.0	18.0	23.5	23.0	26.5	25.0	18.0	16.0
20	8.5	8.5	22.5	21.5	18.0	17.0	23.0	22.5	27.0	25.5	19.0	18.0
21	9.0	8.5	22.5	22.0	18.0	17.0	22.5	22.0	27.0	23.5	19.0	15.0
22	9.0	9.0	22.5	22.5	19.0	18.0	22.0	22.0	23.5	22.5	15.0	13.5
23	9.0	8.5	22.5	20.5	19.5	19.0	21.5	21.0	21.5	19.5	13.5	13.5
24	8.5	8.0	20.5	20.0	20.0	19.5	21.5	21.5	19.5	19.5	13.5	13.5
25	8.0	8.0	20.0	19.5	20.5	20.0	21.5	21.5	19.5	19.0	13.5	12.5
26	8.0	8.0	19.5	19.5	21.5	20.5	21.5	21.5	19.5	19.0	12.5	12.0
27	8.5	8.0	19.5	19.5	21.5	21.5	21.5	21.5	20.5	19.5	12.0	11.5
28	8.5	8.5	19.5	19.5	21.5	21.0	21.5	21.0	21.0	20.5	11.5	11.5
29	8.5	8.0	20.0	19.5	24.0	22.0	23.0	21.0	22.5	21.5	11.5	10.5
30	9.0	8.5	20.0	19.5	24.0	23.5	24.5	23.0	22.5	22.5	10.5	9.5
31	---	---	19.5	19.0	---	---	24.5	24.0	22.5	21.5	---	---
MONTH	---	---	22.5	9.0	24.0	17.0	26.5	18.5	27.0	---	21.5	9.5

RED RIVER OF THE NORTH BASIN

05060600 SHEYENNE RIVER NEAR HARWOOD, N. DAK.

LOCATION.--Lat 47°00'05", long 96°53'40", in SW¼NW¼ sec.28, T.141 N., R.49 W., Cass County, 2 mi (3.2 km) northwest of Harwood, 10 mi (16 km) upstream from mouth, at bridge on U.S. Highway 81.

DRAINAGE AREA.--10,700 mi² (27,700 km²), approximately, of which about 5,850 mi² (15,150 km²) is probably non-contributing--includes 3,800 mi² (9,800 km²) in closed basins.

PERIOD OF RECORD.--July 1969 to current year.

REMARKS.--Discharge obtained from the record of station 05059500 Sheyenne River at West Fargo during winter low flow, rating table at station during mid-flow; and current-meter measurements at high flows when backwater from the Red River might exist.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.											
27...	1400	135	--	67	25	--	--	--	--	140	32
NOV.											
30...	1430	320	--	82	33	--	--	--	--	190	31
DEC.											
29...	1415	150	50	68	31	81	--	--	--	160	30
FEB.											
01...	1030	110	--	70	32	--	--	--	--	160	33
MAR.											
01...	1100	100	--	80	35	--	--	--	--	170	42
28...	1130	811	120	47	17	37	--	--	--	100	26
APR.											
25...	1030	1600	--	55	24	--	--	--	--	130	16
MAY											
31...	1415	2140	--	60	27	--	--	--	--	150	21
JUNE											
28...	1300	220	40	77	34	96	--	--	--	180	64
AUG.											
01...	1800	240	--	65	24	--	--	--	--	130	22
29...	1800	175	--	67	30	--	--	--	--	180	37
SEP.											
28...	1500	60	--	92	34	--	375	0	308	180	88

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO
OCT.											
27...	--	.47	.35	.26	--	454	.62	165	270	--	--
NOV.											
30...	--	.20	.19	.21	--	604	.82	522	340	--	--
DEC.											
29...	.3	.00	.30	.19	--	536	.73	217	297	--	2.0
FEB.											
01...	--	.56	.42	.28	--	640	.87	190	310	--	--
MAR.											
01...	--	1.1	.41	.25	--	716	.97	193	340	--	--
28...	.3	1.3	.64	.33	--	392	.53	858	190	--	1.2
APR.											
25...	--	.98	.32	.47	--	456	.62	1970	240	--	--
MAY											
31...	--	.47	.19	.63	--	480	.65	2770	260	--	--
JUNE											
28...	.1	.17	.25	.60	--	720	.98	428	330	--	2.3
AUG.											
01...	--	.02	.24	.34	--	444	.60	288	260	--	--
29...	--	.08	.16	.30	--	560	.76	265	290	--	--
SEP.											
28...	--	--	.84	.77	.47	756	1.03	122	370	62	--

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MOS)	PH (UNITS)	TEMP- ERATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	BIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FFCAL COLI- FORM (COL. PER 100 ML)	CYANIDE (CM) (MG/L)	ALORIN (UG/L)	CHLOR- DANE (UG/L)
OCT.											
27...	753	7.6	10.0	7.0	9.0	2.5	--	330	--	--	--
NOV.											
30...	935	8.0	.0	-4.5	13.6	1.9	--	81	--	--	--
DEC.											
29...	858	7.6	.0	-17.0	9.6	1.5	--	300	.00	.00	.0
FEB.											
01...	958	7.6	.0	-17.0	6.4	2.3	--	360	--	--	--
MAR.											
01...	1070	7.6	.0	-18.0	8.4	3.0	--	370	--	--	--
28...	868	7.6	.0	-15.0	11.6	3.4	--	270	.00	.00	.0
APR.											
25...	662	8.0	8.0	8.5	10.0	3.3	--	120	--	--	--
MAY											
31...	652	8.1	14.0	23.0	6.4	2.6	--	510	--	--	--
JUNE											
28...	1050	8.4	22.0	28.5	8.0	--	--	300	.00	.00	.0
AUG.											
01...	671	7.6	22.5	23.0	7.8	3.2	510	8330	--	--	--
29...	323	8.0	24.5	28.5	7.6	--	900	230	--	--	--
SEP.											
28...	1140	8.0	16.5	11.5	10.0	3.6	1100	250	--	--	--

B - Results based on colony count outside the acceptable range.

05060600 SHEYENNE RIVER NEAR HARWOOD, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)
OCT. 27...	--	--	--	--	--	--	--	--	--	--
NOV. 30...	--	--	--	--	--	--	--	--	--	--
DEC. 29...	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
FEB. 01...	--	--	--	--	--	--	--	--	--	--
MAR. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00
APR. 25...	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUNE 28...	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00
AUG. 01...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP. 28...	--	--	--	--	--	--	--	--	--	--

DATE	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
OCT. 27...	--	--	--	--	--	--	--	--	--	--
NOV. 30...	--	--	--	--	--	--	--	--	--	--
DEC. 29...	.00	20	0	200	0	0	4	0	.2	5
FEB. 01...	--	--	--	--	--	--	--	--	--	--
MAR. 01...	--	--	--	--	--	--	--	--	--	--
28...	.00	6	0	110	2	0	5	6	.2	1
APR. 25...	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--
JUNE 28...	.00	2	0	220	2	0	5	1	.7	4
AUG. 01...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP. 28...	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 29...	9	7	0	0
MAR. 28...	11	0	0	50
JUNE 28...	7	3	0	10

RED RIVER OF THE NORTH BASIN

05064900 BEAVER CREEK NEAR FINLEY, N. DAK.
(Hydrologic bench-mark station)

LOCATION.--Lat 47°35'40", long 97°42'18", in NE¼ sec.31, T.148 N., R.55 W., Steele County, at gaging station on right bank 500 ft (150 m) upstream from bridge on county road and 7 mi (11 km) northeast of Finley.

DRAINAGE AREA.--160 mi² (410 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year.

REMARKS.--No flow Dec. 18 to March 10, June 29 to Aug. 17 and Aug. 20 to Sept. 30.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANG- NESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT. 27...	1100	1.2	21	--	20	100	100	42	79	9.4	326	0
NOV. 30...	1120	.39	24	--	30	200	180	78	160	11	535	0
MAR. 22...	1500	64	19	200	60	190	50	19	34	7.9	174	0
APR. 27...	1330	14	18	--	50	90	78	32	56	8.4	245	0
MAY 30...	1530	21	25	--	40	160	88	40	78	7.2	333	0
JUNE 28...	1000	.07	20	--	20	450	120	62	140	10	475	0

DATE	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VEN- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT. 27...	267	310	28	.4	.09	.10	828	1.13	2.68	420	160
NOV. 30...	439	580	45	.3	.10	.10	1330	1.81	1.40	770	330
MAR. 22...	143	120	9.8	.3	1.5	.23	360	.49	62.2	200	60
APR. 27...	201	250	12	.2	.03	.06	616	.84	23.3	330	130
MAY 30...	273	260	17	.3	.21	.28	764	1.04	43.3	380	110
JUNE 28...	389	440	33	.4	.06	.23	1140	1.55	.22	550	170

DATE	PERCENT SODIUM	SODIUM AD- SURP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	COLOR (PLAT- INUM- CURALT UNITS)	DIS- SOLVED OXYGEN (MG/L)	DISS- CHEM- ICAL (OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	CYANIDE (CN) (MG/L)
OCT. 27...	28	1.7	1110	7.5	8.0	4.5	30	10.0	3.3	B ₆	--
NOV. 30...	31	2.5	1890	7.9	.0	-2.5	40	12.8	2.7	B ₆ H	--
MAR. 22...	26	1.0	565	7.6	1.0	-5.5	50	11.0	3.9	B ₆ H	.01
APR. 27...	27	1.3	849	8.1	12.5	17.0	50	10.0	1.8	1.6	--
MAY 30...	30	1.7	1020	7.8	19.0	19.5	60	8.0	3.1	--	--
JUNE 28...	35	2.6	1510	8.3	19.5	22.0	40	7.2	--	5.1	--

B - Results based on colony count outside the acceptable range.

E - Estimated.

RED RIVER OF THE NORTH BASIN

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05064900 BEAVER CREEK NEAR FINLEY, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)
MAR. 22...	10	0	110	0	0	0	10	2	20

DATE	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYBDENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SILVER (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED VANADIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
MAR. 22...	.3	3	3	5	0	170	5.5	30

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT CHARGE (T/DAY)	SUS. SED. FALL DIAM. X FINER THAN .002 MM	SUS. SED. FALL DIAM. X FINER THAN .004 MM	SUS. SED. FALL DIAM. X FINER THAN .016 MM	SUS. SED. FALL DIAM. X FINER THAN .062 MM
OCT. 27...	1045	8.0	1.2	105	.34	--	--	--	--
MAR. 14...	1225	.0	100	12R	35	--	--	--	--
16...	1725	.5	150	84	34	49	64	75	86
20...	1300	2.0	32	46	10	--	--	--	--
22...	1445	1.0	65	52	9.1	--	--	--	--
APR. 12...	1630	.5	250	500	33R	--	--	--	--
27...	1300	12.5	15	14	.57	--	--	--	--
MAY 23...	1310	21.0	63	330	56	55	82	94	--
27...	1050	19.0	162	633	277	--	--	--	--

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, N. DAK.

LOCATION.--Lat 47°56'34", long 97°03'10", in SW¼NE¼ sec.33, T.152 N., R.50 W., Grand Forks County, at dam at Riverside Park in Grand Forks, 1,500 ft (460 m) upstream from gaging station, 2.0 mi (3.2 km) downstream from Red Lake River, and at mile 295.7 (kilometer 475.8).

DRAINAGE AREA.--30,100 mi² (78,000 km²), approximately -- includes 3,800 mi² (9,800 km²) in closed basins .

PERIOD OF RECORD.--Chemical analyses: September 1956 to current year.
Water temperatures: October 1956 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 436 mg/l June 1-30; minimum, 250 mg/l Mar. 1-31.
Hardness: Maximum, 310 mg/l Dec. 1-31; minimum, 150 mg/l Mar. 1-31.
Specific conductance: Maximum daily, 705 micromhos Dec. 3-4; minimum daily, 359 micromhos Oct. 3.
Water temperatures: Maximum, 25.5°C Aug. 18-21; minimum, freezing point on many days during winter months.

Period of record:

Dissolved solids (1956-58, 1959-72): Maximum, 540 mg/l Jan. 21, 1962; minimum, 191 mg/l Mar. 24, 1966.
Hardness: Maximum, 468 mg/l Dec. 29-31, 1958; minimum, 126 mg/l Apr. 12, 1965.
Specific conductance: Maximum daily, 976 micromhos Dec. 29-31, 1958; minimum daily, 278 micromhos Mar. 26, 1966.
Water temperatures: Maximum, 28.0°C July 19, 1964; minimum, freezing point on many days during winter period.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during water year:
Dissolved solids, 440 mg/l Nov. 24; hardness 320 mg/l May 23.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.								
01-31	4290	53	22	11	205	0	168	340
NOV.								
01-30	5220	68	29	11	244	0	200	398
DEC.								
01-31	3070	68	33	20	303	0	249	420
JAN.								
01-31	1830	58	28	18	287	0	235	320
FEB.								
01-29	1480	54	25	16	274	0	225	344
MAR.								
01-31	8600	37	15	9.0	158	0	130	250
APR.								
01-30	15700	47	20	12	191	0	157	340
MAY								
01-31	7600	62	30	18	252	0	207	404
JUNE								
01-30	5200	60	30	22	249	0	204	436
JULY								
01-31	2280	45	24	15	232	0	190	330
AUG.								
01-31	2270	52	24	14	223	0	183	332
SEP.								
01-30	1900	45	21	11	215	0	176	258
WTD. AVG.	--	53	24	14	219	0	180	349
TIME WTD.								
AVG.	4960	54	25	15	236	0	194	348
TONS PER DAY	--	702	317	186	2930	0	2400	4660

DATE	DIS- SOLVED SOLIDS (TONS AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.							
01-31	.46	3940	220	55	.3	483	7.8
NOV.							
01-30	.54	5610	290	89	.3	621	7.9
DEC.							
01-31	.57	3480	310	57	.5	669	7.9
JAN.							
01-31	.44	1580	260	25	.5	536	7.9
FEB.							
01-29	.47	1370	240	13	.5	498	7.9
MAR.							
01-31	.34	5810	150	25	.3	360	7.2
APR.							
01-30	.46	14400	200	43	.4	448	7.3
MAY							
01-31	.55	8290	280	72	.5	597	8.1
JUNE							
01-30	.59	6120	270	69	.6	610	7.8
JULY							
01-31	.45	2030	210	21	.5	494	8.0
AUG.							
01-31	.45	2040	230	46	.4	484	8.0
SEP.							
01-30	.35	1320	200	22	.3	419	7.8
WTD. AVG.	.47	--	228	49	.4	504	7.7
TIME WTD.							
AVG.	.47	--	238	45	.4	518	7.8
TONS PER DAY	--	--	--	--	--	--	--

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED ALUM- INUM (AL) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN- GANESE (MN) (UG/L)	DIS-SOLVED CAL- CIUM (CA) (MG/L)	DIS-SOLVED MAG- NE- SIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
OCT.												
22...	1630	9660	16	--	--	--	51	21	10	5.3	189	0
NOV.												
24...	1130	2700	14	--	--	--	68	33	17	4.4	268	0
DEC.												
22...	1230	2500	13	200	20	30	62	31	21	4.4	--	--
JAN.												
26...	1130	1500	14	--	--	--	55	27	18	4.4	283	0
FEB.												
24...	1500	1480	13	--	--	--	54	25	15	4.1	281	0
APR.												
03...	1645	9650	13	200	40	40	49	19	13	6.3	--	--
04...	1010	8500	--	--	--	--	--	--	--	--	--	--
24...	1200	16900	12	--	--	--	54	22	15	5.7	195	0
MAY												
23...	1530	6320	11	--	--	--	71	34	22	5.7	273	0
JUNE												
23...	1100	4010	10	--	--	--	56	28	17	4.4	242	0
JULY												
21...	1330	2160	13	--	--	--	49	26	18	4.0	239	0
AUG.												
24...	1345	2270	13	--	--	--	51	26	18	3.8	238	0

DATE	ALKA- LINIT AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
22...	155	73	7.7	.4	1.8	.15	308	.42	8030	210	59	9
NOV.												
24...	220	120	9.1	.4	.50	.14	440	.60	3210	310	86	11
DEC.												
22...	--	70	10	.3	--	.20	390	.53	2630	280	--	14
JAN.												
26...	232	47	8.8	.1	.36	.25	334	.45	1350	250	16	13
FEB.												
24...	230	44	7.2	.3	.37	.16	310	.42	1240	240	7	12
APR.												
03...	--	67	9.8	.1	--	.16	318	.43	8290	200	--	12
04...	--	--	--	--	--	--	--	--	--	--	--	--
24...	160	79	7.6	.3	.50	.08	366	.50	16700	230	65	12
MAY												
23...	224	130	11	.1	.18	.11	438	.60	7470	320	93	13
JUNE												
23...	198	79	7.0	.1	.29	.11	356	.48	3850	250	57	12
JULY												
21...	196	68	8.0	.2	.38	.17	328	.45	1910	230	33	14
AUG.												
24...	195	71	12	.3	.07	.14	386	.53	2370	230	39	14

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	CHLOR- DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- AZINON (UG/L)
OCT.												
22...	.3	464	7.5	10.0	70	--	--	--	--	--	--	--
NOV.												
24...	.4	646	8.0	.0	50	--	--	--	--	--	--	--
DEC.												
22...	.5	609	--	.0	20	.00	--	--	--	--	--	--
JAN.												
26...	.5	513	7.6	.0	20	--	--	--	--	--	--	--
FEB.												
24...	.4	497	7.5	.0	20	--	.00	.0	.00	.00	.00	--
APR.												
03...	.4	441	--	.0	60	.01	--	--	--	--	--	--
04...	--	--	--	.5	--	--	.00	.0	.00	.00	.00	--
24...	.4	490	7.6	7.5	60	--	--	--	--	--	--	--
MAY												
23...	.5	674	7.8	22.5	30	--	.00	.0	.00	.01	.00	.00
JUNE												
23...	.5	540	7.8	19.5	30	--	--	--	--	--	--	--
JULY												
21...	.5	508	8.0	21.5	30	--	--	--	--	--	--	--
AUG.												
24...	.5	521	8.2	23.0	40	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALA- THION (UG/L)	METHYL PARA- THION (UG/L)	PARA- THION (UG/L)	PCB (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SIN VEX (UG/L)
OCT. 22...	--	--	--	--	--	--	--	--	--	--	--	--
NOV. 24...	--	--	--	--	--	--	--	--	--	--	--	--
DEC. 22...	--	--	--	--	--	--	--	--	--	--	--	--
JAN. 26...	--	--	--	--	--	--	--	--	--	--	--	--
FEB. 24...	.00	.00	.00	.00	.00	--	--	--	.0	.00	.00	.00
APR. 03...	--	--	--	--	--	--	--	--	--	--	--	--
04...	.00	.00	.00	.00	.00	--	--	--	.0	.00	.00	.00
24...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 23...	.00	.00	.00	.00	.00	.00	.00	.00	.0	.00	.00	.00
JUNE 23...	--	--	--	--	--	--	--	--	--	--	--	--
JULY 21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG. 24...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYLLIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CADMIUM (CD) (UG/L)	DIS- SOLVED CHROMIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYBDENUM (MO) (UG/L)
OCT. 22...	--	--	--	80	--	--	--	--	--	--	--	--
NOV. 24...	--	--	--	90	--	--	--	--	--	--	--	--
DEC. 22...	4	0	0	30	0	0	0	4	1	30	.3	0
JAN. 26...	--	--	--	100	--	--	--	--	--	--	--	--
FEB. 24...	--	--	--	70	--	--	--	--	--	--	--	--
APR. 03...	4	0	0	80	7	0	2	20	5	20	.0	5
04...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	0	--	--	--	--	--	--	--	--
MAY 23...	--	--	--	110	--	--	--	--	--	--	--	--
JUNE 23...	--	--	--	100	--	--	--	--	--	--	--	--
JULY 21...	--	--	--	100	--	--	--	--	--	--	--	--
AUG. 24...	--	--	--	110	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SILVER (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRONTIUM (SR) (UG/L)	DIS- SOLVED VANADIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 22...	11	8	0	240	.8	20
APR. 03...	4	3	2	200	1.1	40

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	495	552	695	560	502	541	388	523	605	586	478	503
2	450	515	689	558	502	541	410	530	640	590	512	470
3	359	504	705	550	502	548	445	532	586	591	490	489
4	391	503	705	551	502	551	458	527	599	578	531	487
5	388	501	687	552	501	546	451	527	611	556	504	472
6	427	531	675	557	494	541	459	525	610	547	494	450
7	429	545	665	548	494	541	503	540	615	537	498	445
8	445	570	660	547	500	541	538	551	618	524	503	435
9	491	585	663	551	499	541	532	551	615	513	489	417
10	473	587	670	542	499	534	546	555	607	512	476	427
11	430	585	689	542	501	534	546	572	623	504	472	417
12	498	583	685	540	522	534	538	581	635	503	478	422
13	520	570	665	541	523	529	524	597	610	501	494	407
14	530	585	658	541	523	529	447	605	615	492	502	404
15	535	602	663	538	521	529	405	610	608	487	523	399
16	549	597	660	533	525	539	371	618	602	485	530	410
17	550	588	640	534	523	510	380	636	602	497	537	398
18	550	582	630	532	523	542	388	651	595	498	532	399
19	549	588	625	532	522	439	420	634	595	499	533	407
20	533	598	627	530	513	394	420	626	584	503	532	418
21	465	610	615	527	502	372	454	630	590	517	537	418
22	442	612	601	526	499	372	454	658	572	443	533	418
23	454	630	585	527	502	363	474	674	547	425	533	412
24	438	638	577	535	497	370	488	695	573	445	537	407
25	512	663	585	535	499	363	491	695	580	488	525	420
26	528	672	574	527	501	361	491	690	598	503	510	422
27	537	667	570	522	494	367	508	651	584	487	492	435
28	545	663	569	518	496	376	520	612	573	440	477	437
29	550	658	565	515	496	395	507	634	575	472	462	440
30	560	665	563	509	---	410	509	625	572	490	489	433
31	562	---	558	502	---	421	---	687	---	477	472	---
MONTH	489	592	636	536	506	473	469	605	598	506	506	431

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	4.5	1.5	0.5	0.5	0.5	0.5	10.0	18.5	22.0	22.0	21.0
2	13.5	4.5	1.5	0.5	0.5	0.5	1.0	12.0	20.0	23.0	22.0	20.0
3	14.0	4.0	1.5	0.5	0.5	0.5	0.5	12.0	18.5	21.0	21.0	20.0
4	14.0	3.5	1.5	0.5	0.5	0.5	0.5	12.0	18.5	21.0	21.0	19.0
5	13.5	3.5	1.5	0.5	0.5	0.5	0.5	12.0	21.0	21.0	20.5	18.0
6	13.0	1.5	1.5	0.5	0.5	0.5	1.0	12.0	21.0	21.0	20.5	18.0
7	13.0	1.5	1.5	0.5	0.5	0.5	1.0	12.0	21.0	21.0	20.5	15.5
8	13.0	1.5	1.5	0.5	0.5	0.5	1.0	12.0	21.0	21.0	19.5	15.0
9	11.0	1.5	1.5	0.5	0.5	0.5	1.0	12.0	21.0	21.0	19.5	15.0
10	11.0	1.5	1.5	0.5	0.5	0.5	1.0	10.0	21.0	22.0	19.5	16.5
11	11.0	1.5	1.5	0.5	0.5	0.5	1.5	12.0	21.0	23.0	19.5	16.5
12	10.0	1.5	1.5	0.5	0.5	0.5	1.5	12.0	21.0	22.0	19.5	16.5
13	10.0	1.5	1.0	0.5	0.5	0.5	1.5	12.0	21.0	23.0	21.0	16.5
14	10.0	1.5	1.0	0.5	0.5	0.5	1.5	12.0	21.0	23.0	22.0	16.5
15	10.0	1.5	1.0	0.5	0.5	0.5	3.0	13.5	20.0	23.0	22.0	15.5
16	10.0	1.5	1.0	0.5	0.5	0.5	3.0	14.5	20.0	23.0	24.0	15.5
17	10.0	1.5	0.5	0.5	0.5	0.5	3.5	15.5	20.0	22.0	25.0	15.0
18	10.0	1.5	0.5	0.5	0.5	1.0	3.5	17.0	20.0	21.5	25.5	15.0
19	10.0	1.5	0.5	0.5	0.5	1.0	4.0	17.0	20.0	21.5	25.5	15.0
20	10.0	1.5	0.5	0.5	0.5	0.5	5.5	18.5	20.0	21.0	25.5	15.5
21	10.0	1.5	0.5	0.5	0.5	0.5	6.5	20.0	20.0	21.0	25.5	14.5
22	10.0	1.5	0.5	0.5	0.5	0.5	6.5	21.0	20.0	21.0	23.5	13.5
23	10.0	1.5	0.5	0.5	0.5	0.5	6.0	21.0	20.0	21.0	23.5	13.5
24	10.0	1.5	0.5	0.5	0.5	0.5	6.0	21.0	20.0	21.0	23.5	13.0
25	10.0	1.5	0.5	0.5	0.5	0.5	6.5	21.0	20.0	21.0	24.0	12.0
26	10.0	1.5	0.5	0.5	0.5	0.5	7.0	21.0	21.0	21.0	23.0	11.5
27	10.0	1.5	0.5	0.5	0.5	0.5	8.5	21.0	21.0	21.0	23.5	10.0
28	9.0	1.5	0.5	0.5	0.5	0.5	9.5	19.0	21.0	21.0	23.0	10.0
29	7.0	1.5	0.5	0.5	0.5	0.5	10.0	18.5	21.5	21.0	23.0	10.0
30	6.0	1.5	0.5	0.5	---	0.5	10.0	18.5	22.0	21.5	23.0	9.5
31	5.5	---	0.5	0.5	---	0.5	---	18.5	---	21.5	21.5	---
MONTH	10.5	2.0	1.0	0.5	0.5	0.5	4.0	15.5	20.5	21.5	22.5	15.0

RED RIVER OF THE NORTH BASIN

05083000 TURTLE RIVER AT MANVEL, N. DAK.

LOCATION.--Lat 48°04'43", long 97°11'03", in SE $\frac{1}{4}$ sec.10, T.153 N., R.41 W., Grand Forks County, on downstream side of bridge on State Highway 33, 0.3 mi (0.5 km) west of Manvel and 10 mi (16 km) upstream from mouth.

DRAINAGE AREA.--613 mi² (1,588 km²), of which 57 mi² (148 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1971 to September 1972 (discontinued).

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT.										
15...	1515	23	16	0	50	190	89	550	21	327
NOV.										
23...	1100	69	24	0	30	210	120	460	16	327
DEC.										
27...	1200	5.9	28	0	720	190	63	240	17	467
JAN.										
27...	1530	3.0	31	0	60	220	77	390	16	485
FEB.										
29...	1030	.20	29	0	1500	230	93	580	21	449
MAR.										
24...	1500	356	16	0	240	79	31	140	11	155
APR.										
19...	1630	1450	17	0	130	67	25	83	8.1	162
MAY										
22...	1630	51	13	0	570	170	73	300	13	377
JUNE										
13...	1540	38	15	0	0	130	56	180	9.9	364
JULY										
13...	0900	3.0	15	0	400	130	74	790	13	299
AUG.										
15...	1700	4.0	14	80	240	120	62	390	15	248
SEP.										
14...	0830	2.0	17	40	580	140	66	480	18	231

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
15...	0	268	570	850	1.1	.23	.00	2440	3.32	152
NOV.										
23...	0	268	700	780	.3	.56	.07	2610	3.55	486
DEC.										
27...	0	383	380	360	.4	.56	.00	1560	2.12	24.9
JAN.										
27...	0	398	450	610	.4	1.7	.00	2100	2.86	17.0
FEB.										
29...	0	368	590	940	.6	1.9	.00	2860	3.89	1.54
MAR.										
24...	0	127	200	210	.2	2.2	.02	747	1.02	718
APR.										
19...	0	133	150	120	.1	1.2	.01	579	.79	2270
MAY										
22...	0	309	420	480	.2	.23	--	1750	2.38	241
JUNE										
13...	6	309	290	270	.3	.32	.00	1170	1.59	120
JULY										
13...	0	245	330	450	.4	.45	.01	1500	2.04	12.2
AUG.										
15...	0	203	370	560	.4	.56	.04	1800	2.45	19.4
SEP.										
14...	0	190	400	800	.5	.16	.01	2090	2.84	11.3

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED IRON (B) (UG/L)
OCT.									
15...	840	570	58	8.3	3940	7.7	8.0	10	1800
NOV.									
23...	1000	730	49	6.3	3860	8.0	.0	5.2	660
DEC.									
27...	730	350	41	3.9	2370	7.9	.0	9.4	180
JAN.									
27...	870	470	49	5.8	3230	7.7	.0	15	270
FEB.									
29...	960	590	56	8.2	4300	7.4	.0	29	710
MAR.									
24...	330	200	47	3.4	1290	7.2	2.0	16	40
APR.									
19...	270	140	39	2.2	938	7.6	8.0	6.5	180
MAY									
22...	730	420	47	4.8	2610	7.8	22.0	9.6	290
JUNE									
13...	560	250	41	3.3	1840	8.3	21.0	3.0	610
JULY									
13...	630	380	73	14	2280	7.6	20.0	12	500
AUG.									
15...	560	350	60	7.2	2910	8.0	25.0	4.0	770
SEP.									
14...	620	430	62	8.4	3440	7.7	14.5	7.4	1100

05085000 FOREST RIVER AT MINTO, N. DAK.

LOCATION.--Lat 48°16'10", long 97°22'10", in SE¼ sec.31, T.156 N., R.52 W., Walsh County, on right bank 30 ft (9 m) upstream from dam in Minto, 150 ft (46 m) upstream from Burlington Northern Railway bridge, and 0.1 mi (0.2 km) east of U.S. Highway 81.

DRAINAGE AREA.--740 mi² (1,920 km²), of which about 120 mi² (310 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1971 to September 1972 (discontinued).

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NESIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT.										
12...	1630	12	18	0	80	81	29	28	8.4	292
NOV.										
19...	1200	18	16	0	20	72	34	26	7.4	283
DEC.										
14...	1300	6.3	19	0	150	110	42	37	8.5	377
JAN.										
10...	1130	1.0	26	0	350	120	48	19	11	432
FEB.										
14...	1700	.10	28	0	280	140	49	80	12	484
MAR.										
17...	1430	2000	10	0	200	33	9.1	7.2	6.7	104
MAY										
09...	1030	65	15	0	50	84	31	33	6.2	298
JUNE										
14...	1230	28	18	0	270	82	33	34	6.2	307
JULY										
10...	1500	9.8	18	0	180	79	33	33	6.4	305
SEP.										
14...	0930	4.2	22	250	420	76	33	60	7.5	284

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
12...	0	240	120	24	.1	.56	.00	462	.63	15.0
NOV.										
19...	0	232	130	15	.1	.56	.00	442	.60	21.5
DEC.										
14...	0	309	170	26	.2	.61	.00	608	.83	10.3
JAN.										
10...	0	354	110	44	.2	.56	.00	629	.86	1.70
FEB.										
14...	0	397	220	100	.2	.86	.00	890	1.21	.24
MAR.										
17...	0	85	36	4.4	.1	2.0	.02	173	.24	935
MAY										
09...	0	244	130	14	.2	.09	.00	503	.68	88.3
JUNE										
14...	5	260	130	18	.2	.56	.00	469	.64	35.5
JULY										
10...	0	250	140	23	.2	.23	.00	554	.75	14.7
SEP.										
14...	0	233	130	67	.3	.56	.00	582	.79	6.60

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED IRON (R) (UG/L)
OCT.									
12...	320	82	15	.7	694	8.1	7.5	3.7	0
NOV.									
19...	320	88	15	.6	688	8.0	.0	4.5	310
DEC.									
14...	450	140	15	.8	916	8.0	.0	6.0	40
JAN.									
10...	500	140	7	.4	1060	7.8	.0	11	0
FEB.									
14...	550	150	24	1.5	1350	7.6	.0	19	180
MAR.									
17...	120	35	11	.3	284	7.1	.5	13	40
MAY									
09...	340	93	17	.8	731	8.2	10.0	3.0	40
JUNE									
14...	340	80	15	.8	758	8.3	20.0	2.5	500
JULY									
10...	330	83	17	.8	757	8.2	22.5	3.1	290
SEP.									
14...	330	93	28	1.4	885	7.8	15.0	7.2	170

RED RIVER OF THE NORTH BASIN

05092000 RED RIVER OF THE NORTH AT DRAYTON, N. DAK.

LOCATION.--Lat 48°34'20", long 97°08'50", in SE4SE4SE4 sec.24, T.159 N., R.51 W., Pembina County, temperature recorder at gaging station on downstream end of east pier of interstate highway bridge, 1.5 mi (2.4 km) northeast of Drayton and at mile 206.7 (kilometer 332.6).

DRAINAGE AREA.--34,800 mi² (90,100 km²), approximately, includes 3,800 mi² (9,800 km²) in closed basins.

PERIOD OF RECORD.--Chemical analyses: June 1954 to September 1955.

Water temperatures: December 1956 to September 1961, October 1965 to September 1966, October 1967 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum, unknown; minimum, freezing point on many days during winter months.

Period of record:

Water temperatures (1956-58, 1959-61, 1965-66, 1967-72): Maximum, 28.0°C July 20-23, 1960; minimum, freezing point on many days during winter months.

REMARKS.--No record from Apr. 1 to Sept. 30.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	13.0	5.5	4.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
2	13.0	13.0	5.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
3	13.0	13.0	5.0	4.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
4	13.0	13.0	4.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	13.0	13.0	3.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
6	13.0	13.0	2.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	13.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	13.0	13.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	13.0	12.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	12.5	12.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	12.0	11.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	11.5	10.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	10.5	10.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	10.0	10.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	10.0	9.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	9.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	9.0	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.0	9.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	9.5	9.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	9.5	9.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	9.5	9.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.5	9.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	9.0	8.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	8.5	8.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	8.0	6.5	0.5	0.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	6.5	5.5	---	---	0.0	0.0	0.0	0.0	---	---	---	---
MONTH	13.0	5.5	5.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

05099600 PEMBINA RIVER AT WALHALLA, N. DAK.

LOCATION.--Lat 48°54'50", long 97°55'00", in NE¼NE¼ sec.29, T.163 N., R.56 W., Pembina County, at gaging station at bridge on State Highway 32, at south edge of Walhalla, and 7 mi (11 km) downstream from Little Pembina River.

DRAINAGE AREA.--3,350 mi² (8,680 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: March 1962 to current year.

Water temperatures: April 1962 to current year.

Sediment records: April 1962 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, unknown; minimum, 310 mg/l Mar. 1-31.

Hardness: Maximum, unknown; minimum, 140 mg/l Mar. 1-31.

Specific conductance: Maximum daily recorded, 1,290 micromhos, Feb. 17; minimum daily, 349 micromhos Mar. 17.

Water temperatures: Maximum, 27.0°C July 29, Aug. 15, and Sept. 1; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 3,640 mg/l Apr. 15; minimum daily, 19 mg/l Oct. 22.

Sediment discharge: Maximum daily, 23,000 tons Apr. 14; minimum daily, 2.5 tons Mar. 8.

Period of record:

Dissolved solids: Maximum 822 mg/l Jan. 15-31, 1963; minimum, 187 mg/l Apr. 11, 1965.

Hardness: Maximum, 543 mg/l Jan. 15-31, 1963; minimum, 95 mg/l Apr. 11, 1965.

Specific conductance: Maximum daily, 1,290 micromhos Feb. 17, 1972; minimum daily, 223 micromhos Apr. 9, 1971.

Water temperatures: Maximum, 31.0°C July 24, 1963; minimum, freezing point on many days during winter periods.

Sediment concentrations: Maximum daily, 13,000 mg/l July 26, 1963; minimum daily, 3 mg/l Feb. 23, 1965.

Sediment discharge: Maximum daily, 169,000 tons Apr. 11, 1971; minimum daily, less than 0.50 ton on many days.

REMARKS.--Daily samples for chemical analysis composited by discharge. Flow affected by ice Nov. 6 to Apr. 16.

Maximum observed during water year: Dissolved solids, 800 mg/l Feb. 16, hardness, 560 mg/l Feb. 16.

Minimum observed during water year: Dissolved solids, 260 mg/l Mar. 21, hardness, 120 mg/l Mar. 21.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.								
01-31	91	68	34	49	279	0	229	540
NOV.								
01-30	63	82	37	50	316	0	259	588
DEC.								
01-31	28	100	44	64	390	0	320	676
JAN.								
01-31	22	110	48	68	433	0	355	796
MAR.								
01-31	352	35	12	22	121	0	99	310
APR.								
01-30	1300	47	17	29	175	0	144	402
MAY								
01-31	839	49	22	33	200	0	164	394
JUNE								
01-30	323	63	30	41	267	0	219	508
JULY								
01-31	185	57	30	42	260	0	213	484
AUG.								
01-31	170	44	31	43	227	0	186	442
SEP.								
01-30	100	50	32	45	243	0	199	460
WTD. AVG.	--	51	22	34	203	0	167	423
TIME WTD.								
AVG.	290	71	35	49	292	0	240	564
TONS								
PER DAY	--	40	17	27	159	0	131	331

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH
OCT.							
01-31	.73	133	310	81	1.2	786	7.9
NOV.							
01-30	.80	100	360	98	1.2	909	8.0
DEC.							
01-31	.92	51.1	430	110	1.3	1010	8.0
JAN.							
01-31	1.08	49.2	470	120	1.4	1100	8.0
MAR.							
01-31	.42	295	140	38	.8	397	7.1
APR.							
01-30	.55	1410	190	44	.9	493	7.3
MAY							
01-31	.54	893	210	49	1.0	563	8.0
JUNE							
01-30	.69	443	280	62	1.1	707	8.0
JULY							
01-31	.66	242	270	53	1.1	704	8.1
AUG.							
01-31	.60	203	240	51	1.2	636	7.7
SEP.							
01-30	.63	124	260	57	1.2	687	7.8
WTD. AVG.	.58	--	219	51	1.0	571	7.6
TIME WTD.							
AVG.	.77	--	321	81	1.2	799	7.8
TONS							
PER DAY	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05099600 PEMBINA RIVER AT WALHALLA, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
14...	1050	86	16	--	--	--	66	36	52	8.6	288	0
NOV.												
18...	1030	62	15	--	--	--	76	35	53	7.5	306	0
DEC.												
16...	1400	24	21	400	20	310	100	43	62	11	411	0
JAN.												
11...	1300	36	23	--	--	--	110	50	64	9.7	439	0
FEB.												
16...	1600	15	24	--	--	--	130	57	70	12	517	0
MAR.												
21...	1230	1190	15	--	--	--	31	10	19	7.1	107	0
24...	1000	875	16	200	40	210	32	12	25	7.5	112	0
APR.												
13...	0915	2030	13	--	--	--	32	13	21	6.2	140	0
MAY												
03...	1500	1120	17	--	--	--	45	18	29	11	174	0
JUNE												
15...	1600	307	24	--	--	--	64	29	43	8.0	276	0
JULY												
11...	1730	173	28	--	--	--	60	32	43	9.4	267	0
AUG.												
17...	1615	174	28	--	--	--	46	28	42	10	226	0
SEP.												
11...	1500	106	24	0	40	20	47	32	44	9.7	250	0

DATE	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.											
14...	236	180	13	.2	.01	.14	556	.76	130	310	77
NOV.											
18...	251	180	15	.1	.08	.10	596	.81	99.9	330	83
DEC.											
16...	337	230	16	.3	.40	.12	760	1.03	49.2	430	90
JAN.											
11...	360	250	17	.3	.22	.14	776	1.06	75.4	480	120
FEB.											
16...	424	300	23	.2	.05	.11	800	1.09	33.5	560	140
MAR.											
21...	88	75	7.1	.3	2.1	.61	260	.35	835	120	31
24...	92	81	6.6	.3	1.8	1.6	276	.38	652	130	37
APR.											
13...	115	72	5.3	.3	.81	2.7	262	.36	1440	130	19
MAY											
03...	143	110	8.8	.2	.10	.13	344	.47	1040	190	44
JUNE											
15...	226	150	9.4	.3	.07	.28	520	.71	431	280	53
JULY											
11...	219	150	9.7	.2	.00	.28	480	.65	224	280	63
AUG.											
17...	185	140	9.8	.4	.03	.13	454	.62	213	230	45
SEP.											
11...	205	130	11	.4	.00	.11	448	.61	128	250	44

05099600 PEMBINA RIVER AT WALHALLA, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT. 14...	26	1.3	786	8.1	7.5	20	--	--	160	--	--
NOV. 18...	25	1.3	841	7.8	.0	10	--	--	150	--	--
DEC. 16...	23	1.3	1110	7.5	.0	20	3	0	170	0	0
JAN. 11...	22	1.3	1100	7.2	.0	20	--	--	170	--	--
FEB. 16...	21	1.3	1260	7.4	.0	60	--	--	190	--	--
MAR. 21...	24	.8	356	7.4	.5	200	--	--	80	--	--
APR. 24...	28	1.0	397	7.4	.0	100	10	0	80	1	0
MAY 13...	24	.8	376	7.2	1.0	200	--	--	80	--	--
JUNE 03...	24	.9	510	6.9	12.5	70	--	--	90	--	--
JULY 15...	24	1.1	711	8.0	15.5	40	--	--	140	--	--
AUG. 11...	24	1.1	710	8.3	22.0	30	--	--	140	--	--
SEP. 17...	27	1.2	643	7.6	26.5	40	--	--	160	--	--
SEP. 11...	27	1.2	669	8.3	17.5	30	1	0	220	0	0

DATE	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 16...	2	20	1	100	.3	2	9	5	530	1.2	20
MAR. 21...	--	--	--	--	--	--	--	--	--	--	--
APR. 24...	0	8	3	20	.2	3	7	0	130	3.4	40
SEP. 11...	0	4	1	70	.1	3	5	7	300	1.8	0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDED SEDIM- ENT (MG/L)	SUS- PENDED SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
MAR. 21...	1235	.5	1160	507	1590	49	59	75	91	96	99	100
APR. 13...	0945	1.0	2010	1440	7810	38	50	73	90	93	96	100
APR. 17...	1945	4.5	1900	2220	11400	34	44	64	86	90	94	100
MAY 03...	1430	12.5	1120	792	2400	36	46	68	83	86	88	95

RED RIVER OF THE NORTH BASIN

05099600 PEMBINA RIVER AT WALHALLA, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	95	51	13	69	76	14	55	61	9.1
2	96	106	27	76	64	13	50	69	9.3
3	101	53	14	90	119	29	50	73	9.9
4	104	62	17	75	64	13	50	52	7.0
5	106	80	23	68	98	18	50	60	8.1
6	103	87	24	70	99	19	45	80	9.7
7	100	87	23	68	43	7.9	45	66	8.0
8	98	74	20	70	41	7.7	40	61	6.6
9	98	74	20	68	40	7.3	35	62	5.9
10	95	78	20	67	48	8.7	30	86	7.0
11	93	60	15	66	61	11	30	74	6.0
12	98	47	12	66	62	11	27	86	6.3
13	95	51	13	64	95	9.5	25	73	4.9
14	88	35	8.3	62	58	9.7	25	80	5.4
15	86	30	7.0	60	44	7.1	25	68	4.6
16	84	30	6.8	62	72	12	24	73	4.7
17	87	34	8.0	62	76	13	20	89	4.8
18	90	40	9.7	62	61	10	20	90	4.9
19	96	51	13	65	55	9.7	25	89	6.0
20	90	37	9.0	60	29	4.7	25	83	5.6
21	86	20	4.6	70	51	9.6	20	73	3.9
22	80	19	4.1	75	75	15	20	99	5.3
23	81	24	5.2	75	98	20	22	118	7.0
24	81	27	5.9	80	91	20	22	136	8.1
25	80	26	5.6	75	81	16	22	115	6.8
26	80	28	6.0	70	63	12	22	92	5.5
27	78	31	6.5	65	55	9.7	20	88	4.8
28	74	33	6.6	65	66	12	20	89	4.8
29	72	35	6.8	60	66	11	20	92	5.0
30	68	80	15	55	58	8.6	20	115	6.2
31	70	112	21	--	--	--	22	67	4.0
TOTAL	2753	--	390.1	2040	--	369.2	926	--	195.2

DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	22	76	4.5	16	95	4.1	12	109	3.5
2	22	105	6.2	15	181	7.3	12	90	2.9
3	20	107	5.8	15	186	7.5	13	84	2.9
4	20	92	5.0	15	183	7.4	14	78	2.9
5	18	82	4.0	15	189	7.7	14	90	3.4
6	18	71	3.5	15	195	7.9	15	85	3.4
7	20	75	4.1	14	200	7.6	15	70	2.8
8	23	119	7.4	14	206	7.8	15	62	2.5
9	25	87	5.9	14	271	10	16	62	2.7
10	30	72	5.8	14	286	11	17	87	4.0
11	35	107	10	14	275	10	18	86	4.2
12	33	103	9.2	14	332	13	19	72	3.7
13	30	100	8.1	14	515	19	19	72	3.7
14	28	90	6.8	15	780	32	20	81	4.4
15	25	130	8.8	16	242	10	20	112	6.0
16	25	154	10	16	98	4.2	250	293	306
17	28	129	9.8	16	117	5.1	880	578	1390
18	30	123	10	16	108	4.7	860	596	1400
19	30	108	8.7	16	148	6.4	850	492	1130
20	25	122	8.2	15	154	6.2	850	493	1130
21	25	139	9.4	15	113	4.6	1040	458	1290
22	20	117	6.3	15	89	3.6	890	207	497
23	20	80	4.3	14	100	3.8	800	349	754
24	20	73	3.9	14	96	3.6	820	299	662
25	18	92	4.5	13	108	3.8	780	319	672
26	18	83	4.0	13	111	3.9	740	209	418
27	18	56	2.7	12	119	3.9	640	142	245
28	16	80	3.5	12	81	2.6	605	81	132
29	16	74	3.2	12	105	3.4	420	251	285
30	16	72	3.1	--	--	--	450	422	513
31	16	73	3.2	--	--	--	420	400	454
TOTAL	710	--	189.9	419	--	222.1	11534	--	11331.0

05099600 PEMBINA RIVER AT WALHALLA, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	390	390	411	1200	840	2720	524	252	357
2	370	341	341	1180	774	2470	505	233	318
3	350	312	295	1130	730	2230	496	244	327
4	330	171	152	1100	713	2120	480	225	292
5	250	139	94	1080	664	1940	482	240	312
6	260	228	160	1050	620	1760	466	232	292
7	280	165	125	1020	634	1750	442	223	266
8	353	1010	1030	985	620	1650	431	211	246
9	1360	2680	11100	975	563	1480	410	217	240
10	2270	2930	18400	960	590	1530	390	201	212
11	1960	1720	9330	935	581	1470	372	163	164
12	1900	1520	7800	925	603	1510	350	157	148
13	2140	2000	11700	900	651	1580	338	168	153
14	2340	3570	23000	875	572	1350	328	252	223
15	2290	3640	22600	842	559	1270	311	191	160
16	2140	2820	16300	804	616	1340	290	120	94
17	2000	2240	12100	788	546	1160	284	115	88
18	1910	1990	10300	772	444	925	277	112	84
19	1890	1850	9440	760	484	993	259	94	66
20	1780	1580	7590	744	528	1060	242	102	67
21	1680	1380	6260	708	464	887	230	106	66
22	1590	1270	5450	672	415	753	225	86	52
23	1590	1250	5370	650	404	709	215	79	46
24	1620	1410	6170	632	339	578	205	83	46
25	1490	1140	4590	625	342	577	194	86	45
26	1490	1000	4020	625	474	800	189	89	45
27	1400	1010	3820	636	356	611	188	91	46
28	1320	933	3330	628	302	512	188	86	44
29	1270	898	3080	590	306	487	184	76	38
30	1250	906	3060	572	313	483	181	82	40
31	--	--	--	548	284	420	--	--	--
TOTAL	41263	--	207418	25911	--	39125	9676	--	4577

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	184	117	58	181	117	57	128	113	39
2	188	161	82	184	173	86	125	108	36
3	189	123	63	183	153	76	124	109	36
4	193	125	65	183	175	86	122	109	36
5	191	126	65	184	198	98	119	95	31
6	189	133	68	183	198	98	128	83	29
7	186	127	64	184	191	95	133	107	38
8	183	119	59	183	189	93	114	106	33
9	180	127	62	181	185	90	111	101	30
10	178	142	68	180	193	94	109	90	26
11	176	144	68	178	178	86	106	100	29
12	176	139	66	178	165	79	103	112	31
13	172	133	62	176	142	67	101	138	38
14	172	132	61	176	148	70	98	126	33
15	173	144	67	178	130	62	98	116	31
16	173	144	67	173	122	57	95	108	28
17	173	153	71	173	135	63	92	104	26
18	172	137	64	170	144	66	90	106	26
19	175	120	57	167	153	69	90	100	24
20	176	113	54	167	162	73	90	97	24
21	180	108	52	172	167	78	90	96	23
22	191	117	60	167	174	78	87	96	23
23	193	144	75	175	203	96	84	82	19
24	200	133	72	167	165	74	98	98	26
25	205	126	70	156	178	75	103	109	30
26	200	130	70	149	158	64	103	92	26
27	198	122	65	142	139	53	96	76	20
28	194	115	60	141	129	49	92	56	14
29	191	117	60	138	119	44	87	65	15
30	189	117	60	135	102	37	82	61	14
31	184	117	58	135	112	41	--	--	--
TOTAL	5724	--	1993	5239	--	2254	3098	--	834

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)

TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS)

109293

268898.5

RED RIVER OF THE NORTH BASIN

05099600 PEMBINA RIVER AT WALTHALLA, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	768	789	962	1020	---	1130	875	547	695	730	669	687
2	724	775	961	855	---	1130	685	535	701	730	674	695
3	745	787	961	1020	---	1130	598	537	705	726	668	690
4	755	775	948	1050	---	1000	575	535	703	729	667	688
5	755	795	935	1050	---	1140	540	522	696	718	665	705
6	762	832	940	1050	---	1140	502	523	705	718	663	663
7	767	872	949	1050	---	1140	492	512	707	718	649	663
8	767	870	962	1060	---	1140	511	508	715	733	662	664
9	785	870	975	1090	---	1140	493	502	719	722	658	683
10	775	877	979	1100	---	1140	498	502	724	717	653	687
11	780	859	1010	1100	---	1140	425	502	724	723	650	708
12	780	858	925	1070	---	1140	408	505	728	718	650	682
13	775	852	1040	1080	---	1070	434	518	726	717	647	695
14	780	840	1050	1000	---	1150	437	511	734	721	662	695
15	780	832	1040	1200	---	1120	445	540	736	722	650	708
16	758	825	1040	1210	1180	705	498	540	733	718	660	704
17	757	821	1060	1140	1290	349	484	568	726	723	647	704
18	757	822	1050	1130	1150	377	501	620	726	722	667	705
19	780	830	1050	1140	1180	385	502	587	741	716	673	700
20	767	830	1050	1160	1190	401	512	618	729	713	670	700
21	780	874	1060	1160	1190	418	511	635	741	705	677	708
22	780	889	1060	1140	1180	414	500	650	738	698	655	715
23	780	889	1040	1110	1180	458	512	674	746	697	660	711
24	780	915	1060	1160	1180	450	516	690	752	700	650	698
25	781	925	1050	975	1200	440	517	670	752	674	657	704
26	780	925	1040	1180	1180	451	520	670	746	632	672	696
27	788	919	1060	---	1170	436	524	707	745	695	674	699
28	794	925	1060	---	1170	461	530	689	740	680	668	702
29	704	930	1060	---	1160	465	541	702	740	677	671	711
30	780	945	1040	---	---	535	532	711	739	677	675	715
31	782	---	1040	---	---	694	---	707	---	677	688	---
MONTH	769	858	1010	1090	---	784	521	588	727	708	663	693

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	1.0	0.0	0.0	---	0.0	0.0	13.0	22.0	20.0	22.0	27.0
2	13.0	2.0	0.0	0.0	---	0.0	0.0	14.0	22.5	19.0	21.0	24.0
3	10.5	2.0	0.0	0.0	---	0.0	0.0	12.0	19.0	20.0	21.0	23.0
4	12.0	0.0	0.0	0.0	---	0.0	0.0	13.0	20.0	21.0	23.0	19.0
5	11.0	0.0	0.0	0.0	---	0.0	0.0	14.0	23.0	20.0	21.0	20.0
6	11.0	0.0	0.0	0.0	---	0.0	0.0	11.0	23.0	22.0	20.0	15.0
7	12.0	0.0	0.0	0.0	---	0.0	0.0	12.0	25.0	22.0	19.0	12.0
8	10.0	0.0	0.0	0.0	---	0.0	0.0	11.5	24.0	23.0	18.0	17.0
9	11.0	1.0	0.0	0.0	---	0.0	0.0	13.0	20.0	25.0	18.5	19.0
10	12.0	1.0	0.0	0.0	---	0.0	0.0	12.0	19.0	24.0	22.0	20.0
11	8.0	4.0	0.0	0.0	---	0.0	0.0	12.0	21.0	24.0	24.0	19.0
12	10.0	3.0	0.0	0.0	---	0.0	0.0	13.0	25.0	24.5	24.5	20.0
13	10.0	4.0	0.0	0.0	---	0.0	0.0	14.0	22.0	24.0	25.0	20.0
14	10.0	1.0	0.0	0.0	---	0.0	0.0	16.0	18.0	23.0	25.0	18.5
15	9.0	1.0	0.0	0.0	---	0.0	0.0	14.0	15.0	22.0	27.0	21.0
16	4.0	2.0	0.0	0.0	0.0	0.0	3.0	19.0	18.0	22.0	26.0	17.5
17	4.0	0.5	0.0	0.0	0.0	0.0	4.0	20.0	20.0	22.0	26.0	14.0
18	9.0	0.0	0.0	0.0	0.0	0.0	4.0	18.0	19.0	23.0	25.0	15.0
19	8.0	0.0	0.0	0.0	0.0	0.0	4.0	20.0	18.0	18.0	25.0	17.0
20	13.0	0.0	0.0	0.0	0.0	0.0	7.0	20.0	19.0	23.0	22.0	13.0
21	12.0	0.0	0.0	0.0	0.0	0.0	9.0	22.0	20.0	23.0	21.0	11.0
22	13.0	0.0	0.0	0.0	0.0	0.0	6.0	22.0	21.0	23.0	24.0	13.0
23	14.0	0.0	0.0	0.0	0.0	0.0	7.0	22.0	21.0	23.0	25.0	11.0
24	10.0	0.0	0.0	0.0	0.0	0.0	7.0	22.0	22.0	23.0	23.0	8.0
25	9.0	0.0	0.0	0.0	0.0	0.0	7.0	22.0	23.0	23.0	23.0	8.0
26	14.0	0.0	0.0	0.0	0.0	0.0	8.5	22.0	20.0	23.0	24.0	8.0
27	7.0	0.0	0.0	---	0.0	0.0	10.0	22.0	22.0	23.0	26.0	9.0
28	2.5	0.0	0.0	---	0.0	0.0	11.5	22.0	24.0	23.0	25.0	6.0
29	5.0	0.0	0.0	---	---	0.0	13.0	19.0	25.0	27.0	23.5	8.0
30	0.0	0.0	0.0	---	---	0.0	12.0	18.0	23.5	24.0	21.0	10.0
31	0.0	---	0.0	---	---	0.0	---	20.0	---	23.0	23.0	---
MONTH	9.0	1.0	0.0	0.0	---	0.0	4.0	17.0	21.0	22.5	23.0	15.5

05102490 RED RIVER OF THE NORTH NEAR PEMBINA, N. DAK.

LOCATION.--Lat 49°00'10", long 97°13'15", in NW¼Sec.2, T.1, R.2 E., at bridge on Manitoba Highway 75, 0.2 mi (0.3 km) downstream from international boundary, 3 mi (5 km) downstream from mouth of Pembina River.

DRAINAGE AREA.--40,200 mi² (104,100 km²), approximately -includes 3,800 mi² (9,800 km²) in closed basins.

PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.

REMARKS.--Records of discharge are given for station 05102500, Red River of the North at Emerson, Manitoba.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DEC. 30...	1130	2500	70	68	31	35	--	--	--	90	31
MAR. 30...	1300	17800	70	32	13	8.9	--	--	--	41	7.6
JUNE 27...	1130	4000	20	56	27	24	--	--	--	94	16
SEP. 26...	1400	2000	--	44	22	--	218	0	179	50	18

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FY)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AD- SORP- TION RATIO
DEC. 30...	.4	.35	.22	.19	--	428	.58	2890	300	--	.9
MAR. 30...	.3	1.8	.76	.47	--	280	.38	13500	130	--	.3
JUNE 27...	.2	.26	.23	.28	--	400	.54	4320	250	--	.7
SEP. 26...	--	--	.15	.29	.08	318	.43	1720	200	22	--

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	DIS- SOLVED OXYGEN DEMAND (MG/L)	IMPE- RIAL CULI- FIC (COL. PER 100 ML)	FECAL CULI- FIC (COL. PER 100 ML)	CYANIDE (MG/L)	ALDRIN (UG/L)	CHLOR- IDE (UG/L)
DEC. 30...	688	7.6	.0	-15.0	9.6	1.7	--	100	.00	.00	.0
MAR. 30...	320	7.2	.0	-4.5	9.2	6.0	--	84	.01	.00	.0
JUNE 27...	593	8.2	21.0	21.5	7.2	--	--	833	.00	.00	.0
SEP. 26...	470	8.0	9.5	18.0	10.6	7.4	833	826	--	--	--

B - Results based on colony count outside the acceptable range.

RED RIVER OF THE NORTH BASIN

05102490 RED RIVER OF THE NORTH NEAR PEMBINA, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)
DEC. 30...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR. 30...	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
JUNE 27...	.00	.00	.00	.00	.00	.00	.00	.00	.32	.00

DATE	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BERYL- LIUM (BF) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENIUM (MO) (UG/L)
DEC. 30...	.00	1	0	110	0	0	4	0	.2	0
MAR. 30...	.00	1	0	70	1	0	6	7	.6	2
JUNE 27...	.00	6	0	110	1	0	7	2	2.0	3

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 30...	1	9	0	40
MAR. 30...	11	4	1	140
JUNE 27...	9	5	0	20

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, N. DAK.

LOCATION.--Lat 48°09'35", long 100°43'45", in NW¼SW¼ sec.17, T.154 N., R.78 W., McHenry County, at gaging station, 2.7 mi (4.3 km) north of Verendrye, 19 mi (31 km) upstream from mouth of Wintering River, and at mile 302.0 (kilometer 485.9).

DRAINAGE AREA.--11,300 mi² (29,300 km²), approximately, of which about 6,900 mi² (17,900 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: October 1949 to August 1951, August 1952 to current year.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
27...	1345	84	9.5	--	--	--	66	35	120	10	339	0
DEC.												
02...	1300	76	5.5	--	--	--	68	38	120	12	370	0
29...	1545	85	5.4	--	20	160	63	36	100	13	350	0
FEB.												
03...	1700	70	8.0	--	--	--	65	36	90	13	356	0
28...	1500	82	8.9	--	--	--	61	36	95	13	366	0
MAR.												
30...	1230	1600	8.1	200	30	460	51	28	75	13	281	0
APR.												
27...	1400	952	5.9	--	--	--	38	19	55	11	201	0
JUNE												
02...	1100	405	11	--	--	--	66	33	89	12	307	0
28...	1500	653	3.1	0	30	--	39	21	56	11	220	0
AUG.												
04...	1200	118	6.7	--	--	--	55	31	99	10	323	0
SEP.												
01...	1100	149	13	--	--	--	41	20	54	11	205	0
27...	1500	138	8.4	0	40	20	54	32	98	14	328	0

DATE	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
OCT.											
27...	278	270	29	--	.18	.29	.23	.16	--	660	.90
DEC.											
02...	303	250	25	--	.32	.27	.21	.14	--	763	1.04
29...	287	210	24	.3	.00	.41	.23	.17	--	604	.82
FEB.											
03...	292	210	23	--	.44	.21	.16	.11	--	620	.84
28...	300	190	27	--	.58	.34	.17	.13	--	644	.88
MAR.											
30...	230	160	19	.3	.34	.58	.66	.19	--	580	.79
APR.											
27...	165	130	11	--	.08	.18	.26	.06	--	416	.57
JUNE											
02...	252	230	15	--	.26	.21	.29	.15	--	640	.87
28...	180	120	12	.0	.24	.16	.29	.17	--	392	.53
AUG.											
04...	265	190	20	--	.07	.14	.22	.14	--	608	.83
SEP.											
01...	168	120	7.8	--	.43	.29	.32	.13	--	394	.54
27...	269	210	15	.2	--	.20	.42	.26	.17	620	.84

DATE	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED OXYGEN (MG/L)
OCT.											
27...	150	310	31	45	3.0	1090	7.7	8.0	7.5	30	8.4
DEC.											
02...	157	330	23	43	2.9	1100	7.6	.0	-1.0	20	10.5
29...	139	310	18	40	2.5	981	7.4	.0	-9.5	30	5.0
FEB.											
03...	118	310	19	37	2.2	1010	7.5	.0	-15.0	20	5.0
28...	143	300	0	39	2.4	979	7.5	.0	-11.0	40	4.6
MAR.											
30...	2510	240	12	39	2.1	795	7.6	.0	5.5	20	9.9
APR.											
27...	1070	170	8	39	1.8	595	7.9	8.5	16.5	60	11.2
JUNE											
02...	700	300	49	38	2.2	950	7.7	19.5	21.0	60	6.0
28...	691	180	3	38	1.8	610	8.0	20.0	26.0	40	6.8
AUG.											
04...	194	260	0	48	2.9	906	7.6	18.5	22.5	30	6.5
SEP.											
01...	159	180	17	37	1.7	596	7.3	18.5	15.0	60	5.6
27...	231	270	0	43	2.6	937	7.9	8.0	13.5	30	10.0

RED RIVER OF THE NORTH BASIN

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	BIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	CHLOR- DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- ELDRIN (UG/L)	ENDRIN (UG/L)
OCT.											
27...	3.1	--	36	--	--	--	--	--	--	--	--
DEC.											
02...	.8	--	120	--	--	--	--	--	--	--	--
29...	--	--	220	.00	.00	.0	.00	.00	.00	.00	.00
FEB.											
03...	1.7	--	410	--	--	--	--	--	--	--	--
28...	1.1	--	370	--	--	--	--	--	--	--	--
MAR.											
30...	4.2	--	96	.01	.00	.0	.00	.00	.00	.00	.00
APR.											
27...	4.3	--	130	--	--	--	--	--	--	--	--
JUNE											
02...	2.7	--	210	--	--	--	--	--	--	--	--
28...	--	--	93	.00	.00	.0	.00	.00	.00	.00	.00
AUG.											
04...	2.5	E2	--	--	--	--	--	--	--	--	--
SEP.											
01...	--	1500	240	--	--	--	--	--	--	--	--
27...	2.1	--	50	.00	--	--	--	--	--	--	--

DATE	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
OCT.											
27...	--	--	--	--	--	--	--	--	--	--	--
DEC.											
02...	--	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	.00	.00	.00	.00	8	0	--	190	0
FEB.											
03...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
MAR.											
30...	.00	.00	.00	.04	.00	.00	3	0	0	160	1
APR.											
27...	--	--	--	--	--	--	--	--	--	--	--
JUNE											
02...	--	--	--	--	--	--	--	--	--	--	--
28...	.00	.00	.00	.18	.00	.00	0	100	0	120	1
AUG.											
04...	--	--	--	--	--	--	--	--	--	--	--
SEP.											
01...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	5	0	0	150	0

DATE	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
DEC.							
29...	0	0	2	0	70	.2	2
MAR.							
30...	0	1	60	7	40	.1	0
JUNE							
28...	0	0	4	--	--	.0	3
AUG.							
04...	--	--	--	--	--	--	--
SEP.							
27...	0	2	50	2	50	.4	2

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC.						
29...	15	7	0	410	.8	10
MAR.						
30...	9	6	0	230	1.9	30
JUNE						
28...	--	4	0	220	1.7	0
AUG.						
04...	--	--	--	--	--	--
SEP.						
27...	3	8	0	260	3.1	0

E - Estimated.

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, N. DAK.

(Radiochemical station)

LOCATION.--Lat 48°59'47", long 100°57'29", in SW¼Sec.30, T.164 N., R.79 W., Bottineau County, at gaging station, 1,200 ft (370 m) upstream from second crossing of international boundary, 1 mi (1.6 km) downstream from Fish and Wildlife Service Dam 357, 7 mi (11 km) northeast of Westhope, 11 mi (18 km) downstream from Boundary Creek, and at mile 154.5 (kilometer 248.6).

DRAINAGE AREA.--16,900 mi² (43,800 km²), approximately, of which 10,300 mi² (26,700 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: June 1954 to September 1964, October 1966 to current year.

Water temperatures: October 1954 to September 1955, October 1956 to September 1959, October 1960 to September 1964, October 1966 to September 1968.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NES- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
01...	1100	36	1.4	400	30	30	34	34	93	12	226	50
28...	0945	187	2.2	--	--	--	46	34	94	13	370	0
DEC.												
03...	1300	133	11	--	--	--	75	52	130	16	487	0
30...	1615	82	19	--	70	410	120	85	220	27	788	0
FEB.												
04...	1225	65	13	--	--	--	110	61	150	17	612	0
29...	1300	45	9.4	--	--	--	71	40	100	13	427	0
MAR.												
31...	1000	1300	9.6	300	70	120	27	13	25	12	145	0
APR.												
28...	1130	2300	9.3	--	--	--	42	23	56	12	233	0
JUNE												
01...	1600	755	7.6	--	--	--	52	31	64	12	316	0
29...	1300	750	5.0	30	60	40	46	33	76	10	328	0
AUG.												
03...	1630	109	1.7	--	--	--	46	32	78	11	304	11
31...	1645	88	3.4	--	--	--	42	32	75	12	254	52
SEP.												
28...	1030	94	10	0	30	0	47	36	93	12	398	0

DATE	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)
OCT.											
01...	269	150	20	.4	.00	.37	.60	.20	--	556	--
28...	303	140	21	--	.00	.09	.25	.30	--	544	570
DEC.											
03...	399	250	31	--	.03	.20	.24	.17	--	900	850
30...	646	480	59	.6	.19	.31	.38	.31	--	1070	1500
FEB.											
04...	502	340	47	--	.57	1.5	.55	.50	--	1110	460
29...	350	200	28	--	.42	.30	.12	.06	--	704	710
MAR.											
31...	119	59	11	.3	.53	.24	.32	.22	--	332	260
APR.											
28...	191	120	13	--	.00	.20	.15	.08	--	438	410
JUNE											
01...	259	130	13	--	.01	.16	.35	.31	--	528	500
29...	269	140	12	.4	.08	.08	.28	.28	--	538	540
AUG.											
03...	268	130	12	--	.05	.07	.23	.20	--	554	520
31...	295	110	13	--	.00	.07	.37	.31	--	536	520
SEP.											
28...	326	130	16	.4	--	.15	.17	.06	.02	568	600

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)
OCT.											
01...	.76	54.0	--	220	0	46	2.7	827	8.7	11.0	9.2
28...	.74	275	7	250	0	43	2.6	892	7.7	7.5	-6.0
DEC.											
03...	1.22	321	2	400	2	40	2.8	1280	7.4	.0	-2.6
30...	1.46	238	4	650	3	41	3.8	2020	7.3	.0	-10.5
FEB.											
04...	1.51	195	12	530	24	37	2.8	1590	7.4	.0	-15.0
29...	.96	85.5	17	340	0	38	2.4	1070	7.3	.0	-21.0
MAR.											
31...	.45	1170	9	120	2	29	1.0	374	7.1	.0	.0
APR.											
28...	.60	2720	7	200	8	36	1.7	616	7.7	12.0	13.5
JUNE											
01...	.72	1080	4	260	0	34	1.7	742	7.8	21.0	20.5
29...	.73	1090	1	250	0	39	2.1	801	8.5	21.0	20.0
AUG.											
03...	.75	163	2	250	0	39	2.2	770	8.4	20.0	21.0
31...	.73	127	4	240	0	39	2.1	790	8.5	19.0	19.0
SEP.											
28...	.77	144	13	270	0	42	2.5	882	8.2	5.0	5.0

RED RIVER OF THE NORTH BASIN

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED OXYGEN (MG/L)	BIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	CHLOR- DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.											
01...	70	7.1	3.4	--	B24	.00	.00	.0	.00	.00	.00
28...	50	10.6	8.4	--	100	--	--	--	--	--	--
DEC.											
03...	40	7.0	3.3	--	E1	--	--	--	--	--	--
30...	50	6.4	5.3	--	B2	.00	--	--	--	--	--
FEB.											
04...	30	5.2	2.1	--	B1	--	--	--	--	--	--
29...	7	7.2	2.2	--	B20	--	--	--	--	--	--
MAR.											
31...	70	12.0	4.8	--	--	.00	.00	.0	.00	.00	.00
APR.											
28...	60	9.8	3.4	--	B1	--	--	--	--	--	--
JUNE											
01...	50	8.3	3.2	--	B6	--	--	--	--	--	--
29...	60	8.3	--	--	10	.00	.00	.0	.00	.00	.00
AUG.											
03...	50	10.0	1.7	B60	--	--	--	--	--	--	--
31...	50	10.0	--	--	70	--	--	--	--	--	--
SEP.											
28...	40	12.8	4.5	2500	--	.00	--	--	--	--	--

DATE	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)
OCT.											
01...	.00	.00	.00	.00	.00	.02	.00	.00	7	200	10
DEC.											
03...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	4	0	0
MAR.											
31...	.00	.00	.00	.00	.00	.11	.00	.00	5	0	0
JUNE											
01...	--	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	.00	.00	.00	.14	.00	.00	6	0	0
SEP.											
28...	--	--	--	--	--	--	--	--	1	0	0

DATE	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)
OCT.												
01...	200	0	0	0	0	0	51	.2	0	0	2	0
DEC.												
03...	--	--	--	--	--	--	--	--	--	--	--	--
30...	330	0	0	0	1	1	150	--	0	3	20	0
MAR.												
31...	110	1	0	1	50	7	10	.2	12	7	3	0
JUNE												
01...	--	--	--	--	--	--	--	--	--	--	--	--
29...	160	1	2	1	2	2	50	.1	1	5	6	0
SEP.												
28...	130	0	0	1	10	2	50	.3	0	2	10	0

DATE	DIS- SOLVED STROM- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PEN- DED GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PEN- DED GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PEN- DED GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (PLAN- CHET COUNT) (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED NATURAL URANIUM (U) (UG/L)
OCT.												
01...	170	.3	10	--	--	--	--	--	--	--	--	--
28...	--	--	--	6.8	<.4	28	1.2	22	1.1	--	.07	1.1
DEC.												
03...	--	--	--	<9.5	<.4	31	.7	26	.7	--	.11	2.7
30...	700	--	40	<12	<.4	57	2.8	46	2.6	--	.12	5.6
FEB.												
04...	--	--	--	<5.0	.6	15	1.3	12	1.2	--	.05	1.1
29...	--	--	--	<7.6	.5	25	3.0	20	2.7	--	.05	2.1
MAR.												
31...	140	3.1	30	<2.8	.7	21	2.9	17	2.6	--	.05	1.3
APR.												
28...	--	--	--	<3.3	1.1	21	2.0	17	1.9	--	.07	2.1
JUNE												
01...	--	--	--	<5.4	<.4	23	1.5	19	1.4	--	.09	1.1
29...	260	1.7	20	<4.5	<.4	24	.6	20	.6	--	.06	.6
AUG.												
03...	--	--	--	<5.7	<.4	23	.6	19	.5	--	.07	.4
31...	--	--	--	11	<.4	25	<.4	20	<.4	<.1	--	.6
SEP.												
28...	270	3.8	10	<6.7	.9	24	1.5	20	1.4	.1	--	1.1

B - Results based on colony count outside the acceptable range.
 E - Estimated.

BEAR DEN CREEK BASIN

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06332515 BEAR DEN CREEK NEAR MANDAREE, N. DAK.
(Hydrologic bench-mark station)

LOCATION.--Lat 47°47'14", long 102°46'05", in NW¼ sec.30, T.150 N., R.94 W., McKenzie County, at gaging station 0.5 mi (0.8 km) upstream from county highway culvert and 5.5 mi (8.8 km) northwest of Mandaree.

DRAINAGE AREA.--74 mi² (192 km²).

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year.
Water temperatures: August 1969 to September 1970.

REMARKS.--No flow Dec. 13 to Feb. 29.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT. 26...	1300	.71	12	--	140	50	43	19	320	7.4	490	0
NOV. 30...	1300	.65	12	--	1200	1800	65	34	540	6.7	853	0
MAR. 01...	1430	.31	13	--	430	67	36	15	280	14	512	0
30...	1215	2.2	10	400	130	100	37	16	210	9.0	388	0
APR. 25...	1200	1.7	9.7	--	100	70	59	24	310	9.3	517	0
MAY 31...	1100	2.8	4.0	--	200	10	57	29	350	9.3	531	0
JUNE 28...	1230	.97	7.3	20	60	30	43	30	550	8.2	682	73
JULY 26...	1000	.34	7.8	--	80	0	28	27	650	8.4	1000	0
AUG. 29...	1045	.20	11	--	70	10	23	26	710	11	859	99
SEP. 27...	1140	.50	9.2	20	160	40	23	13	460	5.9	733	0

DATE	ALKA- LITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	DIS- SOLVED FLUOR- IDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT. 26...	402	500	3.8	.5	.01	.07	1290	--	1.75	2.47	--	190
NOV. 30...	700	810	3.8	.4	.16	.08	2010	--	2.73	3.53	--	300
MAR. 01...	420	360	8.7	.4	.56	.13	1040	--	1.41	.87	--	150
30...	318	320	4.8	.3	.34	.09	816	--	1.11	4.91	--	160
APR. 25...	424	470	8.3	.4	.05	.05	1200	--	1.63	5.54	--	250
MAY 31...	436	570	13	.5	.06	.04	1460	--	1.99	11.3	--	260
JUNE 28...	681	760	7.1	.2	.08	.09	2060	--	2.80	5.40	--	230
JULY 26...	820	800	6.0	.5	.02	.02	2040	--	2.77	1.87	--	180
AUG. 29...	869	800	3.8	.6	.03	.02	2280	--	3.10	1.23	--	160
SEP. 27...	601	550	4.6	.3	--	.07	1420	1400	1.93	1.92	42	110

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AN- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED OXYGEN (MG/L)	RIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLT- FIBER (CBL. PER 100 ML)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 26...	0	78	10	1660	7.9	5.0	10.0	200	10.1	2.7	B160	--
NOV. 30...	0	24	14	2670	8.1	.0	-4.0	--	11.3	1.6	B100	--
MAR. 01...	0	78	9.9	1460	7.7	1.0	-18.0	200	11.4	5.9	B2	--
30...	0	73	7.3	1200	7.9	2.0	-4.0	100	12.6	3.0	B60	--
APR. 25...	0	72	8.6	1640	8.3	8.0	13.0	100	14.2	3.7	E2	--
MAY 31...	0	74	9.4	1890	8.3	16.0	21.0	100	12.6	2.1	B33	--
JUNE 28...	0	83	16	2660	8.4	21.0	21.0	70	10.6	--	40	--
JULY 26...	0	88	21	2910	8.3	19.0	19.0	70	9.6	1.7	B110	--
AUG. 29...	0	90	24	3050	8.4	20.0	26.0	70	6.9	--	B130	15
SEP. 27...	0	89	19	2170	8.3	5.0	7.0	200	10.6	2.6	B11	--

B - Results based on colony count outside the acceptable range.
E - Estimated.

BEAR DEN CREEK BASIN

06332515 BEAR DEN CREEK NEAR MANDAREE, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DE- POSITS (UG/KG)	CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM DE- POSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DE- POSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DE- POSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DE- POSITS (UG/KG)
MAR. 01...	--	--	--	--	--	--	--	--	--	--	--
MAR. 30...	.00	--	--	--	--	--	--	--	--	--	--
JUNE 28...	.00	--	--	--	--	--	--	--	--	--	--
AUG. 29...	--	.00	<.2	.0	<1	.00	<.2	.00	<.2	.00	<.2
SEP. 27	.00	--	--	--	--	--	--	--	--	--	--

DATE	DI- AZINON (UG/L)	DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM DE- POSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DE- POSITS (UG/KG)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM DE- POSITS (UG/KG)	HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM DE- POSITS (UG/KG)	LINDANE (UG/L)	LINDANE IN BOTTOM DE- POSITS (UG/KG)
AUG. 29...	.00	.00	<.2	.00	<.2	.00	<.2	.00	<.2	.00	<.2

DATE	MALA- THION (UG/L)	METHYL PARA- THION (UG/L)	PARA- THION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
MAR. 30...	--	--	--	--	--	--	0	0	180	1
JUNE 28...	--	--	--	--	--	--	0	100	350	2
AUG. 29...	.00	.00	.00	.00	.00	.00	--	--	--	--
SEP. 27...	--	--	--	--	--	--	3	0	220	0

DATE	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)
MAR. 30...	0	2	6	3	30	.1	11	10	8
JUNE 28...	0	2	7	3	90	.2	3	7	4
AUG. 29...	--	--	--	--	--	--	--	--	--
SEP. 27...	0	1	30	3	60	.4	1	6	11

BEAR DEN CREEK BASIN

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06332515 BEAR DEN CREEK NEAR MANDAREE, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE D GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE D GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED NATURAL URANIUM (U) (UG/L)
MAR. 30...	0	300	3.4	200	--	--	--	--	--
JUNE 28...	0	500	1.4	90	--	--	--	--	--
AUG. 29...	--	--	--	--	--	--	--	--	--
SEP. 27...	0	270	2.6	60	<15	2.1	8.3	3.1	4.1

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDE D SEDI- MENT (MG/L)	SUS- PENDE D SEDI- MENT DIS- CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM
MAR. 01...	1430	1.0	.31	79	.07	--	--
MAR. 30...	1215	2.0	2.2	236	1.4	--	--
APR. 25...	1200	8.0	1.7	250	1.1	--	--
MAY 31...	1100	16.0	2.8	332	2.6	--	--
JUNE 28...	1230	21.0	.97	449	1.2	--	--
JULY 26...	1000	19.0	.34	293	.27	--	--
AUG. 29...	1045	20.0	.20	414	.22	--	--
SEP. 27...	1140	5.0	.50	243	.28	9	14

DATE	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
MAR. 01...	--	--	--	--	--	--
MAR. 30...	--	--	--	--	--	--
APR. 25...	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--
JUNF 28...	--	--	--	--	--	--
JULY 26...	--	--	--	--	--	--
AUG. 29...	--	--	--	--	--	--
SEP. 27...	22	28	39	64	82	100

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, N. DAK.

LOCATION.--Lat 47°35'25", long 103°15'05", in NW¼SE¼SE¼ sec.35, T.148 N., R.99 W., McKenzie County, at bridge on U.S. Highway 85, 17 mi (27 km) upstream from Cherry Creek, and 17.5 mi (28.2 km) south of Watford City.

DRAINAGE AREA.--8,310 mi² (13,370 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: Water years 1946-49 (partial record station), October 1971 to September 1972 (discontinued).

Specific conductance: July 1972 to current year.

Water temperature: July 1972 to current year.

Sediment records: October 1948 to current year.

EXTREMES.--Current year:

Sediment concentration: Maximum daily, 37,500 mg/l Oct. 2; minimum daily 110 mg/l Apr. 29.

Sediment discharge: Maximum daily 528,000 tons Mar. 17; minimum daily 17 tons Jan. 23 to Feb. 19.

REMARKS.--Sediment concentration data Oct. 1, 1971 to July 1, 1972 furnished by the Corps of Engineers.

Sediment records from October 1948 to September 1971 are available from U.S. Corps of Engineers, Omaha, Neb. Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
NOV.										
04...	1300	718	7.7	0	40	55	19	93	6.8	148
DEC.										
08...	1020	31	9.4	0	10	85	39	260	9.2	298
JAN.										
06...	1330	83	10	0	40	100	48	290	11	417
FEB.										
04...	1400	40	11	0	20	99	49	320	10	432
MAR.										
23...	1330	3640	7.6	360	60	48	15	66	5.5	156
APR.										
07...	1330	1370	8.5	440	60	69	27	160	6.9	246
MAY										
05...	1245	946	8.0	5500	70	66	28	250	7.4	258
JUNE										
08...	1700	863	9.6	30	40	74	40	260	7.9	289
JULY										
25...	1230	222	10	1000	190	80	54	330	9.0	312
AUG.										
28...	1045	347	11	660	0	50	21	220	7.5	228
SEP.										
25...	1630	69	10	400	0	82	45	330	9.6	411

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
NOV.										
04...	0	121	290	2.9	.2	.23	.00	563	.77	1090
DEC.										
08...	0	244	650	22	.2	.23	.00	1240	1.69	104
JAN.										
06...	0	342	730	11	.3	.23	.00	1450	1.97	325
FEB.										
04...	0	354	760	14	.2	.23	.00	1520	2.07	164
MAR.										
23...	0	128	200	1.3	.1	.23	.00	409	.56	4020
APR.										
07...	0	202	430	5.4	.3	.23	.00	836	1.14	3090
MAY										
05...	0	212	610	5.3	.2	.23	.00	1133	1.54	2900
JUNE										
08...	0	237	700	.0	.4	.23	.00	1270	1.73	2960
JULY										
25...	0	256	830	7.1	.3	.66	.00	1460	1.99	876
AUG.										
28...	0	187	490	7.8	.3	.56	.00	932	1.27	873
SEP.										
25...	0	337	770	15	.3	.56	.00	1470	2.00	275

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
NOV.									
04...	220	94	47	2.8	814	7.5	2.0	7.5	90
DEC.									
08...	370	130	60	5.9	1740	8.0	.0	4.8	90
JAN.									
06...	450	110	58	6.0	1960	7.9	.0	8.4	180
FEB.									
04...	450	95	60	6.6	2030	7.9	.0	8.7	90
MAR.									
23...	180	54	43	2.1	635	7.3	3.0	13	40
APR.									
07...	280	82	54	4.1	1220	7.5	3.0	12	110
MAY									
05...	280	68	65	6.5	1590	7.7	10.0	8.2	320
JUNE									
08...	350	110	61	6.1	1720	8.0	24.0	4.6	570
JULY									
25...	420	170	62	7.0	1940	7.4	21.0	20	290
AUG.									
28...	210	24	68	6.6	1340	7.4	19.0	15	300
SEP.									
25...	390	53	64	7.3	2040	7.9	7.0	8.3	340

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	NUMBER OF SAM- PLING POINTS	DIS- CHARGE (CFS)	SUS- PENDED SEDIM- ENT (MG/L)	SUS- PENDED SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM
OCT.											
03...	0810	5.5	--	6470	32300	564000	--	52	--	98	100
13...	1730	10.0	--	2800	2620	19800	--	53	--	95	100
29...	0820	3.5	--	2170	2700	12900	--	49	--	84	96
MAR.											
16...	0810	3.5	--	37100	4980	499000	--	37	--	76	85
MAY											
26...	0610	15.5	--	6380	40400	696000	--	28	--	83	92
JUNE											
27...	0600	18.0	--	2920	29300	231000	--	33	--	83	93
29...	0700	15.5	--	3440	27100	252000	--	48	--	90	97
JULY											
25...	1300	21.0	18	200	1960	1060	72	86	96	100	--
AUG.											
28...	1400	19.0	20	344	3620	3360	78	87	94	98	99
SEP.											
25...	1500	7.0	18	74	457	91	46	72	89	99	100

DATE	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. FALL DIAM. % FINER THAN 4.00 MM	BED MAT. FALL DIAM. % FINER THAN 8.00 MM	BED MAT. FALL DIAM. % FINER THAN 16.0 MM
OCT.										
03...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
29...	100	--	--	--	--	--	--	--	--	--
MAR.										
16...	96	100	--	--	--	--	--	--	--	--
MAY										
26...	100	--	--	--	--	--	--	--	--	--
JUNE										
27...	100	--	--	--	--	--	--	--	--	--
29...	100	--	--	--	--	--	--	--	--	--
JULY										
25...	--	--	29	60	94	98	99	99	99	100
AUG.										
28...	100	--	8	18	56	88	94	98	99	100
SEP.										
25...	--	--	4	15	62	92	97	99	99	100

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	118	750	239	916	1500	3710	70	170	32
2	2960	37500	331000	788	1400	2980	70	170	32
3	5260	31200	443000	684	1200	2220	70	170	32
4	2410	27500	179000	612	1000	1650	65	170	30
5	4660	35000	440000	540	900	1310	65	170	30
6	3480	21800	205000	520	800	1120	65	170	30
7	2590	15600	109000	500	680	918	65	170	30
8	3740	10700	108000	490	640	847	60	170	28
9	4060	11400	125000	480	630	816	60	170	28
10	3970	8400	90000	470	620	787	60	170	28
11	4030	9000	97900	460	610	758	60	170	28
12	3560	4800	46100	450	600	729	60	170	28
13	2900	3000	23500	440	580	689	60	170	28
14	2210	2950	17600	430	570	662	60	170	28
15	1820	1850	9090	420	560	635	60	170	28
16	1520	1500	6160	410	550	609	60	170	28
17	1260	1200	4080	400	540	583	65	170	30
18	1120	950	2870	350	470	444	65	170	30
19	1270	3450	11800	300	410	332	65	170	30
20	1240	3250	10900	290	390	305	65	170	30
21	1050	1300	3690	280	380	287	65	170	30
22	1070	1250	3610	270	370	270	65	170	30
23	1370	4000	14800	260	360	253	65	170	30
24	1090	4000	11800	250	360	243	65	170	30
25	2030	7820	49900	200	300	162	65	170	30
26	2710	5000	36600	150	260	105	65	170	30
27	2460	3150	20900	100	220	59	65	170	30
28	2570	2600	18000	90	200	49	65	170	30
29	2080	2250	12600	80	190	41	65	170	30
30	1520	1950	8000	70	170	32	70	170	32
31	1160	1700	5320	--	--	--	70	170	32
TOTAL	73288	--	2445459	11700	--	23605	1995	--	922

DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	70	170	32	45	140	17	50	150	20
2	70	170	32	45	140	17	50	150	20
3	70	170	32	45	140	17	50	150	20
4	70	170	32	45	140	17	100	190	51
5	70	170	32	45	140	17	200	290	157
6	75	170	34	45	140	17	400	420	454
7	75	170	34	45	140	17	600	590	956
8	75	170	34	45	140	17	1000	800	2160
9	70	170	32	45	140	17	2000	1100	5940
10	70	170	32	45	140	17	5000	1500	20300
11	70	170	32	45	140	17	10000	2100	56700
12	70	170	32	45	140	17	30000	3080	249000
13	60	160	26	45	140	17	49400	2760	368000
14	60	160	26	45	140	17	47700	3100	399000
15	60	160	26	45	140	17	43900	3820	453000
16	60	160	26	45	140	17	36200	5300	518000
17	60	160	26	45	140	17	27400	7140	528000
18	50	150	20	45	140	17	17100	8350	386000
19	50	150	20	45	140	17	9520	5310	136000
20	50	150	20	50	150	20	7750	5340	112000
21	50	150	20	50	150	20	5850	3190	50400
22	50	150	20	50	150	20	4400	2500	29700
23	45	140	17	50	150	20	3320	2020	18100
24	45	140	17	50	150	20	2780	1530	11500
25	45	140	17	50	150	20	2360	1300	8280
26	45	140	17	50	150	20	2060	810	4510
27	45	140	17	50	150	20	1770	900	4300
28	45	140	17	50	150	20	1660	620	2780
29	45	140	17	50	150	20	1630	530	2330
30	45	140	17	--	--	--	1280	610	2110
31	45	140	17	--	--	--	1280	940	3250
TOTAL	1810	--	773	1355	--	523	316810	--	3373038

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1110	1340	4020	869	7120	21200	1140	3100	9540
2	1210	1250	4080	3630	32800	340000	1140	4000	12300
3	1120	1020	3080	2710	28100	206000	1110	4500	13500
4	1130	940	2870	1400	16800	63500	875	4000	9450
5	1210	1030	3370	1110	13100	39300	812	4050	8880
6	1630	3720	16400	1660	18400	82500	884	4750	11300
7	1390	2600	9760	1290	14400	50200	884	3350	8000
8	1220	3360	11100	1080	11100	32400	875	2400	5670
9	1070	1180	3410	980	8900	23500	839	1500	3400
10	1020	1100	3030	839	5450	12300	884	2510	6620
11	1880	3810	19900	1190	4720	17900	1560	7810	32600
12	1450	3000	11700	4680	23400	296000	1290	4850	16900
13	1090	1900	5590	5350	15500	224000	1090	3500	10300
14	1590	2230	9570	4580	13800	171000	650	1350	2370
15	1060	1320	3780	3090	10200	85100	530	1010	1450
16	920	680	1690	2900	7780	60900	483	800	1040
17	722	440	858	2780	6000	45000	441	600	714
18	731	370	730	2390	4100	26500	960	2550	7930
19	848	300	687	2040	3000	16500	1600	4300	18600
20	990	260	695	2800	14900	113000	634	1400	2400
21	776	230	482	1600	7900	34100	902	6380	16800
22	434	200	234	1790	8800	42500	893	8200	19800
23	414	170	190	1410	4900	18700	602	7250	11800
24	420	150	170	1070	1950	5630	420	6200	7030
25	408	140	154	1540	7040	45600	390	5600	5900
26	390	140	147	5680	34300	526000	2600	27600	191000
27	349	140	132	2810	15200	115000	2520	23700	161000
28	338	130	119	2560	12200	84300	3820	33200	342000
29	349	110	104	2180	10400	61200	3120	25200	212000
30	402	270	293	1660	7700	34500	2520	16200	110000
31	--	--	--	1400	5400	20400	--	--	--
TOTAL	27671	--	118345	71068	--	2914730	36468	--	1260294

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2160	11000	64200	677	10600	19400	150	1300	527
2	1570	7800	33100	514	11500	16000	138	1170	436
3	1120	5600	16900	384	10700	11100	135	650	237
4	839	3900	8830	283	7700	5880	130	530	186
5	659	2750	4890	210	4550	2580	125	300	101
6	562	1850	2810	177	2600	1240	125	2200	743
7	498	1340	1800	163	2650	1170	125	2790	942
8	462	1050	1310	168	2700	1220	120	490	159
9	483	815	1060	168	2950	1340	115	300	93
10	408	860	947	200	1350	729	113	220	67
11	355	980	939	205	1500	830	110	200	59
12	316	275	235	225	1230	747	110	230	68
13	289	420	328	250	1950	1320	113	200	61
14	267	425	306	182	2200	1080	103	220	61
15	250	420	284	146	1450	572	97	210	55
16	230	450	279	138	3000	1120	87	225	53
17	205	365	202	134	2760	999	77	261	54
18	205	695	385	192	4750	3770	74	198	40
19	305	1760	1450	586	17400	27500	77	279	58
20	240	2790	1810	414	12700	14200	74	324	65
21	230	3900	2420	2570	32100	250000	69	301	56
22	250	10900	7360	3220	25700	223000	50	262	35
23	256	10800	7460	2070	17500	97800	52	224	31
24	205	8200	4540	1510	14400	58700	46	176	22
25	200	2150	1160	1070	10500	30300	48	930	245
26	200	1700	918	776	8800	18400	177	7320	4000
27	182	5300	2600	538	6600	9590	250	8230	5560
28	1080	18100	53100	366	3760	3720	250	6980	4710
29	713	11000	21200	278	2400	1800	205	7600	4210
30	476	10400	13400	225	2200	1340	138	1050	391
31	866	11500	26900	168	1850	839	--	--	--
TOTAL	16081	--	283123	18207	--	808286	3483	--	23325

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)

TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS)

579936
11252423

NOTE.--SEDIMENT CONCENTRATION ESTIMATED NOV. 1, 1971 TO MAR. 11, 1972.

