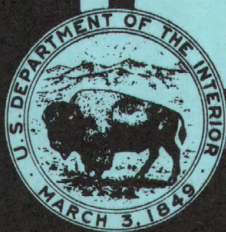
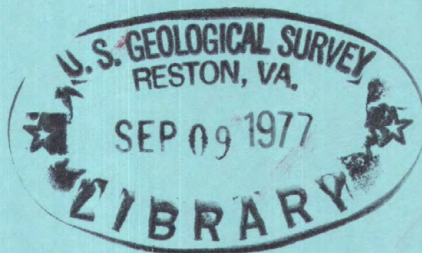


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Water Resources Data for North Dakota Water Year 1976



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT ND-76-1

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

CALENDAR FOR WATER YEAR 1976

1975

OCTOBER

S	M	T	W	T	F	S
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1976

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AUGUST

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Water Resources Data for North Dakota Water Year 1976



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT ND-76-1

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

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

For information on the water program in North Dakota write to
District Chief, Water Resources Division
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Room 332, Federal Building
Bismarck, North Dakota 58501

PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the State of North Dakota and with other agencies, by personnel of the North Dakota district of the Water Resources Division under the supervision of W. R. Scott, District Chief, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region.

This report is one of a series issued State by State under the general direction of J. S. Cragwall, Jr., Chief Hydrologist, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

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GAGING STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED

VII

[Letter after station name designates type of data:
(d) discharge, (c) chemical, (b) biological,
(m) microbiological, (t) water temperature, (s) sediment]

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WATER RESOURCES DATA FOR NORTH DAKOTA, 1976

INTRODUCTION

Water resources data for the 1976 water year for North Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water-levels and water quality of ground water. This report contains discharge records for 134 gaging stations; stage and contents for 13 lakes and reservoirs; water quality for 51 gaging stations, 3 partial-record stations, 12 lakes, 21 wells, and water levels for 32 observation wells. Also included are 5 crest-stage partial-record stations. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in North Dakota.

Records of discharge of streams, and contents of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through water year 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-Water Levels in the United States."

Beginning with the 1961 water year and continuing through water year 1974, streamflow data have been released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records beginning with the 1964 water year, and ground-water data since the 1971 water year have been similarly released either in separate reports or in conjunction with streamflow records. These reports provided rapid release of preliminary water data shortly after the end of the water year. The final data were then released in the water-supply paper series mentioned above. Beginning with the 1975 water year, water data will be released on a State-boundary basis in final form and will not be republished in the water-supply paper

series. The 1976 and subsequent water year reports will be in a series which will carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report ND-76-1." These reports are for sale to the public for a nominal fee from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22151. For more information on publications available, see "PUBLICATIONS" on a subsequent page.

COOPERATION

The U.S. Geological Survey and organizations of the State of North Dakota have had cooperative agreements for the systematic collection of streamflow records since 1903, for ground-water levels since 1937, and for water-quality records since 1946. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

North Dakota State Water Commission
Vernon Fahy, Chief Engineer.

Oliver County Board of Commissioners
John Weber, Chairman.

Assistance in the form of funds or services was given by other Federal agencies:

Corps of Engineers, U.S. Army
International Joint Commission, U.S. Department of State
Bureau of Land Management, U.S. Department of the Interior
Bureau of Reclamation, U.S. Department of the Interior
Fish and Wildlife Service, U.S. Department of the Interior
Surveillance and Analysis Division, U.S. Environmental
Protection Agency
Soil Conservation Service, U.S. Department of Agriculture
Other Federal agencies of the U.S. Department of Interior
for the development of the Missouri River basin.

Certain stations are maintained under agreement with Canada and the records are obtained and compiled in a manner equally acceptable in both countries. Most of these stations are designated as "International gaging stations."

ACKNOWLEDGMENT

North Dakota personnel who contributed significantly to the collection and preparation of the data in this report were: W. E. Harkness, chief, Hydrologic Records and Information Section, assisted by D. B. Hanson, D. G. Emerson, O. O. Holmen, R. A. Pewe, D. J. Ackerman, G. E. Ghering and J. E. Wagner.

HYDROLOGIC CONDITIONS

Streamflow was below normal in most areas of the State. The exception was the Souris River basin in which heavy fall and winter precipitation resulted in record flooding on the main stem. Stream-flow at the two index stations, the Cannonball River at Breien and the Red River of the North at Grand Forks was 43 percent and 95 percent, respectively, of the 1941-70 median (see fig. 3). The latter percentage would have been much lower had it not been for inflow from Minnesota.

The 1976 peaks on the Souris River were the highest since 1904, and the total runoff for the year was the highest volume for the period of record. Urban flooding was held to a minimum by massive dyking efforts, but thousands of acres of farmland were inundated for many weeks.

In most areas of the State below normal precipitation resulted in very little runoff. Several cities in the Red River of the North Valley were experiencing water shortages by late summer. May through September runoff at the Red River of the North at Fargo was the lowest since 1940.

Reservoir levels declined slightly throughout the year. Releases from most reservoirs were held to a minimum because of below normal inflows. Reservoirs in the Souris River basin, which contained record volumes of water in the spring, were at, or below normal levels at year-end.

Ground-water levels were much below normal by the end of the year. Record monthly lows were recorded at two representative wells in August and September.

DEFINITION OF TERMS

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

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

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

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

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C + 0.5°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at $35^{\circ}\text{C} + 0.5^{\circ}\text{C}$ on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Benthic organisms (invertebrates) are animals inhabiting the bottom of an aquatic environment. They include a number of different types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are frequently used as indicators of environmental quality because many have restricted mobility during their aquatic life phase, as well as a relatively long lifespan which allows for response to prevailing and changing water-quality conditions. Many benthic organisms inhabit specific types of environments, which if changed, results in changes in the composition of the benthic community.

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

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

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

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

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

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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.

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

Continuing-record station is a specified site which meets one or all conditions as listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.
2. When water temperature records include observations taken once or more times daily.
3. When sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

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

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT³/S, ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

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

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

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

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45 micrometer membrane filter, and thus may include some very small (colloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at the specific 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 a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (UG/G, $\mu\text{g/g}$) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

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

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

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multi-celled and are counted according to the number of contained cells per sample volume, usually milliliters (mL) or liters (L).

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

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

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

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

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

Particle-size classification used in this report agrees with 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. Chemical dispersion is not used for native water analysis.

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

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

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.

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

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

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

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

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

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

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

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

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

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

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

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

Suspended-sediment discharge (tons/day) 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 volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

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

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. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

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

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

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

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

Substrate is the physical surface upon which an organism lived.

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

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

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

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

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 presence of a 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 year.

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

Total (as used in tables of chemical analyses) refers to the amount of a substance that is present both in solution and in suspension. Analyses are performed on representative samples of water-suspended sediment mixtures.

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.

WRD is used as an abbreviation for "Water-Resources Data" in REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

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

DOWNSTREAM ORDER AND STATION NUMBER

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

As an added means of identification, each hydrologic 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 stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 05051700, which appears just to the left of the station name, includes the 2-digit part number "05" plus the 6-digit downstream order number "051700".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

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 2. 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 or 4-hectare tract). For example, well 139-049-15ADC is in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 15, T. 139 N., R. 049 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract.

SPECIAL NETWORKS AND PROGRAMS

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.

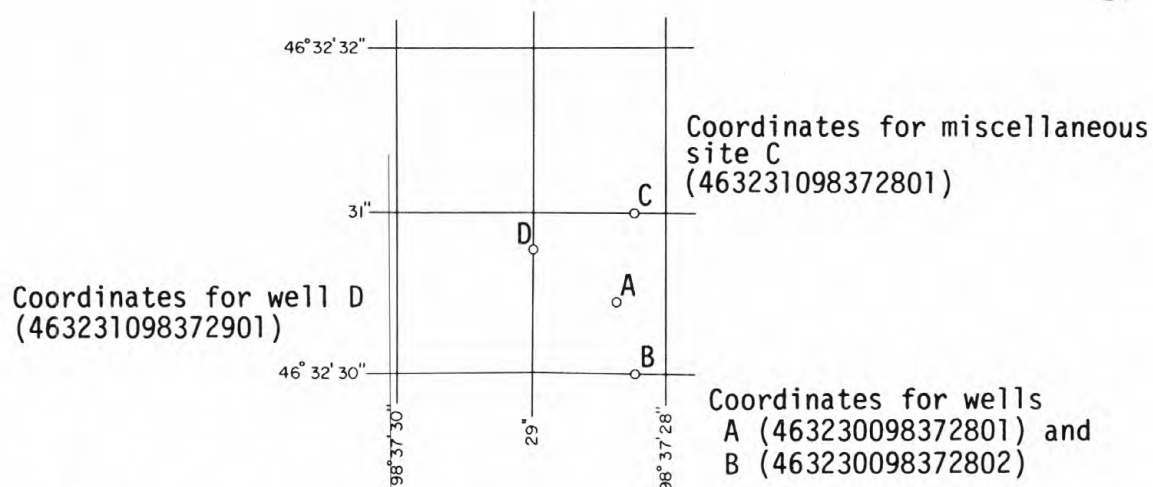


FIGURE 1--System for numbering wells and miscellaneous sites (latitude and longitude)

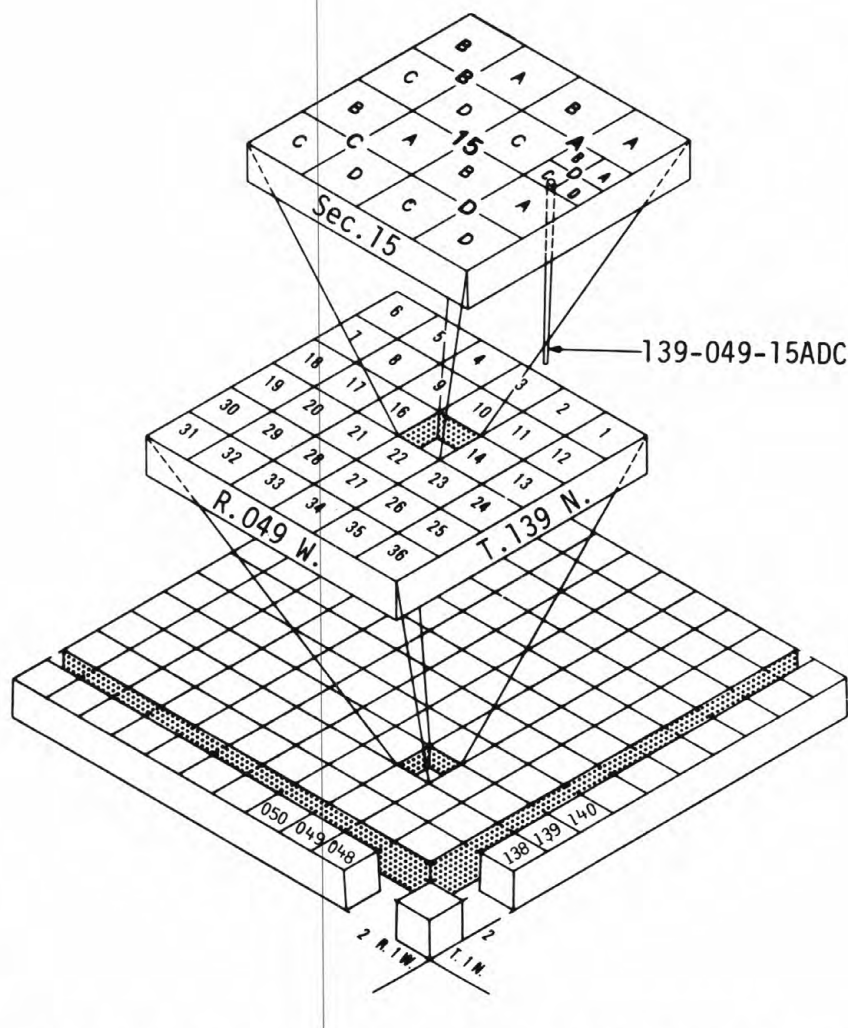


FIGURE 2--System for numbering wells and miscellaneous sites (township and range)

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current

meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance.

In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skelton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations and the second is a table of both low flow and high flow measurements. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

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

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

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

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than
the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of all discharge measurement sites in the State. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperature or sediment discharge) extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum 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 district office.

Water temperature

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

At stations where recording instruments are used, maximum and minimum temperatures for each day are published.

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 streamflow 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.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 1 and 2.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-two manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Picket Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number and "U.S. Geological Survey Techniques of Water-Resources Investigations".

- 1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. \$1.60.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. \$1.90.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. \$1.75.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. \$0.25.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. \$0.20.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. \$0.40.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. \$1.00.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. \$0.30.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages. \$0.20.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. \$0.45.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. \$1.25.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. \$0.40.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. \$0.35. Not currently available.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. \$0.70.
- 3-B2. *Introduction to ground-water hydraulics-a programed text for self-instruction*, by D. S. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. \$0.65.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages. \$0.70.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. \$1.15.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages. \$0.30.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. \$0.20.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages. \$0.65.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. \$0.75.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. \$0.75.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. \$0.65.
- 5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. \$2.40.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. \$0.80.
- 5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. \$0.90.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by K. V. Slack, R. C. Averett, P. E. Greeson, and R. G. Lipscomb: USGS--TWRI Book 5, Chapter A4. 1973. 165 pages. \$1.95.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. \$0.65.
- 7-C1. *Finite-difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. \$0.70.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. \$0.40.

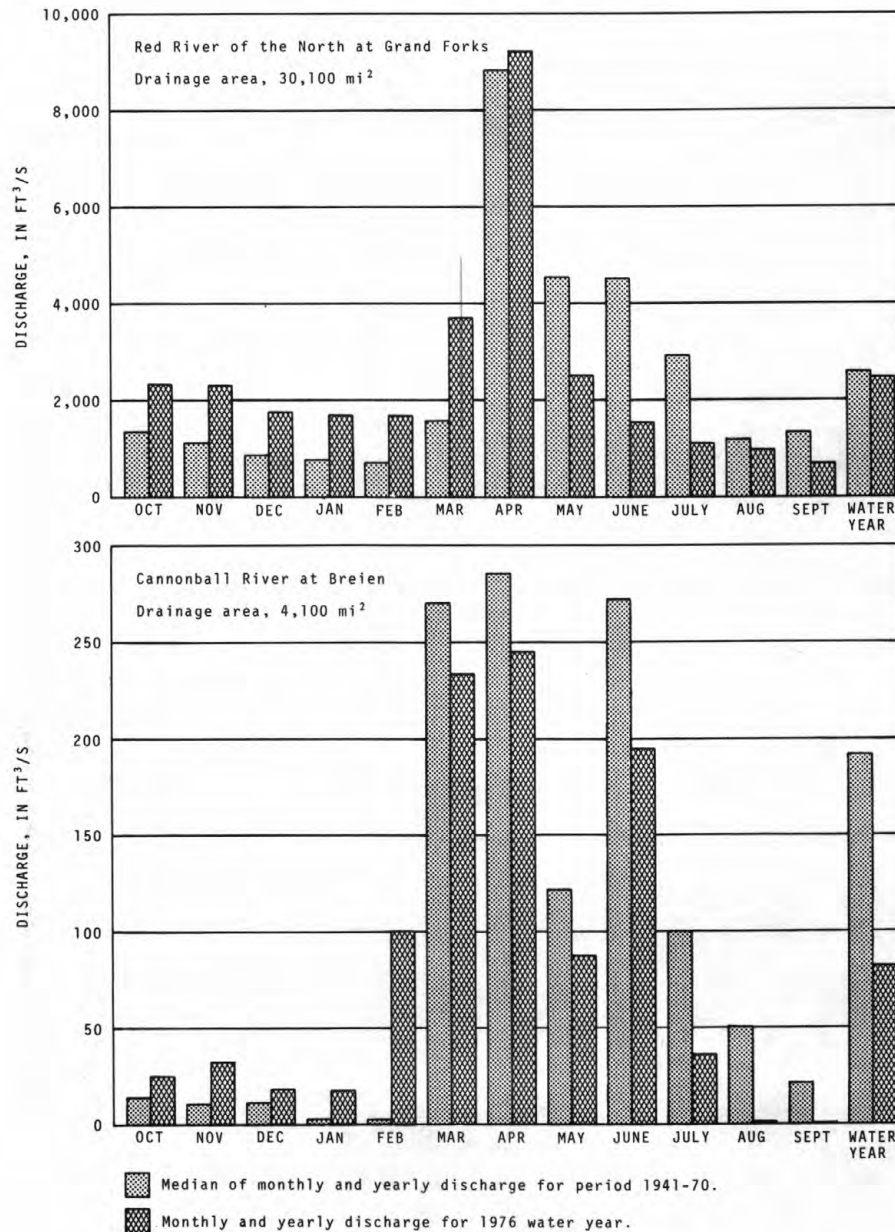


FIGURE 3.--Discharge during 1976 water year compared with median discharge for period 1941-70 for two representative gaging stations.