06338490 MISSOURI RIVER AT GARRISON DAM, N. DAK.

LOCATION.--Lat 47°30'08", long 101°22'50", in S $\frac{1}{2}$ sec.31, T.147 N., R.84 W., Mercer County, downstream from dam at National Fish Hatchery's supply line from penstocks 4 and 5, in control structure of Garrison Dam 2.5 mi (4.0 km) west of Riverdale and 14 mi (23 km) upstream from Knife River.

DRAINAGE AREA.--181,400 mi² (469,800 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: October 1971 to current year.
Water temperature: October 1971 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 452 mg/l Mar. 1-31; minimum, 390 mg/l Sept. 1-30.

Hardness: Maximum, 220 mg/l Jan. 1-31; minimum, 200 mg/l Mar. 1 to Apr. 30, June 1 to Sept. 30.

Specific conductance: Maximum daily, 752 micromhos Mar. 13; minimum daily, 628 micromhos June 1.

Water temperature: Maximum, 14.5°C Oct. 1-3 and Sept. 25 and 26; minimum 0.5°C on many days during Dec. to Feb.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during water year: Dissolved solids, 552 mg/l Oct. 20. Minimum observed during water year: Dissolved solids, 384 mg/l July 26.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.									
01-19	23200	52	20	60	4.1	184	0	151	448
NOV.									
01-25	24200	51	20	58	5.1	184	0	151	436
DEC.									
01-31	23900	51	20	58	4.5	182	0	149	424
JAN.									
01-31	28600	53	21	62	4.4	184	0	151	396
FEB.									
01-29	28724	51	20	59	4.4	179	0	147	446
MAR.									
01-31	26500	49	19	63	5.6	180	0	148	452
APR.									
01-30	37500	47	20	61	4.2	180	0	148	442
MAY									
01-30	38500	51	20	60	4.2	192	0	157	416
JUNE									
01-30	38500	49	19	52	3.7	197	0	162	426
JULY									
01-31	27200	49	20	55	3.6	179	0	147	402
AUG.									
01-31	23100	48	19	54	3.5	175	0	144	446
SEP.									
01-30	19800	48	19	51	3.8	181	0	148	390
WTD. AVG.	--	50	20	58	4.2	184	0	151	426
TIME WTD.									
AVG.	28500	50	20	58	4.3	183	0	150	426
TONS PER DAY	--	3830	1520	4450	326	14100	0	11600	32800

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)
OCT.								
01-19	.61	28100	210	61	38	1.8	673	8.1
NOV.								
01-25	.59	28500	210	59	37	1.7	687	8.1
DEC.								
01-31	.58	27400	210	60	37	1.7	678	8.3
JAN.								
01-31	.54	30600	220	68	38	1.8	570	8.3
FEB.								
01-29	.61	34600	210	63	37	1.8	661	8.1
MAR.								
01-31	.61	32300	200	53	40	1.9	672	7.9
APR.								
01-30	.60	44800	200	52	39	1.9	660	7.5
MAY								
01-30	.57	43200	210	52	38	1.8	650	8.3
JUNE								
01-30	.58	44300	200	39	36	1.6	645	8.0
JULY								
01-31	.55	29500	200	58	36	1.7	642	8.1
AUG.								
01-31	.61	27800	200	55	37	1.7	637	8.0
SEP.								
01-30	.53	20900	200	50	35	1.6	630	7.9
WTD. AVG.	.58	--	206	55	--	1.8	649	8.0
TIME WTD.								
AVG.	.58	--	206	56	37	1.7	649	8.0
TONS PER DAY	--	--	--	--	--	--	--	--

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
20...	1500	20000	6.5	100	10	0	54	21	57	3.9	198	0
NOV.												
26...	1545	26700	6.7	100	20	0	52	20	57	4.0	181	0
DEC.												
23...	1100	19000	6.7	--	--	--	51	21	58	4.3	182	0
JAN.												
31...	1145	25500	7.0	--	--	--	52	20	54	4.3	185	0
FEB.												
24...	1130	28400	7.1	--	--	--	47	20	58	4.6	182	0
MAR.												
16...	1530	13700	7.3	100	10	13	49	19	69	4.2	185	0
APR.												
19...	1100	38000	7.6	--	--	--	49	19	61	4.2	180	0
MAY												
25...	1045	38700	7.5	--	--	--	50	19	57	3.9	179	0
JUNE												
23...	1130	37900	8.1	--	--	--	51	19	55	4.3	180	0
JULY												
26...	1300	25000	7.8	--	--	--	51	19	57	4.0	177	0
AUG.												
24...	1400	28800	7.4	--	--	--	48	19	56	3.8	172	0
SEP.												
21...	1130	20000	7.1	0	60	0	49	19	54	3.8	174	0

DATE	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
20...	162	180	8.6	.6	.24	.05	522	.71	28200	220	59	35
NOV.												
26...	148	180	8.6	.3	.15	.04	478	.65	34500	210	64	36
DEC.												
23...	149	170	9.3	.5	.17	.06	426	.58	21900	210	64	37
JAN.												
31...	152	180	9.3	.4	.18	.06	422	.57	29100	210	60	35
FEB.												
24...	149	170	8.6	.5	.16	.03	480	.65	36800	200	50	38
MAR.												
16...	152	190	7.8	.5	.27	.01	428	.58	15800	200	49	42
APR.												
19...	148	180	9.2	.5	.21	.06	464	.63	47600	200	53	39
MAY												
25...	147	170	8.6	.8	.15	.03	434	.59	45300	200	56	37
JUNE												
23...	148	170	8.1	.5	.18	.03	434	.59	44400	210	58	36
JULY												
26...	145	160	7.0	.5	.09	.01	384	.52	25900	210	60	37
AUG.												
24...	141	180	8.0	.5	.09	.02	422	.57	32800	200	57	38
SEP.												
21...	143	160	8.7	.6	.13	.02	414	.56	22400	200	58	36

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT.												
20...	1.7	671	8.1	12.5	7	.00	1	200	0	120	0	0
NOV.												
26...	1.7	663	8.1	4.5	7	.00	9	100	0	140	0	--
DEC.												
23...	1.7	662	8.0	1.0	5	--	--	--	--	40	--	--
JAN.												
31...	1.6	694	8.2	1.0	5	--	--	--	--	110	--	--
FEB.												
24...	1.8	688	8.2	1.0	5	--	--	--	--	110	--	--
MAR.												
16...	2.1	680	7.9	1.5	5	.00	1	0	0	110	0	0
APR.												
19...	1.9	653	8.0	3.0	0	--	--	--	--	0	--	--
MAY												
25...	1.7	642	7.9	6.5	5	--	--	--	--	110	--	--
JUNE												
23...	1.7	640	7.9	7.5	10	--	--	--	--	120	--	--
JULY												
26...	1.7	639	7.7	14.0	10	--	--	--	--	100	--	--
AUG.												
24...	1.7	631	7.8	11.5	5	--	0	--	--	110	0	--
SEP.												
21...	1.7	628	8.0	15.0	5	.00	4	0	0	110	1	0

06338490 MISSOURI RIVER AT GARRISON DAM, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB- DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE- NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON- TIUM (SR) (UG/L)	DIS-SOLVED VANA- DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 20...	0	5	4	540	.2	0	0	4	0	560	.0	40
NOV. 26...	0	4	2	33	.3	4	2	0	0	620	.4	60
MAR. 16...	0	3	3	50	.4	0	8	0	0	450	.6	10
SEP. 21...	0	9	3	40	1.1	3	4	8	0	400	.6	30

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	652	653	655	660	657	694	661	692	628	665	674	632
2	650	657	655	658	660	676	666	665	630	665	647	633
3	650	657	653	658	660	673	671	638	631	660	647	635
4	650	658	653	661	661	671	675	638	631	656	637	635
5	649	657	653	658	656	669	670	660	632	656	637	636
6	650	657	653	657	656	669	668	660	637	661	683	636
7	650	657	654	656	656	669	668	660	634	663	635	635
8	653	661	661	658	657	672	676	660	636	663	642	638
9	650	660	661	658	656	672	672	649	634	657	637	636
10	650	658	662	658	655	672	685	652	636	654	633	635
11	648	657	661	658	655	698	676	655	638	657	633	635
12	652	661	661	660	656	724	667	658	640	657	633	635
13	652	660	657	658	655	752	668	657	638	657	633	633
14	650	660	659	658	657	731	670	656	643	654	633	633
15	650	659	660	660	665	739	667	655	637	657	633	636
16	652	658	659	663	665	739	664	655	640	660	637	640
17	650	661	661	663	664	744	661	652	640	650	635	637
18	650	658	660	663	664	742	672	652	640	655	635	644
19	650	657	658	660	662	741	667	665	640	648	633	642
20	651	657	657	660	662	739	670	662	646	648	633	642
21	651	658	657	660	662	710	660	659	640	650	633	643
22	651	658	663	660	663	722	665	656	640	653	633	644
23	651	658	662	660	665	672	670	653	643	655	633	645
24	652	663	663	661	670	672	661	651	643	657	633	648
25	652	660	663	662	664	672	653	649	640	651	633	650
26	652	660	663	663	664	672	645	646	640	652	633	649
27	652	659	663	663	664	672	660	643	640	652	634	648
28	653	658	663	663	656	672	652	640	640	653	634	648
29	653	657	663	667	656	665	665	637	640	653	634	650
30	653	656	665	671	---	665	678	634	642	653	634	650
31	653	---	667	675	---	665	---	631	---	653	633	---
MONTH	651	658	660	661	660	695	667	653	638	656	638	640

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT AT 0800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	9.5	5.0	0.5	0.5	1.0	1.0	1.5	4.5	8.0	8.0	9.0
2	14.5	9.5	4.5	0.5	0.5	1.0	1.0	1.5	4.5	8.0	8.0	9.0
3	14.5	9.5	9.5	0.5	0.5	1.0	1.0	1.5	4.5	8.0	7.0	9.5
4	14.0	9.5	4.5	0.5	0.5	1.0	1.0	2.0	5.0	8.5	8.5	9.5
5	14.0	9.0	4.5	0.5	0.5	1.0	1.0	2.0	5.0	8.5	8.0	9.0
6	14.0	8.0	4.5	0.5	0.5	1.0	1.0	2.0	5.0	7.0	8.0	10.0
7	14.0	8.0	4.0	0.5	0.5	1.0	1.0	2.0	5.5	6.5	8.0	9.0
8	13.5	7.0	4.0	0.5	0.5	1.0	1.0	2.0	5.0	6.5	8.5	9.0
9	13.5	7.0	4.0	0.5	0.5	1.0	1.0	3.0	5.5	6.5	8.5	10.0
10	13.5	6.5	3.5	0.5	0.5	1.0	1.0	3.0	5.5	8.0	8.5	10.0
11	13.5	7.0	3.0	0.5	0.5	1.5	1.0	3.0	5.5	8.0	8.5	10.5
12	13.5	7.0	2.0	0.5	0.5	1.5	1.0	3.0	5.5	7.0	8.5	10.5
13	13.5	7.0	2.0	0.5	0.5	2.0	1.0	3.0	5.5	7.0	8.0	10.5
14	13.0	7.0	2.0	0.5	0.5	1.5	1.0	3.5	6.0	7.0	8.5	10.5
15	13.0	6.5	1.5	0.5	0.5	1.5	1.0	3.5	8.0	8.0	8.5	11.0
16	13.0	7.0	1.5	0.5	0.5	1.5	1.5	3.5	7.0	7.0	8.5	11.0
17	12.0	6.5	1.5	0.5	0.5	1.5	1.5	4.0	7.0	8.0	8.5	11.0
18	12.0	6.5	1.5	0.5	1.0	1.5	1.5	3.5	7.0	5.0	8.5	11.5
19	12.0	6.5	1.5	0.5	1.0	1.5	1.5	3.5	7.0	8.0	9.0	12.0
20	12.0	6.5	1.5	0.5	0.5	1.5	1.5	4.0	6.5	7.0	9.0	11.5
21	12.0	6.5	1.0	0.5	1.0	1.5	1.5	4.5	7.0	7.0	8.5	12.0
22	12.0	6.0	1.0	0.5	1.0	1.5	1.5	4.5	8.0	7.0	10.0	12.0
23	12.0	5.5	1.0	0.5	1.0	1.5	1.5	5.0	6.5	7.0	9.0	12.0
24	11.5	5.5	1.0	0.5	1.0	1.0	1.5	4.5	7.0	7.0	9.0	14.0
25	11.0	5.5	1.0	0.5	1.0	1.0	1.5	4.5	8.0	8.0	9.0	14.5
26	11.0	5.5	1.0	0.5	1.0	1.5	1.5	4.5	8.0	8.0	9.0	14.5
27	10.5	5.0	0.5	0.5	1.0	1.5	1.5	4.5	7.0	8.0	9.0	14.0
28	10.0	5.0	0.5	0.5	1.0	1.5	1.5	4.5	7.0	7.0	9.0	13.5
29	10.0	5.0	0.5	0.5	1.0	1.0	1.5	4.5	7.0	7.0	9.0	13.5
30	9.5	5.0	0.5	0.5	---	1.0	1.5	4.5	8.5	8.0	9.0	13.5
31	---	---	---	0.5	---	---	---	---	---	---	8.0	---
MONTH	12.5	7.0	2.5	0.5	1.0	1.5	1.5	3.5	6.5	7.5	8.5	11.5

KNIFE RIVER BASIN

06339500 KNIFE RIVER NEAR GOLDEN VALLEY, N. DAK.

LOCATION.--Lat 47°09'40", long 102°03'39", in SE¼ sec.34, T.143 N., R.90 W., Mercer County, on left bank 6 ft (1.8 m) downstream from highway bridge, 4.5 mi (7.2 km) downstream from Elm Creek, and 9 mi (14 km) south of Golden Valley.

DRAINAGE AREA.--1,230 mi² (3,190 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: Water years 1946-50 (partial-record station), December 1963 to September 1965, November 1971 to September 1972 (discontinued).

Water temperatures: December 1963 to September 1965.

Sediment records: June 1946 to September 1949, January 1964 to September 1965.

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
NOV.										
05...	1300	9.2	8.5	0	0	62	32	310	7.6	497
DEC.										
03...	1245	13	9.6	50	30	71	38	400	7.4	659
JAN.										
11...	1245	7.7	13	0	10	91	47	510	7.3	873
FEB.										
09...	1400	8.0	14	250	10	85	57	500	6.9	900
MAR.										
15...	1300	9620	4.8	700	0	11	4.5	15	7.5	64
APR.										
21...	1130	76	8.0	220	80	55	34	210	7.1	354
MAY										
16...	1415	188	6.9	310	60	70	49	310	8.0	432
JUNE										
23...	1500	115	8.5	0	20	57	32	170	8.2	310
JULY										
13...	1305	20	10	310	110	75	43	300	8.1	517
AUG.										
23...	1410	83	8.6	220	0	49	31	220	10	284
SEP.										
20...	1505	6.1	10	80	0	61	41	350	13	588

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITAS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
NOV.										
05...	0	408	550	2.5	.4	.23	.00	1250	1.70	31.0
DEC.										
03...	0	541	670	.2	.5	.23	.00	1520	2.07	53.4
JAN.										
11...	0	716	800	3.7	.6	.23	.00	1840	2.50	38.5
FEB.										
09...	0	738	750	3.5	.5	.23	.00	1880	2.56	40.6
MAR.										
15...	0	52	38	.0	.1	.23	.00	148	.20	3840
APR.										
21...	0	290	440	1.9	.2	.23	.00	951	1.29	195
MAY										
16...	0	354	710	.0	.3	.23	.00	1390	1.89	706
JUNE										
23...	0	254	400	1.9	.3	.34	.00	833	1.13	259
JULY										
13...	0	424	600	1.1	.3	.23	.00	1300	1.77	70.2
AUG.										
23...	0	233	510	5.7	.2	.45	.05	992	1.35	1.35
SEP.										
20...	0	482	610	11	.4	.23	.01	1390	1.89	22.9

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
NOV.									
05...	290	0	69	8.0	1790	7.9	.0	10	440
DEC.									
03...	330	0	72	9.5	2160	8.0	.0	11	580
JAN.									
11...	420	0	72	11	2680	8.0	.0	14	660
FEB.									
09...	450	0	70	10	2630	8.1	.0	11	90
MAR.									
15...	46	0	37	1.0	179	6.6	2.5	26	90
APR.									
21...	280	0	61	5.5	1380	7.7	9.0	11	180
MAY									
16...	380	22	64	7.0	1880	7.9	19.0	8.7	250
JUNE									
23...	270	20	57	4.5	1240	7.8	18.0	7.9	140
JULY									
13...	360	0	64	6.8	1800	7.7	22.5	17	430
AUG.									
23...	250	17	65	6.1	1420	7.5	20.5	14	90
SEP.									
20...	320	0	69	8.5	1960	7.9	8.0	12	260

MISSOURI RIVER MAIN STEM

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06340900 MISSOURI RIVER NEAR HENSLER, N. DAK.

LOCATION.--Lat. 47°16'45", long 101°11'03", in SW¼ sec.22, T.144 N., R.83 W., McLean County, temperature recorder at gaging station, on left bank 2.8 mi (4.5 km) northwest of Hensler, about 7.5 mi (12.1 km) west of Washburn, and at mile 1362 (kilometer 2,191).

DRAINAGE AREA.--183,000 mi² (474,000 km²), approximately.

PERIOD OF RECORD.--Water temperatures: April 1967 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum recorded, 16.0°C Sept. 23; minimum recorded, 0.0°C on many days during December to February.

Period of record:

Water temperatures: Maximum, 17.0°C on several days in 1968-69; freezing point on many days during winter months.

WATER TEMPERATURE (DEG. C) , WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.0	14.0	8.5	8.5	4.0	4.0	0.0	0.0	---	---	---	---
2	14.0	13.5	8.5	8.5	4.0	4.0	0.5	0.0	---	---	0.5	0.5
3	13.5	13.0	8.5	8.0	4.0	4.0	---	---	---	---	0.5	0.5
4	13.5	13.0	8.0	8.0	4.0	4.0	---	---	---	---	---	---
5	13.5	13.5	8.0	6.0	4.0	4.0	0.5	0.0	---	---	---	---
6	14.0	13.5	6.0	4.5	4.0	4.0	0.0	0.0	---	---	1.0	0.5
7	14.0	13.5	5.0	5.0	4.0	3.0	0.0	0.0	---	---	1.0	1.0
8	13.5	11.5	6.0	5.0	3.0	3.0	0.0	0.0	---	---	1.0	0.5
9	13.0	12.0	6.0	6.0	3.0	2.5	0.0	0.0	---	---	0.5	0.5
10	13.0	13.0	6.0	6.0	2.5	2.5	0.0	0.0	---	---	1.5	0.5
11	13.0	12.5	6.0	5.5	2.5	1.5	0.0	0.0	0.0	0.0	1.5	1.5
12	12.5	12.5	5.5	5.5	1.5	1.5	0.5	0.0	0.0	0.0	1.5	1.5
13	12.5	12.0	5.5	5.5	1.5	1.0	---	---	0.0	0.0	---	---
14	12.5	12.5	5.5	5.5	1.0	1.0	---	---	0.0	0.0	---	2.0
15	12.5	12.0	5.5	5.5	1.0	1.0	---	---	0.0	0.0	2.0	2.0
16	12.0	11.5	5.5	5.5	1.5	1.0	---	---	0.0	0.0	2.0	2.0
17	11.5	11.5	5.5	5.0	1.0	1.0	---	---	0.0	0.0	2.0	2.0
18	---	---	5.0	5.0	1.0	1.0	---	---	0.5	0.0	2.0	2.0
19	11.0	11.0	5.0	5.0	1.0	1.0	---	---	0.0	0.0	2.5	2.0
20	11.5	11.0	5.0	5.0	1.0	1.0	---	---	0.0	0.0	2.5	2.5
21	11.5	11.5	5.0	5.0	1.0	1.0	---	---	0.5	0.0	2.5	2.5
22	11.5	11.5	5.0	4.5	1.0	1.0	---	---	0.5	0.5	2.5	2.0
23	11.5	11.0	---	---	1.0	1.0	---	---	0.5	0.5	2.0	2.0
24	11.0	11.0	---	---	2.0	1.0	---	---	1.0	0.5	2.0	2.0
25	11.0	11.0	---	---	2.0	1.5	---	---	1.0	0.5	2.0	2.0
26	11.0	11.0	4.5	4.5	2.0	2.0	---	---	0.5	0.0	2.0	2.0
27	11.0	9.5	5.0	4.5	2.0	1.0	---	---	0.5	0.5	2.0	2.0
28	9.5	9.0	5.0	4.5	1.0	0.0	---	---	0.5	0.5	2.0	1.5
29	9.0	9.0	4.5	4.0	1.0	0.0	---	---	1.0	0.5	2.0	1.5
30	9.0	9.0	4.0	4.0	1.0	0.5	---	---	---	---	2.0	2.0
31	9.0	8.5	---	---	0.5	0.0	0.0	0.0	---	---	2.0	1.5
MONTH	14.0	8.5	8.5	4.0	4.0	0.0	---	---	---	---	2.5	0.5

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	3.5	3.0	7.5	6.5	11.5	10.0	13.0	11.5	---	13.0
2	---	---	3.5	3.0	7.5	6.5	11.5	10.5	13.0	11.5	---	13.0
3	---	---	3.5	3.0	7.5	7.0	11.5	10.0	12.5	11.5	---	13.0
4	---	---	4.5	3.5	8.0	7.0	12.0	10.5	12.5	11.5	---	---
5	---	---	4.5	4.0	8.0	7.0	12.0	11.0	12.5	12.0	---	12.5
6	2.0	2.0	4.5	4.0	8.5	7.0	12.0	11.0	---	11.0	---	13.0
7	2.0	2.0	4.5	4.0	9.0	7.5	12.0	11.0	---	11.0	13.0	12.5
8	2.0	1.5	4.0	4.0	9.0	7.5	11.5	11.0	---	12.5	---	12.0
9	2.0	2.0	4.5	4.0	8.5	8.0	12.5	11.5	---	12.5	13.5	13.0
10	2.5	1.5	4.5	4.5	8.0	7.5	12.5	11.5	---	13.0	13.5	13.0
11	2.5	2.0	4.5	4.5	7.5	6.5	12.0	11.0	---	12.5	13.5	12.5
12	2.0	1.5	4.5	4.5	8.5	6.5	12.0	11.0	---	12.0	13.0	13.0
13	1.5	1.5	5.5	4.5	8.5	8.0	12.0	12.0	---	13.0	13.0	13.0
14	2.5	1.5	5.5	5.0	9.5	8.0	12.5	11.5	---	13.5	13.5	13.0
15	2.5	1.5	6.0	5.0	10.0	9.5	13.0	12.0	14.5	12.5	---	13.0
16	2.5	1.5	6.0	5.5	10.5	9.5	---	12.0	---	13.0	---	13.0
17	2.0	2.0	7.5	5.5	10.5	9.5	13.5	12.0	14.5	13.0	---	13.5
18	2.5	2.0	7.5	6.5	10.5	9.5	13.0	12.0	15.0	13.5	---	14.5
19	3.0	2.5	7.5	5.5	10.5	9.5	12.0	11.0	15.0	13.5	15.0	14.5
20	3.0	2.5	---	---	10.0	10.0	11.5	10.5	15.5	13.5	---	13.5
21	3.5	2.5	---	---	10.0	8.5	---	---	14.5	13.5	---	12.5
22	3.5	3.0	---	---	10.5	9.5	---	---	13.5	13.5	---	15.0
23	3.0	3.0	---	---	10.5	9.5	---	---	14.5	13.0	16.0	---
24	3.0	3.0	7.5	7.0	10.5	9.5	---	---	---	13.0	15.5	14.5
25	3.5	3.0	8.0	7.5	10.5	9.5	---	---	---	12.5	14.5	---
26	3.5	3.5	8.0	8.0	10.5	10.0	12.5	11.5	---	12.5	13.0	---
27	3.5	3.0	8.0	7.5	10.5	10.0	12.5	12.0	---	13.0	13.0	---
28	3.5	3.0	7.5	7.5	11.0	10.0	13.0	12.0	---	13.0	---	---
29	3.5	3.0	8.5	7.5	11.5	10.0	13.5	12.0	---	13.0	13.0	---
30	3.0	3.0	8.5	7.5	11.5	10.5	13.0	12.0	---	13.5	13.0	---
31	---	---	8.0	7.0	---	---	12.5	12.0	---	13.0	---	---
MONTH	3.5	1.5	8.5	3.0	11.5	6.5	13.5	10.0	---	11.0	---	---

PAINTED WOODS CREEK BASIN

06341800 PAINTED WOODS CREEK NEAR WILTON, N. DAK.

LOCATION.--Lat 47°16'30", long 100°47'30", in SW¼SW¼ sec.23, T.144 N., R.80 W., McLean County, at gaging station on right bank 600 ft (180 m) upstream from county highway bridge, 7 mi (11 km) upstream from Yanktonai Creek, and 8 mi (13 km) north of Wilton.

DRAINAGE AREA.--427 mi² (1,106 km²), approximately, of which about 310 mi² (800 km²) probably is noncontributing.

PERIOD OF RECORD.--September 1970 to current year.

REMARKS.--No flow Jan. 27, Jan. 29 to Feb. 23. Flows during summer increased by aquifer dewatering for McClusky canal. Miscellaneous samples of chemical data published for water years 1958-64, 1970.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
OCT.												
18...	1330	15	13	--	1600	50	49	70	240	24	478	0
NOV.												
26...	1015	1.8	17	300	20	100	64	73	270	20	582	0
DEC.												
22...	1430	.50	26	--	30	110	93	83	360	22	837	0
JAN.												
24...	1100	.02	34	--	80	1200	96	64	370	16	951	0
MAR.												
16...	1130	355	6.6	400	110	38	11	5.1	11	7.1	67	0
APR.												
19...	1445	23	20	--	140	0	37	25	91	11	281	0
MAY												
24...	1430	40	17	--	30	30	67	72	190	22	450	0
JUNE												
23...	1130	42	13	--	70	20	63	74	180	.6	408	0
JULY												
25...	1000	2.6	10	--	30	63	51	74	210	24	378	0
AUG.												
24...	1015	1.8	13	--	50	40	52	72	200	24	353	26
SEP.												
21...	1400	3.1	25	0	30	30	81	96	240	26	398	13

DATE	ALKAL- INITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
OCT.												
18...	302	560	28	.4	.05	.39	1320	1.80	53.5	410	18	54
NOV.												
26...	477	550	22	.2	.01	.05	1530	2.08	7.48	460	0	55
DEC.												
22...	687	640	26	.3	.03	.12	1370	1.86	1.85	570	0	57
JAN.												
24...	780	520	19	.2	.01	.23	1380	1.88	.07	500	0	61
MAR.												
16...	55	22	2.0	.2	.58	.36	110	.15	105	48	0	29
APR.												
19...	230	160	5.3	.3	.29	.16	552	.75	34.3	200	0	49
MAY												
24...	360	500	22	.1	.20	.07	1140	1.55	123	460	95	46
JUNE												
23...	335	520	22	.2	.01	.06	1180	1.60	134	460	130	46
JULY												
25...	310	530	23	.2	.00	.05	1160	1.58	8.14	430	120	50
AUG.												
24...	323	550	23	.3	.01	.04	1140	1.55	5.54	430	93	49
SEP.												
21...	348	740	71	.3	.00	.03	1450	1.97	12.1	600	250	45

PAINTED WOODS CREEK BASIN

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06341800 PAINTED WOODS CREEK NEAR WILTON, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG. C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
OCT. 18...	5.2	1820	8.0	8.5	30	7	10.7	--	--	--	700	--
NOV. 26...	5.5	1880	8.0	.5	20	5	13.8	.00	4	200	600	0
DEC. 22...	6.5	2370	7.6	1.0	20	2	4.6	--	--	--	610	--
JAN. 24...	7.2	2640	7.5	.5	10	70	2.8	--	--	--	440	--
MAR. 16...	.7	169	6.7	.5	80	20	11.4	.00	8	0	100	0
APR. 19...	2.8	753	7.8	9.0	100	30	9.7	--	--	--	0	--
MAY 24...	3.8	1590	7.7	20.0	40	4	8.2	--	--	--	510	--
JUNE 23...	3.6	1590	8.3	18.0	30	3	9.6	--	--	--	520	--
JULY 25...	4.4	1620	8.3	19.5	40	3	6.8	--	--	--	110	--
AUG. 24...	4.2	1630	8.4	20.5	40	2	10.4	--	--	--	540	--
SEP. 21...	4.3	2010	8.5	9.5	20	10	10.6	.00	7	0	600	1

DATE	DIS- SOLVED CHROM- IUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PR) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANAD- IUM (V) (UG/L)	DIS- SOLVED ZINC (ZNC) (UG/L)
OCT. 18...	--	--	2	5	--	--	--	--	--	--	--	10
NOV. 26...	--	0	2	0	150	.3	10	2	0	640	1.8	40
DEC. 22...	--	--	2	4	--	--	--	--	--	--	--	20
JAN. 24...	--	--	6	3	--	--	--	--	--	--	--	20
MAR. 16...	0	0	5	3	10	1.4	0	7	0	100	4.8	0
APR. 19...	--	--	40	5	--	--	--	--	--	--	--	40
MAY 24...	--	--	2	0	--	--	--	--	--	--	--	20
JUNE 23...	--	--	20	4	--	--	--	--	--	--	--	20
JULY 25...	--	--	20	5	--	--	--	--	--	--	--	30
AUG. 24...	--	--	4	2	--	--	--	--	--	--	--	0
SEP. 21...	0	0	7	3	200	1.1	7	3	8	510	3.4	20

06342500 MISSOURI RIVER AT BISMARCK, N. DAK.

LOCATION.--Lat 46°48'51", long 100°49'12", in SE¼NW¼SE¼ sec.31, T.139 N., R.80 W., Burleigh County, at gaging station, on left bank 40 ft (12 m) upstream from Bismarck city waterplant, 2,100 ft (640 m) downstream from Burlington Northern Railway bridge, 1.6 mi (2.6 km) northwest of Bismarck Post Office, 3.5 mi (5.6 km) upstream from Heart River and at mile 1,314.5 (kilometer 2,115.0).

DRAINAGE AREA.--186,400 mi² (467,700 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.

Water temperatures: October 1966 to current year.

Sediment records: June 1946 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum, 17.0°C Aug. 14-16; minimum, freezing point on many days during December to March.

Sediment concentration: Maximum daily, 2,800 mg/l May 7; minimum daily, 30 mg/l Jan. 24-25.

Sediment discharge: Maximum daily, 258,000 tons Apr. 8; minimum daily, 2,480 tons Jan. 25.

Period of record:

Water temperatures: Maximum, 19.0°C on several days during July and August 1968; minimum, freezing point on many days during winter months.

REMARKS.--Sediment concentration data from Oct. 1, 1971 to July 1, 1972, furnished by the Corps of Engineers. Sediment records from June 1946 to September 1971 are available from Corps of Engineers, Omaha, Neb.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	12.0	6.0	6.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
2	12.0	12.0	6.5	6.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12.0	11.5	6.5	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12.0	12.0	6.5	6.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.0	12.0	6.5	6.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0
6	12.0	12.0	6.0	4.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0
7	12.0	12.0	4.0	4.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0
8	12.0	12.0	4.0	4.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0
9	12.0	12.0	4.0	4.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
10	12.0	12.0	4.0	3.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
11	12.0	12.0	3.5	3.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
12	12.0	12.0	3.5	3.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
13	12.0	12.0	3.5	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
14	12.0	11.5	3.0	3.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
15	11.5	11.5	3.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
16	11.5	11.5	3.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
17	11.5	11.5	3.5	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
18	11.5	11.5	3.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
19	11.5	11.5	3.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
20	11.5	11.0	3.5	3.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	11.0	11.0	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
22	11.0	10.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
23	10.5	10.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
24	10.0	10.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
25	10.0	10.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
26	10.0	10.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.0
27	10.0	9.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
28	9.0	7.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
29	7.0	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.0
30	6.5	6.5	3.0	3.0	0.0	0.0	0.0	0.0	---	---	2.0	1.5
31	6.5	6.0	---	---	0.0	0.0	0.0	0.0	---	---	2.0	1.5
MONTH	12.0	6.0	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	1.5	4.5	4.0	9.5	8.5	13.5	13.0	14.0	13.5	14.5	13.5
2	2.0	2.0	5.0	4.5	9.0	8.0	13.5	12.5	14.5	14.0	13.5	13.0
3	2.0	1.5	5.5	5.0	9.0	8.0	12.5	12.0	14.0	13.0	13.5	13.0
4	1.5	1.0	5.5	4.5	8.5	7.5	12.5	11.5	13.5	12.5	13.5	13.0
5	2.0	1.5	6.0	5.0	8.5	7.5	12.5	12.0	13.5	13.5	13.0	11.5
6	2.5	2.0	6.0	5.0	9.0	7.5	12.5	12.0	13.5	13.0	12.5	12.0
7	2.5	2.0	6.0	4.5	9.5	8.5	12.5	12.5	13.0	12.0	12.5	12.5
8	2.0	1.5	5.0	4.5	10.5	9.5	12.5	12.0	13.5	12.5	12.5	11.5
9	2.5	2.0	5.0	4.5	10.5	9.5	14.0	12.5	15.0	13.0	13.5	12.5
10	3.0	2.5	5.0	5.0	10.0	9.0	15.0	14.0	15.5	14.5	13.5	13.5
11	3.0	3.0	5.0	5.0	9.5	9.0	15.0	14.0	16.0	15.0	13.5	13.0
12	3.0	2.5	5.0	4.5	10.0	9.5	14.0	13.0	16.0	15.0	13.0	12.5
13	2.5	2.0	6.5	5.0	11.0	9.5	14.0	13.5	16.5	15.5	12.5	12.5
14	3.0	2.0	7.5	6.0	11.5	10.0	14.0	13.5	17.0	16.5	---	---
15	4.0	3.0	7.5	6.5	12.0	11.0	13.5	13.0	17.0	17.0	0.0	---
16	4.0	3.5	8.0	7.0	12.0	11.0	13.5	13.0	17.0	16.0	---	---
17	4.0	3.5	9.0	7.5	12.0	11.5	13.5	13.0	16.5	15.5	---	---
18	3.5	3.0	11.0	8.5	12.0	11.5	14.0	13.0	16.0	15.0	---	---
19	4.5	3.5	11.0	9.5	12.0	10.5	14.0	13.0	16.0	15.5	---	---
20	4.5	4.0	10.0	8.0	11.0	9.5	13.0	12.0	16.5	16.0	14.0	13.0
21	4.5	4.0	9.5	7.5	11.5	11.0	12.0	12.0	16.0	15.0	13.0	11.5
22	4.5	4.5	10.0	9.0	11.5	11.0	13.0	12.0	15.0	14.0	12.0	11.5
23	4.5	3.5	10.0	8.5	11.5	11.0	14.0	13.0	14.5	14.0	13.0	12.0
24	3.5	3.5	8.5	8.0	11.5	11.0	14.5	13.5	15.0	14.0	12.5	12.5
25	4.0	3.0	9.0	8.0	11.5	11.0	14.5	14.5	14.0	13.5	12.5	11.5
26	4.0	4.0	10.0	9.0	11.5	11.0	14.5	14.0	14.0	13.5	11.5	10.0
27	4.0	4.0	10.0	9.0	12.0	11.5	14.5	14.0	14.5	13.5	10.5	10.0
28	4.0	3.5	9.0	8.0	12.5	11.5	14.5	14.0	14.5	14.0	10.0	9.5
29	4.0	3.5	8.5	8.0	13.5	12.0	15.0	14.0	15.0	14.0	9.5	9.5
30	4.0	4.0	10.0	8.5	13.5	13.0	15.0	14.5	15.5	14.5	10.5	9.5
31	---	---	9.5	8.5	---	---	14.5	14.0	15.5	14.5	---	---
MONTH	4.5	1.0	11.0	4.0	13.5	7.5	15.0	11.5	17.0	12.0	14.5	9.5

06342500 MISSOURI RIVER AT BISMARCK, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED NITRITE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
OCT.								
04...	0930	23500	.14	.00	.10	.08	11.8	--
29...	0840	26600	.18	.00	.25	.08	4.5	680
DEC.								
06...	0930	29700	.22	.00	.19	.03	2.0	750
JAN.								
07...	1130	29700	.18	.00	.05	.03	.0	650
31...	1130	29900	.12	.00	.03	.05	.0	680
MAR.								
03...	1200	32800	.18	.00	.28	.04	3.0	580
31...	1600	40700	.15	.00	.09	.11	2.0	530
MAY								
01...	1230	41100	.13	.00	.03	.05	4.5	740
JUNE								
05...	1045	41100	.13	.00	.10	.07	7.5	645
30...	1030	38400	.17	.00	.05	.05	13.0	640
JULY								
31...	1330	29300	.17	.00	.02	.05	14.0	660
AUG.								
28...	1015	30600	.18	.00	.04	.03	14.0	700
SEP.								
29...	0945	21400	--	--	.09	.04	9.5	660

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	CROSS SECTION LOC- ATION (FT)	DIS- CHARGE (CFS)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM
JULY								
06...	1200	--	--	--	--	--	2	5
AUG.								
08...	1200	13.0	--	27200	208	15300	--	--
08...	1201	--	240	--	--	--	0	21
08...	1202	--	360	--	--	--	0	2
08...	1203	--	500	--	--	--	0	6
08...	1204	--	600	--	--	--	0	2
08...	1205	--	720	--	--	--	0	3
08...	1206	--	840	--	--	--	0	3
08...	1207	--	980	--	--	--	0	16
08...	1208	--	1080	--	--	--	0	4
08...	1209	--	1200	--	--	--	0	3
08...	1210	--	1320	--	--	--	0	6
08...	1211	--	1380	--	--	--	0	1
22...	1400	16.0	--	28000	176	13300	--	--
22...	1401	--	220	--	--	--	0	15
22...	1402	--	280	--	--	--	0	6
22...	1403	--	400	--	--	--	0	7
22...	1404	--	520	--	--	--	0	6
22...	1405	--	700	--	--	--	0	5
22...	1406	--	940	--	--	--	0	3
22...	1407	--	1240	--	--	--	0	3

DATE	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. FALL DIAM. % FINER THAN 2.00 MM	BED MAT. FALL DIAM. % FINER THAN 4.00 MM	BED MAT. FALL DIAM. % FINER THAN 8.00 MM	BED MAT. FALL DIAM. % FINER THAN 16.0 MM
JULY							
06...	60	98	99	100	--	--	--
AUG.							
08...	--	--	--	--	--	--	--
08...	94	100	--	--	--	--	--
08...	75	98	99	99	99	100	--
08...	84	100	--	--	--	--	--
08...	40	89	97	98	99	100	--
08...	51	90	97	97	98	99	100
08...	66	97	99	99	100	--	--
08...	96	100	--	--	--	--	--
08...	59	93	98	98	99	100	--
08...	75	99	100	--	--	--	--
08...	90	100	--	--	--	--	--
08...	81	100	--	--	--	--	--
22...	--	--	--	--	--	--	--
22...	52	100	--	--	--	--	--
22...	74	98	100	--	--	--	--
22...	77	98	100	--	--	--	--
22...	64	98	99	99	100	--	--
22...	67	99	100	--	--	--	--
22...	68	99	100	--	--	--	--
22...	76	99	100	--	--	--	--

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

OCTOBER				NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	26300	300	21300	23800	240	15400	29000	500	39200
2	27400	200	14800	23200	170	10600	30100	590	47900
3	27400	360	26600	26900	240	17400	31900	620	53400
4	24000	430	27900	26200	260	18400	34800	720	67700
5	24900	320	21500	26900	290	21100	33200	680	61000
6	26500	180	12900	26600	680	48800	30500	600	49400
7	27000	190	13900	25900	640	44800	33100	640	57200
8	26600	120	8620	23500	500	31700	33700	660	60100
9	26600	110	7900	25100	400	27100	32200	620	53900
10	26900	100	7260	26800	370	26800	31300	600	50700
11	24100	250	16300	26800	370	26800	29000	580	45400
12	24300	440	28900	26800	370	26800	28300	520	39700
13	26600	450	32300	26700	530	38200	23800	300	19300
14	26400	460	32800	26800	720	52100	20000	200	10800
15	26600	480	34500	24200	450	29400	19000	180	9230
16	26700	480	34600	25000	160	10800	19000	170	8720
17	26800	620	44900	28500	280	21500	18000	160	7780
18	25000	850	57400	28700	490	38000	18000	160	7780
19	24200	680	44400	28200	310	23600	18000	150	7290
20	27500	410	30400	28800	100	7780	18000	150	7290
21	29100	450	35400	29200	100	7880	17600	140	6650
22	28700	500	38700	29000	90	7050	15700	100	4240
23	26600	500	35900	28900	290	22600	16200	110	4810
24	27000	510	37200	28700	510	39500	19400	160	8380
25	24400	460	30300	29200	700	55200	16200	110	4810
26	25200	450	30600	29400	900	71400	17200	100	4640
27	26900	400	29100	29000	720	56400	19000	120	6160
28	26900	360	26100	29300	640	50600	21500	140	8130
29	27500	350	26000	29500	490	39000	24100	160	10400
30	27700	330	24700	29600	380	30400	25200	170	11600
31	28200	310	23600	--	--	--	23600	170	11800
TOTAL	820000	--	856780	817200	--	917110	748600	--	785410

JANUARY				FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	26400	160	11400	29200	40	3150	33600	60	5440
2	26100	140	9870	32200	45	3910	32000	70	6050
3	26300	130	9230	32200	45	3910	32600	70	6160
4	26700	120	8650	33000	50	4460	32000	70	6050
5	26400	110	7840	33900	50	4580	33500	70	6330
6	28100	100	7590	31800	50	4290	33900	80	7320
7	30200	90	7340	31900	60	5170	34300	80	7410
8	31000	80	6700	31000	60	5020	30900	70	5840
9	31800	70	6010	29800	60	4830	32300	80	6980
10	31800	60	5150	30800	70	5820	32300	90	7850
11	32300	50	4360	30400	70	5750	33000	90	8020
12	32100	50	4330	30300	70	5730	35900	90	8720
13	30800	40	3330	29700	80	6420	32900	80	7110
14	30000	40	3240	28600	80	6180	25900	80	5590
15	29300	35	2770	28600	80	6180	32400	90	7870
16	32200	35	3040	29600	90	7190	34200	100	9230
17	35900	40	3880	29100	90	7070	34100	100	9210
18	37500	45	4560	28500	100	7700	34000	100	9180
19	36100	45	4390	30000	110	8910	34000	100	9180
20	34200	40	3690	30700	120	9950	34000	100	9180
21	33500	35	3170	29200	100	7880	34000	100	9180
22	33200	35	3140	27000	90	6560	31000	100	8370
23	33400	35	3160	27100	90	6590	32000	110	9500
24	32500	30	2630	28500	80	6160	35500	130	12500
25	30600	30	2480	30600	70	5780	39500	150	16000
26	30800	35	2910	31900	60	5170	40300	200	21800
27	32200	40	3480	32500	60	5270	39300	240	25500
28	31600	40	3410	32700	60	5300	38700	290	30300
29	32600	40	3520	33600	60	5440	38300	220	22800
30	32100	40	3470	--	--	--	38600	210	21900
31	30100	40	3250	--	--	--	40500	320	35000
TOTAL	967800	--	151990	884400	--	170370	1065500	--	361570

06342500 MISSOURI RIVER AT BISMARCK, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	40900	280	30900	41000	2300	255000	40900	600	66300
2	41400	450	50300	40900	1500	166000	41000	650	72000
3	41400	580	64800	41100	900	99900	41100	670	74300
4	41200	750	83400	41600	800	89900	41000	690	76400
5	41100	810	89900	42400	700	80100	41000	640	70800
6	41200	1800	200000	42100	2000	227000	40700	590	64800
7	41300	800	89200	41800	2800	316000	41200	640	71200
8	41500	2300	258000	40600	1500	164000	41200	680	75600
9	41200	900	100000	41000	700	77500	40700	680	74700
10	38300	2200	228000	41200	1100	122000	41400	690	77100
11	33300	500	45000	41500	1500	168000	42300	700	79900
12	35700	2100	202000	41500	1500	168000	42200	700	79800
13	40200	800	86800	41200	1500	167000	42200	900	103000
14	41300	1700	190000	41100	1000	111000	42100	1100	125000
15	41400	1400	156000	40800	600	66100	42000	800	90700
16	41000	1500	166000	41200	1500	167000	41800	520	58700
17	40900	1600	177000	42000	2300	261000	41600	580	65100
18	40800	1200	132000	42600	1700	196000	41700	640	72100
19	40600	700	76700	43100	1100	128000	39800	570	61300
20	40700	750	82400	43100	700	81500	41200	500	55600
21	40900	800	88300	43300	490	57300	43400	380	44500
22	40700	1400	154000	43800	500	59100	44000	240	28500
23	40700	2100	231000	43500	500	58700	43500	260	30500
24	40200	1900	206000	42700	500	57600	40700	280	30800
25	40100	1700	184000	42500	500	57400	36900	350	34900
26	40800	1300	143000	43500	510	59900	35100	430	40800
27	40600	900	98700	44100	520	61900	37900	500	51200
28	40600	1200	132000	43200	500	58300	38500	570	59300
29	40400	1600	175000	42100	490	55700	38400	680	70500
30	40600	1900	208000	41300	540	60200	38400	780	80900
31	--	--	--	41100	580	64400	--	--	--
TOTAL	1211000	--	4128400	1302900	--	3761500	1223900	--	1986300

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	38200	268	27600	29600	211	16900	22100	160	9550
2	37400	263	26600	29700	211	16900	22300	162	9750
3	33400	236	21300	29600	211	16900	21500	156	9060
4	33600	237	21500	29300	209	16500	21800	158	9300
5	32500	230	20200	29700	211	16900	22200	161	9650
6	33800	239	21800	29800	212	17100	22600	164	10000
7	32800	232	20500	27300	195	14400	21900	159	9400
8	32800	232	20500	27000	193	14100	22900	166	10300
9	30700	218	18100	26400	189	13500	22700	165	10100
10	28400	203	15600	26800	192	13900	23000	166	10300
11	29200	208	16400	26500	190	13600	23800	172	11100
12	27700	198	14800	26500	190	13600	23800	172	11100
13	27700	188	14100	25900	185	12900	23400	169	10700
14	27900	199	15000	25900	185	12900	23800	172	11100
15	27800	199	14900	25600	184	12700	23800	172	11100
16	27900	199	15000	26100	187	13200	23200	168	10500
17	27200	195	14300	26300	189	13400	22900	166	10300
18	29300	209	16500	28400	203	15600	22500	163	9900
19	28800	205	15900	26800	192	13900	23200	168	10500
20	28800	205	15900	25900	185	12900	22900	166	10300
21	27800	199	14900	26500	190	13600	21900	159	9400
22	28900	206	16100	27900	199	15000	22100	160	9550
23	29300	209	16500	28100	201	15200	22400	162	9800
24	28400	203	15600	24700	178	11900	22500	163	9900
25	28500	203	15600	23800	172	11100	22300	162	9750
26	29300	209	16500	22500	163	9900	22300	162	9750
27	28700	205	15900	22700	165	10100	22500	163	9900
28	29200	208	16400	21800	158	9300	22500	163	9900
29	29300	209	16500	21600	157	9160	22300	162	9750
30	29400	209	16600	22200	161	9650	22500	163	9900
31	29200	208	16400	22300	162	9750	--	--	--
TOTAL	933900	--	543500	813200	--	416460	679600	--	301610

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 11468000
 TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 14381000

HEART RIVER BASIN

06345000 GREEN RIVER NEAR GLADSTONE, N. DAK.

LOCATION.--Lat 46°53'40", long 102°37'25", in SW¼ sec.36, T.140 N., R.95 W., Stark County, at gaging station on right bank 0.5 mi (0.8 km) upstream from county highway bridge, 3.5 mi (5.6 km) northwest of Gladstone, 4.5 mi (7.2 km) upstream from mouth, and 8 mi (13 km) downstream from Russian Spring Creek.