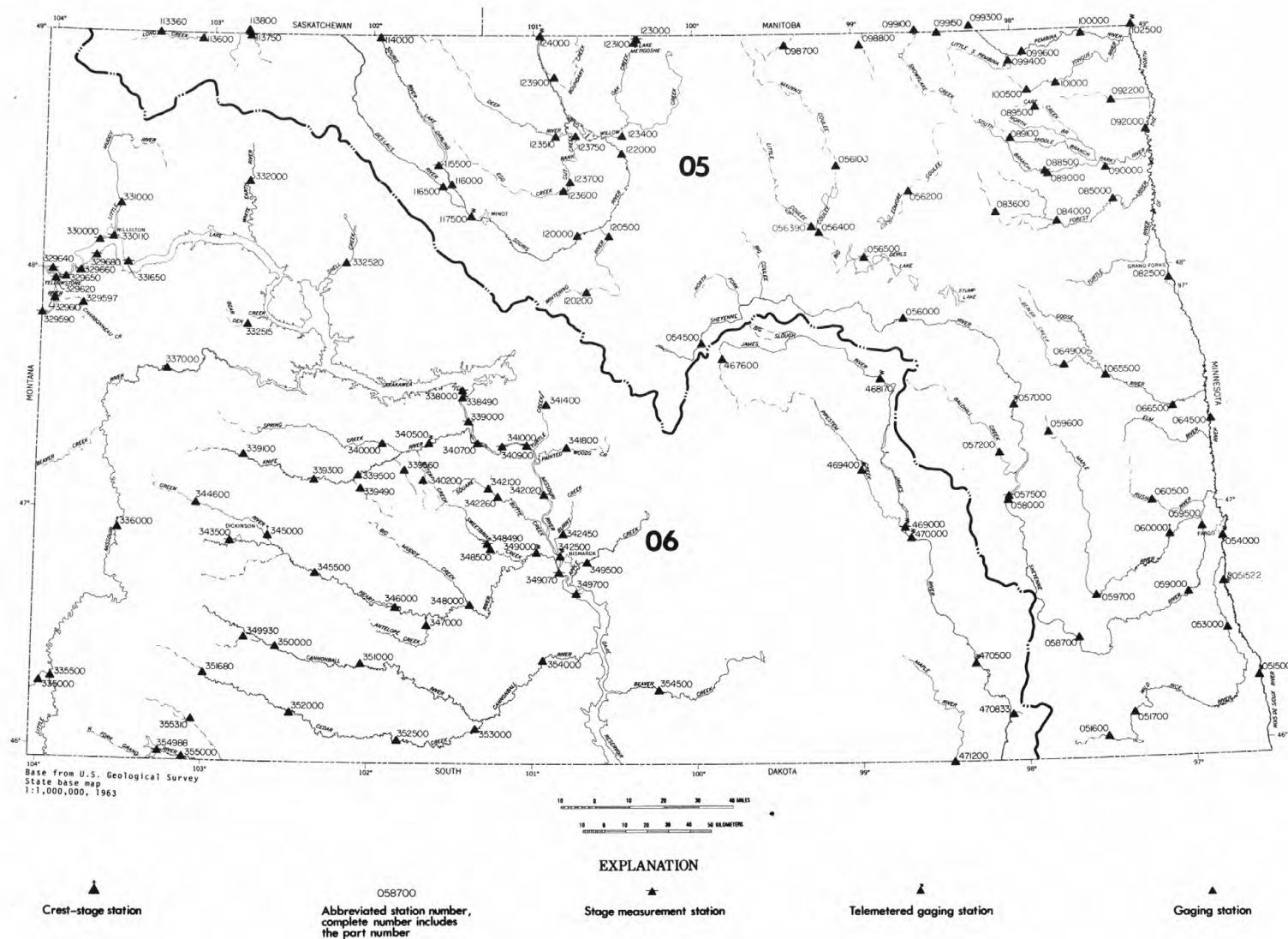


FIGURE 4- Locations of lake, crest-stage and stream gaging stations.

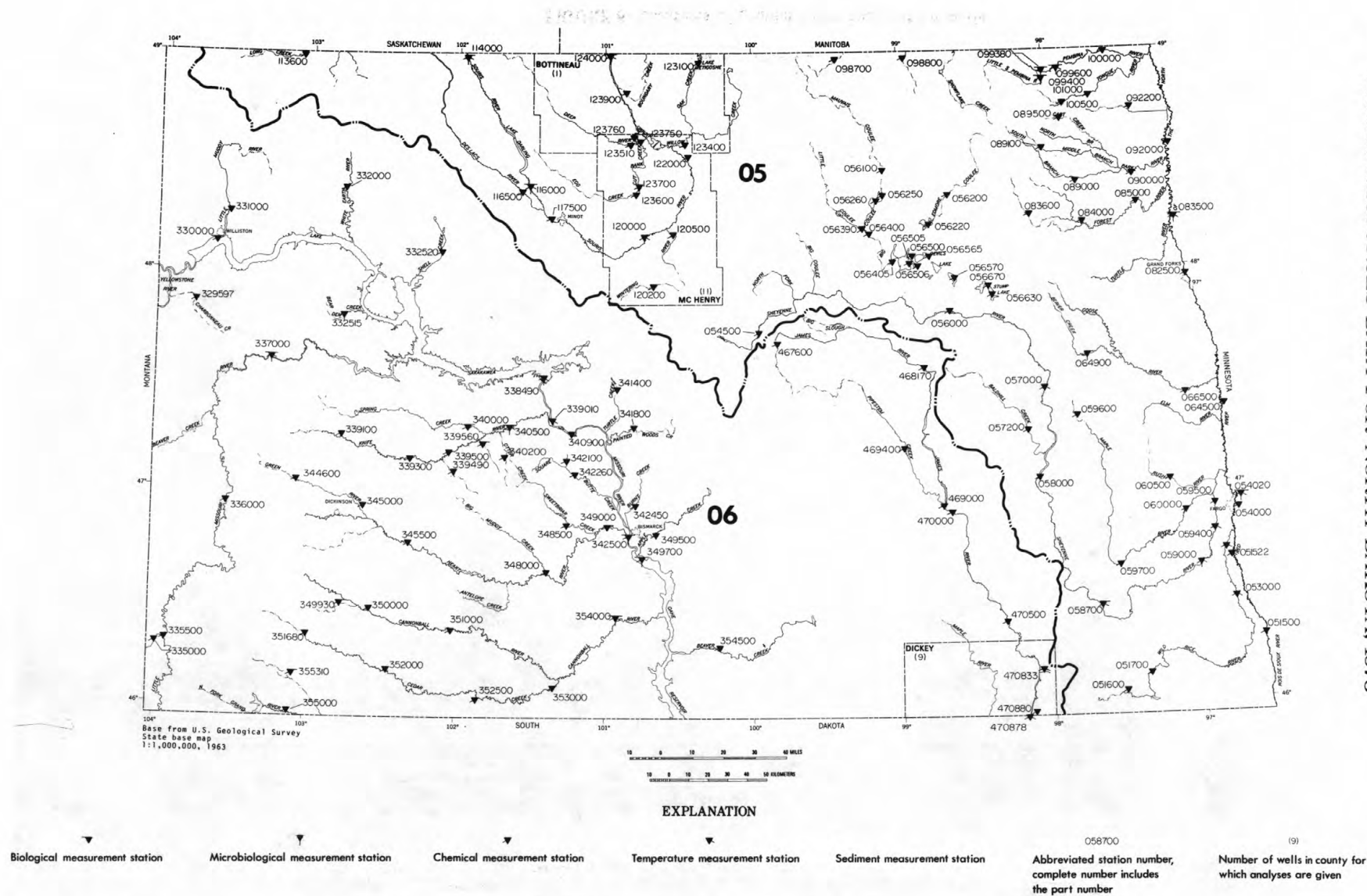


FIGURE 5--Locations of water-quality stations.

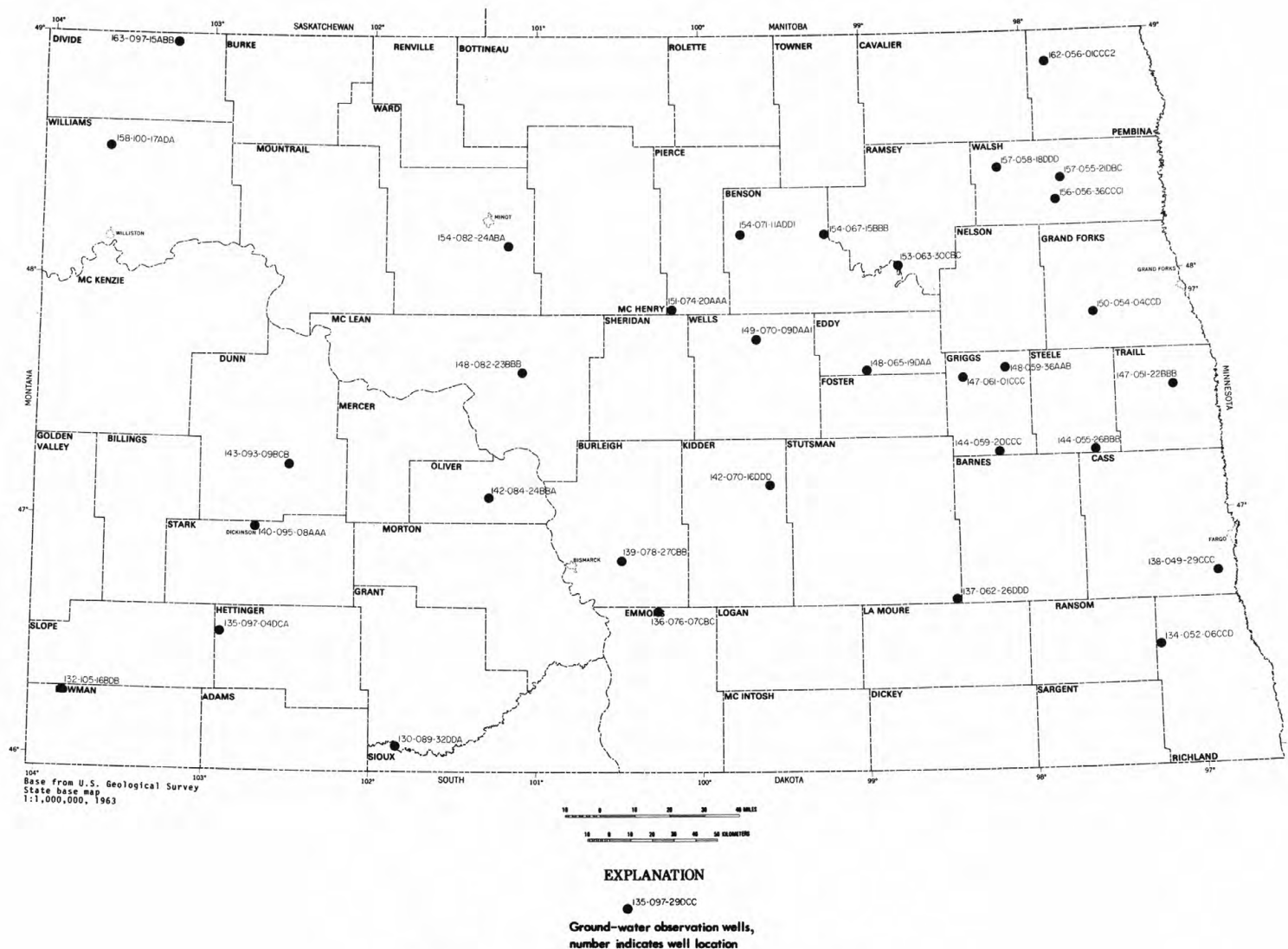


FIGURE 6--Locations of ground-water observation wells.

RED RIVER OF THE NORTH BASIN

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW¼SW¼ sec.27, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on left bank just downstream from Big Slough Outlet, 300 ft (91 m) downstream from White Rock Dam, 4 mi (6 km) south of White Rock, and 5 mi (8 km) northwest of Wheaton, Minn.

DRAINAGE AREA.--1,160 mi² (3,004 km²), approximately.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft (292.608 m) above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Jan. 14, 1943, nonrecording gage at same site at datum 0.11 ft (0.034 m) lower. Jan. 15, 1943, to Sept. 30, 1963, water-stage recorder at same site at datum 0.11 ft (0.034 m) lower.

REMARKS.--Records fair. Flow regulated by Lake Traverse-Bois de Sioux Flood Control and Water Conservation project, available capacity for flood control, 137,000 acre-ft (169 hm³).

AVERAGE DISCHARGE.--35 years, 77.4 ft³/s (2.192 m³/s), 56,050 acre-ft/yr (69.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft³/s (107 m³/s), occurred during period Apr. 19-21, 1969, gage height, 15.07 ft (4.593 m), from floodmark; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 522 ft³/s (14.8 m³/s) Mar. 21, gage height, 8.60 ft (2.621 m), backwater from inflow downstream; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	.70	.24		0	130	382	11	.11			0
2	.13	.70	.19		0	125	380	7.5	.08			2.3
3	.01	.63	.18		0	120	374	12	.06			4.4
4	.17	.52	.18		0	116	364	17	.05			.09
5	.01	0	.18		0	114	305	6.8	.04			.01
6	0	.13	.17		0	116	156	7.9	.04			0
7	.19	0	.16		0	120	155	8.3	.03			0
8	.42	0	.15		0	125	163	11	.02			.01
9	0	0	.14		0	132	163	13	.02			0
10	0	0	.14		0	115	156	5.6	.02			0
11	0	.01	.13		.50	95	142	5.2	.01			0
12	0	.06	.13		.75	95	143	4.6	.01			0
13	0	0	.13		1.0	120	140	3.7	.01			0
14	0	0	.12		1.5	125	143	3.2	0			0
15	0	0	.11		1.5	130	130	2.5	0			0
16	0	0	.05		1.5	125	125	2.0	0			0
17	.01	.06	.02		2.0	125	132	1.6	0			0
18	0	.17	0		4.0	125	103	1.3	0			0
19	.06	.38	0		4.5	250	98	1.0	0			0
20	.04	.92	0		8.0	360	98	.86	0			0
21	.09	.50	0		15	434	79	.74	0			0
22	.26	.23	0		25	318	7.5	.65	0			0
23	.45	.33	0		32	317	5.8	.60	0			0
24	.50	.35	0		54	319	4.8	.52	.01			0
25	.59	.35	0		70	337	7.5	.45	.01			0
26	.68	.36	0		82	374	9.0	.40	.01			0
27	.69	.36	0		80	392	8.3	.33	0			0
28	.70	.36	0		95	401	12	.26	0			0
29	.80	.31	0		145	409	15	.21	.01			0
30	.73	.26	0		---	401	13	.18	.01			0
31	.71	---	0		---	392	---	.15	---			---
TOTAL	46.24	7.69	2.42	0	623.25	6857	4013.9	130.55	.55	0	0	6.81
MEAN	1.49	.26	.078	0	21.5	221	134	4.21	.018	0	0	.23
MAX	39	.92	.24	0	145	434	382	17	.11	0	0	4.4
MIN	0	0	0	0	0	95	4.8	.15	0	0	0	0
AC-FT	92	15	4.8	0	1240	13600	7960	259	1.1	0	0	14
CAL YR 1975	TOTAL	20020.67	MEAN 54.9	MAX 551	MIN 0	AC-FT 39710						
WTR YR 1976	TOTAL	11688.41	MEAN 31.9	MAX 434	MIN 0	AC-FT 23180						

RED RIVER OF THE NORTH BASIN

35

05051500 RED RIVER OF THE NORTH AT WAHPETON, ND

LOCATION.--Lat 46°15'55", long 96°35'40", in NE¼ sec.8, T.132 N., R.47 W., Richland County, Hydrologic Unit 09020104, on left bank in Wahpeton, 800 ft (240 m) downstream from confluence of Bois de Sioux and Otter Tail Rivers and at mile 548.6 (kilometer 882.7).

DRAINAGE AREA.--4,010 mi² (10,390 km²), approximately.

PERIOD OF RECORD.--April 1942 to current year. Gage-height records collected in this vicinity since 1917 are contained in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder and concrete and wooden dam. Datum of gage is 942.97 ft (287.417 m) above mean sea level. Prior to Aug. 6, 1943, U.S. Weather Bureau nonrecording gage 800 ft (240 m) upstream, converted to present datum. Aug. 6, 1943, to Oct. 27, 1950, nonrecording gage at present site and datum.

REMARKS.--Records good except those for the winter period and those below 50 ft³/s (1.42 m³/s), which are fair. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) above mean sea level, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; numerous other controlled lakes and ponds, and several powerplants.

AVERAGE DISCHARGE.--33 years (1943-76), 531 ft³/s (15.04 m³/s) 384,700 acre-ft/yr (474 hm³/yr); median of yearly mean discharges, 480 ft³/s (13.6 m³/s) 348,000 acre-ft/yr (430 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft³/s (261 m³/s) Apr. 10, 1969, gage height, 16.34 ft (4.980 m); minimum, 8 ft³/s (0.23 m³/s) Aug. 25, 1961, gage height, 2.26 ft (0.689 m); minimum gage height, 1.76 ft (0.536 m) Sept. 8, 9, 1969 (gates open).

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 17.0 ft (5.182 m), discharge, 10,500 ft³/s (297 m³/s) occurred in the spring of 1897 and has not been exceeded since.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,700 ft³/s (76.5 m³/s) Mar. 26, gage height, 9.00 ft (2.743 m), backwater from ice; minimum daily, 1.7 ft³/s (0.048 m³/s) Aug. 28 to Sept. 5 and Sept. 9 and 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	379	331	235	200	300	640	1270	502	247	156	104	1.7
2	379	328	295	200	300	630	1220	487	253	154	98	1.7
3	370	325	315	200	290	610	1190	454	265	152	97	1.7
4	349	325	315	210	290	600	1140	410	265	154	95	1.7
5	313	322	315	210	285	580	1080	396	224	152	95	1.7
6	316	319	295	215	285	450	953	385	204	123	91	2.0
7	319	313	280	215	280	450	754	367	189	89	93	2.0
8	319	316	310	220	280	460	697	363	137	97	87	2.0
9	295	316	295	225	280	470	701	361	79	104	84	1.7
10	253	316	305	225	280	480	709	330	51	108	86	1.7
11	247	316	305	230	280	490	697	326	129	110	84	2.0
12	241	322	304	235	280	540	677	324	156	112	84	2.0
13	238	328	280	240	280	470	677	329	199	112	89	2.0
14	244	319	240	245	280	480	657	338	204	125	93	2.0
15	262	319	165	250	280	490	626	324	172	110	82	2.0
16	316	319	270	255	290	500	685	328	127	91	76	2.0
17	319	319	280	260	300	550	677	329	104	96	74	2.0
18	322	319	290	265	320	600	641	327	108	97	76	2.5
19	319	316	310	270	330	690	626	312	123	97	35	2.0
20	322	307	310	270	360	850	622	287	123	93	10	2.0
21	322	115	305	265	380	1080	614	250	117	93	4.0	2.0
22	322	290	300	260	380	1180	611	250	119	91	3.0	2.5
23	318	315	290	260	390	1630	583	251	117	95	3.0	2.5
24	342	310	260	260	410	1780	552	253	131	95	3.0	2.5
25	348	280	230	265	480	2190	535	270	145	93	2.7	2.5
26	334	300	220	270	580	2650	524	280	143	100	2.5	2.5
27	337	310	210	270	650	2280	521	290	147	98	2.0	2.5
28	324	315	200	275	660	1690	514	285	147	98	1.7	4.0
29	324	315	200	280	650	1670	511	280	161	97	1.7	3.0
30	337	315	200	290	---	1470	502	270	156	100	1.7	3.0
31	320	---	200	300	---	1360	---	260	---	102	1.7	---
TOTAL	9750	9260	8329	7635	10450	29810	21766	10218	4742	3392	1660.0	65.4
MEAN	315	309	269	246	360	962	726	337	158	109	53.5	2.18
MAX	379	331	315	300	660	2650	1270	502	265	156	104	4.0
MIN	238	115	165	200	280	450	502	250	51	89	1.7	1.7
AC-FT	19340	18370	16520	15140	20730	59130	43170	20270	9410	6730	3290	130
CAL YR 1975 TOTAL	249592.0			MEAN 684	MAX 3810	MIN 115	AC-FT 495100					
WTR YR 1976 TOTAL	117077.4			MEAN 320	MAX 2650	MIN 1.7	AC-FT 232200					

LOCATION.--Lat 46°39'35", long 96°47'44", in SW¼ sec.19, T.137 N., R.48 W., Clay County, Minnesota, Hydrologic Unit 09020104, on right bank 60 ft (18 m) downstream from bridge on township road 1 mi (2 km) southeast of Hickson.