DRAINAGE AREA.--356 mi² (922 km²).

PERIOD OF RECORD.--October 1970 to September 1972 (discontinued).

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANG- NESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT.										
04...	1530	109	8.8	0	10	64	37	140	6.8	323
NOV.										
05...	1430	10	9.3	2400	10	79	40	180	6.1	367
DEC.										
03...	1200	7.2	9.0	50	10	83	42	210	5.3	437
JAN.										
03...	1645	5.2	13	0	10	88	49	260	5.8	536
FEB.										
01...	1343	6.8	14	0	0	84	44	260	5.3	536
MAR.										
21...	1000	156	6.8	280	160	28	15	50	6.7	117
APR.										
11...	1445	55	7.9	50	120	54	35	120	6.7	245
MAY										
17...	0925	61	7.5	1300	80	56	39	150	6.4	255
JUNE										
22...	1105	61	7.2	0	10	81	52	240	7.1	442
JULY										
11...	1110	6.8	8.6	40	50	87	71	180	7.4	385
AUG.										
25...	1130	34	8.8	90	0	52	34	150	9.5	247
SEP.										
28...	1630	8.2	9.8	80	20	94	55	210	7.9	446

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
04...	0	265	340	4.7	.4	.23	.00	750	1.02	221
NOV.										
05...	0	301	450	7.0	.5	.23	.00	906	1.23	24.5
DEC.										
03...	0	358	470	4.4	.6	.23	.00	1040	1.42	20.2
JAN.										
03...	0	440	540	4.2	.5	.23	.00	1250	1.70	17.6
FEB.										
01...	0	440	490	3.4	.6	.23	.00	1180	1.61	21.7
MAR.										
21...	0	96	150	.8	.1	.23	.00	324	.44	137
APR.										
11...	0	201	320	2.6	.2	.23	.00	657	.89	97.6
MAY										
17...	0	209	400	.0	.2	.23	.00	816	1.11	134
JUNE										
22...	0	363	520	3.9	.3	.23	.00	1210	1.65	199
JULY										
11...	0	316	550	1.5	.3	.23	.00	1080	1.47	19.8
AUG.										
25...	0	203	390	11	.2	.23	.05	795	1.08	73.0
SEP.										
28...	0	366	560	9.4	.4	.23	.01	1200	1.63	26.6

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
OCT.									
04...	310	47	49	3.4	1120	7.6	10.0	13	620
NOV.									
05...	360	61	51	4.1	1350	7.6	.0	15	130
DEC.									
03...	380	22	54	4.7	1520	7.9	.0	8.8	90
JAN.									
03...	420	0	57	5.5	1780	8.0	.0	8.6	530
FEB.									
01...	390	0	59	5.7	1710	7.9	.0	11	620
MAR.									
21...	130	36	44	1.9	493	7.1	4.5	15	290
APR.									
11...	280	78	48	3.1	989	7.5	8.0	12	40
MAY									
17...	300	91	51	3.8	1150	7.7	19.0	8.1	70
JUNE									
22...	420	54	55	5.1	1670	8.1	18.0	5.6	320
JULY									
11...	510	194	43	3.5	1450	7.6	21.0	15	500
AUG.									
25...	270	67	54	4.0	1450	7.4	1.9	16	90
SEP.									
28...	460	95	49	4.3	1650	7.9	8.0	9.0	520

06348000 HEART RIVER NEAR LARK, N. DAK.

LOCATION.--Lat 46°36'37", long 101°22'54", in NW¼NW¼SW¼ sec.9, T.136 N., R.85 W., Grant County, on right bank 20 ft (6 m) downstream from bridge on State Highway 31, 1 mi (1.6 km) downstream from Big Muddy Creek, and 10 mi (16 km) north of Lark.

DRAINAGE AREA.--2,750 mi² (7,120 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: October 1971 to September 1972 (discontinued).

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT.										
27...	1000	23	4.9	0	10	63	33	160	6.4	409
NOV.										
24...	1115	62	6.2	0	10	65	39	190	6.0	481
DEC.										
22...	1430	40	5.2	0	10	81	41	160	7.6	399
JAN.										
27...	1345	15	8.2	0	10	90	40	200	6.9	535
FEB.										
25...	1400	42	8.4	0	10	74	33	200	7.6	479
MAR.										
20...	1210	3950	4.9	140	10	37	15	59	7.3	152
APR.										
19...	1245	448	5.2	80	40	35	17	51	6.6	147
MAY										
24...	1220	1150	4.6	90	20	48	26	85	6.9	190
JUNE										
23...	1800	1250	3.7	0	10	56	33	110	7.5	205
JULY										
26...	1500	157	4.2	40	180	59	32	110	7.5	224
AUG.										
23...	1045	180	5.7	90	0	58	40	110	7.8	248
SEP.										
18...	1600	102	2.9	80	20	61	37	120	7.7	238

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
27...	0	336	300	3.9	1.3	.23	.00	793	1.08	49.2
NOV.										
24...	0	395	330	4.6	.5	.23	.00	897	1.22	150
DEC.										
22...	0	327	390	5.4	.4	.23	.00	897	1.22	98.3
JAN.										
27...	0	439	400	5.2	.4	.23	.00	1020	1.39	41.3
FEB.										
25...	0	393	360	5.0	.4	.23	.00	936	1.27	106
MAR.										
20...	0	125	150	1.7	.2	1.4	.00	374	.51	3990
APR.										
19...	0	121	140	2.6	.1	1.2	.00	357	.49	432
MAY										
24...	0	156	250	2.9	.1	.56	.00	553	.75	1720
JUNE										
23...	0	168	340	2.0	.2	.56	.00	632	.86	2130
JULY										
26...	0	184	340	2.0	.2	.56	.00	663	.90	281
AUG.										
23...	0	203	320	5.9	.2	.56	.02	675	.92	328
SEP.										
18...	5	204	350	6.5	.2	.23	.00	734	1.00	202

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
OCT.									
27...	290	0	54	4.1	1180	8.2	5.5	4.1	90
NOV.									
24...	320	0	56	4.6	1330	8.1	.0	6.1	40
DEC.									
22...	370	44	48	5.6	1330	8.1	.0	5.1	180
JAN.									
27...	390	0	52	4.4	1520	8.1	.0	6.8	580
FEB.									
25...	320	0	57	4.9	1400	8.0	.0	7.7	130
MAR.									
20...	150	29	44	2.1	583	7.4	2.0	9.7	40
APR.									
19...	160	37	40	1.8	534	7.4	6.5	9.4	250
MAY									
24...	230	71	44	2.5	787	7.6	19.0	7.6	250
JUNE									
23...	280	110	46	2.9	975	7.9	18.0	4.1	0
JULY									
26...	280	95	45	2.9	968	8.0	25.0	3.6	110
AUG.									
23...	310	110	43	2.7	984	7.9	20.5	5.0	300
SEP.									
18...	310	100	45	3.0	1070	8.3	20.0	2.0	210

HEART RIVER BASIN

06349000 HEART RIVER NEAR MANDAN, N. DAK.

LOCATION.--Lat 46°50'02", long 100°58'27", in NW¼NE¼ sec.25, T.139 N., R.82 W., Morton County, on left bank near downstream wingwall of bridge on county highway, 3 mi (5 km) west of Mandan and 4 mi (6 km) downstream from Sweetbriar Creek.

DRAINAGE AREA.--3,310 mi² (8,570 km²), approximately.

PERIOD OF RECORD.--Chemical analysis: Water years 1946-50 (partial-record station), October 1971 to September 1972 (discontinued).

Specific conductance: July 1972 to current year.

Water temperature: July 1972 to current year.

Sediment records: May 1948 to current year.

EXTREMES.--Current year:

Sediment concentration: Maximum daily, 3,450 mg/l Mar. 16, 17, Apr. 13; minimum daily 1 mg/l Feb. 6 to Mar. 10.

Sediment discharge: Maximum daily, 59,600 tons Mar. 16; minimum daily 0.03 tons Feb. 8 to Mar. 9.

REMARKS.--Sediment concentration data Oct. 1, 1971 to July 1, 1972 furnished by the Corps of Engineers.

Sediment records from May 1948 to Sept. 1971 available from U.S. Corps of Engineers, Omaha, Neb.

Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT.										
19...	1145	52	4.2	0	0	35	30	150	7.3	263
NOV.										
22...	0800	35	6.9	0	10	58	37	200	6.0	425
DEC.										
20...	1100	25	7.8	0	10	82	45	230	7.7	516
JAN.										
24...	1210	25	6.6	0	0	90	46	210	8.3	492
FEB.										
23...	1230	10	7.8	0	0	80	53	210	8.7	482
MAR.										
14...	1000	8250	4.7	200	50	18	5.4	19	6.9	90
APR.										
17...	1030	1250	6.5	270	50	35	15	55	6.9	149
MAY										
24...	1610	1160	1.4	40	0	45	24	90	7.2	195
JUNE										
19...	0900	398	5.1	0	10	54	29	98	7.7	220
JULY										
28...	1600	160	5.5	0	150	61	33	120	7.7	265
AUG.										
21...	1035	276	6.2	40	0	38	27	93	7.2	225
SEP.										
19...	1130	109	3.8	90	40	63	38	140	8.0	295

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
19...	0	216	320	11	.2	.23	.00	692	.94	97.2
NOV.										
22...	0	349	360	9.9	.4	.23	.00	896	1.22	84.7
DEC.										
20...	0	423	470	11	.4	.23	.00	1100	1.50	74.3
JAN.										
24...	0	404	450	8.4	.5	1.3	.00	1100	1.50	74.3
FEB.										
23...	0	395	450	8.6	.5	.56	.00	1080	1.47	29.2
MAR.										
14...	0	74	55	.0	.1	.56	.00	182	.25	4060
APR.										
17...	0	122	140	1.9	.1	1.6	.00	344	.47	1160
MAY										
24...	0	160	230	.4	.8	.34	.00	513	.70	1610
JUNE										
19...	0	180	290	4.2	.2	.56	.00	555	.75	597
JULY										
28...	0	217	350	2.2	.2	.23	.00	705	.96	305
AUG.										
21...	0	185	210	7.1	.2	.56	.00	515	.70	384
SEP.										
19...	0	242	360	7.7	.3	.23	.00	772	1.05	227

HEART RIVER BASIN

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06349000 HEART RIVER NEAR MANDAN, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
OCT.									
19...	210	0	60	4.5	1080	8.2	7.0	2.7	440
NOV.									
22...	300	0	59	5.1	1350	8.0	.0	6.8	490
DEC.									
20...	390	0	56	5.1	1630	7.9	.0	10	400
JAN.									
24...	410	11	52	4.5	1590	7.8	.0	12	580
FEB.									
23...	420	23	52	4.5	1580	7.8	.0	12	220
MAR.									
14...	67	0	35	1.0	250	7.0	.0	14	270
APR.									
17...	150	27	43	2.0	535	7.6	8.0	6.0	70
MAY									
24...	210	51	47	2.7	796	8.0	20.0	3.1	110
JUNE									
19...	250	74	45	2.7	900	7.8	19.0	5.6	0
JULY									
28...	290	71	47	3.1	1030	8.2	26.5	2.7	140
AUG.									
21...	210	21	48	2.8	762	7.8	25.5	5.7	170
SEP.									
19...	310	72	48	3.4	1140	8.2	20.0	3.0	520

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	NUMBER OF SAM- PLING POINTS	DIS- CHARGE (CFS)	SUS- PENDED SEDIM- ENT (MG/L)	SUS- PENDED SEDIM- ENT DIS- CHARGE (T/DAY)	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .002 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .004 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .016 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .062 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .125 MM
MAR.											
15...	0615	.0	--	7250	2540	49700	--	17	--	51	67
APR.											
01...	0815	1.0	--	1040	436	1780	--	--	--	55	74
15...	1730	9.0	--	2100	2150	12200	--	53	--	76	84
MAY											
15...	0730	14.5	--	1180	446	1420	--	23	--	44	67
JUNE											
15...	1300	20.5	--	1030	1290	3590	--	58	--	93	99
20...	2000	19.0	--	2640	1360	9600	--	25	--	69	83
21...	0800	17.0	--	2960	1220	9750	--	17	--	45	60
20...	0800	21.0	--	977	135	356	--	10	--	55	87
JULY											
07...	1300	21.0	22	356	--	--	--	--	--	--	--
AUG.											
21...	1130	22.5	--	300	240	202	30	48	72	88	93
SEP.											
19...	1100	19.0	21	110	--	--	--	--	--	--	--
DATE					SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .250 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN .500 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN 1.00 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN 2.00 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN 4.00 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN 8.00 MM	SUS- PENDED SEDIM- ENT DIAM. X FINEST THAN 16.0 MM
SEP.											
15...	94	100	--	--	--	--	--	--	--	--	--
APR.											
01...	100	--	--	--	--	--	--	--	--	--	--
15...	100	--	--	--	--	--	--	--	--	--	--
MAY											
15...	100	--	--	--	--	--	--	--	--	--	--
JUNE											
15...	100	--	--	--	--	--	--	--	--	--	--
20...	100	--	--	--	--	--	--	--	--	--	--
21...	100	--	--	--	--	--	--	--	--	--	--
20...	100	--	--	--	--	--	--	--	--	--	--
JULY											
07...	--	--	2	8	60	65	97	98	99	99	100
AUG.											
21...	100	--	--	--	--	--	--	--	--	--	--
SEP.											
19...	--	--	0	2	51	67	99	100	--	--	--

HEART RIVER BASIN

06349000 HEART RIVER NEAR MANDAN, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	67	25	4.5	32	3	.26	51	5	.69
2	92	45	11	29	3	.23	49	5	.66
3	95	35	9.0	27	3	.22	47	5	.63
4	97	30	7.9	24	3	.19	45	5	.61
5	95	20	5.1	23	3	.19	43	5	.58
6	82	10	2.2	22	2	.12	41	4	.44
7	74	9	1.8	21	2	.11	40	4	.43
8	70	8	1.5	20	2	.11	38	4	.41
9	68	11	2.0	19	2	.10	36	4	.39
10	66	12	2.1	19	2	.10	35	4	.38
11	66	15	2.7	18	2	.10	34	3	.28
12	66	18	3.2	18	2	.10	33	3	.27
13	64	24	4.1	18	2	.10	32	3	.26
14	66	32	5.7	18	2	.10	31	3	.25
15	67	30	5.4	18	2	.10	30	3	.24
16	66	28	5.0	18	2	.10	29	3	.23
17	55	26	3.9	18	2	.10	28	3	.23
18	54	29	4.2	19	2	.10	27	3	.22
19	49	20	2.6	20	2	.11	26	3	.21
20	46	15	1.9	21	2	.11	25	3	.20
21	45	10	1.2	26	3	.21	24	3	.19
22	46	8	.99	36	4	.39	24	3	.19
23	46	8	.99	34	4	.37	23	3	.19
24	42	6	.68	34	4	.37	22	3	.18
25	40	5	.54	46	5	.62	22	3	.18
26	38	3	.31	53	6	.86	22	3	.18
27	37	3	.30	54	6	.87	21	3	.17
28	35	3	.28	54	6	.87	21	3	.17
29	35	3	.28	53	6	.86	20	3	.16
30	37	5	.50	52	6	.84	20	3	.16
31	35	4	.38	--	--	--	20	3	.16
TOTAL	1841	--	92.25	864	--	8.91	959	--	9.54

JANUARY				FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	25	3	.20	20	2	.11	10	1	.03
2	25	3	.20	20	2	.11	10	1	.03
3	25	3	.20	20	2	.11	10	1	.03
4	25	3	.20	20	2	.11	10	1	.03
5	25	3	.20	18	2	.10	10	1	.03
6	25	3	.20	16	1	.04	10	1	.03
7	25	3	.20	14	1	.04	10	1	.03
8	25	3	.20	12	1	.03	12	1	.03
9	25	3	.20	10	1	.03	12	1	.03
10	25	3	.20	10	1	.03	14	1	.04
11	25	3	.20	10	1	.03	500	578	1450
12	25	3	.20	10	1	.03	3000	1060	7960
13	25	3	.20	10	1	.03	8150	550	12100
14	25	3	.20	10	1	.03	8250	1300	29000
15	25	3	.20	10	1	.03	7350	2900	57600
16	25	3	.20	10	1	.03	6400	3450	59600
17	25	3	.20	10	1	.03	6140	3450	57200
18	25	3	.20	10	1	.03	5740	3200	49600
19	25	3	.20	10	1	.03	4980	2400	32300
20	25	3	.20	10	1	.03	4420	2300	27400
21	25	3	.20	10	1	.03	3970	2150	23000
22	25	3	.20	10	1	.03	3690	2200	21900
23	25	3	.20	10	1	.03	3490	1800	17000
24	25	3	.20	10	1	.03	3400	1850	17000
25	22	3	.18	10	1	.03	3250	1750	15400
26	20	2	.11	10	1	.03	3160	1650	14100
27	18	2	.10	10	1	.03	3070	1450	12000
28	16	2	.09	10	1	.03	2620	1200	8490
29	16	2	.09	10	1	.03	2060	1000	5560
30	16	2	.09	--	--	--	1620	850	3720
31	19	2	.10	--	--	--	1270	700	2400
TOTAL	726	--	5.56	350	--	1.28	86638	--	474780.31

06349000 HEART RIVER NEAR MANDAN, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1030	640	1780	390	80	84	918	290	719
2	896	840	2030	442	180	215	819	250	553
3	800	840	1810	1090	697	2210	734	230	456
4	700	350	662	1430	1150	4440	642	220	381
5	650	280	491	1110	950	2850	554	200	299
6	594	280	449	1160	640	2000	502	160	217
7	646	420	733	1170	450	1420	582	160	251
8	754	410	835	1010	330	900	554	200	299
9	828	340	760	864	300	700	530	180	258
10	900	430	1040	746	250	504	422	160	182
11	855	370	854	670	200	362	349	130	122
12	1010	2120	6460	626	180	304	297	110	88
13	1640	3450	15300	865	160	374	286	110	85
14	2350	2750	17400	1040	310	870	575	401	810
15	2210	2400	14300	1490	420	1690	1040	1550	4350
16	1550	1600	6700	1610	330	1430	526	1800	2560
17	1240	870	2910	1300	260	913	414	850	950
18	1010	570	1550	1010	220	600	378	400	408
19	869	390	915	900	180	437	390	350	369
20	754	270	550	850	150	344	1470	985	4870
21	682	230	424	930	200	502	2840	1550	11900
22	630	200	340	980	250	662	2700	800	5830
23	582	170	267	1090	260	765	2320	750	4700
24	546	140	206	1170	480	1520	1850	550	2750
25	514	120	167	1210	550	1800	1400	370	1400
26	462	100	125	1860	985	6160	1170	230	727
27	422	90	103	2890	1900	14800	1110	310	929
28	406	80	88	1770	750	3580	1050	230	652
29	394	70	74	1400	430	1630	932	130	327
30	374	60	61	1220	340	1120	810	160	350
31	--	--	--	1020	310	854	--	--	--
TOTAL	26298	--	79384	35313	--	56040	28164	--	47792

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	726	155	304	148	50	20	155	60	25
2	638	158	272	165	55	25	160	62	27
3	566	140	214	158	55	23	168	65	29
4	502	120	163	146	58	23	173	68	32
5	446	102	123	158	60	26	170	70	32
6	394	90	96	175	72	34	170	70	32
7	356	88	85	181	70	34	170	72	33
8	328	95	84	199	88	47	170	75	34
9	297	90	72	187	75	38	170	78	36
10	259	88	62	170	68	31	170	78	36
11	226	82	50	158	55	23	163	78	34
12	208	78	44	150	50	20	163	78	34
13	178	72	35	153	52	21	170	79	36
14	160	68	29	144	52	20	163	78	34
15	146	68	27	144	50	19	158	75	32
16	142	72	28	148	50	20	134	44	16
17	165	82	37	150	55	22	115	21	6.5
18	178	72	35	190	75	38	111	11	3.3
19	178	70	34	160	75	32	109	11	3.2
20	170	60	28	150	75	30	106	11	3.1
21	146	55	22	259	217	152	102	10	2.8
22	138	52	19	253	150	102	104	10	2.8
23	132	42	15	211	80	46	102	10	2.8
24	115	40	12	211	80	46	85	9	2.1
25	168	90	41	202	75	41	66	3	1.4
26	184	75	37	196	70	37	60	8	1.3
27	170	58	27	187	65	33	54	8	1.2
28	163	50	22	175	60	28	55	8	1.2
29	158	48	20	173	55	26	48	8	1.0
30	155	50	21	163	55	24	47	8	1.0
31	146	50	20	158	59	25	--	--	--
TOTAL	7938	--	2078	5422	--	1106	3791	--	535.7

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)
 TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS)

198304
 661833.55

NOTE.--SEDIMENT CONCENTRATION ESTIMATED NOV. 1, 1971 TO MAR. 11, 1972.

06349000 HEART RIVER NEAR MANDAN, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

[illegible]

06349700 MISSOURI RIVER NEAR SCHMIDT, N. DAK.

LOCATION.--Lat 46°39'27", long 100°44'24", in SW¼ sec.26, T.137 N., R.80 W., Morton County, temperature recorder at gaging station, on right bank 2 mi (3.2 km) southeast of railroad siding at Schmidt, and 13 mi (21 km) south of Mandan at mile 1,298 (kilometer 2,088).

DRAINAGE AREA.--191,700 mi² (496,500 km²).

PERIOD OF RECORD.--Water temperatures: June 1967 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum, 18.0°C Aug. 14-16; minimum, freezing point on many days during December to March.

Period of record:

Water temperatures: Maximum, 22.0°C July 12, 13, 1968; minimum, freezing point on many days during winter months.

TEMPERATURES (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	13.0	6.0	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
2	13.0	12.5	6.5	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
3	12.5	11.5	6.5	6.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
4	11.5	11.5	6.5	6.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.0	11.5	6.5	4.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
6	13.0	12.0	4.5	1.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	13.0	1.0	1.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
8	13.0	10.5	3.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	10.5	10.0	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	11.0	10.0	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	11.5	11.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	11.5	11.5	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	11.5	11.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	11.0	11.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	11.0	11.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	11.0	10.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	10.0	10.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	10.5	10.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	10.5	10.5	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	10.5	10.0	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	10.0	10.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	10.0	10.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
23	10.0	10.0	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
24	10.0	9.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
25	9.5	9.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
26	9.5	9.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
27	9.5	9.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
28	9.0	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
29	6.5	6.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
30	6.0	6.0	2.0	1.5	0.0	0.0	0.0	0.0	---	---	1.5	1.0
31	6.0	6.0	---	---	0.0	0.0	0.0	0.0	---	---	1.5	1.5
MONTH	13.0	6.0	6.5	1.0	1.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	1.5	6.0	5.5	11.5	11.5	15.0	15.0	15.0	14.5	16.5	15.5
2	2.0	2.0	6.5	6.0	12.0	11.5	15.0	14.0	15.0	15.0	15.5	14.5
3	2.0	1.5	6.5	6.0	12.0	12.0	14.0	13.0	15.0	14.0	15.0	14.5
4	1.5	1.0	6.5	6.5	12.0	12.0	13.0	13.0	14.5	13.5	15.0	14.5
5	2.5	1.5	7.5	6.5	12.5	12.0	14.0	13.0	15.0	14.5	14.5	14.0
6	2.5	2.5	7.5	7.5	12.5	12.0	14.0	14.0	15.0	14.5	14.5	14.0
7	2.5	2.0	7.5	6.0	12.5	12.0	14.0	14.0	14.5	13.5	14.5	14.5
8	2.0	2.0	6.0	6.0	13.5	12.5	14.0	13.5	14.0	13.5	14.5	13.0
9	3.5	2.0	6.5	6.0	13.5	13.0	15.0	13.5	14.5	14.0	15.0	13.5
10	4.0	3.5	6.5	6.5	13.0	11.5	15.5	15.0	16.0	14.5	16.0	15.0
11	4.0	4.0	6.5	6.0	12.0	11.5	15.5	15.0	16.5	16.0	16.0	15.5
12	4.0	3.0	6.5	6.0	12.0	11.5	15.0	14.5	16.5	16.5	15.5	14.5
13	3.0	3.0	7.5	6.5	12.0	11.5	14.5	14.0	17.5	16.5	14.5	14.5
14	4.0	3.0	9.0	7.5	12.5	12.0	15.0	14.5	18.0	17.5	14.5	14.0
15	5.5	4.0	9.5	9.0	13.0	12.5	15.0	14.5	18.0	18.0	14.5	14.0
16	5.5	5.5	9.0	9.0	13.0	12.5	15.0	14.0	18.0	17.5	14.5	14.0
17	5.5	5.0	10.0	9.0	13.0	13.0	15.0	14.5	17.5	17.0	14.0	14.0
18	5.0	4.0	12.0	10.0	13.5	13.0	15.0	14.5	17.5	16.5	14.5	14.0
19	5.5	4.5	12.0	12.0	13.5	12.0	15.0	14.5	17.0	16.5	16.0	14.5
20	5.5	5.5	12.0	10.0	12.0	11.5	14.5	13.5	17.5	17.0	16.0	15.0
21	5.5	5.5	10.0	9.5	13.5	11.5	13.5	13.0	17.5	16.5	15.0	13.5
22	5.5	5.5	11.0	10.0	13.5	13.5	13.5	13.0	16.5	16.0	13.5	12.5
23	5.5	5.0	11.0	10.0	13.5	13.5	15.0	13.5	16.0	15.0	13.5	12.5
24	5.0	5.0	10.0	9.5	13.5	13.5	15.5	15.0	16.0	15.0	13.5	13.5
25	5.5	5.0	10.0	9.5	13.5	13.5	15.5	15.0	16.0	15.0	13.5	13.0
26	5.5	5.5	11.0	10.0	13.5	13.5	15.5	14.5	16.0	15.5	13.0	12.0
27	5.5	5.5	11.5	11.0	13.5	13.0	15.0	14.5	16.0	15.5	12.0	11.5
28	5.5	5.5	11.5	10.0	13.5	13.0	15.0	15.0	16.5	16.0	12.0	12.0
29	5.5	5.0	10.0	10.0	14.5	13.5	15.5	15.0	16.5	16.5	12.0	12.0
30	5.5	5.5	11.0	10.0	15.0	14.5	15.5	15.5	17.0	16.5	12.5	11.5
31	---	---	11.5	11.0	---	---	15.5	15.0	17.0	16.5	---	---
MONTH	5.5	1.0	12.0	5.5	15.0	11.5	15.5	13.0	18.0	13.5	16.5	11.5

CANNONBALL RIVER BASIN

06352500 CEDAR CREEK NEAR PRETTY ROCK, N. DAK.

LOCATION.--Lat 46°01'55", long 101°49'55", in S $\frac{1}{2}$ sec. 33, T.130 N., R.89 W., Grant County, on left bank on downstream side of county highway bridge, 7 mi (11 km) north of Keldron, S. Dak., 10.5 mi (16.9 km) south of abandoned townsite of Pretty Rock, and 15 mi (24 km) downstream from Timber Creek.

DRAINAGE AREA.--1,340 mi² (3,470 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: Water years 1946-51 (partial record station), October to current year.
Sediment records: May 1946 to September 1949.

REMARKS.--Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
OCT. 15...	1700	29	4.9	0	10	72	56	220	8.9	387
NOV. 10...	1015	16	2.9	0	10	100	56	240	9.2	397
DEC. 08...	1050	16	2.2	0	10	120	64	400	10	446
JAN. 12...	1505	10	4.2	0	10	89	120	390	11	282
FEB. 10...	1725	6.2	6.4	140	30	180	120	420	11	663
MAR. 08...	1635	16	6.7	0	10	180	130	420	11	618
13...	1430	3700	5.0	400	80	33	13	33	8.7	114
APR. 13...	1505	225	5.5	1200	240	100	78	210	8.7	292
MAY 12...	1130	563	3.8	40	50	110	97	280	10	323
JUNE 19...	1900	76	3.5	0	10	103	77	190	10	345
JULY 12...	1605	94	3.0	0	130	130	120	290	10	324
AUG. 09...	1330	24	6.2	80	20	110	93	250	9.8	371
SEP. 14...	1705	10	4.9	0	30	140	110	350	11	358

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT. 15...	0	317	580	5.4	.4	.23	.00	1140	1.55	89.3
NOV. 10...	4	332	650	5.4	.5	.23	.00	1340	1.82	57.9
DEC. 08...	0	366	1000	9.4	.4	.23	.00	1830	2.49	79.1
JAN. 12...	9	246	1300	12	.3	.23	.00	2160	2.94	58.3
FEB. 10...	0	544	1300	13	.4	.23	.00	2530	3.44	42.4
MAR. 08...	0	507	1400	14	.5	.34	.00	2570	3.50	111
13...	0	94	120	.7	.1	.34	.00	302	.41	3020
APR. 13...	0	239	780	5.2	.1	.23	.00	1380	1.88	838
MAY 12...	0	265	990	.0	.2	.23	.00	1650	2.24	2510
JUNE 19...	4	290	700	4.7	.2	.23	.00	1260	1.71	259
JULY 12...	0	266	1200	5.7	.3	.45	.00	1970	2.68	500
AUG. 09...	0	304	870	5.0	.3	.23	.00	1500	2.04	97.2
SEP. 14...	0	294	1200	7.0	.4	.09	.00	2020	2.75	54.5

CANNONBALL RIVER BASIN

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06352500 CEDAR CREEK NEAR PRETTY ROCK, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
OCT. 15...	410	93	53	4.7	1640	8.1	7.0	4.9	0
NOV. 10...	480	150	52	4.8	1850	8.3	1.0	3.2	180
DEC. 08...	570	200	60	7.3	2340	8.1	.0	5.7	270
JAN. 12...	720	470	54	6.3	2770	8.4	.0	1.9	1500
FEB. 10...	940	400	49	6.0	3180	8.0	.0	11	530
MAR. 08...	990	480	48	5.8	3200	7.9	.0	12	530
13...	140	42	33	1.2	447	7.1	1.0	14	90
APR. 13...	570	330	44	3.8	1850	7.7	7.0	9.3	290
MAY 12...	670	410	47	4.7	2130	7.7	10.0	10	360
JUNE 19...	570	290	41	3.5	1730	8.3	17.0	2.8	430
JULY 12...	820	550	43	4.4	2360	7.7	23.0	10	790
AUG. 09...	660	350	45	4.2	1930	7.9	19.0	7.5	430
SEP. 14...	800	510	48	5.4	2600	7.9	17.0	7.2	990

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, N. DAK.

LOCATION.--Lat 46°22'33", long 100°56'03", in sec.36, T.134 N., R.82 W., Sioux County, at gaging station on right bank 600 ft (180 m) upstream from bridge on State Highway 6, 950 ft (290 m) downstream from Louise Creek, and 0.5 mi (0.8 km) south of Breien.

DRAINAGE AREA.--4,100 mi² (10,620 km²), approximately.

PERIOD OF RECORD.--Chemical analyses: Water years 1946-50 (partial-record station), October 1970 to September 1972 (discontinued).

Specific conductance: July 1972 to current year.

Water temperature: July 1972 to current year.

Sediment record: May 1948 to September 1951, July 1959 to current year.

EXTREMES.--Current year:

Sediment concentration: Maximum daily, 4,000 mg/l Oct. 6; minimum 10 mg/l Feb. 1-10.

Sediment discharge: Maximum daily, 172,000 mg/l Mar. 15; minimum daily 0.38 Feb. 8-13.

REMARKS.--Sediment concentration data Oct. 1, 1971 to July 1, 1972 furnished by the Corps of Engineers.