WATER-DISCHARGE RECORDS

REMARKS.--Records good except those for the winter period and September, which are fair. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) above mean sea level, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; numerous other controlled lakes and ponds, and several powerplants.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

[illegible]

RED RIVER OF THE NORTH BASIN

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05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 929 micromhos Mar. 16; minimum daily, 399 micromhos Aug. 6.

WATER TEMPERATURES: Maximum daily, 28.5°C July 26; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- CORALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	HARD- NESS (CA, MG)	NON- CAR- BONATE HARD- NESS (MG/L)
NOV										
03...	1130	360	441	8.3	7.0	12	--	--	210	0
28...	1100	250	510	8.2	.0	12	4	--	250	15
DEC										
17...	1330	185	500	8.0	.0	10	5	14.2	250	7
JAN										
21...	1445	250	540	7.4	.0	10	3	--	260	1
22...	1120	229	560	--	.0	--	--	--	--	--
FEB										
25...	1620	401	480	8.2	.0	8	5	--	240	2
APR										
03...	1220	1310	480	--	5.0	--	--	--	--	--
06...	1500	1130	520	--	8.5	--	--	--	--	--
12...	1220	820	520	8.5	10.5	20	41	11.2	240	53
28...	1130	600	47	8.5	12.5	8	29	8.0	230	26
MAY										
26...	1525	321	480	8.2	20.0	2	10	7.2	250	26
JUN										
30...	1150	199	460	8.4	22.5	28	30	7.8	230	20
JUL										
28...	1530	100	500	8.5	26.5	12	20	--	250	29
29...	0925	97	500	--	24.5	--	--	--	--	--
AUG										
25...	1150	36	510	--	25.0	--	--	--	--	--
SEP										
02...	1300	23	520	8.2	22.0	12	35	--	260	29
30...	0940	2.9	560	8.3	13.0	12	30	--	280	25

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CAO3 (MG/L)
NOV									
03...	39	27	9.8	9	.3	4.6	255	0	209
28...	47	32	11	9	.3	5.2	286	0	235
DEC									
17...	48	31	12	9	.3	4.8	293	0	240
JAN									
21...	49	33	12	9	.3	5.0	313	0	257
22...	--	--	--	--	--	--	--	--	--
FEB									
25...	44	31	11	9	.3	4.6	287	0	235
APR									
03...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
12...	49	29	14	11	.4	5.3	223	4	190
28...	44	29	9.9	8	.3	4.4	238	5	204
MAY									
26...	49	30	11	9	.3	4.6	268	0	220
JUN									
30...	44	30	11	9	.3	4.0	260	0	213
JUL									
28...	49	32	12	9	.3	4.6	274	0	225
29...	--	--	--	--	--	--	--	--	--
AUG									
25...	--	--	--	--	--	--	--	--	--
SEP									
02...	48	35	15	11	.4	5.2	286	0	235
30...	47	39	16	11	.4	5.3	309	0	253

RED RIVER OF THE NORTH BASIN

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
NOV									
03...	2.0	26	6.5	.1	8.9	255	248	.35	248
28...	2.9	41	7.0	.2	9.8	283	294	.38	191
DEC									
17...	4.7	25	7.2	.2	8.3	296	282	.40	148
JAN									
21...	20	33	7.4	.2	15	310	310	.42	209
22...	--	--	--	--	--	--	--	--	--
FEB									
25...	2.9	28	8.5	.2	14	285	285	.39	309
APR									
03...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
12...	1.2	80	6.1	.2	6.0	322	304	.44	713
28...	1.3	5.4	5.4	.2	5.3	290	226	.39	470
MAY									
26...	2.7	43	7.0	.1	3.2	306	280	.42	265
JUN									
30...	1.7	32	5.7	.2	4.7	269	262	.37	145
JUL									
28...	1.4	36	6.8	.2	5.7	290	282	.39	78.3
29...	--	--	--	--	--	--	--	--	--
AUG									
25...	--	--	--	--	--	--	--	--	--
SEP									
02...	2.9	38	8.1	.2	8.8	308	300	.42	19.1
30...	2.5	53	8.4	.2	6.8	345	329	.47	2.70

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	TOTAL ORTHO PHOS- PHORUS (P) (MG/L)
NOV									
03...	.01	.00	.01	1.4	1.4	1.4	.09	.07	--
28...	.01	.01	.04	1.4	1.4	1.4	.07	.03	.05
DEC									
17...	.13	.13	.04	1.3	1.3	1.4	.07	.08	--
JAN									
21...	.26	.26	.33	.34	.67	.93	.22	.17	.20
22...	--	--	--	--	--	--	--	--	--
FEB									
25...	.38	.38	.19	1.1	1.3	1.7	.20	.18	.15
APR									
03...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
12...	.01	.01	.03	1.9	1.9	1.9	.25	.04	--
28...	.07	.01	.00	2.4	2.4	2.4	.29	.02	.00
MAY									
26...	.07	--	.01	.99	1.0	1.0	.14	.04	.04
JUN									
30...	.33	.40	.08	1.1	1.2	1.5	.14	.05	.04
JUL									
28...	.02	.02	.10	.68	.78	.80	.18	.06	.05
29...	--	--	--	--	--	--	--	--	--
AUG									
25...	--	--	--	--	--	--	--	--	--
SEP									
02...	.68	.13	.05	2.0	2.0	2.7	.19	.11	.07
30...	.07	.00	.06	1.0	1.1	1.1	.13	--	.02

RED RIVER OF THE NORTH BASIN

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05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL ORTHO + HYDRO- PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBAL T (CO) (UG/L)
NOV										
03...	--	--	0	3	100	0	70	1	0	1
28...	--	.01	--	--	--	--	80	--	--	--
DEC										
17...	--	--	--	--	--	--	3	--	--	--
JAN										
21...	--	.00	--	--	--	--	0	--	--	--
FEB										
25...	--	.01	--	--	--	--	60	--	--	--
APR										
12...	--	--	0	1	200	0	90	0	0	0
28...	--	.12	--	--	--	--	80	--	--	--
MAY										
26...	--	.00	--	--	--	--	--	--	--	--
JUN										
30...	--	.00	--	--	--	--	70	--	--	--
JUL										
28...	--	.00	--	--	--	--	90	--	--	--
SEP										
02...	--	.06	--	--	--	--	100	--	--	--
30...	.08	.03	20	3	100	0	100	3	0	1

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (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)
NOV									
03...	5	0	3	10	20	.0	3	2	0
APR									
12...	2	20	3	20	10	.0	1	2	0
SEP									
02...	--	--	--	--	--	--	--	--	--
30...	10	10	3	20	90	.0	2	3	0

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- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDED ORGANIC CARBON (C) (MG/L)	CYANIDE (CN) (MG/L)	PHENOLS (UG/L)	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR- DANE (UG/L)
NOV												
03...	0	170	1.5	10	19	.3	.00	2	.0	--	.00	.0
28...	--	--	--	--	6.5	.2	--	3	--	--	--	--
DEC												
17...	--	--	--	--	16	.8	--	--	--	--	--	--
JAN												
21...	--	--	--	--	9.4	3.4	--	2	--	--	--	--
FEB												
25...	--	--	--	--	27	.2	--	4	.0	.00	.00	.0
APR												
12...	0	220	1.5	0	8.4	2.4	.00	2	.0	.00	.00	.1
28...	--	--	--	--	9.0	5.0	--	2	--	--	--	--
MAY												
26...	--	--	--	--	7.7	1.8	--	0	--	--	--	--
JUN												
30...	--	--	--	--	11	3.6	--	--	.0	.00	.00	.0
JUL												
28...	--	--	--	--	--	1.8	--	3	--	--	--	--
SEP												
02...	--	--	--	--	17	3.8	--	2	--	--	--	--
30...	0	240	2.9	10	15	--	.01	3	.0	.00	.00	.0

RED RIVER OF THE NORTH BASIN

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL DDO (UG/L)	TOTAL DOE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)
NOV 03...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB 25...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR 12...	.00	.00	.02	.00	.00	.00	.00	.11	.01	.00	.00	.00
JUN 30...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUL 28...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 02...	--	--	--	--	--	--	--	--	--	--	--	--
30...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
NOV 03...	.00	.00	0	.00	.00	.00	.00	122	119	79
28...	--	--	--	--	--	--	--	10	6.7	74
DEC 17...	--	--	--	--	--	--	--	13	6.5	40
JAN 21...	--	--	--	--	--	--	--	6	4.0	50
FEB 25...	.00	.00	0	.00	.00	.00	.00	5	5.4	52
APR 12...	.00	.00	0	.00	.00	.00	.00	226	500	76
28...	--	--	--	--	--	--	--	122	198	92
MAY 26...	--	--	--	--	--	--	--	72	62	82
JUN 30...	.00	.00	0	.00	.05	.00	.00	123	66	94
JUL 28...	--	--	--	--	--	--	--	72	19	96
SEP 02...	--	--	--	--	--	--	--	100	6.2	96
30...	.00	.00	0	.00	.02	.00	.00	64	.50	92

DATE	BED MAT. FALL DIAM. % FINER THAN .004 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 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
APR 12...	32	63	64	66	76	82	89	98	99	100
28...	--	--	--	--	--	--	--	--	--	--
MAY 26...	--	--	--	--	--	--	--	--	--	--
JUN 30...	46	83	85	89	93	94	96	98	100	--

RED RIVER OF THE NORTH BASIN

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05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	612	460	510	547	---	705	471	448	471	434	---	489
2	629	---	495	530	499	802	494	---	499	434	449	495
3	635	437	482	536	490	703	495	448	474	444	448	496
4	639	437	503	---	490	765	---	456	467	---	436	500
5	639	437	510	517	490	765	503	453	458	435	423	---
6	649	427	519	509	488	780	494	476	---	432	399	492
7	621	432	---	502	498	---	520	---	455	437	419	504
8	584	432	471	532	---	890	520	475	451	437	---	502
9	541	---	482	500	545	908	528	---	455	438	421	503
10	525	---	475	501	530	902	531	491	456	439	412	508
11	512	435	540	---	510	880	---	484	476	---	411	508
12	---	441	482	506	502	880	517	480	464	440	415	---
13	532	441	470	506	500	902	515	492	---	439	415	510
14	511	---	---	509	495	---	518	494	---	444	428	511
15	552	444	477	504	---	868	510	---	517	---	---	511
16	552	---	488	512	505	929	509	---	525	451	448	513
17	526	444	502	495	529	831	509	470	492	450	457	515
18	519	444	519	---	504	779	---	480	469	---	459	517
19	---	445	542	500	504	800	515	465	467	445	450	---
20	519	450	660	509	511	700	516	469	---	439	456	522
21	518	455	---	510	501	---	516	476	464	480	464	525
22	512	455	528	510	---	619	499	---	470	481	---	529
23	515	---	535	510	498	502	503	---	476	468	485	534
24	505	496	548	510	481	562	511	462	492	456	476	537
25	505	503	535	---	491	532	---	491	487	---	459	539
26	---	530	522	509	481	542	506	480	485	458	467	---
27	502	510	517	502	449	---	482	464	---	467	465	544
28	508	---	---	510	449	---	477	467	473	461	468	546
29	517	519	517	507	---	512	470	456	467	459	---	546
30	520	---	535	500	---	577	469	---	470	457	476	546
31	527	---	565	502	---	465	---	463	---	467	480	---
MONTH	551	---	516	511	498	735	504	---	475	450	446	517

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	8.0	0.0	0.0	0.0	0.0	2.5	12.5	21.5	23.0	---	19.0
2	13.5	---	-0.5	0.0	0.0	0.0	6.5	---	22.5	24.0	26.0	21.0
3	14.0	8.5	-0.5	0.0	0.0	0.0	5.0	10.5	22.5	23.0	24.5	21.0
4	14.5	9.0	0.0	0.0	0.0	0.0	---	12.0	22.5	---	26.5	19.5
5	15.5	9.5	-0.5	0.0	0.0	0.0	9.0	10.0	23.0	25.5	24.5	---
6	15.0	11.5	-0.5	0.0	0.0	0.0	9.0	11.0	---	26.0	27.0	24.5
7	16.5	9.5	---	0.0	0.0	0.0	10.5	---	24.5	26.5	24.5	22.0
8	16.5	9.0	0.0	0.0	0.0	0.0	11.5	13.5	25.0	25.5	---	20.5
9	14.0	---	0.0	0.0	0.0	0.0	10.5	---	26.5	27.5	25.0	20.0
10	13.0	7.0	-0.5	0.0	0.0	0.0	11.0	15.0	28.0	27.5	26.5	21.0
11	13.0	6.5	-0.5	0.0	0.0	0.0	---	16.5	27.0	---	25.0	19.5
12	---	4.0	-0.5	0.0	0.0	0.0	12.0	16.0	27.0	24.5	25.5	---
13	13.0	2.0	-0.5	0.0	0.0	0.0	13.0	17.0	---	25.0	25.0	19.5
14	12.0	2.0	---	0.0	0.0	---	13.5	18.0	23.0	27.0	25.5	19.5
15	11.5	2.0	-0.5	0.0	0.0	0.0	14.0	---	19.5	---	---	18.5
16	11.5	---	-0.5	0.0	0.0	0.0	15.5	---	19.5	24.5	23.5	17.5
17	12.5	2.5	0.0	0.0	0.0	0.0	14.0	17.5	13.0	26.5	24.0	19.5
18	11.0	2.5	-0.5	0.0	0.0	0.0	---	18.0	18.5	---	25.0	22.0
19	---	2.5	0.0	0.0	0.0	0.0	13.0	18.5	23.0	27.0	25.5	---
20	12.0	2.0	0.0	0.0	0.0	0.0	11.5	18.5	---	26.0	26.0	17.0
21	11.5	1.5	---	0.0	0.0	---	11.0	17.5	23.5	27.0	27.0	15.0
22	11.0	1.0	0.0	0.0	0.0	0.0	11.5	---	22.5	27.0	---	14.5
23	10.0	---	0.0	0.0	0.0	1.0	11.0	---	23.0	27.0	26.0	15.0
24	8.5	0.5	0.0	0.0	0.0	0.5	10.5	19.5	20.5	27.0	26.5	13.5
25	8.5	0.5	0.0	0.0	0.0	0.5	---	20.0	23.5	---	27.0	14.5
26	---	0.5	0.0	0.0	0.0	0.0	11.5	19.0	21.0	28.5	27.0	---
27	6.5	0.5	0.0	0.0	0.0	---	12.0	19.0	---	26.0	23.5	14.0
28	6.0	---	---	0.0	0.0	---	12.5	18.5	22.0	27.0	22.0	12.5
29	6.5	-0.5	0.0	0.0	0.0	0.5	13.0	19.0	21.5	26.0	---	16.0
30	7.0	---	0.0	0.0	---	0.5	13.0	---	23.0	24.5	24.0	13.0
31	7.0	---	0.0	0.0	---	0.5	---	20.0	---	25.5	21.0	---
MONTH	11.5	4.5	0.0	0.0	0.0	0.0	11.0	---	22.5	26.0	25.0	18.0

RED RIVER OF THE NORTH BASIN

05051600 WILD RICE RIVER NEAR RUTLAND, ND

LOCATION.--Lat 46°01'20", long 97°30'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.130 N., R.55 W., Sargent County, Hydrologic Unit 09020105, on right bank 1,000 ft (305 m) upstream from bridge on county highway, 2 mi (3 km) south of Rutland, and 10 mi (16 km) upstream from Lake Tewaukon.

DRAINAGE AREA.--546 mi² (1,410 km²), of which about 250 mi² (648 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,197.73 ft (365.068 m) above mean sea level. Prior to Dec. 11, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of ice effect, which are fair.

AVERAGE DISCHARGE.--17 years, 9.23 ft³/s (0.261 m³/s), 6,690 acre-ft/yr (8.25 hm³/yr); median of yearly mean discharges, 5.4 ft³/s (0.15 m³/s), 3,900 acre-ft/yr (4.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft³/s (36.0 m³/s) Apr. 8, 1969, gage height, 8.77 ft (2.673 m), backwater from ice; maximum gage height, 8.78 ft (2.676 m) Apr. 8, 1969, backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 200 ft³/s (5.66 m³/s) Mar. 23, gage height, 5.37 ft (1.637 m); maximum gage height 5.42 ft (1.652 m) Mar. 21, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	.02			0	17	61	5.9				
2	.46	.01			0	16	48	5.2				
3	.64	.01			0	12	46	4.8				
4	.64	0			0	8.6	39	4.6				
5	.64	0			0	5.7	31	4.6				
6	.51	0			0	5.2	27	3.4				
7	.39	0			0	3.6	25	2.8				
8	.27	0			0	2.0	25	2.8				
9	.17	0			0	1.2	24	2.9				
10	.17	0			0	1.6	22	2.9				
11	.17	0			0	1.5	19	2.5				
12	.17	0			0	5.0	18	2.3				
13	.13	0			0	9.0	17	2.2				
14	.13	0			0	5.7	15	1.5				
15	.10	0			0	3.8	14	1.5				
16	.06	0			0	3.2	13	1.4				
17	.06	0			0	4.9	14	.79				
18	.06	0			0	20	8.8	.64				
19	0	0			0	30	8.6	.63				
20	0	0			0	60	8.8	.99				
21	0	0			0	140	8.8	.74				
22	0	0			0	140	8.1	.51				
23	0	0			0	185	7.4	.30				
24	.24	0			2.5	128	7.9	.17				
25	.39	0			2.0	106	8.6	.01				
26	.30	0			5.5	106	7.9	0				
27	.20	0			3.0	103	6.7	0				
28	.17	0			3.0	107	5.9	0				
29	.17	0			13	110	5.5	0				
30	.17	0			---	98	5.9	0				
31	.13	---			---	76	---	0	---			---
TOTAL	6.93	.04	0	0	29.0	1515.0	556.9	56.08	0	0	0	0
MEAN	.22	.001	0	0	1.00	48.9	18.6	1.81	0	0	0	0
MAX	.64	.02	0	0	13	185	61	5.9	0	0	0	0
MIN	0	0	0	0	0	1.2	5.5	0	0	0	0	0
AC-FT	14	.08	0	0	58	3010	1100	111	0	0	0	0
CAL YR 1975 TOTAL	1523.63		MEAN 4.17	MAX 100	MIN 0	AC-FT 3020						
WTR YR 1976 TOTAL	2163.95		MEAN 5.91	MAX 185	MIN 0	AC-FT 4290						

RED RIVER OF THE NORTH BASIN

43

05051700 WILD RICE RIVER NEAR CAYUGA, ND

LOCATION.--Lat 46°07'30", long 97°21'40", on line between secs.29 and 30, T.131 N., R.53 W., Sargent County, Hydrologic Unit 09020105, on left bank 20 ft (6 m) downstream from county highway bridge, 1.2 mi (1.9 km) downstream from Shortfoot Creek, 2.5 mi (4.0 km) downstream from Crooked Creek, and 3.5 mi (5.6 km) northeast of Cayuga.