Sediment records from May 1948 to September 1951, July 1959 to September 1971 are available from U.S. Corps of Engineers, Omaha, Neb. Chemical data furnished by North Dakota State Water Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)
OCT.										
22...	0930	82	9.6	80	10	55	25	170	7.7	291
NOV.										
23...	0820	40	5.4	0	10	78	46	230	7.1	377
DEC.										
23...	0900	30	5.9	0	20	110	70	300	8.7	508
JAN.										
25...	1450	17	7.1	0	20	140	80	360	9.3	650
FEB.										
23...	0950	24	7.4	0	20	140	90	380	9.9	650
MAR.										
21...	1500	1880	7.0	50	60	41	17	46	7.8	128
APR.										
21...	1000	425	6.0	0	80	81	56	170	8.5	248
MAY										
23...	1230	616	7.8	0	70	93	54	200	9.3	271
JUNE										
22...	1200	330	5.6	40	0	80	53	160	8.1	318
JULY										
24...	1500	218	7.5	90	210	81	74	200	8.2	276
AUG.										
24...	1300	548	7.8	80	0	64	59	160	8.0	242
SEP.										
19...	1500	40	6.6	0	20	82	68	260	10	344

DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT.										
22...	0	239	370	4.7	.5	.23	.00	791	1.08	175
NOV.										
23...	0	309	520	7.1	.5	.23	.00	1120	1.52	121
DEC.										
23...	0	417	770	11	.5	.23	.00	1490	2.03	121
JAN.										
25...	0	533	930	16	.6	.23	--	1890	2.57	86.8
FEB.										
23...	0	533	1000	13	.5	.45	.00	1990	2.71	129
MAR.										
21...	0	105	170	.8	.1	1.5	.00	332	.45	1690
APR.										
21...	0	203	580	4.2	.1	1.1	.00	1060	1.44	1220
MAY										
23...	0	222	670	9.3	.1	.23	--	1190	1.62	1980
JUNE										
22...	4	268	470	2.8	.2	.23	.00	1020	1.39	909
JULY										
24...	0	226	680	1.8	.2	.56	.00	1150	1.56	677
AUG.										
24...	0	199	510	9.4	.3	.90	.07	943	1.28	1400
SEP.										
19...	0	282	720	11	.4	.23	.00	1370	1.86	148

06354000 CANNONBALL RIVER AT BREIEN, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
OCT...									
22...	240	2	60	4.8	1180	7.6	7.0	12	130
NOV...									
23...	380	75	56	5.1	1630	7.9	.0	7.6	620
DEC...									
23...	560	150	53	5.5	2100	8.0	.0	8.1	580
JAN...									
25...	680	150	53	6.0	2500	8.0	.0	10	840
FEB...									
23...	720	190	53	6.2	2660	8.0	.0	10	620
MAR...									
21...	170	67	35	1.5	550	7.3	5.0	10	0
APR...									
21...	430	230	45	3.6	1430	8.0	9.0	4.0	290
MAY...									
23...	460	230	48	4.1	1630	7.9	22.0	5.5	540
JUNE...									
22...	420	150	45	3.4	1370	8.3	18.5	2.6	290
JULY...									
24...	510	280	46	3.9	1540	7.8	24.0	7.0	500
AUG...									
24...	400	200	46	3.5	1330	7.8	--	6.1	260
SEP...									
19...	490	200	53	5.1	1880	8.1	22.5	4.4	860

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	NUMBER OF SAM- PLING POINTS	DIS- CHARGE (CFS)	SUS- PENDED SEDIMENT (MG/L)	SUS- PENDED SEDIMENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. X FINER THAN .002 MM	SUS. SED. FALL DIAM. X FINER THAN .004 MM	SUS. SED. FALL DIAM. X FINER THAN .016 MM	SUS. SED. FALL DIAM. X FINER THAN .062 MM	SUS. SED. FALL DIAM. X FINER THAN .125 MM	SUS. SED. FALL DIAM. X FINER THAN .250 MM
MAR...												
20...	0705	2.0	--	3170	2060	17600	--	--	--	64	70	89
APR...												
15...	0645	8.0	--	1200	626	2030	--	--	--	73	80	96
MAY...												
02...	0700	8.5	--	3910	3890	41100	--	48	--	86	92	96
05...	0715	10.0	--	3100	2740	22900	--	44	--	85	91	98
06...	0730	9.0	--	2540	1830	12600	--	46	--	80	86	95
12...	0710	8.0	--	1850	1510	7540	--	57	--	89	92	99
14...	0745	11.0	--	2600	1830	12800	--	24	--	66	77	88
16...	0700	14.5	--	2950	1400	11200	--	35	--	74	85	98
24...	0700	19.0	--	1870	180	5940	--	30	--	72	85	100
27...	0645	14.5	--	9120	3860	8550	--	49	--	87	95	99
JUNE...												
06...	0715	19.0	--	1210	1790	5850	--	46	--	79	83	94
JULY...												
07...	1600	24.0	22	298	169	134	56	73	93	--	--	--
AUG...												
24...	1330	22.0	--	568	720	1070	62	74	90	96	98	100
SEP...												
19...	1500	22.5	14	40	--	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. X FINER THAN .500 MM	BED MAT. FALL DIAM. X FINER THAN .062 MM	BED MAT. FALL DIAM. X FINER THAN .125 MM	BED MAT. FALL DIAM. X FINER THAN .250 MM	BED MAT. FALL DIAM. X FINER THAN .500 MM	BED MAT. FALL DIAM. X FINER THAN 1.00 MM	BED MAT. FALL DIAM. X FINER THAN 2.00 MM	BED MAT. FALL DIAM. X FINER THAN 4.00 MM	BED MAT. FALL DIAM. X FINER THAN 8.00 MM	BED MAT. FALL DIAM. X FINER THAN 16.0 MM	BED MAT. FALL DIAM. X FINER THAN 32.0 MM
MAR...											
20...	100	--	--	--	--	--	--	--	--	--	--
APR...											
15...	100	--	--	--	--	--	--	--	--	--	--
MAY...											
02...	100	--	--	--	--	--	--	--	--	--	--
05...	100	--	--	--	--	--	--	--	--	--	--
06...	100	--	--	--	--	--	--	--	--	--	--
12...	100	--	--	--	--	--	--	--	--	--	--
14...	100	--	--	--	--	--	--	--	--	--	--
16...	100	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
27...	100	--	--	--	--	--	--	--	--	--	--
JUNE...											
06...	100	--	--	--	--	--	--	--	--	--	--
JULY...											
07...	--	3	7	45	83	92	93	94	96	98	100
AUG...											
24...	--	--	--	--	--	--	--	--	--	--	--
SEP...											
19...	--	0	2	30	74	94	94	98	100	--	--

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	16	70	3.0	45	90	11	40	70	7.6
2	87	3070	788	50	100	14	40	70	7.6
3	126	2650	902	50	100	14	40	70	7.6
4	70	2650	501	50	90	12	40	70	7.6
5	41	1350	149	50	80	11	40	70	7.6
6	28	4000	302	29	70	5.5	40	70	7.6
7	22	3850	229	32	70	6.0	40	70	7.6
8	29	1150	90	39	80	8.4	35	60	5.7
9	20	220	12	50	100	14	35	60	5.7
10	114	1160	463	55	110	16	35	60	5.7
11	167	600	271	66	120	21	35	60	5.7
12	162	200	87	63	130	22	35	60	5.7
13	146	120	47	57	120	18	35	60	5.7
14	126	100	34	66	130	23	35	60	5.7
15	124	90	30	59	120	19	30	50	4.1
16	119	80	26	53	110	16	30	50	4.1
17	137	700	259	55	110	16	30	50	4.1
18	209	2170	1330	48	100	13	30	50	4.1
19	214	2550	1470	48	100	13	30	50	4.1
20	142	1700	652	45	90	11	30	50	4.1
21	111	1500	450	40	80	8.6	30	50	4.1
22	82	800	177	40	80	8.6	30	50	4.1
23	74	220	44	40	80	8.6	30	50	4.1
24	66	160	29	40	80	8.6	30	50	4.1
25	59	130	21	45	90	11	30	50	4.1
26	53	110	16	45	90	11	30	50	4.1
27	50	100	14	45	90	11	30	50	4.1
28	48	90	12	45	90	11	30	50	4.1
29	46	80	9.9	40	80	8.6	25	50	3.4
30	33	70	6.2	40	80	8.6	30	50	4.1
31	32	70	6.0	--	--	--	30	50	4.1
TOTAL	2753	--	8430.1	1430	--	379.5	1030	--	162.1

DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	30	40	3.2	16	10	.43	20	20	1.1
2	28	40	3.0	16	10	.43	20	20	1.1
3	28	40	3.0	16	10	.43	20	20	1.1
4	26	40	2.8	16	10	.43	20	20	1.1
5	26	40	2.8	16	10	.43	20	20	1.1
6	26	40	2.8	16	10	.43	25	20	1.4
7	24	40	2.6	16	10	.43	30	30	2.4
8	24	40	2.6	14	10	.38	36	50	4.9
9	24	40	2.6	14	10	.38	80	100	22
10	22	40	2.4	14	10	.38	70	100	19
11	22	30	1.8	14	10	.38	800	600	1300
12	20	30	1.6	14	10	.38	6000	3500	56700
13	20	30	1.6	14	10	.38	10200	3500	96400
14	19	30	1.5	18	20	.97	15800	3800	162000
15	19	30	1.5	21	20	1.1	18700	3400	172000
16	19	30	1.5	20	20	1.1	18100	3500	171000
17	19	30	1.5	22	20	1.2	12900	3700	129000
18	19	30	1.5	22	20	1.2	8590	3200	74200
19	18	30	1.5	20	20	1.1	5080	2500	34300
20	18	30	1.5	20	20	1.1	2870	1950	15100
21	18	20	.97	22	20	1.2	1920	1600	8290
22	18	20	.97	24	20	1.3	1450	1200	4700
23	17	20	.92	24	20	1.3	1230	800	2660
24	17	20	.92	22	20	1.2	1090	730	2150
25	17	20	.92	22	20	1.2	940	550	1400
26	16	20	.86	20	20	1.1	830	450	1010
27	16	20	.86	20	20	1.1	725	380	744
28	16	20	.86	20	20	1.1	640	300	518
29	16	20	.86	20	20	1.1	571	270	416
30	16	20	.86	--	--	--	504	220	299
31	16	20	.86	--	--	--	468	200	253
TOTAL	634	--	53.16	533	--	23.66	109749	--	934495.2

06354000 CANNONBALL RIVER AT BREIEN, N. DAK.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	441	180	214	1430	3040	15500	3020	2150	17500
2	454	320	392	2830	3320	27000	2010	2000	10900
3	450	400	486	1350	1300	4740	1320	1350	4810
4	401	270	292	2090	2150	12100	1060	950	2720
5	369	260	259	2810	2800	21200	1110	1500	4500
6	385	240	249	2310	1750	10900	1160	1700	5320
7	385	240	249	1760	1250	5940	908	700	1720
8	417	290	327	1210	1000	3270	710	450	863
9	458	260	322	962	1100	2860	612	320	529
10	852	1030	2370	864	950	2220	548	240	355
11	952	830	2130	1270	1050	3600	499	190	256
12	974	780	2050	1640	1250	5540	463	160	200
13	1030	890	2480	1400	750	2840	468	700	885
14	869	540	1270	2440	1850	12200	463	480	600
15	1130	650	1980	2820	1850	14100	512	610	843
16	902	630	1530	2750	1300	9650	640	360	622
17	720	700	1360	2330	950	5980	530	190	272
18	602	590	959	1540	800	3330	437	240	283
19	526	580	824	1040	600	1680	405	240	262
20	468	430	543	825	390	869	381	230	237
21	421	290	330	755	260	530	358	200	193
22	393	200	212	640	270	467	326	170	150
23	365	140	138	625	180	304	323	150	131
24	344	100	93	1620	2070	10000	330	140	125
25	320	80	69	3530	2100	20000	344	130	121
26	302	60	49	5980	3950	63800	354	130	124
27	284	50	38	6780	3600	65900	369	60	60
28	278	40	30	5270	3050	43400	381	50	51
29	267	30	22	3590	2150	20800	490	244	328
30	260	40	28	3480	2900	27200	750	800	1620
31	--	--	--	3150	2500	21300	--	--	--
TOTAL	16019	--	21295	71091	--	439220	21281	--	56580

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	607	344	564	162	93	41	162	54	24
2	522	380	536	140	84	32	145	48	19
3	472	240	306	132	87	31	125	44	15
4	393	180	191	118	87	28	114	44	14
5	344	156	145	116	90	28	102	42	12
6	323	144	126	123	180	60	92	42	10
7	306	156	129	111	135	40	85	42	9.6
8	288	124	96	104	80	22	75	42	8.5
9	278	100	75	98	78	21	70	42	7.9
10	270	92	67	90	76	18	65	42	7.4
11	240	88	57	82	68	15	60	42	6.8
12	220	84	50	78	66	14	56	44	6.7
13	200	80	43	73	60	12	53	44	6.3
14	175	72	34	69	58	11	48	44	5.7
15	150	68	28	62	54	9.0	47	44	5.6
16	140	64	24	58	50	7.8	44	48	5.7
17	135	68	25	64	63	14	43	52	6.0
18	140	68	26	99	202	54	42	56	6.4
19	145	136	53	62	104	17	40	64	6.9
20	180	232	113	66	74	15	38	66	6.8
21	212	244	140	221	304	181	35	60	5.7
22	206	244	136	198	336	180	34	54	5.0
23	210	280	159	497	1240	1670	31	48	4.0
24	215	480	279	558	792	1190	32	50	4.3
25	185	232	116	405	520	569	33	52	4.6
26	162	90	39	326	318	280	34	54	5.0
27	148	75	30	302	204	166	34	56	5.1
28	174	202	123	288	108	84	34	54	5.0
29	188	468	238	248	88	59	34	52	4.8
30	148	255	102	215	72	42	34	50	4.6
31	148	129	52	188	58	29	--	--	--
TOTAL	7524	--	4102	5353	--	4939.8	1841	--	238.4

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)
 TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS)

239238
 1469918.92

NOTE.--SEDIMENT CONCENTRATION ESTIMATED NOV. 1, 1971 TO MAR. 11, 1972.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
ONCE DAILY MEASUREMENT

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
ONCE DAILY MEASUREMENT

[illegible]

06470500 JAMES RIVER AT LA MOURE, N. DAK.

LOCATION.--Lat 46°21'20", long 98°18'15", at NEKNEK of sec.11, T.133 N., R.61 W., La Moure County, at gaging station on left bank 80 ft (24 km) downstream from bridge on State Highway 13, 0.5 mi (0.8 km) west of La Moure, and 12 mi (19 km) upstream from Cottonwood Creek.

DRAINAGE AREA.--4,390 mi² (11,370 km²), approximately, of which about 2,600 mi² (6,700 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: September 1957 to current year (partial-record station).
Water temperatures: June 1953 to current year.

EXTREMES.--Current year:

Water temperatures: Maximum, 28.5°C Aug. 18, 20; minimum, freezing point on many days December to April.

Period of record:

Water temperatures: Maximum, 33.0°C July 12, 13, 1957; minimum, freezing point on many days during winter months most years.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
DEC. 27...	1845	15	14	30	450	83	41	100	13	448
MAR. 20...	1230	970	9.3	190	160	17	6.1	8.5	9.6	83
JUNE 26...	1500	74	14	20	370	58	29	71	11	332
SEP. 25...	1430	52	15	20	30	55	29	67	11	331

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
DEC. 27...	0	367	180	37	.4	.00	.13	656	.89	26.6
MAR. 20...	0	68	22	4.9	.2	.94	.40	146	.20	382
JUNE 26...	0	272	120	25	.4	.00	.18	518	.70	103
SEP. 25...	0	271	120	25	.1	.00	.09	512	.70	71.9

DATE	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AN- ION- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED BORON (B) (UG/L)
DEC. 27...	380	9	36	2.2	1080	7.5	.0	20	270
MAR. 20...	68	0	19	.5	201	6.8	.0	100	130
JUNE 26...	280	0	36	1.9	790	8.2	22.5	30	240
SEP. 25...	280	0	35	1.8	793	8.3	11.0	20	230

JAMES RIVER BASIN

06470500 JAMES RIVER AT LA MOURE, N. DAK.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	14.5	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2	15.0	14.5	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
3	14.5	13.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
4	13.0	12.0	2.0	2.0	1.0	1.0	---	---	0.0	0.0	0.0	0.0
5	13.0	12.0	2.0	1.5	1.0	1.0	---	---	0.0	0.0	0.0	0.0
6	13.5	12.5	1.5	1.5	1.0	0.5	---	---	0.0	0.0	0.0	0.0
7	13.5	12.5	1.5	1.5	0.5	0.5	---	---	0.0	0.0	0.0	0.0
8	12.5	10.0	1.5	1.5	0.5	0.5	---	---	0.0	0.0	0.0	0.0
9	10.5	9.5	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
10	11.0	10.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
11	11.0	10.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
12	10.5	10.5	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
13	10.5	10.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
14	10.5	10.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
15	10.5	10.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
16	10.0	9.0	1.5	1.5	---	---	---	---	0.0	0.0	0.0	0.0
17	9.0	9.0	1.5	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
18	12.0	9.0	1.5	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
19	12.0	10.5	1.0	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
20	11.0	10.5	1.0	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
21	10.5	10.5	1.5	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
22	10.5	10.5	1.5	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
23	10.5	10.5	1.5	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
24	10.5	10.0	1.5	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
25	10.5	10.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	10.5	10.0	1.0	1.0	0.0	0.0	---	---	0.0	0.0	0.0	0.0
27	10.5	8.5	1.0	1.0	0.0	0.0	---	---	0.0	0.0	0.0	0.0
28	8.5	6.5	1.0	1.0	0.0	0.0	---	---	0.0	0.0	0.0	0.0
29	6.5	4.5	1.0	1.0	0.0	0.0	---	---	0.0	0.0	0.0	0.0
30	4.5	2.5	1.0	1.0	0.0	0.0	---	---	---	---	0.0	0.0
31	2.5	1.5	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	15.0	1.5	2.0	1.0	---	---	---	---	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	11.0	11.0	22.5	19.0	25.0	24.0	24.5	23.5	21.0	19.5
2	0.0	0.0	12.5	10.5	23.5	21.0	24.5	22.5	24.0	21.5	20.0	18.5
3	0.0	0.0	12.5	11.5	24.5	21.5	22.5	21.0	21.5	19.5	19.5	18.5
4	0.5	0.0	12.0	10.5	24.0	22.0	23.0	20.5	21.5	20.0	19.0	18.0
5	1.0	0.5	12.5	12.0	24.5	22.5	23.0	20.5	23.0	21.0	18.5	17.0
6	3.0	1.0	12.5	10.5	25.5	22.5	25.0	22.0	23.0	21.5	19.0	18.0
7	3.0	3.0	11.5	10.5	26.0	23.5	25.0	22.0	22.0	20.5	18.5	17.0
8	3.0	2.5	11.5	11.0	26.5	24.5	25.5	22.0	20.5	18.5	17.5	16.0
9	3.5	2.5	12.5	11.0	26.0	22.5	25.5	23.5	20.0	18.0	18.0	16.5
10	5.5	3.5	13.0	12.5	22.5	19.5	27.5	24.5	20.5	19.0	19.5	18.0
11	5.5	5.0	13.0	12.5	21.0	18.0	27.5	25.0	21.5	20.5	19.5	18.0
12	5.0	4.5	12.5	12.0	23.0	20.5	26.0	24.0	25.0	21.5	18.5	17.5
13	4.5	4.0	13.0	12.5	24.0	21.5	25.5	24.5	26.0	24.0	17.5	17.0
14	5.5	4.0	13.5	11.5	23.0	21.5	24.5	23.5	26.5	25.5	17.0	16.0
15	8.5	5.5	16.5	13.5	22.0	20.5	24.5	22.5	27.0	26.0	17.0	16.5
16	9.0	8.0	17.5	16.0	21.5	20.0	24.5	22.5	28.0	26.5	17.0	15.5
17	9.0	7.0	22.0	17.5	21.5	20.5	24.5	22.5	28.0	26.5	16.5	15.5
18	8.0	7.5	21.5	21.0	20.5	20.0	24.5	22.5	28.5	26.0	17.0	15.5
19	9.0	7.5	22.0	20.0	20.5	18.5	23.0	21.5	28.0	26.5	19.0	16.5
20	9.0	8.5	23.5	21.5	18.5	17.0	23.0	20.5	28.5	27.0	19.0	17.0
21	9.0	7.5	23.5	22.0	19.0	17.5	22.0	21.5	28.0	23.5	17.0	14.0
22	8.5	7.5	23.0	21.5	20.0	18.5	22.5	21.0	23.5	21.0	14.0	13.0
23	7.5	7.0	22.0	21.5	20.0	19.5	24.0	22.0	21.5	20.0	13.0	13.0
24	7.0	7.0	21.0	20.5	20.0	19.0	25.0	22.5	21.5	19.5	13.0	12.0
25	8.5	7.0	21.0	19.5	22.0	19.0	25.0	23.0	21.5	19.5	12.5	10.5
26	9.0	8.5	22.5	20.5	23.0	22.0	23.0	21.0	23.5	20.5	10.5	9.5
27	9.0	9.0	22.0	21.0	23.0	22.0	23.0	21.5	23.0	20.5	9.5	9.0
28	9.5	9.0	21.0	19.0	23.5	21.0	24.0	22.0	23.5	22.0	10.0	9.0
29	9.5	9.5	19.0	17.5	25.0	22.0	25.0	22.5	24.0	22.5	10.0	9.0
30	11.0	9.5	18.5	16.5	25.5	24.0	25.5	24.0	24.0	23.0	10.5	8.5
31	---	---	20.0	17.0	---	---	25.5	24.0	24.0	21.0	---	---
MONTH	11.0	0.0	23.5	10.5	26.5	17.0	27.5	20.5	28.5	18.0	21.0	8.5

06470830 JAMES RIVER AT OAKES, N. DAK.

LOCATION.--Lat 46°08'20", long 98°06'55", in NE¼ sec.30, T.131 N., R.59 W., Dickey County, at bridge on county highway 1 mi (1.6 km) west of Oakes and 1.6 mi (2.6 km) downstream from Bear Creek.

DRAINAGE AREA.--5,320 mi² (13,780 km²), approximately, of which about 3,200 mi² (8,300 km²) is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.

REMARKS.--Water discharge computed by adding the estimated discharges of Cottonwood Creek and Bear Creek to the discharge of station 06470500, James River at La Mours.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)	DIS- SOLVED CALCIUM (CA) (MG/L)	DIS- SOLVED MAGNESIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO ₃) (MG/L)	CARBONATE (CO ₃) (MG/L)	ALKALINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)
OCT.												
26...	1230	93	--	--	53	28	--	--	--	--	--	130
DEC.												
01...	1000	36	--	--	64	35	--	--	--	--	--	140
28...	1400	15	--	270	96	50	120	--	--	--	--	220
FEB.												
02...	1400	12	--	--	130	63	--	--	--	--	--	260
MAR.												
02...	1100	12	--	--	120	55	--	--	--	--	--	270
29...	1000	210	--	60	28	11	18	--	--	--	--	51
APR.												
26...	1000	250	--	--	42	19	--	--	--	--	--	99
MAY												
31...	1230	134	--	--	68	34	--	--	--	--	--	160
JUNE												
27...	1100	80	--	860	65	33	82	--	--	--	--	150
AUG.												
02...	1215	22	60	410	58	31	73	9.9	304	11	268	140
30...	0930	49	--	--	56	27	--	--	--	--	--	120
SEP.												
26...	1230	50	--	--	61	31	--	--	353	0	290	130

DATE	DIS- SOLVED CHLORIDE (CL) (MG/L)	DIS- SOLVED FLUORIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS- SOLVED ORTHOPHOSPHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CARBONATE HARD- NESS (MG/L)
OCT.											
26...	21	--	.01	.12	.08	--	480	.65	121	250	--
DEC.											
01...	30	--	.20	.46	.13	--	640	.87	62.2	300	--
28...	52	.4	.00	.12	.17	--	816	1.11	33.0	445	--
FEB.											
02...	73	--	.50	.17	.24	--	832	1.13	27.0	580	--
MAR.											
02...	79	--	.92	.45	.15	--	1040	1.41	33.7	530	--
29...	9.2	.2	.78	.55	.36	--	246	.33	139	120	--
APR.											
26...	14	--	.63	.23	.35	--	366	.50	247	180	--
MAY											
31...	32	--	.00	.11	.26	--	652	.89	236	310	--
JUNE											
27...	32	.2	.01	.26	.41	--	664	.90	143	300	--
AUG.											
02...	33	.2	.02	--	--	--	584	.79	34.7	270	5
30...	27	--	.00	.16	.51	--	522	.71	69.1	251	--
SEP.											
26...	27	--	--	.16	.49	.12	572	.78	77.2	280	0

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHO/S)	PH	TEMPER- ATURE (DEG C)	AIR TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	BIO- CHEM- ICAL OXYGEN DEMAND (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	CYANIDE (CN) (MG/L)
OCT.											
26...	--	--	748	8.1	10.0	12.0	11.2	5.6	--	75	--
DEC.											
01...	--	--	903	7.7	.5	-1.4	9.4	1.8	--	F2	--
28...	--	2.5	1290	7.6	.0	-10.0	6.2	2.1	--	--	.00
FEB.											
02...	--	--	1620	7.5	.0	-17.5	5.4	1.4	--	F1	--
MAR.											
02...	--	--	1520	7.4	.5	-23.0	6.2	1.5	--	F1	--
29...	--	.7	327	7.4	.0	11.0	11.1	3.5	--	F4	.00
APR.											
26...	--	--	525	7.8	9.0	8.0	--	5.0	--	F18	--
MAY											
31...	--	--	922	8.2	17.5	24.5	8.3	5.9	--	F5	--
JUNE											
27...	--	2.1	PR4	8.2	22.0	23.5	3.8	--	--	61	.00
AUG.											
02...	36	1.9	831	8.4	18.5	18.5	8.0	6.4	1100	--	--
30...	--	--	776	7.9	21.0	24.5	5.8	--	300	130	--
SEP.											
26...	--	--	835	7.9	8.0	8.0	12.3	5.4	--	840	--

B - Results based on colony count outside the acceptable range
E - Estimated.

JAMES RIVER BASIN

06470830 JAMES RIVER AT OAKES, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	ALDRIN (UG/L)	CHLOR- DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI- ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA- CHLOR (UG/L)	HEPTA- CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)
OCT. 26...	--	--	--	--	--	--	--	--	--	--	--
DEC. 01...	--	--	--	--	--	--	--	--	--	--	--
28...	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB. 02...	--	--	--	--	--	--	--	--	--	--	--
MAR. 02...	--	--	--	--	--	--	--	--	--	--	--
29...	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00	.07
APR. 26...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--	--
JUNE 27...	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00	.84
AUG. 02...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
SEP. 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	2,4,5-T (UG/L)	SILVEX (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
OCT. 26...	--	--	--	--	--	--	--	--	--	--	--
DEC. 01...	--	--	--	--	--	--	--	--	--	--	--
28...	.00	.00	5	0	320	0	0	2	0	.3	0
FEB. 02...	--	--	--	--	--	--	--	--	--	--	--
MAR. 02...	--	--	--	--	--	--	--	--	--	--	--
29...	.00	.00	3	0	110	1	0	4	4	.2	1
APR. 26...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	--	--	--	--	--	--	--
JUNE 27...	.00	.00	6	0	270	1	0	4	2	.0	4
AUG. 02...	--	--	--	--	260	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
SEP. 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 28...	4	7	0	30
MAR. 29...	12	3	0	10
JUNE 27...	9	5	0	10

06470833 PILOT DRAIN AT OAKES, N. DAK.

LOCATION.--Lat 46°07'30", long 98°05'49", in SW¼SE¼ sec.29, T.131 N., R.59 W., Dickey County, on left bank 1 mi (1.6 km) south and 0.4 mi (0.6 km) west of Oakes.

DRAINAGE AREA.--5.1 mi² (13.2 km²).

PERIOD OF RECORD.--Chemical analyses: October 1971 to current year.
Water temperature: October 1971 to current year.

EXTREMES.--Current year:

Dissolved solids: Maximum, 494 mg/l Oct. 1-26, June 16-30; minimum, 380 mg/l Jan. 1-31.

Hardness: Maximum, 380 mg/l Oct. 1-26; minimum, 300 mg/l Mar. 1-31.

Specific conductance: Maximum daily, 800 micromhos Dec. 17 and Aug. 16; minimum daily, 320 micromhos Mar. 16.

Water temperatures: Maximum 22.0°C Aug. 12; minimum, freezing point on many days during December to March.

REMARKS.--Daily samples for chemical analysis composited by discharge. Maximum observed during the year: Dissolved solids, 512 mg/l Sep. 25.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	MEAN DIS- CHARGE (CF/S)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)
OCT.									
01-26	1.5	91	36	21	5.9	371	0	304	494
27-31	1.4	82	38	19	6.1	357	0	293	458
NOV.									
01-30	1.4	82	38	19	6.1	357	0	293	458
DEC.									
01-31	.95	84	36	20	6.4	363	0	298	444
JAN.									
01-31	.19	80	28	16	4.6	337	0	276	380
FEB.									
01-29	.16	80	28	15	4.3	325	0	267	428
MAR.									
01-31	.41	74	28	15	7.0	305	0	250	420
APR.									
01-30	4.1	81	32	17	6.2	336	0	276	488
JUNE									
16-30	3.3	86	34	17	6.1	364	0	299	494
JULY									
01-31	2.7	71	34	17	6.0	356	0	292	438
AUG.									
01-31	3.2	90	35	18	5.6	359	0	294	458
SEP.									
01-30	3.0	88	33	21	5.5	359	0	294	442
WTD. AVG.	--	83	34	18	5.9	353	0	290	462
TIME WTD.									
AVG.	1.8	82	33	18	5.8	347	0	285	447
TONS									
PER DAY	--	.4	.2	.1	.0	2	0	1	2

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH
OCT.								
01-26	.67	2.00	380	71	11	.5	771	7.7
27-31	.62	1.73	360	68	10	.4	753	7.8
NOV.								
01-30	.62	1.73	360	68	10	.4	753	7.8
DEC.								
01-31	.60	1.14	360	60	11	.5	764	8.1
JAN.								
01-31	.52	.19	310	30	10	.4	547	8.0
FEB.								
01-29	.58	.18	310	48	9	.4	619	7.9
MAR.								
01-31	.57	.46	300	50	10	.4	625	7.6
APR.								
01-30	.66	5.40	330	58	10	.4	682	7.5
JUNE								
16-30	.67	4.40	350	56	9	.4	754	7.0
JULY								
01-31	.60	3.10	320	25	10	.4	720	8.2
AUG.								
01-31	.62	3.96	370	74	9	.4	726	8.0
SEP.								
01-30	.60	3.58	360	61	11	.5	734	7.0
WTD. AVG.	.63	---	348	58	--	.4	724	7.9
TIME WTD.								
AVG.	.61	---	340	55	10	.4	707	7.9
TONS								
PER DAY	--	---	--	--	--	--	--	--

JAMES RIVER BASIN

06470833 PILOT DRAIN AT OAKES, N. DAK.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)
OCT. 26...	1000	1.6	29	--	--	--	93	35	20	6.1	381	0
NOV. 30...	1800	1.5	26	100	10	490	89	34	20	5.9	368	0
DEC. 28...	1015	.38	28	--	--	--	89	34	18	5.8	355	0
FEB. 02...	1145	.16	30	--	--	--	79	29	15	4.3	337	0
MAR. 01...	1600	.16	31	--	--	--	80	27	15	4.0	328	0
29...	0830	1.2	30	200	10	306	89	34	18	6.1	348	0
APR. 25...	1600	3.8	24	--	--	--	88	32	17	6.4	353	0
MAY 31...	0915	4.2	27	--	--	--	94	35	19	6.0	378	0
JUNE 27...	1400	3.2	26	--	--	--	90	34	18	6.5	381	0
AUG. 02...	0915	2.6	29	--	--	--	90	34	17	5.9	363	0
29...	1950	4.2	30	--	--	--	89	31	18	5.8	362	0
SEP. 25...	1615	2.9	29	0	30	870	88	32	20	5.3	364	0

DATE	ALKALINITY AS CaCO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	PERCENT SODIUM
OCT. 26...	313	100	14	.4	.41	.06	436	.59	1.88	380	64	10
NOV. 30...	302	100	14	.2	.35	.07	480	.65	1.94	360	60	11
DEC. 28...	291	90	14	.4	.00	.05	442	.60	.45	360	71	10
FEB. 02...	276	62	8.7	.3	3.7	.06	420	.57	.18	320	40	9
MAR. 01...	269	58	8.0	.2	3.6	.02	418	.57	.18	310	42	9
29...	285	98	14	.5	.71	.11	486	.66	1.57	360	77	10
APR. 25...	290	98	14	.3	.17	.05	468	.64	4.80	350	62	9
MAY 31...	310	100	14	.3	.39	.04	490	.67	5.56	380	69	10
JUNE 27...	313	96	14	.2	.26	.08	492	.67	4.25	360	52	10
AUG. 02...	298	87	12	.3	.33	.03	490	.67	3.44	360	67	9
29...	297	94	13	.3	.47	.02	482	.66	5.47	350	53	10
SEP. 25...	299	95	16	.1	.38	.02	512	.70	4.01	350	53	11

DATE	SODIUM AND SODIUM RATIO	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYLLIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)
OCT. 26...	.4	774	7.8	7.5	5	--	--	--	--	80	--	--
NOV. 30...	.5	752	7.8	.0	5	.00	0	200	0	80	0	0
DEC. 28...	.4	728	7.5	2.5	5	--	--	--	--	80	--	--
FEB. 02...	.4	661	7.7	2.0	5	--	--	--	--	90	--	--
MAR. 01...	.4	647	7.5	3.0	7	--	--	--	--	90	--	--
29...	.4	728	7.7	1.0	8	.00	2	0	0	70	1	0
APR. 25...	.4	717	7.9	13.0	20	--	--	--	--	70	--	--
MAY 31...	.4	761	7.0	16.5	30	--	--	--	--	100	--	--
JUNE 27...	.4	740	7.6	16.5	10	--	--	--	--	80	--	--
AUG. 02...	.4	731	7.7	15.0	5	--	--	--	--	70	--	--
29...	.4	736	7.8	17.0	20	--	--	--	--	80	--	--
SEP. 25...	.5	747	7.6	9.0	10	.00	3	0	0	100	0	0

DATE	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYBDENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELENIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED VANADIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
NOV. 30...	1	2	2	36	.5	2	5	5	0	320	.1	20
MAR. 01...	--	--	--	--	--	--	--	--	--	--	--	--
29...	1	1	4	30	.1	1	9	1	0	300	.5	60
SEP. 25...	2	8	2	40	.3	2	0	4	0	290	.8	20

06470833 PILOT DRAIN AT OAKES, N. DAK.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	725	707	704	641	648	696	675	---	773	735	730
2	762	717	730	692	641	654	675	697	---	738	731	753
3	762	730	738	701	640	654	665	---	---	738	733	753
4	769	745	739	688	655	654	699	---	---	740	727	754
5	768	728	798	663	641	654	672	---	---	740	730	758
6	788	798	728	645	646	654	628	---	---	737	709	753
7	775	796	706	651	648	667	638	---	---	735	730	762
8	769	759	737	645	648	513	637	---	---	743	732	763
9	762	722	762	653	648	645	628	---	---	737	725	767
10	775	720	663	642	652	642	638	---	---	737	700	767
11	760	734	750	653	654	612	652	---	---	737	710	766
12	758	727	795	627	648	564	669	---	---	735	712	773
13	756	720	725	651	639	386	677	---	---	766	785	767
14	763	713	769	664	652	384	689	---	---	688	787	767
15	762	738	745	605	650	559	695	---	---	730	797	768
16	755	727	752	653	647	374	700	---	750	763	800	772
17	655	727	800	665	638	633	700	---	750	763	747	776
18	755	727	785	642	650	624	709	---	750	761	745	768
19	785	710	745	643	650	566	714	---	740	761	763	771
20	795	715	755	580	642	620	717	---	739	753	718	773
21	774	720	755	640	652	633	721	---	736	748	718	773
22	765	736	759	637	641	655	722	---	750	613	764	763
23	762	712	745	646	655	648	726	---	750	707	768	772
24	772	733	787	644	655	633	732	---	749	745	763	768
25	765	710	775	643	652	648	738	---	745	728	765	771
26	755	718	655	645	650	683	738	---	745	704	753	767
27	723	717	757	643	647	709	738	---	745	722	750	767
28	728	710	730	643	655	757	735	---	745	788	751	767
29	718	735	734	647	655	741	739	---	756	746	750	767
30	680	735	659	642	---	720	745	---	745	751	751	772
31	707	---	715	651	---	720	---	---	---	754	748	---
MONTH	754	730	742	650	648	621	694	---	---	738	745	765

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	4.0	2.0	3.0	0.0	0.0	2.0	10.0	---	16.0	17.0	14.0
2	13.0	3.5	1.0	0.0	2.0	0.0	2.0	10.0	---	14.0	16.0	13.0
3	10.0	1.0	1.0	0.0	0.0	0.0	1.0	---	---	13.0	14.0	14.0
4	8.0	2.0	2.0	0.0	0.0	0.0	1.0	---	---	12.0	20.0	12.0
5	10.0	0.0	1.0	0.0	0.0	0.0	0.0	---	---	12.0	20.0	13.0
6	11.0	0.0	1.0	0.0	0.0	0.0	1.0	---	---	13.0	20.0	17.0
7	10.0	0.0	1.0	0.0	0.0	0.0	1.0	---	---	14.0	15.0	12.0
8	6.0	1.0	0.0	0.0	0.0	0.0	0.0	---	---	14.0	15.0	10.0
9	9.0	1.0	0.0	0.0	0.0	5.0	2.0	---	---	15.0	15.0	19.0
10	8.0	3.0	0.0	0.0	0.0	6.0	4.0	---	---	16.0	18.0	16.0
11	6.0	4.0	0.0	0.0	0.0	5.0	3.0	---	---	17.0	20.0	12.0
12	8.0	5.0	0.0	0.0	0.0	4.0	3.0	---	---	17.0	22.0	12.0
13	7.0	5.5	0.0	0.0	0.0	5.0	2.0	---	---	17.0	20.0	14.0
14	8.0	4.0	0.0	0.0	3.0	5.0	4.0	---	---	17.0	20.0	11.0
15	8.0	5.0	1.0	0.0	2.0	5.0	6.0	---	---	15.0	20.0	12.0
16	6.0	4.0	1.0	0.0	3.0	8.0	10.0	---	12.0	16.0	20.0	11.0
17	9.0	5.0	1.0	0.0	0.0	5.0	6.0	---	13.0	16.0	20.0	12.0
18	15.0	2.0	1.0	0.0	0.0	5.0	6.0	---	13.5	16.0	18.0	12.0
19	9.0	2.0	0.0	0.0	2.0	6.0	5.0	---	13.5	18.0	17.0	16.0
20	7.0	2.0	0.0	0.0	6.0	7.0	6.0	---	14.0	16.0	17.0	15.0
21	7.0	2.0	0.0	0.0	0.0	5.0	6.0	---	18.0	17.0	17.0	9.0
22	9.0	2.0	0.0	0.0	0.0	6.0	4.0	---	13.0	17.0	15.0	15.0
23	9.0	2.0	0.0	0.0	0.0	5.0	4.0	---	13.0	17.0	13.0	11.0
24	10.0	2.0	0.0	0.0	0.0	6.0	4.0	---	12.0	18.0	12.0	11.0
25	9.0	1.0	0.0	0.0	1.5	4.0	8.0	---	12.0	21.0	14.0	9.0
26	8.0	1.5	0.0	0.0	3.0	4.0	7.0	---	15.0	17.0	14.0	9.0
27	9.0	2.0	0.0	0.0	5.0	3.0	7.0	---	15.0	16.0	16.0	7.0
28	3.0	2.0	0.0	0.0	0.0	2.0	8.0	---	15.0	17.0	15.0	9.0
29	2.0	1.0	0.0	0.0	0.0	1.0	8.0	---	15.0	18.0	15.0	8.0
30	3.0	1.0	0.0	0.0	---	2.0	9.0	---	16.0	20.0	15.0	9.0
31	2.0	---	0.0	0.0	---	1.0	---	---	---	18.0	14.0	---
MONTH	8.0	2.5	0.5	0.0	1.0	3.5	4.5	---	---	16.0	17.0	12.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	STAGE (FT ABOVE DATUM)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, N. DAK. (LAT 48 12 37 LONG 098 52 15)

NOV., 1971												
17...	1000	a/11.66	19	100	20	30	39	36	70	22	249	3
FEB., 1972												
15...	1710	a/11.18	33	200	50	1200	59	51	100	30	406	0
MAY												
16...	1745	a/13.35	3.8	0	20	20	42	32	61	21	258	0
AUG.												
15...	1015	a/12.20	30	10	20	30	34	33	69	22	250	0

05056250 - LAC AUX MORTES NEAR CHURCHES FERRY, N. DAK. (LAT 48 21 07 LONG 099 05 42)

NOV., 1971												
16...	1600	a/14.37	21	300	30	1300	84	54	100	23	418	0
MAY, 1972												
16...	1530	a/16.49	9.0	0	30	80	48	28	44	18	258	0
AUG.												
14...	1530	a/15.84	21	0	30	60	56	38	78	24	311	9

05056260 - LAKE IRVINE NEAR CHURCHES FERRY, N. DAK. (LAT 48 16 57 LONG 099 10 25)

NOV., 1971												
16...	1500	a/13.46	25	400	20	30	66	49	84	26	356	0
MAY, 1972												
16...	1430	a/15.45	4.6	0	20	0	44	25	32	13	200	0
AUG.												
14...	1415	a/12.28	2.4	0	20	20	48	45	66	25	270	19

05056500 - DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 04 00 LONG 098 56 07)

NOV., 1971												
17...	1330	b/21.22	12	700	20	20	74	230	1200	130	529	33
FEB., 1972												
16...	1230	b/20.80	15	500	30	40	86	260	1400	140	712	0
MAY												
17...	0930	b/21.99	12	0	20	10	69	200	1100	140	528	11
AUG.												
15...	1600	b/21.73	2.2	0	20	30	71	200	1000	120	393	85

05056505 - NARROWS OF DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 44)

NOV., 1971												
17...	1240	b/21.22	12	800	20	50	67	230	1200	120	520	35
FEB., 1972												
16...	1330	b/20.80	16	500	20	40	86	260	1400	140	687	38
MAY												
17...	1100	b/21.99	12	0	20	0	68	210	1100	140	478	34
AUG.												
15...	1700	b/21.23	1.7	0	10	30	71	200	1000	120	410	78

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 43)

NOV., 1971												
17...	1700	b/16.12	17	800	20	30	82	280	1400	160	610	37
FEB., 1972												
16...	1400	b/17.28	16	500	20	40	82	280	1500	150	760	11
MAY												
17...	1145	b/18.81	12	0	20	0	65	190	990	130	428	41
AUG.												
16...	1000	b/17.88	3.8	10	30	50	74	210	1100	120	410	82

05056535 - EAST BAY DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 38 LONG 098 52 43)

NOV., 1971												
17...	1630	a/13.14	17	900	20	100	86	270	1400	150	631	26
FEB., 1972												
16...	1515	a/13.50	18	600	30	70	92	300	1600	160	571	48
MAY												
17...	1345	a/14.07	12	0	20	30	65	190	990	140	439	36
AUG.												
16...	1030	a/15.43	4.3	0	20	30	75	220	1100	120	423	78

a/ Feet above arbitrary datum.

b/ Add 1,400.00 ft to convert to mean sea level.

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	ALKA- LITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLORIDE (CL) (MG/L)	DIS- SOLVED FLUORIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED PHOSPHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, N. DAK. (LAT 48 12 37 LONG 098 52 15)

NOV., 1971												
17...	209	170	26	.2	.07	.07	612	.83	250	36	36	1.9
FEB., 1972												
15...	333	240	36	.3	.02	.28	750	1.02	360	24	36	2.3
MAY												
16...	212	150	22	.3	.03	.01	472	.64	240	25	34	1.7
AUG.												
15...	205	160	23	.2	.04	.24	530	.72	220	16	38	2.0

05056250 - LAC AUX MORTES NEAR CHURCHES FERRY, N. DAK. (LAT 48 21 07 LONG 099 05 42)

NOV., 1971												
16...	343	240	38	.2	.23	.14	808	1.10	430	89	32	2.1
MAY, 1972												
16...	212	110	22	.3	.01	.10	428	.58	240	24	27	1.2
AUG.												
14...	270	170	26	.5	.04	.51	676	.92	300	26	34	2.0

05056260 - LAKE IRVINE NEAR CHURCHES FERRY, N. DAK. (LAT 48 16 57 LONG 099 10 25)

NOV., 1971												
16...	292	220	37	.4	1.8	.16	756	1.03	370	74	31	1.9
MAY, 1972												
16...	164	110	15	.2	.01	.04	362	.49	210	49	23	1.0
AUG.												
14...	253	170	28	.4	.04	.12	616	.84	300	52	30	1.6

05056500 - DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 04 00 LONG 098 56 07)

NOV., 1971												
17...	489	2700	540	.3	.33	.46	5000	6.80	1100	640	67	16
FEB., 1972												
16...	584	3000	640	.4	.31	.67	5860	7.97	1300	700	68	17
MAY												
17...	451	2300	480	.8	.19	.46	4660	6.34	990	540	67	15
AUG.												
15...	464	2200	480	.3	.04	.53	4320	5.88	1000	540	65	14

05056505 - MARROWS OF DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 66)

NOV., 1971												
17...	485	2600	550	.4	.44	.45	5260	7.15	1100	630	67	16
FEB., 1972												
16...	627	3000	640	.4	.29	.73	5880	8.00	1300	660	68	17
MAY												
17...	447	2300	470	.5	.15	.44	4660	6.26	1000	540	66	15
AUG.												
15...	466	2300	460	.3	.01	.53	4540	6.17	1000	530	65	14

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 43)

NOV., 1971												
17...	562	3200	670	.9	1.0	.60	6260	8.51	1400	700	68	17
FEB., 1972												
16...	642	3200	690	.4	.60	.71	6580	8.95	1400	720	68	18
MAY												
17...	419	2200	460	.6	.07	.52	4660	5.98	940	520	66	16
AUG.												
16...	473	2400	490	.4	.06	.70	4660	6.36	1000	540	67	15

05056535 - EAST BAY DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 52 66)

NOV., 1971												
17...	561	3200	710	.4	.99	.58	6300	8.57	1400	760	67	17
FEB., 1972												
16...	548	3500	730	.5	.66	.75	6660	8.96	1500	800	68	18
MAY												
17...	420	2200	460	.5	.01	.51	4480	6.00	940	520	66	16
AUG.												
16...	477	2600	250	.4	.10	.68	6600	6.26	1100	620	66	16

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, N. DAK. (LAT 48 12 37 LONG 098 52 15)

NOV., 1971												
17...	809	8.5	.5	20	--	2	100	--	160	0	0	0
FEB., 1972												
15...	1190	7.6	.0	40	--	4	0	--	180	1	0	0
MAY												
16...	737	7.9	16.5	40	--	20	0	--	110	0	0	0
AUG.												
15...	765	7.9	23.5	50	--	13	0	--	130	0	0	0

05056250 - LAC AUX MORTES NEAR CHURCHES FERRY, N. DAK. (LAT 48 21 07 LONG 099 05 42)

NOV., 1971												
14...	1160	7.3	.0	40	--	2	0	--	170	0	0	0
MAY, 1972												
16...	666	7.8	24.0	40	--	2	0	--	120	0	0	0
AUG.												
14...	901	8.4	23.5	100	--	7	0	--	160	0	0	0

05056260 - LAKE IRVINE NEAR CHURCHES FERRY, N. DAK. (LAT 48 16 57 LONG 099 10 25)

NOV., 1971												
14...	1070	7.9	1.0	70	--	3	0	--	160	0	0	0
MAY, 1972												
16...	569	7.8	18.5	50	--	0	0	--	80	0	0	0
AUG.												
14...	864	8.6	23.5	60	--	3	0	--	130	0	0	0

05056500 - DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 04 00 LONG 098 56 07)

NOV., 1971												
17...	6760	8.6	.0	30	--	10	0	--	1000	0	0	0
FEB., 1972												
16...	7850	8.6	.0	40	--	60	0	--	1100	1	0	0
MAY												
17...	6120	8.4	17.0	50	--	20	0	--	900	0	0	0
AUG.												
15...	5580	9.3	27.5	20	--	16	0	--	900	0	0	0

05056505 - MARIPOSA OF DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 44)

NOV., 1971												
17...	6410	8.5	.0	40	--	8	100	--	1000	0	0	0
FEB., 1972												
16...	7650	8.6	.0	30	--	10	0	--	1100	1	0	1
MAY												
17...	6060	8.5	14.0	40	--	10	0	--	850	0	0	0
AUG.												
15...	5580	9.2	22.5	10	--	15	0	--	880	5	0	0

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 43)

NOV., 1971												
17...	8100	8.5	.0	30	--	9	100	--	1200	0	0	0
FEB., 1972												
16...	8500	8.6	.0	40	--	20	0	--	1200	0	0	1
MAY												
17...	5720	8.6	18.5	30	--	8	0	--	860	0	0	0
AUG.												
16...	6200	9.2	22.5	30	--	16	0	--	910	0	0	0

05056535 - EAST BAY DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 38 LONG 098 52 43)

NOV., 1971												
17...	8680	8.5	1.0	60	--	10	0	--	1200	10	0	0
FEB., 1972												
16...	8670	8.5	.0	50	--	8	0	--	1200	0	0	1
MAY												
17...	5880	8.6	20.0	40	--	10	0	--	840	0	0	0
AUG.												
16...	5690	9.2	22.5	50	--	23	0	--	920	0	0	0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, N. DAK. (LAT 48 12 37 LONG 098 52 15)

NOV., 1971											
17...	4	2	42	.3	1	12	7	--	230	.4	70
FEB., 1972											
15...	1	3	100	.8	6	6	8	--	320	1.3	20
MAY											
16...	20	6	40	.3	2	2	8	--	220	1.4	30
AUG.											
15...	1	2	50	.1	2	3	4	--	250	.6	160

05056250 - LAC AUX MORTES NEAR CHURCHS FERRY, N. DAK. (LAT 48 21 07 LONG 099 05 42)

NOV., 1971											
16...	6	0	69	.0	0	14	10	--	320	.0	10
MAY, 1972											
16...	60	6	30	.5	3	4	14	--	180	2.9	80
AUG.											
14...	2	0	70	.2	2	7	13	--	90	6.8	0

05056260 - LAKE IRVINE NEAR CHURCHS FERRY, N. DAK. (LAT 48 16 57 LONG 099 10 25)

NOV., 1971											
16...	4	6	73	.0	0	8	8	--	280	.9	130
MAY, 1972											
16...	40	5	20	.2	14	3	7	--	180	2.2	20
AUG.											
14...	7	4	60	.2	2	5	8	--	100	5.9	10

05056500 - DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 04 00 LONG 098 56 07)

NOV., 1971											
17...	6	0	470	.0	8	6	10	--	400	5.6	10
FEB., 1972											
16...	4	6	660	.7	4	5	13	--	390	8.3	180
MAY											
17...	40	5	360	.2	7	4	17	--	350	7.4	60
AUG.											
15...	1	1	390	.1	4	3	12	--	450	6.0	20

05056505 - NARROWS OF DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 44)

NOV., 1971											
17...	4	3	440	.3	3	17	6	--	410	6.3	90
FEB., 1972											
16...	3	3	670	.7	6	7	18	--	400	8.2	90
MAY											
17...	20	2	350	.3	7	3	15	--	360	8.0	30
AUG.											
15...	1	1	390	.1	3	6	6	--	450	5.8	40

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, N. DAK. (LAT 48 01 36 LONG 098 53 43)

NOV., 1971											
17...	3	0	570	.0	4	11	6	--	440	7.9	10
FEB., 1972											
16...	2	4	720	.7	9	9	8	--	390	9.2	60
MAY											
17...	13	2	350	.3	2	4	10	--	350	7.1	30
AUG.											
16...	1	1	390	.2	4	4	4	--	420	7.4	30

05056535 - EAST BAY DEVILS LAKE NEAR DEVILS LAKE, N. DAK. (LAT 48 01 38 LONG 098 52 43)

NOV., 1971											
17...	12	0	580	.0	0	5	6	--	430	8.0	50
FEB., 1972											
16...	3	4	740	.8	9	6	9	--	360	10	30
MAY											
17...	50	4	370	.2	4	4	7	--	330	7.3	30
AUG.											
16...	1	2	400	.0	4	5	14	--	420	6.2	30

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	STAGE (FT ABOVE DATUM)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056570 - EAST DEVILS LAKE NEAR HAMAR, N. DAK. (LAT 47 57 02 LONG 098 36 34)

NOV., 1971												
17...	1505	b/ .56	5.2	4100	20	100	13	2100	12000	730	1210	190
FEB., 1972												
16...	1730	c/ 99.61	31	--	180	280	19	1900	8800	890	1950	0
MAY												
18...	1000	b/ 1.24	4.0	0	60	50	12	1300	7100	740	684	233
AUG.												
16...	1200	b/ 1.05	.4	0	20	60	15	2100	11000	790	925	310

05056630 - EASTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 52 04 LONG 098 21 33)

NOV., 1971												
18...	1045	c/ 80.66	14	7300	20	100	180	4400	15000	820	655	137
MAY 1972												
17...	1715	c/ 85.26	12	0	40	100	160	3000	13000	790	548	121
AUG.												
15...	1345	c/ 84.49	10	0	20	140	140	4500	23000	1000	541	220

05056670 - WESTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 54 48 LONG 098 23 26)

NOV., 1971												
18...	1000	c/ 99.16	13	900	20	30	140	360	1600	95	449	22
FEB., 1972												
17...	1015	--	31	1300	30	40	350	890	4200	260	1250	0
MAY												
17...	1600	c/ 99.90	12	0	20	10	120	340	1500	120	440	12
AUG.												
15...	1200	c/ 98.99	1.3	0	60	40	87	360	1700	120	254	67

DATE	ALKA- LIMITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (PER AC-FT) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO
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05056570 - EAST DEVILS LAKE NEAR HAMAR, N. DAK. (LAT 47 57 02 LONG 098 36 34)

NOV., 1971												
17...	1310	29000	4400	2.6	.57	1.8	48200	65.6	8700	7400	73	56
FEB., 1972												
16...	1600	19000	4800	3.0	.45	4.2	36000	49.0	7900	6300	68	43
MAY												
18...	949	17000	2900	2.3	.07	.77	30000	40.8	5400	4400	71	42
AUG.												
16...	1270	27000	4100	2.6	.300	2.4	47200	64.2	8700	7400	71	51

05056630 - EASTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 52 04 LONG 098 21 33)

NOV., 1971												
18...	765	40000	9000	3.7	.07	.53	71600	97.4	19000	18000	62	48
MAY 1972												
17...	651	32000	6900	2.8	.04	.69	59400	80.8	13000	12000	67	50
AUG.												
15...	810	56000	8900	19	.10	.47	98000	133	19000	18000	71	73

05056670 - WESTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 54 48 LONG 098 23 26)

NOV., 1971												
18...	405	3400	880	.8	.30	.25	7380	10.0	1800	1400	64	16
FEB., 1972												
17...	1030	9200	2200	2.4	.82	.55	17800	24.2	4500	3500	65	27
MAY												
17...	381	3500	800	.7	.06	.58	6820	9.28	1700	1300	64	16
AUG.												
15...	320	4000	910	.6	.04	.18	7720	10.5	1700	1400	67	18

b/ Add 1,400.00 ft to convert to mean sea level.

c/ Add 1,300.00 ft to convert to mean sea level.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056570 - EAST DEVILS LAKE NEAR HAMAR, N. DAK. (LAT 47 57 02 LONG 098 36 34)

NOV., 1971												
17...	45200	8.7	.5	100	--	50	0	--	15000	1	0	0
FEB., 1972												
16...	38300	8.5	-1.0	300	--	20	0	--	5000	1	0	0
MAY												
18...	30400	8.9	17.5	60	--	40	0	--	3100	0	0	0
AUG.												
16...	--	9.4	26.0	200	--	90	0	--	5200	2	0	0

05056630 - EASTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 52 04 LONG 098 21 33)

NOV., 1971												
18...	59600	8.5	.0	40	--	50	100	--	8400	0	0	0
MAY, 1972												
17...	48600	8.7	22.0	50	--	40	0	--	6400	0	0	1
AUG.												
15...	--	9.3	26.0	0	--	50	0	--	8500	0	0	2

05056670 - WESTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 54 48 LONG 098 23 26)

NOV., 1971												
18...	9300	8.5	.0	20	--	9	0	--	1700	0	0	0
FEB., 1972												
17...	20500	8.2	-.5	50	--	20	0	--	3400	1	0	0
MAY												
17...	8300	8.4	18.0	40	--	8	0	--	1000	0	1	0
AUG.												
15...	9400	9.4	23.5	20	--	23	0	--	1600	0	0	0

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENIUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANAD- IUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
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05056570 - EAST DEVILS LAKE NEAR HAMAR, N. DAK. (LAT 47 57 02 LONG 098 36 34)

NOV., 1971											
17...	3	10	4300	.2	1	7	8	--	0	44	110
FEB., 1972											
16...	3	2	4300	.4	3	7	23	--	--	79	50
MAY											
18...	100	6	2200	.2	5	5	19	--	120	31	20
AUG.											
16...	25	9	3400	.1	12	5	6	--	180	63	150

05056630 - EASTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 52 04 LONG 098 21 33)

NOV., 1971											
18...	0	0	6400	.5	26	10	8	--	80	12	50
MAY, 1972											
17...	160	5	3700	.4	19	9	7	--	40	140	50
AUG.											
15...	2	3	4700	.2	10	9	6	--	40	130	150

05056670 - WESTERN STUMP LAKE NEAR LAKOTA, N. DAK. (LAT 47 54 48 LONG 098 23 26)

NOV., 1971											
18...	1	0	700	.3	5	15	6	--	1100	12	40
FEB., 1972											
17...	7	4	1900	2.4	32	27	13	--	410	70	60
MAY											
17...	80	3	530	.2	11	7	9	--	640	9.2	20
AUG.											
15...	3	2	690	.1	9	10	6	--	860	8.0	20

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	STAGE (FT ABOVE DATUM)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANG- NESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NEAR JAMESTOWN, N. DAK. (LAT 46 56 03 LONG 098 42 38)

OCT., 1971		d/										
27...	1500	30.27	.7	300	20	690	46	27	57	12	296	0
DEC.		d/										
27...	2100	29.46	1.1	--	30	980	50	29	62	17	321	0
APR., 1972		d/										
27...	0800	32.89	4.5	200	20	150	41	25	51	11	268	0
JUNE		d/										
27...	1400	32.83	6.5	--	20 *	1000	41	25	49	10	256	0

DATE	ALKA- LINITY AS CACN3 (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO
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06469000 - JAMESTOWN RESERVOIR NEAR JAMESTOWN, N. DAK. (LAT 46 56 03 LONG 098 42 38)

OCT., 1971												
27...	243	100	14	.3	.08	.29	460	.63	230	0.	34	1.7
DEC.												
27...	263	110	16	.3	.23	.27	454	.62	240	0	34	1.7
APR., 1972												
27...	220	89	13	.4	.18	.10	446	.61	210	0	34	1.6
JUNE												
27...	210	88	13	.2	.42	.07	416	.57	210	0	33	1.5

DATE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	CYANIDE (CN) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)
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06469000 - JAMESTOWN RESERVOIR NEAR JAMESTOWN, N. DAK. (LAT 46 56 03 LONG 098 42 38)

OCT., 1971												
27...	664	8.2	8.5	20	.00	5	200	0	140	0	0	1
DEC.												
27...	720	8.1	.0	20	--	--	--	--	160	--	--	--
APR., 1972												
27...	622	7.8	4.5	20	.00	.0	0	10	140	1	0	1
JUNE												
27...	610	8.0	19.0	30	--	--	--	--	140	--	--	--

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SILVER (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANAD- IUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
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06469000 - JAMESTOWN RESERVOIR NEAR JAMESTOWN, N. DAK. (LAT 46 56 03 LONG 098 42 38)

OCT., 1971											
27...	2	0	430	.3	0	4	2	0	270	2.6	60
DEC.											
27...	--	--	--	--	--	--	--	--	--	--	--
APR., 1972											
27...	40	3	30	.4	2	3	9	0	240	2.7	50
JUNE											
27...	--	--	--	--	--	--	--	--	--	--	--

d/ Add 1,400.00 ft to convert to mean sea level.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAMS IS INLET NR FT TOTTEN, N. DAK. (LAT 48 02 25 LONG 099 02 50)

NOV., 1971										
17...	1115	50	9.5	40	410	73	76	240	42	472
FEB., 1972										
16...	1030	24	38	90	3400	150	290	1400	17	1150
MAY										
18...	1130	400	2.8	70	110	50	32	67	18	250
AUG.										
14...	1700	53	16	50	130	65	140	660	83	405

05099380 - PEMBINA RIVER NEAR VANG, N. DAK. (LAT 48 55 00 LONG 098 03 23)

OCT., 1971										
13...	1645	82	17	20	20	64	36	52	8.7	280
DEC.										
16...	1015	21	21	30	270	93	45	65	11	400
MAR., 1972										
21...	1045	754	14	90	63	31	11	17	7.3	107
APR.										
13...	1550	2770	14	60	60	32	13	20	5.8	142
MAY										
03...	1130	1130	16	30	0	44	18	28	10	170
JUNE										
15...	1130	292	24	60	20	63	30	42	8.0	274
SEP.										
11...	1730	97	24	20	20	46	32	44	9.6	260

05099400 - L PEMBINA RIVER NR WALHALLA, N. DAK. (LAT 48 51 55 LONG 098 00 20)

OCT., 1971										
14...	1215	1.5	19	20	90	92	25	62	8.0	258
DEC.										
16...	1530	.33	21	30	330	110	28	61	7.7	349
MAR., 1972										
20...	1610	439	17	210	75	34	10	25	7.1	124
24...	1210	112	18	90	50	37	11	30	6.5	178
APR.										
13...	1920	311	17	60	50	30	8.6	24	5.4	128
18...	1030	105	18	30	30	44	13	41	6.4	140
MAY										
02...	1600	30	24	20	17	63	18	58	11	208
JUNE										
15...	0935	3.5	26	20	60	89	23	69	8.5	268
SEP.										
11...	1200	.22	26	10	90	81	22	56	9.1	276

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TOMS PER AC-FT)	DIS- SOLVED SOLIDS (TOMS PER DAY)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN--Continued

05056405 - BIG COULEE AT GRAHAMS IS INLET NR FT TOTTEN, N. DAK. (LAT 48 02 25 LONG 099 02 50)

NOV., 1971										
17...	0	387	520	120	.4	.08	.14	1410	1.92	190
DEC., 1972										
16...	0	943	2900	660	.6	.01	1.5	6300	8.57	413
MAY										
18...	0	205	150	42	.3	.01	.12	484	.66	523
AUG.										
14...	46	409	1500	300	.5	.01	.41	3360	4.57	481

05099380 - PEMBINA RIVER NEAR VANG, N. DAK. (LAT 48 55 00 LONG 098 03 23)

OCT., 1971										
13...	0	230	180	12	.2	.06	.15	542	.74	120
DEC.										
16...	0	328	240	17	.3	.41	.13	756	1.03	42.9
MAR., 1972										
21...	0	88	73	5.2	.3	1.8	.66	264	.36	537
APR.										
13...	0	116	71	5.3	.3	.78	1.0	250	.34	1870
MAY										
03...	0	139	110	8.6	.2	.13	.12	344	.47	1050
JUNE										
15...	0	225	150	9.1	.3	.07	.31	520	.71	410
SEP.										
11...	0	213	140	10	.3	.00	.11	470	.64	123

05099400 - L PEMBINA RIVER NR WALTHALLA, N. DAK. (LAT 48 51 55 LONG 098 00 20)

OCT., 1971										
14...	0	212	230	17	.3	.03	.14	632	.86	2.56
DEC.										
16...	0	286	230	20	.3	.60	.17	692	.94	.62
MAR., 1972										
20...	0	102	84	7.1	.4	2.1	.56	304	.41	360
24...	0	98	100	6.7	.3	1.9	.68	314	.43	95.0
APR.										
13...	0	106	89	4.6	.4	2.1	3.2	246	.33	207
18...	0	115	130	7.9	.2	1.0	.82	344	.47	97.5
MAY										
02...	0	171	170	14	.3	.79	.20	486	.66	39.4
JUNE										
15...	0	220	230	17	.5	.16	.24	684	.93	6.46
SEP.										
11...	0	226	180	14	.5	.01	.15	556	.76	.33

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	DIS- SOLVED BORON (B) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN--Continued

05056405 - BIG COULEE AT GRAHAMS IS INLET NR FT TOTTEN, N. DAK. (LAT 48 02 25 LONG 099 02 50)

NOV., 1971									
17...	490	110	49	4.7	2020	7.3	.5	50	230
FEB., 1972									
16...	1600	620	66	15	8020	7.4	.0	100	1100
MAY									
18...	260	52	34	1.8	775	7.6	17.5	60	120
AUG.									
14...	740	330	63	11	4040	8.8	24.5	60	590

05099380 - PEMBINA RIVER NEAR VANG, N. DAK. (LAT 48 55 00 LONG 098 03 23)

OCT., 1971									
13...	310	78	26	1.3	776	8.2	7.5	20	160
DEC.									
16...	420	89	25	1.4	1120	7.4	.0	20	200
MAR., 1972									
21...	120	35	22	.7	356	7.4	.5	100	70
APR.									
13...	130	17	24	.8	379	7.4	1.0	200	70
MAY									
03...	180	45	24	.9	494	7.6	12.5	60	90
JUNE									
15...	280	56	24	1.1	705	8.0	14.0	40	130
SEP.									
11...	250	33	27	1.2	671	8.4	18.0	30	210

05099400 - L PEMBINA RIVER NR WALTHALLA, N. DAK. (LAT 48 51 55 LONG 098 00 20)

OCT., 1971									
14...	330	120	28	1.5	848	8.2	8.0	10	140
DEC.									
16...	390	100	25	1.3	1040	7.5	.0	5	120
MAR., 1972									
20...	130	24	29	1.0	387	7.5	.5	100	70
24...	140	39	31	1.1	431	7.5	.0	100	70
APR.									
13...	110	5	31	1.0	352	7.5	1.0	200	70
18...	160	49	34	1.4	507	7.6	4.5	50	100
MAY									
02...	230	61	34	1.7	712	7.9	17.0	20	130
JUNE									
15...	320	97	31	1.7	885	7.8	9.5	10	190
SEP.									
11...	290	66	29	1.4	801	8.0	19.5	--	220

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STREAM STATIONS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER- ATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PEN- DED SED- IMENT (MG/L)	SUS- PEN- DED SED- IMENT (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05099380 - PEMRINA RIVER NEAR VANG, N. DAK.

OCT.												
13...	1640	7.5	82	34	7.6	--	--	--	--	--	--	--
DEC.												
16...	1000	.0	21	38	2.2	--	--	--	--	--	--	--
MAR.												
21...	1040	.5	755	224	457	48	84	88	98	99	100	--
APR.												
13...	1630	1.0	2800	2240	16900	30	42	56	81	90	97	--
17...	1710	4.5	2250	2040	12400	32	48	62	85	92	95	100
MAY												
03...	1130	11.5	1130	709	2160	36	47	70	89	93	96	100
JUNE												
15...	1140	14.0	292	158	125	--	--	--	98	98	99	100
SEP.												
11...	1715	18.0	97	54	14	--	--	--	--	--	--	--

05099400 - L PEMRINA RIVER NR WALHALLA, N. DAK.

DATE	TIME	TEMPER- ATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PEN- DED SED- IMENT (MG/L)	SUS- PEN- DED SED- IMENT (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
OCT.												
14...	1210	8.0	1.5	27	.11	--	--	--	--	--	--	--
DEC.												
16...	1530	.0	.31	68	.06	--	--	--	--	--	--	--
MAR.												
20...	1618	.5	366	1420	1400	--	--	--	--	--	--	--
26...	1200	.0	75	954	153	32	41	66	93	99	100	--
APR.												
13...	1025	1.0	427	4170	4810	28	41	67	84	87	92	100
19...	1140	4.5	100	471	154	54	68	88	96	97	99	100
MAY												
02...	1615	17.0	30	201	16	--	--	--	--	--	--	--
JUNE												
15...	0040	8.8	2.2	122	1.1	--	--	--	--	--	--	--
SEP.												
11...	1228	18.8	.18	68	.03	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06470880 - HYATT SLOUGH NEAR LUDDEN, N. DAK.

MAR. 28...	1630	3.6	12	300	90	10	22	7.9	15	8.4	98	0
MAY 30...	1900	.60	19	10	90	230	53	48	150	40	518	0
SEP. 25...	1800	.00	26	0	90	50	43	66	350	69	728	49

DATE	ALKA- LINITY AS CaCO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM
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06470880 - HYATT SLOUGH NEAR LUDDEN, N. DAK.

MAR. 28...	90	34	8.1	.3	1.4	.36	180	.24	1.75	87	7	25
MAY 30...	425	120	90	.5	.12	.59	832	1.13	1.35	330	0	46
SEP. 25...	679	220	250	.7	.02	.09	1590	2.16	.00	380	0	62

DATE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	CYANIDE (CM) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED PARTIC- ULATE (PA) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
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06470880 - HYATT SLOUGH NEAR LUDDEN, N. DAK.

MAR. 28...	.7	263	7.2	1.0	70	10	9.8	.00	10	0	90	1
MAY 30...	3.6	1260	7.7	19.5	70	6	12.6	.00	8	100	290	0
SEP. 25...	7.8	2310	8.4	11.0	100	9	13.4	.00	8	0	430	1

DATE	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED MANG- NESE (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANAD- IUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
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06470880 - HYATT SLOUGH NEAR LUDDEN, N. DAK.

MAR. 28...	0	1	5	5	10	.5	2	10	6	130	2.4	2100
MAY 30...	0	0	40	2	90	.3	0	6	--	290	7.9	20
SEP. 25...	0	2	20	2	220	1.3	0	5	23	280	6.7	20

The Geological Survey collects data on specific conductance and water temperature at all stream-gaging stations. In addition, at all these stations other than regular water-quality stations periodic samples are collected for standard analysis. These data are collected during routine visits to the station for the purpose of measuring streamflow. Additional information pertaining to location, drainage area and period of record are published in Part 1 of this report.

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05051500 - RED RIVER OF THE NORTH AT WAHPETON, N.DAK. (LAT 46 15 55 LONG 096 35 40)

OCT., 1971				
05...	1900	184	430	13.5
28...	1400	314	--	8.5
DEC.				
01...	1200	401	--	.0
29...	1100	700	--	.0
FEB., 1972				
02...	1200	520	--	.0
MAR.				
02...	1500	564	--	.0
15...	1800	812	315	.0
18...	1800	2780	350	.0
23...	1800	2030	400	1.0
APR.				
04...	1600	1870	520	1.5
25...	1800	1680	--	8.0
JUNE				
01...	1200	2030	535	19.0
29...	1200	1020	--	21.0
AUG.				
09...	1835	604	625	19.0
30...	1200	580	435	23.0
SEP.				
27...	1500	422	440	12.0

05051600 - WILD RICE RIVER NR RUTLAND, N.DAK. (LAT 46 01 20 LONG 097 30 40)

NOV., 1971				
03...	0800	.01	1650	--
MAR., 1972				
18...	1000	368	310	.0
21...	1430	262	350	3.5
28...	1500	104	500	.5
APR.				
04...	1200	34	640	1.0
12...	1130	27	680	3.0
MAY				
03...	1130	11	--	10.5
JUNE				
06...	2100	25	1300	25.5
JULY				
10...	1600	.24	1490	28.5
AUG.				
10...	1230	2.0	1470	21.0

05051700 - WILD RICE RIVER NR CAYUGA, N. DAK. (LAT 46 07 30 LONG 097 21 40)

DEC., 1971				
01...	1130	.01	2340	.0
MAR., 1972				
15...	1330	135	250	.0
18...	1130	59	350	.0
21...	1630	285	900	4.0
28...	1700	37	1020	.5
APR.				
04...	1330	151	660	1.0
12...	1330	100	730	3.0
MAY				
03...	1000	46	910	11.0
JUNE				
06...	1930	64	1000	25.5
JULY				
10...	1500	2.2	1040	27.5
AUG.				
10...	1100	2.4	1260	17.5
SEP.				
06...	1200	.01	2590	22.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05054500 - SHEYENNE RIVER AB HARVEY, N. DAK. (LAT 47 42 10 LONG 099 56 55)

OCT., 1971				
04...	1400	6.1	1250	10.0
NOV.				
01...	1400	3.3	1375	.0
DEC.				
08...	1230	1.5	1630	.0
APR., 1972				
13...	1300	25	660	.5
17...	1200	23	--	6.0
MAY				
02...	1230	16	1320	13.5
JUNE				
05...	1200	4.2	1280	22.0
30...	1200	1.8	1300	22.0
AUG.				
04...	1300	1.1	1360	21.0
31...	1200	.18	1490	20.0

05055520 - BIG COULEE NR FORT TOTTEN, N. DAK. (LAT 47 52 57 LONG 098 58 02)

OCT., 1971				
07...	1210	2.1	580	10.0
29...	1300	1.4	620	3.0
DEC.				
01...	1000	.56	620	.0
29...	1200	.54	580	.0
FEB., 1972				
03...	1100	.36	570	.0
MAR.				
03...	1610	.45	510	.0
APR.				
26...	1000	2.3	530	6.0
JUNE				
01...	1400	4.1	640	18.0
29...	1600	.53	630	24.5
AUG.				
02...	0930	.75	600	14.0

05056100 - MAUVIS COULEE NR CANDU, N. DAK. (LAT 48 26 53 LONG 099 06 08)

OCT., 1971				
06...	1400	1.3	1230	13.0
NOV.				
03...	1130	7.4	1300	.0
DEC.				
09...	1300	1.4	1410	.0
JAN., 1972				
05...	1545	.03	1700	.0
APR.				
05...	1045	102	500	.0
19...	1630	8.2	520	8.5
MAY				
04...	1300	48	590	10.5
JUNE				
07...	1300	6.5	900	24.0
28...	1100	1.5	1090	20.0
AUG.				
03...	1000	.16	990	17.5
30...	1200	.08	1440	21.0

05056200 - EDMORE COULEE NR EDMORE, N. DAK. (LAT 48 20 14 LONG 098 39 33)

NOV., 1971				
02...	0900	.30	750	1.5
APR., 1972				
04...	1500	61	370	1.0
19...	1000	132	430	7.0
MAY				
03...	1700	20	580	12.0
JUNE				
06...	1700	5.7	920	23.5
28...	0900	.04	1110	18.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05057200 - BALDHILL CREEK NR DAZEY, N. DAK. (LAT 47 13 45 LONG 098 07 28)

OCT., 1971				
05...	1500	5.1	--	12.5
NOV.				
03...	1700	7.0	780	.5
DEC.				
07...	1500	4.3	1390	.0
JAN., 1972				
04...	1700	2.4	1450	.0
FEB.				
09...	0800	.16	1460	.0
MAR.				
09...	1800	.16	1350	.0
14...	1200	139	210	.0
15...	1400	156	210	1.5
20...	1800	101	330	1.5
30...	1500	39	510	.0
APR.				
10...	1500	28	--	1.5
18...	1800	202	500	8.0
MAY				
02...	1500	28	790	11.0
JUNE				
08...	1100	17	1010	25.0
JULY				
06...	1600	2.8	965	23.0
AUG.				
09...	1200	3.6	850	16.5
SEP.				
01...	1740	1.2	860	--

05058000 - SHEYENNE RIVER BL BALDHILL DAM, N. DAK. (LAT 47 01 50 LONG 098 05 50)

OCT., 1971				
05...	1800	40	560	13.0
NOV.				
03...	1600	90	580	5.0
DEC.				
07...	1600	156	640	1.0
JAN., 1972				
05...	1000	177	770	2.0
FEB.				
09...	1200	69	870	.5
MAR.				
27...	1700	694	700	2.5
APR.				
03...	1600	948	660	2.0
10...	1700	92	620	2.0
MAY				
02...	1700	163	560	7.5
JUNE				
09...	1000	242	520	22.0
JULY				
06...	1700	12	560	21.0
AUG.				
09...	1400	17	560	21.0
SEP.				
01...	1200	24	580	21.0

05058500 - SHEYENNE RIVER AT VALLEY CITY, N. DAK. (LAT 46 54 50 LONG 098 00 30)

NOV., 1971				
03...	1300	76	600	2.0
DEC.				
08...	0900	148	630	.0
JAN., 1972				
05...	1200	161	780	.0
FEB.				
09...	1500	63	880	.0
MAR.				
09...	1300	28	1000	.0
14...	1500	285	235	.0
21...	0900	52	380	2.0
28...	0900	756	700	1.0
APR.				
03...	1800	1020	650	1.5
MAY				
03...	0930	177	560	10.5
JUNE				
08...	1800	213	530	24.0
JULY				
06...	2000	19	560	21.5
AUG.				
09...	1600	18	610	19.5
SEP.				
01...	1500	22	610	20.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05059000 - SHEYENNE RIVER NR KINDRED, N. DAK. (LAT 46 37 35 LONG 097 00 05)

OCT., 1971				
13...	1350	83	750	8.0
NOV.				
04...	1130	110	750	1.0
JAN., 1972				
05...	1255	205	305	.0
FEB.				
09...	1430	124	900	.0
MAR.				
10...	1400	70	1060	.0
16...	1335	400	520	.0
18...	1435	1210	420	--
19...	1025	1490	320	.0
20...	1910	1390	372	.0
22...	1015	806	350	1.0
28...	1405	346	550	.0
APR.				
04...	1350	928	700	.5
11...	1435	986	680	4.0
MAY				
04...	1800	388	680	11.5
JUNE				
07...	1925	600	630	23.5
JULY				
06...	1430	110	--	19.5
AUG.				
09...	1300	62	790	16.5
SEP.				
06...	1200	57	860	16.0

05059500 - SHEYENNE RIVER AT WEST FARGO, N. DAK. (LAT 46 53 28 LONG 096 54 24)

OCT., 1971				
05...	0930	47	--	11.5
NOV.				
02...	0900	97	780	2.0
DEC.				
09...	1100	201	780	.0
JAN., 1972				
04...	1630	148	320	.0
MAR.				
10...	1030	66	995	.0
18...	1000	770	520	.0
19...	1330	1060	522	--
21...	1130	1490	390	--
22...	1200	1490	390	--
24...	1130	744	350	1.5
27...	1850	405	470	--
APR.				
04...	1000	823	750	.0
13...	1600	1240	680	4.0
26...	1600	1060	--	9.0
MAY				
02...	1230	770	510	10.5
JUNE				
05...	1800	792	640	22.0
JULY				
06...	1015	111	780	19.0
AUG.				
08...	1730	73	860	17.5
SEP.				
05...	1600	58	860	16.0

05059600 - MAPLE RIVER NR HOPE, N. DAK. (LAT 47 19 30 LONG 097 47 25)

MAR., 1972				
13...	1605	59	--	.0
14...	1500	60	185	1.0
16...	1230	38	320	1.5
20...	1420	9.5	540	4.5
30...	1300	1.0	1080	.0
APR.				
11...	1415	11	590	3.0
MAY				
02...	1200	.78	1350	11.0
27...	1610	255	570	20.0
JUNE				
06...	1505	1.3	1510	23.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05059700 - MAPLE RIVER NR ENDERLIN, N. DAK. (LAT 46 37 18 LONG 097 34 25)

OCT., 1971				
06...	1800	3.1	1540	13.0
NOV.				
03...	1600	12	1800	2.5
DEC.				
08...	1500	6.9	1800	--
JAN., 1972				
05...	1600	2.8	735	.0
FEB.				
09...	1700	4.9	1800	.5
MAR.				
09...	1300	3.5	2170	.0
14...	1700	275	300	.0
17...	1600	698	340	.0
21...	1100	379	480	2.0
28...	1045	60	680	2.5
APR.				
11...	1800	41	1250	5.5
MAY				
03...	1530	43	1200	12.5
30...	1430	91	1400	17.0
JUNE				
07...	1430	71	1240	25.0
JULY				
06...	1700	1.1	1230	11.0
AUG.				
10...	1700	13	1120	19.5
22...	1345	143	--	19.0
SEP.				
07...	1030	16	1000	14.5

05060000 - MAPLE RIVER NR MAPLETON, N. DAK. (LAT 46 51 40 LONG 097 06 10)

OCT., 1971				
06...	1530	7.7	860	12.5
NOV.				
03...	1030	65	880	.5
DEC.				
08...	1230	15	1880	.0
JAN., 1972				
05...	1430	4.3	1740	.0
FEB.				
09...	1730	2.5	1600	.0
MAR.				
09...	1130	2.5	--	.0
16...	1640	1610	310	.0
17...	1245	2400	320	.0
19...	1245	1710	310	.0
23...	1515	713	460	3.0
28...	1140	290	597	.0
APR.				
04...	1140	137	720	.5
MAY				
03...	1500	106	1150	10.5
30...	1700	1340	610	16.5
JUNE				
09...	1545	131	1250	24.0
JULY				
07...	1050	22	1440	19.0
AUG.				
09...	1745	26	1140	24.0
SEP.				
01...	1800	67	810	--

05060500 - RUSH RIVER AT AMENIA, N. DAK. (LAT 47 01 00 LONG 097 12 50)

NOV., 1971				
03...	0900	3.5	1290	.5
DEC.				
08...	1030	.47	2010	.0
JAN., 1972				
05...	1500	.03	2600	.0
MAR.				
16...	1045	224	400	.0
30...	1125	9.8	700	1.5
APR.				
11...	1230	8.2	880	3.5
19...	1050	58	500	8.0
MAY				
03...	1130	6.7	1200	10.5
JUNE				
09...	1400	1.4	1430	23.5
JULY				
07...	0910	.31	1400	15.0
AUG.				
09...	1900	.06	1380	21.0
SEP.				
01...	1630	.03	1290	17.5

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05064500 - RED RIVER OF THE N AT HALSTAD, MINN. (LAT 47 21 10 LONG 096 50 50)

OCT., 1971				
07...	1320	929	510	12.0
NOV.				
04...	1530	2910	650	2.0
DEC.				
06...	1245	1120	605	.0
JAN., 1972				
03...	1730	1040	--	.0
FEB.				
08...	1545	887	660	.0
MAR.				
13...	1205	838	--	.0
22...	1745	14900	345	.0
23...	1250	15200	280	--
27...	1330	14200	380	.0
29...	1230	9850	--	2.0
APR.				
14...	1400	13200	380	--
17...	1540	12000	475	--
19...	1740	9300	495	8.0
24...	1400	595	580	8.0
MAY				
01...	1530	4700	600	12.0
31...	1230	6600	630	17.5
JUNE				
05...	1245	5300	680	21.0
JULY				
05...	1415	1390	560	21.0
AUG.				
08...	1500	1180	600	19.0
SEP.				
05...	1430	790	570	17.0

05065500 - GOOSE RIVER NR PORTLAND, N. DAK. (LAT 47 32 20 LONG 097 27 20)

OCT., 1971				
04...	1300	72	980	11.5
NOV.				
02...	1130	9.8	1150	1.0
DEC.				
06...	1630	4.7	1600	.0
JAN., 1972				
04...	1200	.97	1960	.0
FEB.				
08...	1100	.33	2250	.0
MAR.				
07...	1150	.43	2120	.0
14...	1100	74	460	.0
15...	1100	490	465	1.0
17...	1615	954	260	.0
19...	1530	762	--	.0
29...	1530	70	550	1.0
APR.				
11...	1550	39	610	--
14...	1630	1070	375	1.0
17...	1845	1700	395	7.0
20...	1445	523	525	7.0
MAY				
01...	1315	80	1070	12.0
30...	1120	95	1110	16.0
JUNE				
06...	1100	31	1300	--
JULY				
06...	1000	2.4	1500	17.5
AUG.				
08...	1220	1.6	1210	16.0
31...	1200	.05	1300	20.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05066500 - GOOSE RIVER AT HILLSBORO, N. DAK. (LAT 47 24 20 LONG 097 03 40)

OCT., 1971				
07...	1500	33	690	13.0
NOV.				
01...	1515	37	1750	3.0
DEC.				
06...	1440	20	1580	.0
JAN., 1972				
03...	1140	8.0	2680	.0
FEB.				
08...	1240	4.4	2200	.0
MAR.				
07...	1100	4.8	2320	.0
17...	1200	2190	320	.0
19...	1640	1750	325	.0
22...	1530	555	435	.0
29...	1400	92	570	.5
APR.				
14...	1145	2180	385	1.5
20...	1230	1680	490	--
MAY				
01...	1330	189	1000	12.5
JUNE				
09...	1230	105	1120	23.0
JULY				
05...	1600	14	1300	21.0
AUG.				
08...	1230	7.1	1190	17.0
SEP.				
05...	1200	3.8	1460	15.0

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, N. DAK. (LAT 48 14 50 LONG 098 07 00)

MAR., 1972				
15...	1330	12	--	.5
16...	1340	14	180	3.0
21...	1450	29	410	2.0
24...	1300	39	420	1.0
APR.				
13...	1410	49	430	--
25...	1245	7.2	550	9.0
MAY				
22...	1250	1.4	800	19.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05084000 - FOREST RIVER NR FORDVILLE, N.DAK. (LAT 48 11 50 LONG 097 43 49)

OCT., 1971				
19...	1140	14	680	10.5
NOV.				
23...	1255	21	660	.0
DEC.				
25...	1345	9.4	760	.0
JAN., 1972				
27...	1435	6.8	680	.0
FEB.				
28...	1540	9.4	630	.0
MAR.				
15...	1150	1020	--	.0
18...	1430	514	300	.5
21...	1330	286	370	5.0
29...	1240	132	490	5.0
APR.				
13...	1610	617	310	1.0
18...	1340	244	470	5.0
25...	1515	90	600	10.0
MAY				
22...	1435	39	790	19.5
JUNE				
13...	1440	21	660	21.5
JULY				
12...	1500	7.4	650	20.5
AUG.				
15...	1530	8.3	600	25.0
SEP.				
15...	1100	5.8	600	13.0

05089000 - SOUTH BRANCH PARK RIVER BL HOMME DAM, N. DAK. (LAT 48 24 07 LONG 097 46 55)

DEC., 1971				
17...	1445	2.8	780	.0
JAN., 1972				
12...	1130	7.4	780	.0
FEB.				
14...	1530	17	750	1.0
MAR.				
15...	1450	5.0	--	.5
18...	1600	710	--	.0
22...	1610	146	--	.5
29...	1500	203	600	1.5
APR.				
13...	1520	278	290	1.5
18...	1515	57	330	4.5
MAY				
10...	1600	21	415	12.0
JUNE				
14...	1535	21	520	19.5
JULY				
11...	0840	1.9	510	16.5
AUG.				
17...	0920	2.1	580	21.5
SEP.				
15...	1430	1.4	560	14.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05089100 - MIDDLE BRANCH PARK RIVER NR UNION, N. DAK. (LAT 48 32 32 LONG 098 01 10)

OCT., 1971				
14...	1420	.02	--	8.0
NOV.				
15...	1300	.07	590	1.0
DEC.				
17...	1210	.02	620	.0
MAR., 1972				
14...	1540	2.0	--	.0
17...	1560	190	--	.0
21...	1630	30	--	.5
29...	1540	.60	373	2.5
APR.				
04...	1145	.40	--	.0
14...	1330	42	--	1.0
21...	1105	2.1	380	9.0
MAY				
10...	1400	.35	570	15.0
JUNE				
14...	1700	.02	670	26.0
AUG.				
17...	1000	.01	630	21.5
SEP.				
12...	1655	.10	530	14.0

05089500 - CART CREEK AT MOUNTAIN, N. DAK. (LAT 48 40 37 LONG 097 51 41)

OCT., 1971				
14...	1400	.34	--	8.0
NOV.				
16...	1450	.64	1000	1.5
MAR., 1972				
15...	1710	5.0	--	.0
16...	1355	140	--	.5
21...	1520	17	--	.5
23...	1610	12	--	.0
29...	1530	2.2	605	.0
APR.				
03...	1600	3.4	--	.0
14...	1215	33	--	1.0
21...	1220	7.8	540	9.0
MAY				
10...	1300	3.0	740	14.0
JUNE				
16...	0935	.31	850	10.5

05090000 - PARK RIVER AT GRAFTON, N. DAK. (LAT 48 25 24 LONG 097 24 30)

NOV., 1971				
19...	1350	4.1	1370	1.5
DEC.				
14...	1410	.10	1200	.0
FEB., 1972				
25...	1610	12	1520	.0
MAR.				
16...	1720	20	--	.5
18...	1730	810	--	.5
20...	1615	1360	310	--
22...	1240	975	340	.0
28...	1305	170	375	1.0
APR.				
13...	1340	1300	325	1.0
17...	1645	963	360	3.5
19...	1420	414	410	5.5
MAY				
09...	1245	56	940	10.5
JUNE				
14...	1400	8.4	1140	21.0
JULY				
10...	1530	.01	1280	23.0
AUG.				
16...	1215	.04	1360	24.0
SEP.				
14...	1045	6.0	1340	15.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05092000 - RED RIVER AT DRAYTON, N. DAK. (LAT 48 34 20 LONG 097 08 50)

OCT., 1971				
12...	1310	3350	--	10.5
NOV.				
18...	1630	6600	785	.5
DEC.				
14...	1230	2530	720	.0
JAN., 1972				
10...	1445	2160	620	.0
28...	1355	1380	570	.0
FEB.				
25...	1320	1430	530	.0
MAR.				
17...	1210	2000	520	.0
20...	1420	9250	--	.0
30...	1500	1880	--	.0
APR.				
12...	1145	13300	--	2.0
14...	1215	18400	520	2.0
17...	1250	27400	365	4.0
19...	1235	30900	360	5.0
21...	1540	30500	360	7.0
24...	1455	30000	450	7.5
28...	1610	22200	530	10.0
MAY				
02...	1200	15700	--	12.5
05...	1330	12500	590	12.5
09...	1600	8200	610	11.5
JUNE				
05...	1435	9960	--	21.0
16...	1400	5300	690	20.0
JULY				
10...	1905	2170	580	24.0
AUG.				
16...	1505	2540	610	24.0
SEP.				
14...	1530	2160	550	17.5

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, N. DAK. (LAT 48 41 49 LONG 097 23 03)

APR., 1972				
12...	1340	27	375	1.0
14...	1435	76	450	5.5
17...	1450	9.7	430	5.5
18...	1635	3.7	435	9.0
21...	1330	1.3	500	--
24...	1820	.17	560	14.0

05098700 - HIDDEN ISLAND COULEE NR HANSBORO, N. DAK. (LAT 48 57 10 LONG 099 25 35)

NOV., 1971				
02...	1215	.14	1050	.0
MAR., 1972				
18...	1200	15	--	.5
APR.				
04...	1040	3.4	700	.0
19...	1500	17	700	9.0
MAY				
03...	1350	3.4	960	12.0
JUNE				
06...	1415	.32	1340	24.0
28...	1240	1.5	1290	21.5
29...	1110	1.4	1350	20.0

05098800 - LONG RIVER NR SARLES, N. DAK. (LAT 48 56 35 LONG 098 57 05)

MAR., 1972				
18...	1320	159	--	.0
APR.				
04...	1230	8.6	650	.5
19...	1300	16	490	8.5
MAY				
03...	1550	1.2	--	15.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05099380 - PEMBINA RIVER NEAR VANG, N. DAK. (LAT 48 55 00 LONG 098 03 23)

OCT., 1971				
13...	1645	82	--	7.5
DEC.				
16...	1015	21	--	.0
MAR., 1972				
21...	1045	754	--	.5
APR.				
13...	1550	2770	--	1.0
MAY				
03...	1130	1130	--	12.5
JUNE				
15...	1130	292	--	14.0
SEP.				
11...	1730	97	650	18.0

05099400 - L PEMBINA RIVER NR WALHALLA, N. DAK. (LAT 48 51 55 LONG 098 00 20)

OCT., 1971				
14...	1215	1.5	--	8.0
NOV.				
17...	1540	2.7	1050	2.0
DEC.				
16...	1530	.33	890	.0
JAN., 1972				
11...	1440	.33	330	.0
FEB.				
16...	1630	.02	--	.0
MAR.				
16...	0955	.50	--	.0
17...	1445	415	--	.5
20...	1610	439	--	.5
24...	1210	112	--	.0
29...	1150	35	--	.0
APR.				
13...	1920	311	--	1.0
18...	1030	105	--	4.5
MAY				
02...	1600	30	--	17.0
10...	1045	16	750	--
JUNE				
15...	0935	3.5	880	9.5
JULY				
11...	1855	.47	770	20.0
SEP.				
11...	1200	.22	780	19.5

05100000 - PEMBINA RIVER AT NECHE, N. DAK. (LAT 48 59 20 LONG 097 33 05)

OCT., 1971				
13...	1455	107	--	7.5
NOV.				
17...	1330	77	975	.0
DEC.				
15...	1410	29	720	--
JAN., 1972				
10...	1655	21	1010	.0
FEB.				
22...	1635	9.5	1095	.0
MAR.				
23...	1150	1080	--	.0
23...	1725	1080	340	.0
APR.				
03...	1325	460	--	.0
12...	1500	2050	385	1.0
17...	1615	1830	420	4.5
21...	1210	1610	475	6.5
24...	1715	1480	500	6.5
MAY				
09...	1900	1140	490	11.5
JUNE				
15...	1435	343	690	16.5
JULY				
11...	1425	200	710	21.0
AUG.				
17...	1855	180	625	25.0
SEP.				
14...	1800	111	700	15.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, N. DAK. (LAT 48 45 13 LONG 097 54 22)

OCT., 1971				
14...	1300	.03	--	8.0
NOV.				
16...	1625	4.0	675	2.0
DEC.				
15...	1615	.03	900	.0
MAR., 1972				
17...	1320	.85	--	.0
20...	1455	39	--	.5
23...	1740	29	240	.5
29...	1255	614	--	1.5
APR.				
04...	0950	2.3	--	.0
14...	1100	63	--	1.0
18...	1345	39	--	4.5
21...	1310	20	300	5.5
MAY				
02...	1555	4.4	--	17.0
10...	1200	1.4	--	10.5
JUNE				
16...	0855	.08	710	10.5
AUG.				
17...	1250	.02	580	25.0

05101000 - TONGUE RIVER AT AKRA, N. DAK. (LAT 48 46 40 LONG 097 42 55)

OCT., 1971				
14...	0925	.96	--	7.5
NOV.				
17...	1010	16	610	1.5
DEC.				
15...	1545	3.9	590	.0
JAN., 1972				
11...	1720	3.3	235	.0
FEB.				
22...	1420	4.0	770	.0
MAR.				
16...	0915	4.3	--	.0
20...	1350	217	--	.5
23...	1535	183	290	.5
APR.				
04...	0915	15	--	.0
14...	1000	242	--	1.5
21...	1450	116	360	4.0
MAY				
11...	1130	28	470	11.0
JUNE				
16...	1050	5.6	590	13.5
JULY				
11...	1130	2.8	600	19.0
AUG.				
17...	1225	2.4	600	22.5
SEP.				
12...	0900	1.9	580	16.5