DRAINAGE AREA.--955 mi² (2,473 km²), of which about 390 mi² (1,010 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,095.64 ft (333.951 m) above mean sea level, levels by Bureau of Reclamation. Prior to Oct. 9, 1957, nonrecording gage 0.8 mi (1.3 km) upstream at different datum.

REMARKS.--Records good. Some regulation by Fish and Wildlife Service reservoirs, of which Lake Tewaukon is the largest. Small diversions for irrigation.

AVERAGE DISCHARGE.--20 years, 18.1 ft³/s (0.513 m³/s), 13,100 acre-ft/yr (16.2 hm³/yr); median of yearly mean discharges 8.9 ft³/s (0.25 m³/s), 6,400 acre-ft/yr (7.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) Apr. 12, 1969, gage height, 9.32 ft (2.841 m); maximum gage height, 10.90 ft (3.322 m), Apr. 7, 1969, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 185 ft³/s (5.24 m³/s) Mar. 28, gage height, 4.30 ft (1.311 m), maximum gage height, 4.39 ft (1.338 m) Mar. 19, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.03			0	4.0	148	19	.13			
2	0	.03			0	2.8	139	18	.11			
3	0	.03			0	2.6	144	17	.04			
4	0	.02			0	2.2	141	15	0			
5	0	.02			0	1.8	136	20	0			
6	0	.02			0	1.0	124	30	0			
7	0	.02			0	.53	114	22	0			
8	0	.01			0	.47	107	20	0			
9	0	.01			0	.47	98	18	0			
10	0	.01			0	.41	89	17	0			
11	0	.01			0	.23	80	15	0			
12	0	.04			0	.20	69	11	0			
13	0	.05			0	.10	62	8.7	0			
14	0	.10			0	.10	54	6.9	0			
15	0	.12			0	.12	50	5.9	0			
16	0	.13			0	.12	47	4.3	0			
17	0	.11			0	.35	43	3.3	0			
18	0	.10			0	3.5	43	2.8	0			
19	0	.13			0	81	37	2.2	0			
20	0	.15			0	90	32	1.7	0			
21	0	.20			0	30	30	1.4	0			
22	0	.10			.50	45	28	1.4	0			
23	0	.08			5.0	34	26	1.0	0			
24	0	.02			17	35	27	.93	0			
25	.03	0			20	35	27	.75	0			
26	.08	0			25	57	25	.67	0			
27	.06	0			13	114	24	.60	0			
28	.05	0			8.0	175	23	.41	0			
29	.05	0			7.5	144	22	.31	0			
30	.04	0			---	137	20	.23	0			
31	.03	---			---	151	---	.17	---			---
TOTAL	.34	1.54	0	0	96.00	1149.00	2009	265.67	.28	0	0	0
MEAN	.011	.051	0	0	3.31	37.1	67.0	8.57	.009	0	0	0
MAX	.08	.20	0	0	25	175	148	30	.13	0	0	0
MIN	0	0	0	0	0	.10	20	.17	0	0	0	0
AC-FT	.7	3.1	0	0	190	2280	3980	527	.6	0	0	0
CAL YR 1975	TOTAL	1953.34	MEAN	5.35	MAX	469	MIN	0	AC-FT	3870		
WTR YR 1976	TOTAL	3521.83	MEAN	9.62	MAX	175	MIN	0	AC-FT	6990		

RED RIVER OF THE NORTH BASIN

05051700 WILD RICE RIVER NEAR CAYUGA, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957-58, 1960-70, 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
MAR										
02...	1100	2.8	900	7.4	.0	330	150	70	38	70
31...	1305	156	9	8.1	5.0	400	220	70	55	57
MAY										
04...	1250	15	1060	8.1	11.0	450	220	84	58	66
JUN										
02...	1020	.11	1390	8.9	21.5	560	290	93	80	96

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAR									
02...	30	1.7	17	223	0	183	14	260	30
31...	23	1.2	16	219	0	180	2.8	320	22
MAY									
04...	23	1.4	15	275	0	226	3.5	340	27
JUN									
02...	26	1.8	19	337	0	276	.7	470	40

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
MAR									
02...	.2	8.8	689	613	.94	5.21	760	150	340
31...	.1	23	695	677	.95	293	80	120	60
MAY									
04...	.2	.5	758	727	1.03	30.7	120	40	80
JUN									
02...	.2	15	1030	981	1.40	.31	0	130	80

RED RIVER OF THE NORTH BASIN

45

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND

LOCATION.--Lat 46°28'05", long 96°47'00", in NE¼NE¼ sec.36, T.135 N., R.49 W., Richland County, Hydrologic Unit 09020105, on right bank 420 ft (130 m) upstream from bridge on county highway, 0.75 mi (1.2 km) upstream from rubble masonry dam which serves as control, 3.2 mi (5 km) northwest of Abercrombie, and 7 mi (11 km) downstream from Antelope Creek.

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1388: 1939, 1941(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder and masonry control. Datum of gage is 907.94 ft (276.740 m) above mean sea level. Prior to Dec. 7, 1939, nonrecording gage at site 420 ft (130 m) downstream at datum 5.0 ft (1.52 m) lower. Dec. 7, 1939, to Nov. 24, 1952, nonrecording gage at site 0.75 mi (1.2 km) downstream at present datum.

REMARKS.--Records fair. Some regulation by Fish and Wildlife Service reservoirs, of which Lake Tawaukon is the largest. Some small diversions for irrigation.

AVERAGE DISCHARGE.--44 years, 72.4 ft³/s (2.050 m³/s), 52,450 acre-ft/yr (64.7 hm³/yr); median of yearly mean discharges, 31 ft³/s (0.88 m³/s), 22,500 acre-ft/yr (28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,540 ft³/s (270 m³/s) Apr. 11, 1969, gage height, 24.58 ft (7.492 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in spring of 1897 reached a stage of 27.5 ft (8.38 m) present site and datum, from floodmarks pointed out by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 870 ft³/s (24.6 m³/s) Mar. 24, gage height, 6.90 ft (2.103 m), backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	38	5.9	3.0	2.8	100	340	81	7.9	.05		
2	2.5	34	5.9	3.0	2.8	90	241	76	5.2	.05		
3	1.9	32	5.9	3.0	2.8	85	225	68	2.8	.05		
4	2.1	31	5.9	3.0	2.8	80	256	64	1.6	.05		
5	2.3	29	5.8	3.0	2.8	65	256	58	.94	.05		
6	2.3	26	5.6	3.0	2.5	55	252	51	.61	.05		
7	2.1	21	5.5	3.0	2.5	45	250	47	.44	.05		
8	2.1	19	5.4	3.0	2.5	40	232	44	.38	.05		
9	2.1	17	5.4	3.0	2.5	35	222	39	.31	.05		
10	2.1	15	5.4	3.0	2.2	30	218	33	.21	.05		
11	2.1	12	5.4	3.0	2.0	26	213	28	.15	.05		
12	1.9	11	5.0	3.0	2.0	22	207	23	.12	.05		
13	2.1	9.0	5.0	3.0	2.0	20	200	21	.13	.05		
14	2.5	9.0	5.0	3.0	2.0	20	191	20	.10	.05		
15	2.5	9.0	5.0	3.0	2.0	20	180	17	.09	.04		
16	2.5	8.5	5.0	3.0	2.0	20	171	16	.09	.04		
17	2.5	8.5	4.5	3.0	2.0	20	163	15	.06	.03		
18	2.5	8.5	4.5	3.0	2.5	40	151	14	.05	.03		
19	2.5	8.5	4.5	3.0	3.5	140	137	15	.05	.03		
20	2.1	8.5	4.0	3.0	4.0	400	132	14	.05	.03		
21	1.7	8.0	4.0	3.0	4.0	440	127	13	.05	.02		
22	1.6	7.5	4.0	3.0	4.0	510	119	10	.05	.02		
23	1.7	7.0	4.0	3.0	4.0	590	110	7.9	.05	.02		
24	1.5	7.0	4.0	3.0	5.5	800	108	7.2	.05	.02		
25	1.8	7.0	4.0	3.0	2.5	800	104	3.8	.05	.01		
26	1.7	6.5	3.5	2.8	150	730	100	2.5	.05	.01		
27	1.9	6.5	3.5	2.8	210	630	97	2.5	.05	.01		
28	2.3	6.5	3.5	2.8	150	580	100	1.5	.05	.01		
29	4.9	6.0	3.0	2.8	110	570	95	1.2	.05	.01		
30	4.9	6.0	3.0	2.8	---	510	90	2.8	.05	.01		
31	4.5	---	3.0	2.8	---	400	---	7.9	---	.01		---
TOTAL	288.6	422.5	144.1	91.8	712.7	7913	5287	804.3	21.78	1.05	0	0
MEAN	9.31	14.1	4.65	2.96	24.6	255	176	25.9	.73	.034	0	0
MAX	4.9	7.8	5.9	3.0	210	800	340	81	7.9	.05	0	0
MIN	1.6	6.0	3.0	2.8	2.0	20	90	1.2	.05	.01	0	0
AC-FT	572	838	286	182	1410	15700	10490	1600	43	2.1	0	0
CAL YR 1975	TOTAL	77922.02	MEAN	213	MAX	3440	MIN	0	AC-FT	154600		
WTR YR 1976	TOTAL	15686.83	MEAN	42.9	MAX	300	MIN	0	AC-FT	31110		

RED RIVER OF THE NORTH BASIN

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1955-56, 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

WATER TEMPERATURES: October 1966 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,840 micromhos Mar. 7, 1972; minimum daily, 141 micromhos Apr. 10, 1969.