05113600 - LONG CR NR NOONAN, N. DAK. (LAT 48 58 52 LONG 103 04 34)

OCT., 1971				
05...	1325	1.8	--	12.0
NOV.				
02...	1320	2.3	820	1.0
DEC.				
01...	1405	1.1	--	.5
JAN., 1972				
04...	1320	.28	--	.0
MAR.				
15...	1140	750	--	2.0
22...	1250	1390	--	2.0
APR.				
04...	1120	83	--	1.0
MAY				
02...	1500	32	860	9.0
JUNE				
06...	0925	31	1780	20.0
10...	2030	1350	--	15.5
11...	1105	1750	343	15.5
JULY				
06...	1100	26	1210	22.0
AUG.				
02...	1225	14	1040	19.0
SEP.				
07...	1000	1.4	1290	12.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05114000 - SOURIS (MOUSE) RIVER NR SHERWOOD, N. DAK. (LAT 48 59 24 LONG 101 57 28)

OCT., 1971				
07...	1315	71	710	10.0
NOV.				
04...	1550	18	1050	1.0
DEC.				
08...	1415	11	1520	.0
JAN., 1972				
05...	1315	5.8	1650	.0
FEB.				
10...	1225	2.8	1700	.0
MAR.				
10...	1245	2.9	1700	.0
16...	1120	500	200	.0
APR.				
04...	1400	1290	360	.5
19...	1700	580	520	7.5
MAY				
04...	1100	183	780	11.0
JUNE				
07...	1215	240	1080	22.0
JULY				
12...	1520	81	870	20.0
AUG.				
09...	1625	32	850	19.5
SEP.				
06...	1350	99	1160	14.5

05116000 - SOURIS (MOUSE) RIVER NR FOXHOLM, N. DAK. (LAT 48 22 20 LONG 101 30 18)

OCT., 1971				
07...	1900	40	760	11.0
NOV.				
04...	1130	59	790	1.7
DEC.				
07...	1445	72	650	.0
JAN., 1972				
06...	1630	72	840	.0
FEB.				
09...	1840	76	900	--
MAR.				
10...	1720	70	900	.0
APR.				
20...	1240	1170	490	4.5
MAY				
02...	1550	144	520	10.0
JUNE				
07...	1800	414	540	24.0
JULY				
12...	1130	51	520	21.0
AUG.				
10...	1045	38	530	19.0
SEP.				
08...	1330	44	630	14.5

05116500 - DES LACS RIVER AT FOXHOLM, N. DAK. (LAT 48 22 14 LONG 101 34 11)

OCT., 1971				
07...	1705	11	1110	10.0
NOV.				
04...	1230	7.0	1500	1.0
DEC.				
07...	1610	4.8	1840	.0
JAN., 1972				
06...	1500	1.1	2200	.0
MAR.				
10...	1615	8.0	750	.0
15...	1445	900	165	1.0
MAY				
02...	1750	148	900	10.0
JUNE				
07...	1630	152	1030	24.5
JULY				
12...	1230	20	1370	19.0
AUG.				
10...	0950	39	1000	--
SEP.				
08...	1245	111	970	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05117500 - SOURIS (MOUSE) RIVER ABOVE MINOT, N. DAK. (LAT 48 14 45 LONG 101 22 15)

OCT., 1971				
08...	1325	57	1060	8.0
NOV.				
04...	1000	64	900	5.0
DEC.				
07...	1255	79	600	.0
JAN., 1972				
06...	1250	70	880	.0
FEB.				
09...	1405	70	980	.0
MAR.				
08...	1605	75	1000	.0
17...	0925	1200	--	.0
APR.				
05...	1710	1890	590	1.5
MAY				
02...	1250	323	730	11.0
JUNE				
06...	1840	582	700	22.5
JULY				
12...	0915	66	670	20.0
AUG.				
10...	1210	96	720	19.5
SEP.				
08...	1110	133	1000	13.5

05120200 - WINTERING RIVER NR BERGEN, N. DAK. (LAT 47 55 50 LONG 100 40 15)

MAR., 1972				
13...	1800	100	240	.0
20...	1500	177	360	4.0
APR.				
11...	1500	34	820	3.5
MAY				
01...	1500	4.9	1400	13.0
JUNE				
05...	1535	1.5	2920	25.5

05120500 - WINTERING RIVER NR KARLSRUHE, N. DAK. (LAT 48 10 14 LONG 100 32 20)

OCT., 1971				
04...	1840	8.8	660	10.0
NOV.				
03...	1420	6.0	780	1.0
DEC.				
06...	1715	4.3	650	.0
JAN., 1972				
03...	1730	1.3	780	.0
MAR.				
20...	1645	60	280	.0
APR.				
06...	1215	80	500	.0
11...	1730	57	580	4.5
MAY				
01...	1755	25	660	14.0
JUNE				
09...	1100	8.8	1000	17.0
JULY				
11...	1330	4.0	780	20.5
AUG.				
07...	1615	5.1	620	20.0
SEP.				
05...	1650	1.8	600	15.5

05122000 - SOURIS (MOUSE) RIVER NEAR BANTRY, N. DAK. (LAT 48 30 20 LONG 100 26 04)

OCT., 1971				
05...	1700	64	1080	12.0
NOV.				
02...	1025	99	1200	3.0
DEC.				
09...	1305	75	950	.0
JAN., 1972				
04...	1400	65	1450	.0
FEB.				
10...	1940	50	1050	.0
MAR.				
09...	1610	70	1020	.0
MAY				
04...	1855	1430	620	13.0
JUNE				
08...	1710	573	840	22.0
JULY				
13...	1630	284	750	20.0
AUG.				
08...	1215	131	900	18.5
SEP.				
07...	1435	144	630	14.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05123100 - OAK CREEK AT LAKE METIGOSHE OUTLET NR BOTTINEAU, N. DAK. (LAT 48 57 56 LONG 100 21 47)

DEC., 1971				
08...	1555	6.2	530	1.5
JAN., 1972				
05...	1030	2.6	560	1.5
FEB.				
09...	0930	.10	650	.0
APR.				
18...	1750	38	530	2.5
MAY				
03...	1055	48	235	6.0
JUNE				
06...	1000	29	470	20.5
30...	1000	10	520	20.5
AUG.				
03...	1700	1.6	450	20.0
30...	1505	.75	440	24.0

05123400 - WILLOW C NR WILLOW CITY, N.DAK.(LAT 48 35 20 LONG 100 26 30)

OCT., 1971				
05...	1840	10	1120	13.0
NOV.				
02...	1200	57	1450	1.0
DEC.				
09...	1200	7.3	1750	.0
JAN., 1972				
04...	1505	2.5	2480	.0
MAR.				
24...	1020	828	320	.5
APR.				
18...	0945	498	540	5.5
MAY				
03...	1755	513	630	13.5
JUNE				
08...	1515	110	780	23.5
JULY				
13...	1740	7.1	700	21.5
AUG.				
08...	1355	.37	650	19.0
SEP.				
07...	1250	2.3	1040	13.0

05123510 - DEEP RIVER NR UPHAM, N.DAK.(LAT 48 35 03 LONG 100 51 34)

MAR., 1972				
22...	1740	620	340	1.0
APR.				
05...	1140	79	360	.5
12...	1230	50	395	3.5
MAY				
03...	1540	23	540	13.0
JUNE				
08...	2035	5.7	730	22.0
JULY				
12...	1725	2.1	720	22.5
AUG.				
08...	1645	.22	670	20.5
SEP.				
06...	1640	.01	770	13.5

05123600 - EGG CREEK NR GRANVILLE, N. DAK. (LAT 48 21 18 LONG 100 49 19)

OCT., 1971				
06...	1115	7.1	910	9.0
NOV.				
03...	1705	17	1850	2.0
16...	1220	8.2	2250	2.0
DEC.				
09...	0915	1.6	2180	.0
MAR., 1972				
16...	1625	316	186	.0
30...	1625	44	620	1.5
APR.				
14...	1115	35	650	5.5
MAY				
03...	1120	11	950	10.5
JUNE				
09...	1245	7.3	1450	19.5
JULY				
14...	0925	.64	1480	18.0
AUG.				
09...	0935	.38	1650	17.0
SEP.				
07...	0945	3.4	1750	12.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05123700 - CUTBANK CREEK NR GRANVILLE, N. DAK. (LAT 48 23 10 LONG 100 46 00)

OCT., 1971				
06...	1250	2.0	1200	12.5
NOV.				
16...	1255	5.1	1420	3.5
DEC.				
09...	1005	4.0	1370	.0
JAN., 1972				
05...	1750	1.0	2100	.0
APR.				
12...	1630	52	470	2.5
MAY				
03...	1310	29	970	11.5
JUNE				
09...	1415	9.9	1160	19.5
JULY				
14...	1020	18	1230	19.0
AUG.				
09...	1040	8.4	1200	18.0
SEP.				
07...	1110	5.2	1380	11.0

05123900 - BOUNDARY CREEK NR LANDA, N. DAK. (LAT 48 48 46 LONG 100 51 46)

OCT., 1971				
06...	1540	1.1	770	11.5
NOV.				
02...	1435	2.4	1190	3.5
MAR., 1972				
16...	1115	45	122	.5
APR.				
04...	1805	31	550	.5
MAY				
04...	1420	17	800	13.5
JUNE				
08...	1235	5.3	1080	22.5
JULY				
12...	1525	3.3	1100	20.5
AUG.				
09...	1400	.05	1050	19.5

PART 6. MISSOURI RIVER BASIN
YELLOWSTONE RIVER BASIN

06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, N. DAK. (LAT 47 51 10 LONG 103 47 40)

OCT., 1971				
07...	1710	5.6	--	11.0
NOV.				
03...	1415	1.1	2000	2.0
DEC.				
07...	1600	.77	2400	1.0
JAN., 1972				
05...	1655	.50	2900	.0
FEB.				
03...	1640	.46	2290	.0
MAR.				
16...	1055	445	--	2.0
22...	1750	32	490	3.0
APR.				
07...	1005	7.0	1040	3.0
MAY				
05...	0830	7.4	1790	10.0
JUNE				
08...	1300	3.0	1210	21.0
JULY				
05...	1330	1.0	2080	22.0
AUG.				
04...	1100	.40	2100	21.0
SEP.				
08...	0930	.45	2400	13.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN
 LITTLE MUDDY CREEK BASIN

06331000 - LITTLE MUDDY CREEK BELOW COW CREEK NR WILLISTON, N. DAK. (LAT 48 17 04 LONG 103 34 21)

OCT., 1971				
06...	1410	16	--	12.0
NOV.				
03...	1615	18	1940	2.0
DEC.				
07...	1545	11	2010	.0
JAN., 1972				
05...	1455	5.3	2050	.0
FEB.				
03...	1315	4.3	2190	.0
MAR.				
09...	1655	6.5	1780	.0
13...	1130	2960	--	2.0
21...	1800	338	--	3.0
APR.				
05...	1440	51	960	2.0
MAY				
04...	1145	37	1710	10.0
JUNE				
07...	1710	22	2090	22.0
JULY				
05...	1615	16	1800	22.0
AUG.				
03...	1450	11	1820	20.0
SEP.				
07...	1600	17	1550	14.0

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, N. DAK. (LAT 48 22 35 LONG 102 46 00)

OCT., 1971				
04...	1700	6.3	--	12.0
NOV.				
01...	1700	4.7	1800	2.0
DEC.				
06...	1600	4.1	1690	.0
JAN., 1972				
03...	1700	1.5	1990	.0
FEB.				
01...	1030	.10	2190	.0
MAR.				
07...	1030	.30	1510	.0
14...	1300	709	--	2.0
21...	1045	660	625	3.0
29...	1030	--	690	2.0
APR.				
05...	1150	150	--	.5
MAY				
02...	0945	66	1075	9.0
JUNE				
05...	1540	37	--	21.0
JULY				
06...	1600	11	1610	22.0
AUG.				
03...	1100	11	1660	17.0

SHELL CREEK BASIN

06332520 - SHELL CREEK NR PARSHALL, N. DAK. (LAT 48 03 11 LONG 102 08 10)

OCT., 1971				
04...	1405	7.8	--	12.0
NOV.				
01...	1420	3.2	2700	2.0
DEC.				
02...	1155	2.3	--	.0
JAN., 1972				
03...	1440	.02	2500	.0
MAR.				
14...	1500	346	--	2.0
21...	1425	202	700	3.0
APR.				
03...	1510	26	990	2.0
MAY				
01...	1545	15	1800	11.0
JUNE				
05...	1245	28	1890	20.0
JULY				
07...	1050	9.4	2150	22.0
31...	1805	4.5	2220	23.0
SEP.				
05...	1420	3.2	2425	17.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, N. DAK. (LAT 46 16 29 LONG 103 58 33)

OCT., 1971				
14...	1035	23	930	8.0
NOV.				
09...	0950	20	1400	1.0
DEC.				
07...	1025	11	1570	.0
JAN., 1972				
11...	1115	10	1500	.0
FEB.				
09...	1140	5.8	1600	.0
MAR.				
12...	1850	3300	216	1.0
17...	1420	380	--	1.0
APR.				
06...	1140	48	1560	8.0
MAY				
09...	1235	801	2200	4.0
JUNE				
15...	1100	36	2130	19.0
JULY				
11...	1030	15	1360	22.0
AUG.				
08...	1110	12	1590	19.0
SEP.				
13...	1050	6.1	1605	15.5

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, N. DAK. (LAT 46 17 44 LONG 103 55 06)

OCT., 1971				
14...	1245	584	540	8.0
NOV.				
09...	1310	164	1110	2.0
DEC.				
14...	1405	86	1460	.0
JAN., 1972				
11...	1620	48	1710	.0
FEB.				
09...	1835	18	2000	.0
MAR.				
12...	1550	13300	250	1.0
APR.				
06...	1545	388	1210	10.0
MAY				
09...	1555	2270	1790	5.0
JUNE				
15...	1310	148	2410	24.0
JULY				
11...	1215	92	1500	24.0
AUG.				
08...	1350	152	1230	23.0
SEP.				
13...	1240	25	1820	18.0

06336000 - LITTLE MISSOURI RIVER AT MEDORA, N. DAK. (LAT 46 55 10 LONG 103 31 40)

OCT., 1971				
07...	1430	3740	510	11.0
NOV.				
04...	1120	326	780	1.0
DEC.				
13...	1510	93	1640	.0
JAN., 1972				
05...	1230	41	1830	.0
FEB.				
07...	1525	25	2050	.0
MAR.				
11...	1000	10400	--	.0
11...	1430	28000	--	.0
11...	1520	27600	--	.0
16...	1715	13200	376	3.5
24...	1415	1670	--	5.0
APR.				
19...	1105	342	--	7.0
MAY				
18...	1200	1510	1200	20.0
JUNE				
21...	1320	352	1640	18.5
JULY				
10...	1435	197	1500	25.0
AUG.				
24...	1205	432	1200	18.0
SEP.				
20...	1130	31	2000	13.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

KNIFE RIVER BASIN

06339100 - KNIFE RIVER AT MANNING, N. DAK. (LAT 47 14 10 LONG 102 46 10)

OCT., 1971				
08...	1405	10	--	10.0
NOV.				
04...	1400	3.3	1210	2.0
DEC.				
08...	1205	4.3	1600	.0
JAN., 1972				
06...	1600	1.4	1910	.0
FEB.				
04...	1545	2.1	1990	.0
MAR.				
10...	0950	12	--	.0
13...	1000	1880	--	.0
23...	1105	50	510	4.5
APR.				
20...	1200	11	--	7.5
MAY				
05...	1525	32	--	10.0
JUNE				
08...	1845	3.5	1710	21.0
JULY				
05...	1050	2.8	2190	22.0
AUG.				
04...	1400	1.3	2200	21.0
SEP.				
08...	1440	.65	1630	14.0
18...	1115	.05	--	15.0

06339300 - KNIFE RIVER AT MARSHALL, N. DAK. (LAT 47 08 17 LONG 102 20 00)

OCT., 1971				
06...	1630	290	740	11.0
NOV.				
05...	1235	10	1540	1.0
DEC.				
01...	1125	13	2000	1.0
JAN., 1972				
10...	1200	5.8	2390	.0
FEB.				
08...	1200	4.7	2240	.0
MAR.				
07...	1445	12	--	.0
13...	1300	6410	--	.5
14...	1240	8160	--	.0
20...	1350	768	370	5.5
APR.				
20...	1630	48	--	9.5
MAY				
16...	1625	102	1600	19.0
JUNE				
22...	1605	39	1470	20.5
JULY				
11...	1515	7.9	1810	23.0
AUG.				
23...	1625	36	1410	21.0
SEP.				
18...	1540	3.3	--	15.0

06340000 - SPRING CREEK AT ZAP, N. DAK. (LAT 47 17 10 LONG 101 55 31)

OCT., 1971				
06...	1300	25	1540	10.0
NOV.				
05...	1510	14	1600	1.0
DEC.				
02...	1300	13	1690	1.0
JAN., 1972				
11...	1030	7.5	2090	.0
FEB.				
09...	1145	7.1	1690	.0
MAR.				
13...	1605	1900	--	2.0
22...	1605	297	375	5.0
APR.				
21...	1305	52	1000	9.5
MAY				
17...	1620	50	1600	22.5
JUNE				
23...	1000	15	1590	17.5
JULY				
13...	1155	12	1430	22.0
AUG.				
22...	1615	17	1630	21.0
SEP.				
20...	1230	14	1810	14.0

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

KNIFE RIVER BASIN

06340200 - W BR OTTER CR NR BEULAH, N. DAK. (LAT 47 08 05 LONG 101 39 35)

OCT., 1971				
21...	1510	.07	1220	--
NOV.				
26...	1410	.03	1575	2.0
FEB., 1972				
22...	1250	5.8	600	.0
MAR.				
22...	1405	6.9	570	2.0
APR.				
05...	1230	1.4	950	4.0
20...	1230	.78	--	6.5
JUNE				
20...	1220	11	--	16.0
JULY				
27...	1255	.10	1500	25.0
AUG.				
22...	1240	.01	1525	25.5

06340500 - KNIFE RIVER AT HAZEN, N. DAK. (LAT 47 17 06 LONG 101 37 26)

OCT., 1971				
06...	1005	169	--	9.0
NOV.				
05...	1710	17	1390	.0
DEC.				
02...	1555	58	1510	.0
JAN., 1972				
10...	1600	22	1760	.0
FEB.				
09...	0945	22	1740	.0
MAR.				
09...	1150	44	--	.0
13...	1420	6370	--	2.0
22...	1340	1380	400	5.0
APR.				
21...	1635	191	1160	10.0
MAY				
17...	1415	273	1750	20.5
JUNE				
23...	1240	305	830	18.0
JULY				
13...	1035	67	1350	21.0
AUG.				
22...	1425	264	880	22.0
SEP.				
20...	1045	40	1390	14.0

TURTLE CREEK BASIN

06341400 - TURTLE CR NR TURTLE LAKE, N. DAK. (LAT 42 27 30 LONG 100 55 15)

OCT., 1971				
21...	1640	.62	2080	12.5
MAR., 1972				
13...	1355	20	97	.0
16...	1435	28	200	.5
18...	1200	10	228	1.5
APR.				
18...	1515	4.4	2350	12.0
MAY				
24...	1240	.66	5000	20.0
JUNE				
22...	1610	2.8	3350	22.0
JULY				
27...	1020	.20	4200	20.5
AUG.				
22...	1100	.34	5100	16.5

SQUARE BUTTE CREEK BASIN

06342100 - SQ BUTTE CR TR 2 NR CENTER, N. DAK. (LAT 47 06 40 LONG 101 15 05)

OCT., 1971				
26...	1335	.25	--	6.5
NOV.				
26...	1140	.16	1075	.5
MAR., 1972				
22...	1250	1.6	510	1.0
APR.				
03...	1250	.40	650	1.0
16...	1400	.79	700	9.5
JUNE				
21...	1045	.25	--	16.0
JULY				
27...	1655	.10	1010	24.0
AUG.				
22...	1030	.07	1050	18.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

SQUARE BUTTE CREEK BASIN

06342260 - SQUARE BUTTE C BL CENTER, N. DAK. (LAT 47 03 25 LONG 101 11 35)

OCT., 1971				
26...	1315	1.5	--	9.0
NOV.				
26...	1100	1.4	925	1.0
DEC.				
27...	1115	1.8	975	.0
JAN., 1972				
26...	1250	1.8	1010	.0
FEB.				
29...	1230	2.4	925	.0
MAR.				
14...	1400	1200	--	4.0
18...	1010	150	--	5.0
22...	1150	11	445	5.5
APR.				
03...	1210	4.5	460	4.0
16...	1300	6.5	515	11.0
JUNE				
21...	1010	5.3	--	18.0
JULY				
31...	1400	2.1	920	22.5
AUG.				
22...	0920	1.6	950	18.5
SEP.				
22...	0935	2.1	970	10.0

BURNT CREEK BASIN

06342450 - BURNT CR NR BISMARCK, N. DAK. (LAT 46 54 54 LONG 100 48 48)

OCT., 1971				
22...	1100	2.9	940	6.5
NOV.				
24...	1710	1.4	1550	4.0
DEC.				
21...	1000	.10	1050	.5
MAR., 1972				
12...	0955	620	--	.0
13...	1115	420	108	--
14...	1515	660	90	.5
18...	0910	194	166	.5
23...	1650	11	410	4.0
APR.				
20...	1130	6.9	--	7.0
MAY				
26...	1025	15	1100	17.5
JUNE				
23...	1335	.32	1270	16.0

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, N. DAK. (LAT 47 01 40 LONG 103 03 10)

OCT., 1971				
08...	1025	8.2	350	7.0
NOV.				
04...	1350	2.0	800	1.0
DEC.				
03...	1605	1.4	1100	.0
JAN., 1972				
05...	1610	.77	970	.0
FEB.				
07...	1705	.84	890	.0
MAR.				
06...	1530	1.2	--	.0
12...	1345	1640	--	.0
23...	1635	18	460	6.0
APR.				
19...	1345	7.0	860	9.0
MAY				
18...	1435	9.5	850	20.5
JUNE				
21...	1610	15	800	18.0
JULY				
10...	1115	1.8	1380	22.0
AUG.				
24...	1615	13	1000	20.0
SEP.				
18...	1715	.56	--	17.0

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PART 6. MISSOURI RIVER BASIN

HEART RIVER BASIN

06345500 - HEART RIVER NR RICHARDTON, N.DAK. (LAT 46 44 46 LONG 102 18 27)

NOV., 1971				
01...	1600	22	1320	1.0
DEC.				
01...	1405	22	1590	.0
30...	1225	7.8	2010	.0
JAN., 1972				
31...	1145	13	1890	.0
MAR.				
01...	1545	16	1430	.0
16...	1205	731	220	3.0
28...	1020	158	--	.5
APR.				
26...	1135	65	--	8.5
MAY				
25...	1445	168	1470	21.0
JULY				
01...	0840	118	1350	20.5
31...	1140	36	1360	23.0
AUG.				
30...	1040	55	1310	23.0

06346500 - HEART RIVER BELOW HEART BUTTE DAM, NEAR GLEN ULLIN, N. DAK. (LAT 46 35 50 LONG 101 48 05)

NOV., 1971				
01...	1240	7.8	910	5.0
DEC.				
01...	1055	34	930	1.0
30...	1500	25	1030	1.0
JAN., 1972				
31...	1455	18	1070	1.0
MAR.				
01...	1235	20	1100	20.0
21...	1400	3570	510	2.0
28...	1320	1520	--	1.0
APR.				
26...	1535	188	--	4.5
MAY				
25...	1115	620	770	14.5
JULY				
05...	1135	200	920	20.0
31...	1415	156	900	21.0
AUG.				
30...	1505	136	945	22.0

06347000 - ANTELOPE C NR CARSON, N. DAK. (LAT 46 31 50 LONG 101 38 25)

OCT., 1971				
27...	1040	2.7	850	5.5
NOV.				
24...	1020	7.8	900	.0
DEC.				
22...	1315	4.1	1100	.0
JAN., 1972				
27...	1030	2.4	1100	.5
FEB.				
25...	1200	5.6	1125	.0
APR.				
19...	1030	21	--	7.5
MAY				
22...	1205	20	1080	13.0
JUNE				
23...	1610	15	--	17.5
JULY				
26...	1225	4.1	1010	23.0
AUG.				
26...	1135	11	1205	21.5
SEP.				
18...	1350	1.3	1290	18.5

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DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

HEART RIVER BASIN

06348500 - SWEETBRIAR CREEK NR JUDSON, N. DAK. (LAT 46 51 06 LONG 101 15 10)

OCT., 1971				
19...	1410	.33	1575	11.0
NOV.				
24...	1415	.33	1600	1.0
DEC.				
20...	1245	.24	1700	.0
JAN., 1972				
24...	0915	.24	1660	.5
FEB.				
22...	1440	.74	1260	.0
MAR.				
18...	1500	480	200	1.5
28...	1200	9.7	278	--
APR.				
17...	1330	26	--	3.0
MAY				
24...	1430	1.0	625	20.0
JUNE				
19...	1120	160	550	18.0
AUG.				
23...	1305	.33	1550	23.0
SEP.				
22...	1250	.27	1740	15.5

APPLE CREEK BASIN

06349500 - APPLE C NR MENOKEN, N. DAK. (LAT 46 47 40 LONG 100 39 25)

OCT., 1971				
19...	1740	.71	1430	10.0
DEC.				
21...	1625	1.9	1100	1.0
FEB., 1972				
02...	1000	1.6	1380	.0
22...	1230	1.8	1650	.5
MAR.				
11...	0850	18	--	.0
12...	1705	322	--	.0
14...	1405	632	178	.0
17...	1645	1310	121	1.0
18...	1750	1180	148	3.0
23...	1530	232	250	4.0
APR.				
07...	1400	128	405	5.5
17...	1630	169	450	9.0
MAY				
26...	1120	43	875	20.0
JUNE				
20...	1520	10	1140	19.0
JULY				
24...	1530	2.2	1220	25.5
AUG.				
23...	1320	.98	1350	20.5
SEP.				
19...	1500	.12	1000	18.0

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, N. DAK. (LAT 46 25 36 LONG 102 33 05)

OCT., 1971				
18...	1200	20	1410	7.0
NOV.				
10...	1700	13	1650	1.0
30...	1350	17	1730	.0
JAN., 1972				
17...	1200	5.0	2390	.0
FEB.				
11...	1600	4.6	2310	.0
MAR.				
09...	1340	20	1860	.0
14...	1820	3820	285	1.0
21...	1500	197	--	3.0
APR.				
12...	1400	140	1510	6.0
MAY				
12...	2000	1090	1520	10.0
JUNE				
20...	1530	200	1960	18.0
JULY				
12...	1030	21	1600	20.0
AUG.				
09...	1750	9.0	1860	21.0
SEP.				
15...	1200	8.0	1690	16.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06351000 - CANNONBALL RIVER BL BENTLEY, N. DAK. (LAT 46 21 30 LONG 102 02 30)

OCT., 1971				
18...	1355	32	1590	9.0
NOV.				
10...	1245	23	1590	1.0
DEC.				
08...	1435	16	1750	.0
JAN., 1972				
17...	1500	10	2220	.0
FEB.				
11...	1305	8.7	2240	.0
MAR.				
09...	0950	86	1840	.0
13...	1715	8830	300	1.0
14...	1100	8160	--	1.0
22...	1120	350	--	5.0
APR.				
13...	1120	1090	1210	5.0
MAY				
12...	1510	1980	1420	9.5
JUNE				
19...	1635	6.5	1930	16.0
JULY				
12...	1240	39	1510	22.0
AUG.				
09...	1610	18	1720	21.5
SEP.				
15...	1040	16	1590	14.0

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, N. DAK. (LAT 46 19 20 LONG 102 59 45)

OCT., 1971				
13...	1030	.98	1450	7.0
NOV.				
08...	1430	1.7	3320	.0
DEC.				
06...	1325	.98	4390	.0
JAN., 1972				
10...	1345	.51	3780	.0
FEB.				
08...	1445	.18	3200	.0
MAR.				
06...	1640	.27	1500	.0
11...	1445	235	580	1.0
15...	1235	101	--	2.0
APR.				
05...	1225	8.6	2390	7.0
MAY				
08...	1610	12	1880	5.0
JUNE				
14...	1940	.98	3230	21.0
JULY				
10...	1140	.86	3910	21.5
AUG.				
07...	1305	.39	4090	18.0
SEP.				
11...	1545	.12	3100	16.0

06352000 - CEDAR CREEK NR HAYNES, N. DAK. (LAT 46 09 15 LONG 102 28 25)

OCT., 1971				
15...	1425	13	1900	7.0
NOV.				
10...	1510	12	2200	.0
DEC.				
07...	1615	9.8	2390	.0
JAN., 1972				
12...	1200	6.4	2670	.0
FEB.				
10...	1450	5.3	2910	.0
MAR.				
08...	1425	11	1610	.0
13...	1225	4280	840	1.0
14...	1555	5060	--	1.0
21...	1730	194	--	5.0
APR.				
12...	1705	153	1780	7.0
MAY				
12...	1620	980	1930	10.0
JUNE				
20...	1255	16	2200	16.5
JULY				
13...	1140	159	2470	22.5
AUG.				
09...	1040	11	2400	18.0
SEP.				
14...	1425	4.4	2230	17.0

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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06353000 - CEDAR CREEK NR RALEIGH, N. DAK. (LAT 46 05 00 LONG 101 20 05)

OCT., 1971				
28...	1255	16	1650	2.5
NOV.				
23...	1225	17	1600	.0
DEC.				
22...	1100	17	1600	.0
JAN., 1972				
25...	1100	7.9	2600	.0
FEB.				
25...	1010	9.5	2600	.0
MAR.				
13...	1200	3200	350	1.0
16...	1155	4100	395	1.0
21...	1040	849	580	4.0
APR.				
18...	1100	180	--	7.5
MAY				
22...	1500	378	2200	15.0
26...	1525	2520	520	19.0
JUNE				
23...	1400	82	--	17.0
JULY				
25...	1450	81	1900	22.5
AUG.				
28...	0950	125	1405	21.0
SEP.				
18...	1025	1.4	2280	17.0

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, N. DAK. (LAT 46 15 27 LONG 100 13 58)

OCT., 1971				
19...	1135	3.1	830	9.5
NOV.				
24...	1200	6.2	1470	.0
DEC.				
20...	1220	1.5	--	1.0
JAN., 1972				
25...	1245	2.2	910	.0
FEB.				
22...	1030	1.6	1100	.0
MAR.				
14...	1155	240	202	.0
17...	1420	2670	110	.5
18...	1550	2840	121	1.0
23...	1140	348	450	3.0
APR.				
07...	1100	84	645	6.0
17...	1200	67	778	9.5
MAY				
23...	1130	24	975	20.0
JUNE				
20...	1300	5.9	960	16.5
JULY				
24...	1250	1.7	1000	22.0
AUG.				
21...	1545	2.2	1220	22.0
SEP.				
19...	1110	.12	960	18.0

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, N. DAK. (LAT 45 57 39 LONG 103 07 09)

OCT., 1971				
13...	1655	1.3	2040	10.0
NOV.				
08...	1650	3.4	2020	.0
DEC.				
06...	1515	1.5	1910	.0
JAN., 1972				
10...	1600	1.6	2710	.0
FEB.				
08...	1640	.78	2700	.0
MAR.				
15...	1555	1150	--	2.0
23...	1150	218	--	5.0
APR.				
05...	1515	57	840	8.0
MAY				
11...	1725	105	--	9.0
JUNE				
16...	1255	16	1310	20.0
JULY				
10...	1625	34	1270	24.0
AUG.				
07...	1750	12	1400	21.5
SEP.				
12...	1605	1.3	1930	21.0

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, N. DAK. (LAT 47 38 40 LONG 099 49 40)

OCT., 1971				
04...	1215	.05	1130	--
NOV.				
01...	1440	.09	1050	2.5
DEC.				
08...	1040	.03	1090	.0
MAR., 1972				
15...	1615	114	172	--
APR.				
03...	1145	2.0	470	.5
20...	1300	7.3	480	9.0
MAY				
02...	1140	1.8	870	11.5
JUNE				
05...	1405	.58	1160	23.5
30...	1125	.08	1100	22.0

06467900 - BIG SLOUGH AT HAMBERG, N. DAK. (LAT 47 45 20 LONG 099 30 42)

MAR., 1972				
15...	1430	11	179	--
23...	1245	13	278	--
APR.				
03...	1500	2.0	340	1.0
20...	1030	1.5	580	8.5
MAY				
02...	1650	1.4	790	15.0
JUNE				
07...	1800	1.0	1400	25.0
30...	1020	.43	1590	21.0

06468170 - JAMES RIVER NR GRACE CITY, N. DAK. (LAT 47 33 29 LONG 098 51 45)

OCT., 1971				
28...	1705	1.2	--	1.5
NOV.				
30...	1630	.86	1290	1.0
DEC.				
28...	1630	.05	2190	.0
MAR., 1972				
15...	1205	74	162	--
19...	1240	135	478	--
23...	1100	236	368	--
30...	1020	78	480	.5
APR.				
26...	1745	40	--	10.0
MAY				
31...	1745	63	600	21.5
JUNE				
27...	1900	3.4	820	22.0
AUG.				
01...	1520	.05	1080	23.5
28...	1350	.10	1350	27.0

06469500 - PIPESTEM CREEK NR BUCHANAN, N. DAK. (LAT 47 03 59 LONG 098 55 07)

OCT., 1971				
27...	1640	1.2	1030	6.5
NOV.				
30...	1415	1.8	1030	.0
DEC.				
28...	1400	.28	1360	.0
APR., 1972				
27...	1000	57	560	9.5
MAY				
31...	1245	13	880	18.0
JUNE				
27...	1555	2.2	1000	20.5
AUG.				
01...	1330	.59	1160	22.5
28...	1000	.59	710	21.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06470000 - JAMES RIVER AT JAMESTOWN, N. DAK. (LAT 46 53 22 LONG 098 40 58)

OCT., 1971				
27...	1245	88	700	9.0
NOV.				
30...	1200	30	720	.0
DEC.				
28...	1010	6.2	1250	1.5
FEB., 1972				
02...	1000	2.8	1260	1.0
MAR.				
01...	0910	2.8	1200	1.0
14...	1755	808	168	--
30...	1525	84	520	--
APR.				
27...	1625	83	590	10.5
MAY				
31...	0915	87	700	17.0
JUNE				
27...	0815	52	700	19.5
AUG.				
01...	0910	13	750	20.5
27...	1900	50	670	22.5

06470500 - JAMES RIVER AT LA MOURE, N. DAK. (LAT 46 21 20 LONG 098 18 15)

OCT., 1971				
25...	1515	104	750	13.5
NOV.				
30...	1320	36	1050	1.0
DEC.				
27...	1845	15	1150	.0
FEB., 1972				
01...	1635	12	1630	.0
MAR.				
01...	1350	12	1200	.0
20...	1230	970	--	.0
28...	1300	182	336	.0
APR.				
24...	1420	220	--	7.0
MAY				
30...	1550	114	780	18.5
JUNE				
26...	1500	74	--	22.5
AUG.				
01...	1610	18	870	23.5
29...	1535	50	780	24.0
SEP.				
25...	1430	52	800	11.0

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051600 - WILD RICE RIVER NR RUTLAND, N. DAK. (LAT 46 01 20 LONG 097 30 40)											
JULY, 1972	10...	1600	.24	5.1	0	440	88	91	110	22	269
05051700 - WILD RICE RIVER NR CAYUGA, N. DAK. (LAT 46 07 30 LONG 097 21 40)											
JULY, 1972	10...	1500	2.2	25	0	210	100	57	55	12	407
05054500 - SHEYENNE RIVER AR HARVEY, N. DAK. (LAT 47 42 10 LONG 099 56 55)											
APR., 1972	17...	1200	23	2.2	100	90	31	23	110	7.4	323
05055520 - BIG COULEE NR FORT TOTTEN, N. DAK. (LAT 47 52 57 LONG 098 58 02)											
JUNE, 1972	29...	1600	.53	32	0	160	81	24	25	3.6	402
05056100 - MAUVIS COULEE NR CANDU, N. DAK. (LAT 48 26 53 LONG 099 06 08)											
APR., 1972	19...	1630	8.2	13	0	50	48	23	17	7.9	171
05056200 - EDMORE COULEE NR EDMORE, N. DAK. (LAT 48 20 14 LONG 098 39 33)											
APR., 1972	19...	1000	132	3.5	100	50	39	13	25	8.6	169
05057200 - BALDHILL CREEK NR DAZEY, N. DAK. (LAT 47 13 45 LONG 098 07 28)											
MAY, 1972	02...	1500	28	8.8	0	40	75	38	49	9.3	305
05058000 - SHEYENNE RIVER BL BALDHILL DAM, N. DAK. (LAT 47 01 50 LONG 098 05 50)											
JULY, 1972	06...	1700	12	1.0	0	110	37	22	49	8.6	213
05058500 - SHEYENNE RIVER AT VALLEY CITY, N. DAK. (LAT 46 54 50 LONG 098 00 30)											
MAY, 1972	03...	0930	177	8.2	0	90	42	21	50	8.2	224
05059000 - SHEYENNE RIVER NR KINDRED, N. DAK. (LAT 46 37 35 LONG 097 00 05)											
MAY, 1972	04...	1800	388	12	40	30	58	25	54	8.1	278
05059500 - SHEYENNE RIVER AT WEST FARGO, N. DAK. (LAT 46 53 28 LONG 096 54 24)											
JULY, 1972	06...	1015	111	13	0	20	68	31	59	7.8	305
05059600 - MAPLE RIVER NR HOPE, N. DAK. (LAT 47 19 30 LONG 097 47 25)											
MAY, 1972	02...	1200	.78	8.3	90	20	120	60	110	9.3	369
05059700 - MAPLE RIVER NR ENDERLIN, N. DAK. (LAT 46 37 18 LONG 097 34 25)											
MAY, 1972	03...	1530	43	18	90	250	120	51	79	9.7	316
05060000 - MAPLE RIVER NR MAPLETON, N. DAK. (LAT 46 51 40 LONG 097 06 10)											
MAY, 1972	03...	1500	106	19	0	50	110	46	71	9.6	283

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS PER AC-FT	DIS- SOLVED SOLIDS PER DAY
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051600 - WILD RICE RIVER NR RUTLAND, N. DAK. (LAT 46 01 20 LONG 097 30 40)										
JULY, 1972 10...	0	221	600	39	.2	.23	.00	1150	1.56	.75
05051700 - WILD RICE RIVER NR CAYUGA, N. DAK. (LAT 46 07 30 LONG 097 21 40)										
JULY, 1972 10...	0	334	260	17	.3	.23	.02	764	1.04	4.54
05054500 - SHEYENNE RIVER AB HARVEY, N. DAK. (LAT 47 42 10 LONG 099 56 55)										
APR., 1972 17...	0	265	150	7.4	.1	.56	.00	495	.67	30.7
05055520 - BIG COULEE NR FORT TOTTEN, N. DAK. (LAT 47 52 57 LONG 098 58 02)										
JUNE, 1972 29...	0	330	21	2.7	.2	.23	.00	359	.49	.51
05056100 - MAUVIS COULEE NR CANDU, N. DAK. (LAT 48 26 53 LONG 099 06 08)										
APR., 1972 19...	0	140	100	4.2	.1	.23	.00	327	.44	7.24
05056200 - EDMORE COULEE NR EDMORE, N. DAK. (LAT 48 20 14 LONG 098 39 33)										
APR., 1972 19...	0	139	67	4.1	.1	.09	.00	267	.36	95.2
05057200 - BALDHILL CREEK NR DAZEY, N. DAK. (LAT 47 13 45 LONG 098 07 28)										
MAY, 1972 02...	0	250	180	10	1.0	.23	.00	524	.71	39.6
05058000 - SHEYENNE RIVER BL BALDHILL DAM, N. DAK. (LAT 47 01 50 LONG 098 05 50)										
JULY, 1972 06...	8	188	100	7.1	.2	.11	.00	316	.43	10.2
05058500 - SHEYENNE RIVER AT VALLEY CITY, N. DAK. (LAT 46 54 50 LONG 098 00 30)										
MAY, 1972 03...	0	184	100	6.7	.9	.23	.01	355	.48	170
05059000 - SHEYENNE RIVER NR KINDRED, N. DAK. (LAT 46 37 35 LONG 097 00 05)										
MAY, 1972 04...	0	228	120	6.5	.2	.45	.00	441	.60	462
05059500 - SHEYENNE RIVER AT WEST FARGO, N. DAK. (LAT 46 53 28 LONG 096 54 24)										
JULY, 1972 06...	0	250	150	22	.1	.23	.00	492	.67	148
05059600 - MAPLE RIVER NR HOPE, N. DAK. (LAT 47 19 30 LONG 097 47 25)										
MAY, 1972 02...	0	303	420	23	.2	.23	.00	969	1.32	2.04
05059700 - MAPLE RIVER NR ENDERLIN, N. DAK. (LAT 46 37 18 LONG 097 34 25)										
MAY, 1972 03...	0	259	360	40	.1	.56	.00	870	1.18	101
05060000 - MAPLE RIVER NR MAPLETON, N. DAK. (LAT 46 51 40 LONG 097 06 10)										
MAY, 1972 03...	0	232	330	38	1.0	.23	.00	804	1.09	230

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051600 - WILD RICE RIVER NR RUTLAND, N. DAK. (LAT 46 01 20 LONG 097 30 40)									
JULY, 1972 10...	590	370	28	2.0	1480	8.1	28.5	3.4	460
05051700 - WILD RICE RIVER NR CAYUGA, N. DAK. (LAT 46 07 30 LONG 097 21 40)									
JULY, 1972 10...	480	150	19	1.1	1050	8.2	27.5	4.1	140
05054500 - SHEYENNE RIVER AB HARVEY, N. DAK. (LAT 47 42 10 LONG 099 56 55)									
APR., 1972 17...	170	0	57	3.7	679	8.0	6.0	5.2	290
05055520 - BIG COULEE NR FORT TOTTEN, N. DAK. (LAT 47 52 57 LONG 098 58 02)									
JUNE, 1972 29...	300	0	15	.6	625	8.1	24.5	5.1	70
05056100 - MAUVIS COULEE NR CANDO, N. DAK. (LAT 48 26 53 LONG 099 06 08)									
APR., 1972 19...	220	74	14	.5	491	7.6	8.5	6.9	150
05056200 - EDMORE COULEE NR EDMORE, N. DAK. (LAT 48 20 14 LONG 098 39 33)									
APR., 1972 19...	150	12	25	.9	416	7.6	7.0	6.8	70
05057200 - BALDHILL CREEK NR DAZEY, N. DAK. (LAT 47 13 45 LONG 098 07 28)									
MAY, 1972 02...	340	94	23	1.2	833	8.0	11.0	4.9	40
05058000 - SHEYENNE RIVER BL BALDHILL DAM, N. DAK. (LAT 47 01 50 LONG 098 05 50)									
JULY, 1972 06...	182	0	35	1.6	549	8.6	21.0	.9	40
05058500 - SHEYENNE RIVER AT VALLEY CITY, N. DAK. (LAT 46 54 50 LONG 098 00 30)									
MAY, 1972 03...	190	8	35	1.6	581	7.8	10.5	5.7	0
05059000 - SHEYENNE RIVER NR KINDRED, N. DAK. (LAT 46 37 35 LONG 097 00 05)									
MAY, 1972 04...	250	20	31	1.5	679	7.8	11.5	7.1	110
05059500 - SHEYENNE RIVER AT WEST FARGO, N. DAK. (LAT 46 53 28 LONG 096 54 24)									
JULY, 1972 06...	300	47	29	1.5	790	8.0	19.0	4.9	250
05059600 - MAPLE RIVER NR HOPE, N. DAK. (LAT 47 19 30 LONG 097 47 25)									
MAY, 1972 02...	550	240	30	2.0	1350	8.1	11.0	4.7	110
05059700 - MAPLE RIVER NR ENDERLIN, N. DAK. (LAT 46 37 18 LONG 097 34 25)									
MAY, 1972 03...	510	250	25	1.5	1210	7.8	12.5	8.0	140
05060000 - MAPLE RIVER NR MAPLETON, N. DAK. (LAT 46 51 40 LONG 097 06 10)									
MAY, 1972 03...	460	230	24	1.4	1120	8.0	10.5	4.5	0

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
PART 5. HUDSON BAY BASIN										
RED RIVER OF THE NORTH BASIN										
05060500 - RUSH RIVER AT AMENIA, N. DAK. (LAT 47 01 00 LONG 097 12 50)										
MAY, 1972										
03...	1130	6.7	15	40	260	129	55	67	11	362
05064500 - RED RIVER OF THE N AT HALSTAD, MINN. (LAT 47 21 10 LONG 096 50 50)										
JULY, 1972										
05...	1415	1390	14	0	40	49	35	23	4.5	263
05065500 - GOOSE RIVER NR PORTLAND, N. DAK. (LAT 47 32 20 LONG 097 27 20)										
JULY, 1972										
06...	1000	2.4	11	0	410	122	81	105	17	416
05066500 - GOOSE RIVER AT HILLSBORO, N. DAK. (LAT 47 24 20 LONG 097 03 40)										
JULY, 1972										
05...	1600	14	19	0	660	130	67	87	9.8	406
05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, N. DAK. (LAT 48 14 50 LONG 098 07 00)										
APR., 1972										
25...	1245	7.2	5.2	80	40	53	19	30	7.5	207
05084000 - FOREST RIVER NR FORDVILLE, N. DAK. (LAT 48 11 50 LONG 097 43 49)										
APR., 1972										
25...	1515	90	4.9	0	120	61	24	30	6.0	227
05089000 - SOUTH BRANCH PARK RIVER BL HOMME DAM, N. DAK. (LAT 48 24 07 LONG 097 46 55)										
MAY, 1972										
10...	1600	21	15	90	130	44	13	24	5.9	143
05089100 - MIDDLE BRANCH PARK RIVER NR UNION, N. DAK. (LAT 48 32 32 LONG 098 01 10)										
MAY, 1972										
10...	1400	.35	17	80	250	49	15	48	5.6	221
05089500 - CART CREEK AT MOUNTAIN, N. DAK. (LAT 48 40 37 LONG 097 51 41)										
MAY, 1972										
10...	1300	3.0	18	0	70	86	23	47	6.2	220
05092000 - RED RIVER OF THE N AT DRAYTON, N. DAK. (LAT 48 34 20 LONG 097 08 50)										
MAY, 1972										
09...	1600	8200	7.8	0	30	63	23	26	5.2	236
05098700 - HIDDEN ISLAND COULEE NR HANSBORO, N. DAK. (LAT 48 57 10 LONG 099 25 35)										
APR., 1972										
19...	1500	17	3.5	90	70	64	34	27	7.1	174
05098800 - LONG RIVER NR SARLES, N. DAK. (LAT 48 56 35 LONG 098 57 05)										
APR., 1972										
19...	1300	16	5.7	0	30	51	18	19	6.7	177
05100000 - PEMBINA RIVER AT NECHE, N. DAK. (LAT 48 59 20 LONG 097 33 05)										
MAY, 1972										
09...	1900	1140	17	80	50	46	20	28	7.3	173

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05060500 - RUSH RIVER AT AMENIA, N.DAK. (LAT 47 01 00 LONG 097 12 50)

MAY , 1972 03...	0	297	340	27	1.0	.23	.00	889	1.21	16.1
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05064500 - RED RIVER OF THE N AT HALSTAD, MINN. (LAT 47 21 10 LONG 096 50 50)

JULY, 1972 05...	0	216	84	7.3	.1	.56	.01	420	.57	1580
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05065500 - GOOSE RIVER NR PORTLAND, N. DAK. (LAT 47 32 20 LONG 097 27 20)

JULY, 1972 06...	0	341	505	37	.2	.23	.00	1070	1.46	6.93
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05066500 - GOOSE RIVER AT HILLSBORO, N. DAK. (LAT 47 24 20 LONG 097 03 40)

JULY, 1972 05...	0	333	420	44	.2	.20	.00	989	1.35	37.4
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05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, N. DAK. (LAT 48 14 50 LONG 098 07 00)

APR., 1972 25...	0	170	116	6.4	.1	.23	.00	347	.47	6.75
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05084000 - FOREST RIVER NR FORDVILLE, N.DAK. (LAT 48 11 50 LONG 097 43 49)

APR., 1972 25...	0	186	120	6.6	.3	.56	.00	389	.53	94.5
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05089000 - SOUTH BRANCH PARK RIVER BL HOMME DAM, N. DAK. (LAT 48 24 07 LONG 097 46 55)

MAY , 1972 10...	0	117	86	3.4	.1	.23	.00	299	.41	17.0
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05089100 - MIDDLE BRANCH PARK RIVER NR UNION, N. DAK. (LAT 48 32 32 LONG 098 01 10)

MAY , 1972 10...	0	181	91	11	.2	.23	.00	371	.50	.35
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05089500 - CART CREEK AT MOUNTAIN, N.DAK. (LAT 48 40 37 LONG 097 51 41)

MAY , 1972 10...	6	190	200	14	.4	.23	.00	555	.75	4.50
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05092000 - RED RIVER OF THE N AT DRAYTON, N. DAK. (LAT 48 34 20 LONG 097 08 50)

MAY , 1972 09...	0	194	91	22	.1	.23	.00	401	.55	8880
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05098700 - HIDDEN ISLAND COULEE NR HANSBORO, N. DAK. (LAT 48 57 10 LONG 099 25 35)

APR., 1972 19...	0	143	210	2.4	.1	.45	.00	479	.65	22.0
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05098800 - LONG RIVER NR SARLES, N.DAK. (LAT 48 56 35 LONG 098 57 05)

APR., 1972 19...	0	145	100	2.2	.1	.09	.01	345	.47	14.9
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05100000 - PEMBINA RIVER AT NECHE, N.DAK. (LAT 48 59 20 LONG 097 33 05)

MAY , 1972 09...	0	142	110	3.4	.2	.23	.00	363	.49	1120
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ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05060500 - RUSH RIVER AT AMENIA, N.DAK. (LAT 47 01 00 LONG 097 12 50)

MAY , 1972 03...	550	250	21	1.2	1220	8.2	10.5	3.7	390
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05064500 - RED RIVER OF THE N AT HALSTAD, MINN. (LAT 47 21 10 LONG 096 50 50)

JULY, 1972 05...	270	51	16	.6	570	8.0	21.0	4.2	290
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05065500 - GOOSE RIVER NR PORTLAND, N. DAK. (LAT 47 32 20 LONG 097 27 20)

JULY, 1972 06...	640	300	26	1.8	1500	8.2	17.5	4.2	250
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05066500 - GOOSE RIVER AT HILLSBORD, N. DAK. (LAT 47 24 20 LONG 097 03 40)

JULY, 1972 05...	600	270	24	1.5	1370	8.0	21.0	6.5	250
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05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, N. DAK. (LAT 48 14 50 LONG 098 07 00)

APR., 1972 25...	210	41	23	.9	526	8.0	9.0	3.3	140
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05084000 - FOREST RIVER NR FORDVILLE, N.DAK. (LAT 48 11 50 LONG 097 43 49)

APR., 1972 25...	250	65	20	.8	578	7.9	10.0	4.6	0
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05089000 - SOUTH BRANCH PARK RIVER BL HOMME DAM, N. DAK. (LAT 48 24 07 LONG 097 46 55)

MAY , 1972 10...	160	46	23	.8	420	8.1	12.0	1.8	0
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05089100 - MIDDLE BRANCH PARK RIVER NR UNION, N. DAK. (LAT 48 32 32 LONG 098 01 10)

MAY , 1972 10...	180	3	35	1.5	559	7.9	15.0	4.5	0
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05089500 - CART CREEK AT MOUNTAIN, N.DAK. (LAT 48 40 37 LONG 097 51 41)

MAY , 1972 10...	310	120	24	1.2	754	8.4	14.0	1.5	0
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05092000 - RED RIVER OF THE N AT DRAYTON, N. DAK. (LAT 48 34 20 LONG 097 08 50)

MAY , 1972 09...	250	58	18	.7	611	7.9	11.5	4.8	110
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05098700 - HIDDEN ISLAND COULEE NR HANSBORO, N. DAK. (LAT 48 57 10 LONG 099 25 35)

APR., 1972 19...	300	160	16	.7	669	7.6	9.0	7.0	180
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05098800 - LONG RIVER NR SARLES, N.DAK. (LAT 48 56 35 LONG 098 57 05)

APR., 1972 19...	200	56	16	.6	479	7.7	8.5	5.7	40
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05100000 - PEMBINA RIVER AT NECHE, N.DAK. (LAT 48 59 20 LONG 097 33 05)

MAY , 1972 09...	200	55	23	.9	501	7.8	11.5	4.4	70
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ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, N. DAK. (LAT 48 45 13 LONG 097 54 22)

MAY, 1972	10...	1200	1.4	16	0	160	49	13	28	5.3	173
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05101000 - TONGUE RIVER AT AKRA, N. DAK. (LAT 48 46 40 LONG 097 42 55)

MAY, 1972	11...	1130	28	15	0	140	55	16	20	5.6	177
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05113600 - LONG CREEK NR NOONAN, N. DAK. (LAT 48 58 52 LONG 103 04 34)

MAY, 1972	02...	1500	32	4.9	370	50	57	31	100	11	268
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05114000 - SOURIS (MOUSE) RIVER NR SHERWOOD, N. DAK. (LAT 48 59 24 LONG 101 57 28)

APR., 1972	19...	1700	580	2.3	90	50	36	19	45	10	174
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05116000 - SOURIS (MOUSE) RIVER NR FOXHOLM, N. DAK. (LAT 48 22 20 LONG 101 30 18)

APR., 1972	20...	1240	1170	1.5	140	200	33	16	44	9.9	164
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05116500 - DES LACS RIVER AT FOXHOLM, N. DAK. (LAT 48 22 14 LONG 101 34 11)

JULY, 1972	12...	1230	20	9.2	0	20	64	44	180	13	415
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05117500 - SOURIS (MOUSE) RIVER ABOVE MINOT, N. DAK. (LAT 48 14 45 LONG 101 22 15)

JULY, 1972	12...	0915	66	7.8	0	140	45	24	59	11	239
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05120200 - WINTERING RIVER NR BERGEN, N. DAK. (LAT 47 55 50 LONG 100 40 15)

APR., 1972	11...	1500	34	19	80	70	32	21	120	8.7	257
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05120500 - WINTERING RIVER NR KARLSRUHE, N. DAK. (LAT 48 10 14 LONG 100 32 20)

APR., 1972	11...	1730	57	16	160	100	38	8.0	81	7.3	237
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05122000 - SOURIS (MOUSE) RIVER NEAR BANTRY, N. DAK. (LAT 48 30 20 LONG 100 26 04)

JULY, 1972	13...	1630	284	6.6	0	150	52	27	68	10	289
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05123100 - OAK CREEK AT LAKE METIGOSHE OUTLET NR BOTTINEAU, N. DAK. (LAT 48 57 56 LONG 100 21 47)

APR., 1972	18...	1750	38	14	0	50	33	52	6.8	13	324
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05123400 - WILLOW CREEK NR WILLOW CITY, N. DAK. (LAT 48 35 20 LONG 100 26 30)

APR., 1972	18...	0945	498	4.1	100	80	37	23	42	9.3	207
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05123510 - DEEP RIVER NR UPHAM, N. DAK. (LAT 48 35 03 LONG 100 51 34)

APR., 1972	12...	1230	50	12	0	40	33	19	13	13	159
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05123600 - EGG CREEK NR GRANVILLE, N. DAK. (LAT 48 21 18 LONG 100 49 19)

APR., 1972	14...	1115	35	1.9	80	30	42	30	47	12	213
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05123700 - CUTBANK CREEK NR GRANVILLE, N. DAK. (LAT 48 23 10 LONG 100 46 00)

APR., 1972	12...	1630	52	8.5	0	80	28	22	34	12	151
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05123900 - BOUNDARY CREEK NR LANDA, N. DAK. (LAT 48 48 46 LONG 100 51 46)

APR., 1972	21...	1900	50	3.8	90	70	57	33	61	10	294
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ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, N. DAK. (LAT 48 45 13 LONG 097 54 22)										
MAY, 1972 10...	0	142	82	3.7	.2	.66	.00	341	.46	1.29
05101000 - TONGUE RIVER AT AKRA, N. DAK. (LAT 48 46 40 LONG 097 42 55)										
MAY, 1972 11...	0	145	88	2.2	.2	.23	.00	348	.47	26.3
05113600 - LONG CREEK NR NOONAN, N. DAK. (LAT 48 58 52 LONG 103 04 34)										
MAY, 1972 02...	0	220	250	7.9	.1	.20	.00	638	.87	56.3
05114000 - SOURIS (MOUSE) RIVER NR SHERWOOD, N. DAK. (LAT 48 59 24 LONG 101 57 28)										
APR., 1972 19...	0	143	130	6.2	.1	.23	.00	348	.47	545
05116000 - SOURIS (MOUSE) RIVER NR FOXHOLM, N. DAK. (LAT 48 22 20 LONG 101 30 18)										
APR., 1972 20...	0	135	100	6.9	.1	.56	.00	304	.41	961
05116500 - DES LACS RIVER AT FOXHOLM, N. DAK. (LAT 48 22 14 LONG 101 34 11)										
JULY, 1972 12...	0	340	350	20	.2	.56	.01	939	1.28	50.7
05117500 - SOURIS (MOUSE) RIVER ABOVE MINOT, N. DAK. (LAT 48 14 45 LONG 101 22 15)										
JULY, 1972 12...	0	196	140	9.3	.1	.56	.00	424	.58	75.6
05120200 - WINTERING RIVER NR BERGEN, N. DAK. (LAT 47 55 50 LONG 100 40 15)										
APR., 1972 11...	0	211	210	4.7	.1	.56	.00	567	.77	53.0
05120500 - WINTERING RIVER NR KARLSRUHE, N. DAK. (LAT 48 10 14 LONG 100 32 20)										
APR., 1972 11...	0	194	114	7.2	.1	.23	.00	396	.54	61.0
05122000 - SOURIS (MOUSE) RIVER NEAR BANTRY, N. DAK. (LAT 48 30 20 LONG 100 26 04)										
JULY, 1972 13...	0	237	150	11	.1	.56	.00	476	.65	365
05123100 - OAK CREEK NR BOTTINEAU, N. DAK. (LAT 48 57 56 LONG 100 21 47)										
APR., 1972 18...	0	266	48	.8	.1	.23	.00	343	.47	35.2
05123400 - WILLOW CREEK NR WILLOW CITY, N. DAK. (LAT 48 35 20 LONG 100 26 30)										
APR., 1972 18...	0	170	100	3.4	.1	.56	.00	370	.50	498
05123510 - DEEP RIVER NR UPHAM, N. DAK. (LAT 48 35 03 LONG 100 51 34)										
APR., 1972 12...	0	130	45	16	.1	.23	.00	226	.31	30.5
05123600 - FGG CREEK NR GRANVILLE, N. DAK. (LAT 48 21 18 LONG 100 49 19)										
APR., 1972 14...	0	175	160	14	.1	.11	.01	416	.57	39.3
05123700 - CUTBANK CREEK NR GRANVILLE, N. DAK. (LAT 48 23 10 LONG 100 46 00)										
APR., 1972 17...	0	124	100	10	.1	.23	.01	298	.41	41.8
05123900 - BOUNDARY CREEK NR LANDA, N. DAK. (LAT 48 48 46 LONG 100 51 46)										
APR., 1972 21...	0	241	170	4.5	.1	.23	.00	505	.69	68.2

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, N. DAK. (LAT 48 45 13 LONG 097 54 22)									
MAY, 1972 10...	180	34	25	.9	460	7.7	11.5	5.5	0
05101000 - TONGUE RIVER AT AKRA, N. DAK. (LAT 48 46 40 LONG 097 42 55)									
MAY, 1972 11...	200	58	17	.6	465	7.8	11.0	4.5	0
05113600 - LONG CREEK NR NOONAN, N. DAK. (LAT 48 58 52 LONG 103 04 34)									
MAY, 1972 02...	270	50	43	2.6	919	7.5	9.0	14	110
05114000 - SOURIS (MOUSE) RIVER NR SHERWOOD, N. DAK. (LAT 48 59 24 LONG 101 57 28)									
APR., 1972 19...	170	25	35	1.5	527	7.6	7.5	7.0	110
05116000 - SOURIS (MOUSE) RIVER NR FOXHOLM, N. DAK. (LAT 48 22 20 LONG 101 30 18)									
APR., 1972 20...	150	14	37	1.6	493	7.5	4.5	8.3	70
05116500 - DES LACS RIVER AT FOXHOLM, N. DAK. (LAT 48 22 14 LONG 101 34 11)									
JULY, 1972 12...	340	1	52	4.2	1360	7.6	19.0	17	320
05117500 - SOURIS (MOUSE) RIVER ABOVE MINOT, N. DAK. (LAT 48 14 45 LONG 101 22 15)									
JULY, 1972 12...	210	15	36	1.8	661	7.5	20.0	12	360
05120200 - WINTERING RIVER NR BERGEN, N. DAK. (LAT 47 55 50 LONG 100 40 15)									
APR., 1972 11...	170	0	60	4.1	820	7.5	3.5	13	40
05120500 - WINTERING RIVER NR KARLSRUHE, N. DAK. (LAT 48 10 14 LONG 100 32 20)									
APR., 1972 11...	130	0	56	3.1	583	7.6	4.5	9.5	110
05122000 - SOURIS (MOUSE) RIVER NEAR BANTRY, N. DAK. (LAT 48 30 20 LONG 100 26 04)									
JULY, 1972 13...	240	4	37	1.9	744	7.6	20.0	12	110
05123100 - OAK CREEK NR BOTTINEAU, N. DAK. (LAT 48 57 56 LONG 100 21 47)									
APR., 1972 18...	300	31	5	.2	564	8.2	2.5	3.3	710
05123400 - WILLOW CREEK NR WILLOW CITY, N. DAK. (LAT 48 35 20 LONG 100 26 30)									
APR., 1972 18...	190	17	31	1.3	546	7.7	5.5	6.6	140
05123510 - DEEP RIVER NR UPHAM, N. DAK. (LAT 48 35 03 LONG 100 51 34)									
APR., 1972 12...	160	30	14	.4	395	7.5	3.5	8.0	210
05123600 - EGG CREEK NR GRANVILLE, N. DAK. (LAT 48 21 18 LONG 100 49 19)									
APR., 1972 14...	230	54	30	1.4	649	7.7	5.5	6.8	250
05123700 - CUTBANK CREEK NR GRANVILLE, N. DAK. (LAT 48 23 10 LONG 100 46 00)									
APR., 1972 12...	160	37	30	1.2	483	7.4	2.5	9.6	260
05123900 - BOUNDARY CREEK NR LANDA, N. DAK. (LAT 48 48 46 LONG 100 51 46)									
APR., 1972 21...	280	37	31	1.6	752	8.0	--	4.7	390

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANG- NESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)
PART 6. MISSOURI RIVER BASIN										
YELLOWSTONE RIVER BASIN										
06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, N.DAK. (LAT 47 51 10 LONG 103 47 40)										
MAY, 1972										
05...	0830	7.4	7.2	460	40	54	33	360	8.5	520
LITTLE MUDDY CREEK BASIN										
06331000 - LITTLE MUDDY CREEK BELOW COW CREEK NR WILLISTON, N. DAK. (LAT 48 17 04 LONG 103 34 21)										
MAY, 1972										
04...	1145	37	12	400	110	80	60	290	9.4	669
WHITE EARTH RIVER BASIN										
06332000 - WHITE EARTH RIVER NR WHITE EARTH, N. DAK. (LAT 48 22 35 LONG 102 46 00)										
JULY, 1972										
06...	1600	11	2.3	580	20	55	72	250	12	594
SHELL CREEK BASIN										
06332520 - SHELL CREEK NR PARSHALL, N. DAK. (LAT 48 03 11 LONG 102 08 10)										
MAY, 1972										
01...	1545	15	7.1	560	90	39	34	390	7.9	640
LITTLE MISSOURI RIVER BASIN										
06335000 - LITTLE BEAVER CREEK NR MARMARTH, N. DAK. (LAT 46 16 29 LONG 103 58 33)										
MAY, 1972										
09...	1235	801	9.4	600	--	86	79	370	5.8	71
06335500 - LITTLE MISSOURI RIVER AT MARMARTH, N. DAK. (LAT 46 17 44 LONG 103 55 06)										
MAY, 1972										
09...	1555	2270	9.1	80	110	73	48	290	6.8	124
06336000 - LITTLE MISSOURI RIVER AT MEDORA, N. DAK. (LAT 46 55 10 LONG 103 31 40)										
APR., 1972										
19...	1105	342	6.8	0	10	92	48	243	7.3	316
KNIFE RIVER BASIN										
06339100 - KNIFE RIVER AT MANNING, N. DAK. (LAT 47 14 10 LONG 102 46 10)										
APR., 1972										
20...	1200	11	7.0	200	120	47	23	190	6.0	328
06339300 - KNIFE RIVER AT MARSHALL, N.DAK. (LAT 47 08 17 LONG 102 20 00)										
APR., 1972										
20...	1630	48	7.8	200	90	53	31	220	6.5	360
06340000 - SPRING CREEK AT ZAP, N. DAK. (LAT 47 17 10 LONG 101 55 31)										
JUNE, 1972										
23...	1000	15	11	40	50	84	56	230	7.3	512
06340200 - WEST BRANCH OTTER CREEK NR BEULAH, N. DAK. (LAT 47 08 05 LONG 101 39 35)										
APR., 1972										
20...	1230	.78	6.8	0	100	56	42	150	7.9	272
06340500 - KNIFE RIVER AT HAZEN, N. DAK. (LAT 47 17 06 LONG 101 37 26)										
OCT., 1971										
06...	1005	169	8.3	0	10	51	31	310	8.1	522
JUNE, 1972										
23...	1240	305	8.4	740	60	43	22	110	7.5	242

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
PART 6. MISSOURI RIVER BASIN										
YELLOWSTONE RIVER BASIN										
06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, N. DAK. (LAT 47 51 10 LONG 103 47 40)										
MAY , 1972 05...	0	427	630	1.2	.2	.23	.00	1380	1.88	27.8
LITTLE MUDDY CREEK BASIN										
06331000 - LITTLE MUDDY CREEK BELOW COW CREEK NR WILLISTON, N. DAK. (LAT 48 17 04 LONG 103 34 21)										
MAY , 1972 04...	0	549	520	5.6	.2	.20	.00	1330	1.81	133
WHITE EARTH RIVER BASIN										
06332000 - WHITE EARTH RIVER NR WHITE EARTH, N. DAK. (LAT 48 22 35 LONG 102 46 00)										
JULY, 1972 06...	26	531	420	50	.2	.23	.02	1180	1.61	36.3
SHELL CREEK BASIN										
06332520 - SHELL CREEK NR PARSHALL, N. DAK. (LAT 48 03 11 LONG 102 08 10)										
MAY , 1972 01...	0	525	570	.3	.2	.23	.00	1330	1.81	53.9
LITTLE MISSOURI RIVER BASIN										
06335000 - LITTLE BEAVER CREEK NR MARMARTH, N. DAK. (LAT 46 16 29 LONG 103 58 33)										
MAY , 1972 09...	0	58	1230	13	.4	.23	.00	1820	2.48	394.0
06335500 - LITTLE MISSOURI RIVER AT MARMARTH, N. DAK. (LAT 46 17 44 LONG 103 55 06)										
MAY , 1972 09...	0	102	900	6.8	.2	.23	.00	1320	1.80	809.0
06336000 - LITTLE MISSOURI RIVER AT MEDORA, N. DAK. (LAT 46 55 10 LONG 103 31 40)										
APR., 1972 19...	0	259	687	6.7	.4	.23	.00	1290	1.76	1200
KNIFE RIVER BASIN										
06339100 - KNIFE RIVER AT MANNING, N. DAK. (LAT 47 14 10 LONG 102 46 10)										
APR., 1972 20...	0	269	360	1.2	.2	.23	.00	820	1.12	24.6
06339300 - KNIFE RIVER AT MARSHALL, N. DAK. (LAT 47 08 17 LONG 102 20 00)										
APR., 1972 20...	0	295	450	1.3	.2	.23	.08	965	1.31	124
06340000 - SPRING CREEK AT ZAP, N. DAK. (LAT 47 17 10 LONG 101 55 31)										
JUNE, 1972 23...	0	420	530	3.1	.4	.23	.00	1120	1.52	46.3
06340200 - WEST BRANCH OTTER CREEK NR BEULAH, N. DAK. (LAT 47 08 05 LONG 101 39 35)										
APR., 1972 20...	0	223	420	1.1	.2	.23	.00	833	1.13	1.75
06340500 - KNIFE RIVER AT HAZEN, N. DAK. (LAT 47 17 06 LONG 101 37 26)										
OCT., 1971 06...	0	428	520	3.4	.6	.23	.00	1190	1.62	543
JUNE, 1972 23...	0	199	230	2.7	.2	.45	.00	531	.72	437

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 6. MISSOURI RIVER BASIN

YELLOWSTONE RIVER BASIN

06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, N. DAK. (LAT 47 51 10 LONG 103 47 40)

MAY, 1972									
05...	270	0	74	9.5	1920	8.0	10.0	8.3	0

LITTLE MUDDY CREEK BASIN

06331000 - LITTLE MUDDY CREEK BELOW COW CREEK NR WILLISTON, N. DAK. (LAT 48 17 04 LONG 103 34 21)

MAY, 1972									
04...	450	0	58	6.0	1860	8.1	10.0	8.5	0

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER NR WHITE EARTH, N. DAK (LAT 48 22 35 LONG 102 46 00)

JULY, 1972									
06...	430	0	55	5.2	1730	8.6	22.0	2.6	210

SHELL CREEK BASIN

06332520 - SHELL CREEK NR PARSHALL, N. DAK. (LAT 48 03 11 LONG 102 08 10)

MAY, 1972									
01...	240	0	77	11	1940	8.1	11.0	8.1	180

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, N. DAK. (LAT 46 16 29 LONG 103 58 33)

MAY, 1972									
09...	540	480	60	6.9	2360	7.3	4.0	5.7	290

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, N. DAK. (LAT 46 17 44 LONG 103 55 06)

MAY, 1972									
09...	380	280	62	6.5	1890	7.4	5.0	7.9	180

06336000 - LITTLE MISSOURI RIVER AT MEDORA, N. DAK. (LAT 46 55 10 LONG 103 31 40)

APR., 1972									
19...	430	170	55	5.1	1750	8.1	7.0	4.0	180

KNIFE RIVER BASIN

06339100 - KNIFE RIVER AT MANNING, N. DAK. (LAT 47 14 10 LONG 102 46 10)

APR., 1972									
20...	210	0	65	5.7	1200	7.8	7.5	8.3	70

06339300 - KNIFE RIVER AT MARSHALL, N. DAK. (LAT 47 08 17 LONG 102 20 00)

APR., 1972									
20...	260	0	64	6.0	1400	7.8	9.5	9.1	200

06340000 - SPRING CREEK AT ZAP, N. DAK. (LAT 47 17 10 LONG 101 55 31)

JUNE, 1972									
23...	440	20	53	4.8	1640	7.9	17.5	10	0

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, N. DAK. (LAT 47 08 05 LONG 101 39 35)

APR., 1972									
20...	310	90	50	3.7	1210	7.8	6.5	6.9	0

06340500 - KNIFE RIVER AT HAZEN, N. DAK. (LAT 47 17 06 LONG 101 37 26)

OCT., 1971									
06...	260	0	72	8.5	1750	7.7	11.0	17	840
JUNE, 1972									
23...	200	0	54	3.4	848	7.5	18.0	12	0

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

157

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)
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PART 6. MISSOURI RIVER BASIN

TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, N. DAK. (LAT 42 27 30 LONG 100 55 15)

APR., 1972	18...	1515	4.4	6.5	700	120	10	11	530	8.1	755
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SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIB 2 NR CENTER, N. DAK. (LAT 47 06 40 LONG 101 15 05)

APR., 1972	16...	1400	.79	9.6	0	120	36	22	97	5.9	367
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06342260 - SQUARE BUTTE CREEK BL CENTER, N. DAK. (LAT 47 03 25 LONG 101 11 35)

APR., 1972	16...	1300	6.5	8.1	140	140	35	14	59	6.6	227
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BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, N. DAK. (LAT 46 54 54 LONG 100 48 48)

APR., 1972	20...	1130	6.9	12	40	100	46	27	50	9.2	257
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HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, N. DAK. (LAT 47 01 40 LONG 103 03 10)

APR., 1972	19...	1345	7.0	6.8	1200	100	34	19	140	5.0	257
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06345500 - HEART RIVER NR RICHARDTON, N. DAK. (LAT 46 44 46 LONG 102 18 27)

APR., 1972	26...	1135	65	3.7	0	80	79	47	140	7.1	287
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06346500 - HEART RIVER BELOW HEART BUTTE DAM, NEAR GLEN ULLIN, N. DAK. (LAT 46 35 50 LONG 101 48 05)

APR., 1972	26...	1535	188	5.0	180	90	42	23	75	6.5	175
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06347000 - ANTELOPE CREEK NR CARSON, N. DAK. (LAT 46 31 50 LONG 101 38 25)

APR., 1972	19...	1030	21	2.3	100	70	62	42	77	7.9	276
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06348500 - SWEETBRIAR CREEK NR JUDSON, N. DAK. (LAT 46 51 06 LONG 101 15 10)

APR., 1972	17...	1330	26	7.4	0	90	23	11	60	7.6	163
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APPLE CREEK BASIN

06349500 - APPLE CREEK NR MENOKEN, N. DAK. (LAT 46 47 40 LONG 100 39 25)

APR., 1972	17...	1630	169	12	310	100	24	14	52	8.6	175
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ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
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PART 6. MISSOURI RIVER BASIN

TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, N. DAK. (LAT 42 27 30 LONG 100 55 15)

APR., 1972										
18...	83	757	450	12	.1	.23	.04	1530	2.08	18.2

SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIB 2 NR CENTER, N. DAK. (LAT 47 06 40 LONG 101 15 05)

APR., 1972										
16...	0	301	95	.0	.1	.23	.00	457	.62	.97

06342260 - SQUARE BUTTE CREEK BL CENTER, N. DAK. (LAT 47 03 25 LONG 101 11 35)

APR., 1972										
16...	0	186	86	.6	.1	.56	.00	342	.47	6.00

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, N. DAK. (LAT 46 54 54 LONG 100 48 48)

APR., 1972										
20...	0	211	120	.0	.1	.45	.00	424	.58	7.90

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, N. DAK. (LAT 47 01 40 LONG 103 03 10)

APR., 1972										
19...	0	211	250	.9	.1	.23	.00	592	.81	11.0

06345500 - HEART RIVER NR RICHARDTON, N. DAK. (LAT 46 44 46 LONG 102 18 27)

APR., 1972										
26...	0	235	450	5.6	.1	.23	.00	901	1.23	158

06346500 - HEART RIVER NR GLEN ULLIN, N. DAK. (LAT 46 35 50 LONG 101 48 05)

APR., 1972										
26...	0	144	210	2.8	.1	.45	.00	434	.59	223

06347000 - ANTELOPE CREEK NR CARSON, N. DAK. (LAT 46 31 50 LONG 101 38 25)

APR., 1972										
19...	0	226	250	4.5	.1	2.0	.00	615	.84	34.9

06348500 - SWEETBRIAR CREEK NR JUDSON, N. DAK. (LAT 46 51 06 LONG 101 15 10)

APR., 1972										
17...	0	134	95	.3	.1	1.2	.00	338	.46	23.7

APPLE CREEK BASIN

06349500 - APPLE CREEK NR MENOKEN, N. DAK. (LAT 46 47 40 LONG 100 39 25)

APR., 1972										
17...	0	144	84	.5	.1	.23	.00	315	.43	144

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

159

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 6. MISSOURI RIVER BASIN

TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, N. DAK. (LAT 42 27 30 LONG 100 55 15)

APR., 1972 18...	70	0	93	28	2250	9.1	12.0	1.2	110
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SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIB 2 NR CENTER, N. DAK. (LAT 47 06 40 LONG 101 15 05)

APR., 1972 16...	180	0	53	3.1	719	7.9	9.5	7.4	250
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06342260 - SQUARE BUTTE CREEK BL CENTER, N. DAK. (LAT 47 03 25 LONG 101 11 35)

APR., 1972 16...	150	0	46	2.1	529	7.7	11.0	7.2	110
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BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, N. DAK. (LAT 46 54 54 LONG 100 48 48)

APR., 1972 20...	230	0	31	1.4	633	7.9	7.0	5.2	180
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HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, N. DAK. (LAT 47 01 40 LONG 103 03 10)

APR., 1972 19...	160	0	64	4.8	899	7.6	9.0	10	460
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06345500 - HEART RIVER NR RICHARDTON, N. DAK. (LAT 46 44 46 LONG 102 18 27)

APR., 1972 26...	390	160	43	3.1	1290	7.8	8.5	7.3	180
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06346500 - HEART RIVER NR GLEN ULLIN, N. DAK. (LAT 46 35 50 LONG 101 48 05)

APR., 1972 26...	200	56	44	2.3	710	7.4	4.5	11	210
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06347000 - ANTELOPE CREEK NR CARSON, N. DAK. (LAT 46 31 50 LONG 101 38 25)

APR., 1972 19...	330	100	33	1.9	908	8.0	7.5	4.4	210
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06348500 - SWEETWATER CREEK NR JUNCTION, N. DAK. (LAT 46 51 06 LONG 101 15 10)

APR., 1972 17...	100	0	54	2.6	460	7.5	3.0	8.2	40
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APPLE CREEK BASIN

06349500 - APPLE CREEK NR MENOKEN, N. DAK. (LAT 46 47 40 LONG 100 39 25)

APR., 1972 17...	120	0	47	2.1	458	7.5	9.0	8.9	540
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ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, N. DAK. (LAT 46 25 36 LONG 102 33 05)

JUNE, 1972										
20...	1530	200	5.4	220	20	100	75	280	7.4	405

06351000 - CANNONBALL RIVER BL BENTLEY, N. DAK. (LAT 46 21 30 LONG 102 02 30)

APR., 1972										
13...	1120	1090	7.7	0	70	70	50	140	8.5	186

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, N. DAK. (LAT 46 19 20 LONG 102 59 45)

APR., 1972										
14...	1400	10	1.1	1600	520	120	120	390	7.7	375

06352000 - CEDAR CREEK NR HAYNES, N. DAK. (LAT 46 09 15 LONG 102 28 25)

APR., 1972										
12...	1705	153	4.9	0	90	95	85	220	8.3	252

06353000 - CEDAR CREEK NR RALEIGH, N. DAK. (LAT 46 05 00 LONG 101 20 05)

APR., 1972										
18...	1100	180	4.9	0	80	100	77	220	9.2	298

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, N. DAK. (LAT 46 15 27 LONG 100 13 58)

APR., 1972										
17...	1200	67	2.8	0	100	52	28	77	11	304

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, N. DAK. (LAT 45 57 39 LONG 103 07 09)

MAY, 1972										
11...	1725	105	.2	1600	100	31	19	140	6.3	192

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, N. DAK. (LAT 47 38 40 LONG 099 49 40)

APR., 1972										
20...	1300		7.3	4.0	140	50	31	20	42	9.4

06467900 - RIG SLOUGH AT HAMBERG, N. DAK. (LAT 47 45 20 LONG 099 30 42)

APR., 1972										
20...	1030		1.5	5.5	40	90	26	23	54	11

06468170 - JAMES RIVER NR GRACE CITY, N. DAK. (LAT 47 33 29 LONG 098 51 45)

APR., 1972										
26...	1745	40	6.9	180	50	36	21	41	8.9	219
JUNE										
27...	1900	3.4	4.0	0	30	27	41	89	8.9	252

06469500 - PIPESTEM CREEK NR BUCHANAN, N. DAK. (LAT 47 03 59 LONG 098 55 07)

APR., 1972										
27...	1000	57	10	100	50	43	24	39	10	227

06470000 - JAMES RIVER AT JAMESTOWN, N. DAK. (LAT 46 53 22 LONG 098 40 58)

JUNE, 1972										
27...	0815	52	7.6	0	0	44	26	56	11	274

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

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DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
PART 6. MISSOURI RIVER BASIN										
CANNONBALL RIVER BASIN										
06350000 - CANNONBALL RIVER AT REGENT, N. DAK. (LAT 46 25 36 LONG 102 33 05)										
JUNE, 1972 20...	7	344	850	4.0	.3	.23	.00	1470	2.00	794
06351000 - CANNONBALL RIVER BL BENTLEY, N. DAK. (LAT 46 21 30 LONG 102 02 30)										
APR., 1972 13...	0	153	530	3.6	.1	2.5	.00	915	1.24	2690
06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, N. DAK. (LAT 46 19 20 LONG 102 59 45)										
APR., 1972 14...	0	308	1320	7.6	.2	.23	.00	2170	2.95	58.6
06352000 - CEDAR CREEK NR HAYNES, N. DAK. (LAT 46 09 15 LONG 102 28 25)										
APR., 1972 12...	0	207	840	4.1	.1	.23	.08	1410	1.92	582
06353000 - CEDAR CREEK NR RALEIGH, N. DAK. (LAT 46 05 00 LONG 101 20 05)										
APR., 1972 18...	0	244	820	6.3	.1	.56	.00	1420	1.93	691
BEAVER CREEK BASIN										
06354500 - BEAVER CREEK AT LINTON, N. DAK. (LAT 46 15 27 LONG 100 13 58)										
APR., 1972 17...	0	249	170	4.4	.1	.23	.00	495	.67	89.6
GRAND RIVER BASIN										
06355000 - NORTH FORK GRAND RIVER AT HALEY, N. DAK. (LAT 45 57 39 LONG 103 07 09)										
MAY, 1972 11...	0	157	300	.0	.1	.23	.00	619	.84	175
JAMES RIVER BASIN										
06467600 - JAMES RIVER NR MANFRED, N. DAK. (LAT 47 38 40 LONG 099 49 40)										
APR., 1972 20...	0	186	62	3.2	.1	.14	.00	315	.43	6.21
06467900 - BIG SLOUGH AT HAMBERG, N. DAK. (LAT 47 45 20 LONG 099 30 42)										
APR., 1972 20...	0	180	89	10	.1	.23	.00	337	.46	1.37
06468170 - JAMES RIVER NR GRACE CITY, N. DAK. (LAT 47 33 29 LONG 098 51 45)										
APR., 1972 26...	0	180	82	.3	.1	.23	.00	291	.40	31.4
JUNE 27...	33	262	160	18	.2	.23	.00	476	.65	4.40
06469500 - PIPESTEM CREEK NR BUCHANAN, N. DAK. (LAT 47 03 59 LONG 098 55 07)										
APR., 1972 27...	0	186	110	.6	.1	.23	.00	368	.50	56.6
06470000 - JAMES RIVER AT JAMESTOWN, N. DAK. (LAT 46 53 22 LONG 098 40 58)										
JUNE, 1972 27...	0	225	110	11	.1	.45	.00	360	.49	50.6

ANALYSES OF PERIODIC WATER SAMPLES AT STREAMFLOW STATIONS
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED BORON (B) (UG/L)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, N. DAK. (LAT 46 25 36 LONG 102 33 05)

JUNE, 1972 20...	560	220	52	5.2	2180	8.4	18.0	2.7	460
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06351000 - CANNONBALL RIVER BL BENTLEY, N. DAK. (LAT 46 21 30 LONG 102 02 30)

APR., 1972 13...	380	230	44	3.1	1290	7.8	5.0	4.7	210
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06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, N. DAK. (LAT 46 19 20 LONG 102 59 45)

APR., 1972 14...	790	490	51	6.0	2770	8.0	10.0	6.0	860
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06352000 - CEDAR CREEK NR HAYNES, N. DAK. (LAT 46 09 15 LONG 102 28 25)

APR., 1972 12...	590	380	44	4.0	1870	7.6	7.0	10	360
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06353000 - CEDAR CREEK NR RALEIGH, N. DAK. (LAT 46 05 00 LONG 101 20 05)

APR., 1972 18...	570	320	45	4.0	1860	8.1	7.5	3.8	360
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BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, N. DAK. (LAT 46 15 27 LONG 100 13 58)

APR., 1972 17...	250	0	39	2.1	771	7.9	9.5	6.1	290
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GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, N. DAK. (LAT 45 57 39 LONG 103 07 09)

MAY, 1972 11...	160	0	65	4.9	897	7.7	9.0	6.1	180
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JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, N. DAK. (LAT 47 38 40 LONG 099 49 40)

APR., 1972 20...	160	0	35	1.4	484	7.6	9.0	9.1	210
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06467900 - BIG SLOUGH AT HAMBERG, N. DAK. (LAT 47 45 20 LONG 099 30 42)

APR., 1972 20...	160	0	40	1.9	557	7.5	8.5	11	290
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06468170 - JAMES RIVER NR GRACE CITY, N. DAK. (LAT 47 33 29 LONG 098 51 45)

APR., 1972 26...	180	0	32	1.3	510	7.7	10.0	7.0	0
JUNF 27...	240	0	44	2.5	790	9.0	22.0	.5	0

06469500 - PIPESTEM CREEK NR BUCHANAN, N. DAK. (LAT 47 03 59 LONG 098 55 07)

APR., 1972 27...	210	20	28	1.2	558	7.7	9.5	7.2	110
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06470000 - JAMES RIVER AT JAMESTOWN, N. DAK. (LAT 46 53 22 LONG 098 40 58)

JUNE, 1972 27...	220	0	35	1.7	663	7.9	19.5	5.5	0
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SELECTED CHEMICAL ANALYSES OF GROUND WATER IN NORTH DAKOTA

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LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	TOTAL DEPTH OF WELL (FT)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)
HETTINGER COUNTY									
135-94-31CCC	462216102102401	46 22 16	102 10 24	01	71-10-01	--	81	15	0
134-91-32CCC	462216102090801	46 22 16	102 09 08	01	71-10-01	--	478	11	0
MERCER COUNTY									
144-88-25CCC3	471524101470603	47 15 24	101 47 06	03	71-10-05	--	161	21	500
141-89-23BAA	470125101552701	47 01 25	101 55 27	01	71-10-06	--	280	27	1400
141-90-19CCD	470041102082601	47 00 41	102 08 26	01	71-10-07	--	1142	1.8	300
144-86-18ADC2	471734101371902	47 17 34	101 37 19	02	71-10-05	--	63	21	3300
145-88-25ABB	472121101495901	47 21 21	101 49 59	01	71-10-07	--	216	24	4100
145-90-8CBB	472333102110001	47 23 33	102 11 00	01	71-10-07	--	236	27	2700

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
HETTINGER COUNTY										
135-94-31CCC	71-10-01	170	20	10	100	3.1	337	0	276	50
134-91-32CCC	71-10-01	10	3.7	.7	500	1.7	1260	22	1070	1.0
MERCER COUNTY										
144-88-25CCC3	71-10-05	30	72	33	180	7.6	652	0	535	160
141-89-23BAA	71-10-06	20	110	64	530	10	769	0	631	1030
141-90-19CCD	71-10-07	20	2.5	1.5	540	9.3	650	248	946	9.6
144-86-18ADC2	71-10-05	110	66	32	100	5.8	570	0	468	49
145-88-25ABB	71-10-07	370	95	31	29	4.5	436	0	358	78
145-90-8CBB	71-10-07	100	93	28	220	5.3	446	0	366	430

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
HETTINGER COUNTY								
135-94-31CCC	71-10-01	.7	.6	.23	220	378	91	0
134-91-32CCC	71-10-01	40	2.7	.41	1900	1200	12	0
MERCER COUNTY								
144-88-25CCC3	71-10-05	3.7	.5	1.0	90	775	320	0
141-89-23BAA	71-10-06	5.8	.5	1.2	350	2160	540	0
141-90-19CCD	71-10-07	191	6.3	.23	1800	1290	12	0
144-86-18ADC2	71-10-05	2.0	.6	1.1	220	548	300	0
145-88-25ABB	71-10-07	.7	.4	.23	220	444	370	12
145-90-8CBB	71-10-07	.8	1.0	.23	180	1050	350	0

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)
HETTINGER COUNTY					
135-94-31CCC	71-10-01	4.6	604	8.1	9.0
134-91-32CCC	71-10-01	63	1940	8.5	10.0
MERCER COUNTY					
144-88-25CCC3	71-10-05	4.4	1230	8.0	8.0
141-89-23BAA	71-10-06	9.9	2910	7.8	8.0
141-90-19CCD	71-10-07	67	2320	9.7	9.0
144-86-18ADC2	71-10-05	2.5	888	8.1	8.0
145-88-25ABB	71-10-07	.7	748	8.1	7.5
145-90-8CBB	71-10-07	5.1	1520	8.1	7.5

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