WATER TEMPERATURES: Maximum daily, 29.5°C Aug. 7, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,240 micromhos Jan. 18; minimum daily, 330 micromhos Mar. 23-24.

WATER TEMPERATURES: Maximum daily, 27.0°C June 11, 12; minimum daily, 0.5°C on Dec. 19-27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)
OCT										
20...	1400	2.2	1500	8.1	9.5	20	560	190	130	58
NOV										
13...	1240	11	1590	8.2	4.0	30	600	200	130	67
DEC										
09...	1220	5.4	2400	7.5	.0	38	940	360	210	100
FEB										
04...	1600	2.8	3170	7.3	.0	40	1200	380	260	130
MAR										
11...	1350	26	880	7.7	.0	40	330	96	78	32
30...	1905	542	460	7.8	.5	45	160	55	37	17
MAY										
03...	1810	66	1350	7.9	10.0	30	510	190	100	63
JUN										
01...	1335	7.8	1690	8.0	22.0	23	620	250	120	78
JUL										
13...	0930	.05	1610	8.2	22.0	25	590	210	110	76

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITAS AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT										
20...	140	34	2.6	15	450	0	369	5.7	420	56
NOV										
13...	130	31	2.3	15	487	0	399	4.9	420	47
DEC										
09...	230	34	3.3	18	702	0	576	36	720	88
FEB										
04...	330	37	4.2	21	979	0	803	79	950	130
MAR										
11...	60	28	1.4	11	281	0	230	9.0	190	23
30...	28	26	1.0	7.2	131	0	107	3.3	95	10
MAY										
03...	110	31	2.1	14	390	0	320	7.9	380	40
JUN										
01...	150	34	2.6	17	452	0	371	7.2	530	53
JUL										
13...	180	39	3.2	20	459	0	376	4.6	500	68

RED RIVER OF THE NORTH BASIN

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1430	1460	1740	2730	2780	560	518	1320	1670	1420		
2	1430	1440	1830	2620	2800	558	558	1340	1690	1490		
3	1460	1470	1980	2600	2800	563	611	1370	1690	1570		
4	1480	1390	2220	2970	2680	560	690	1310	1680	1470		
5	1460	1490	1980	2710	2550	713	717	1420	1540	---		
6	1500	1410	1990	2600	2780	715	826	1440	1680	---		
7	1480	1390	2120	2890	2500	719	925	1450	1530	---		
8	1480	1380	2130	2910	3090	720	932	1460	1690	---		
9	1490	1540	2200	2910	2800	724	983	1460	1690	---		
10	1500	1500	2170	2590	3110	1140	1080	1480	1680	---		
11	1470	1570	2370	2880	3110	995	1080	1490	1700	---		
12	1500	1550	2650	2910	3090	1100	1180	1520	1710	1470		
13	1460	1540	2410	2910	2720	1140	1130	1540	1700	1580		
14	1460	1570	2510	2840	2720	1140	1180	1540	1700	1590		
15	1490	1640	2590	2930	2130	1060	1200	1470	1590	1580		
16	1500	1490	2610	3090	2170	1080	1210	1470	1680	1590		
17	1470	1480	2580	2810	2170	1080	1220	1520	1690	1600		
18	1490	1470	2590	3240	2170	1070	1220	1550	1650	1510		
19	1470	1480	2590	3000	1470	1080	1240	1560	1700	1600		
20	1460	1460	2110	2990	1460	372	1240	1440	1690	1600		
21	1480	1480	2730	2910	1460	400	1230	1450	1580	1610		
22	1540	1520	2720	2990	1460	340	1240	1550	1710	1510		
23	1550	1540	2770	2480	1730	330	1220	1560	1720	1600		
24	1550	1720	2770	2480	1740	330	1270	1560	1720	1620		
25	1550	1730	3000	2580	1740	338	1290	1550	1700	1620		
26	1630	1760	2790	2630	1510	338	1290	1470	1700	1630		
27	1660	1660	2890	2620	768	361	1330	1550	1700	1640		
28	1550	1860	2690	2520	590	365	1320	1560	1710	1570		
29	1520	1860	2850	2340	588	408	1340	1570	1690	1680		
30	1480	1870	2710	2560	---	453	1340	1620	1670	1680		
31	1510	---	2680	2480	---	485	---	1650	---	1680		
MONTH	1500	1560	2450	2770	2160	685	1090	1490	1680	---		

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	6.5	1.0	2.5	1.5	1.0	5.0	13.0	20.5	23.0		
2	10.5	6.5	1.0	2.5	1.0	1.0	6.0	11.0	22.0	23.0		
3	11.5	7.0	1.0	2.5	1.0	1.0	7.0	11.0	22.5	23.5		
4	11.5	8.0	1.0	2.5	1.0	1.0	9.0	12.0	22.5	24.5		
5	12.5	7.5	1.0	2.5	1.0	1.0	10.0	12.0	22.5	---		
6	13.0	9.0	1.0	2.5	1.0	1.0	11.0	11.0	24.0	---		
7	14.0	9.0	1.0	2.5	1.0	1.0	12.0	12.0	24.0	---		
8	15.0	8.0	1.0	2.5	1.0	1.0	12.0	15.5	25.0	---		
9	13.0	6.0	1.0	2.5	1.0	1.5	13.0	17.0	26.0	---		
10	11.0	5.0	1.0	2.5	1.0	1.5	13.5	17.5	25.5	---		
11	10.0	5.0	1.0	2.5	1.0	1.5	13.5	16.5	27.0	---		
12	11.0	3.5	1.0	2.5	1.0	1.5	14.0	16.0	27.0	25.5		
13	11.0	3.0	1.0	2.5	1.0	1.5	15.0	16.5	24.0	26.0		
14	11.5	2.5	1.0	2.5	1.0	1.5	15.0	18.0	23.0	25.0		
15	9.5	3.0	1.0	2.5	1.0	1.0	16.0	19.0	17.0	23.5		
16	10.0	3.0	1.0	2.5	1.0	1.0	16.0	19.0	18.0	22.0		
17	11.0	2.5	1.0	2.5	1.0	1.0	16.0	18.5	18.5	23.0		
18	10.5	2.0	1.0	2.5	1.0	1.5	15.0	18.0	17.0	25.0		
19	11.0	2.0	0.5	2.5	1.0	3.5	15.0	18.5	20.0	26.0		
20	10.0	1.5	0.5	2.5	1.0	3.0	14.0	19.5	24.0	24.0		
21	10.5	1.5	0.5	2.5	1.0	3.0	12.0	18.5	22.0	25.0		
22	9.0	1.5	0.5	2.5	1.0	3.0	12.5	17.0	22.0	25.0		
23	8.0	1.0	0.5	2.5	1.5	3.0	13.0	19.5	23.0	26.0		
24	6.5	1.0	0.5	2.5	1.5	3.5	12.0	21.5	21.0	26.5		
25	6.0	1.0	0.5	2.5	1.5	3.5	13.0	21.0	22.0	26.5		
26	6.5	1.0	0.5	2.5	2.5	4.0	14.0	20.5	21.5	26.0		
27	6.0	1.0	0.5	2.5	2.0	4.0	14.5	20.0	25.0	25.0		
28	5.0	1.0	1.5	2.5	1.5	4.0	15.0	18.5	23.5	24.0		
29	5.0	1.0	2.0	2.5	1.0	4.0	14.0	20.0	23.5	24.5		
30	5.0	1.0	2.0	2.5	---	4.0	13.0	21.5	23.0	24.0		
31	6.0	---	2.5	2.0	---	4.0	---	20.5	---	23.5		
MONTH	9.5	3.5	1.0	2.5	1.0	2.0	12.5	17.0	22.5	---		

RED RIVER OF THE NORTH BASIN

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05054000 RED RIVER OF THE NORTH AT FARGO, ND

LOCATION.--Lat 46°51'40", long 96°47'00", in NW¼NE¼ sec.18, T.139 N., R.48 W., Cass County, Hydrologic Unit 09020104, at city waterplant on 4th St. S. in Fargo, 25 mi (40 km) upstream from mouth of Sheyenne River and at mile 453.0 (kilometer 728.9).

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

PERIOD OF RECORD.--May 1901 to current year. Published as "at Moorhead, Minn." 1901. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1902-4, 1906-7, 1910-14, 1916, 1918, 1924. WSP 1388: 1905-6, 1917-20(M), 1935(M), 1938-39(M), 1943.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 861.8 ft (262.68 m) above mean sea level. Oct. 1, 1960, to Sept. 30, 1962, water-stage recorder at present site at datum 5.6 ft (1.71 m) higher. See WSP 1728 or 1913 for history of changes prior to Oct. 1, 1960.

REMARKS.--Records good except those for the winter period, August and September, which are fair. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) above mean sea level, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; other controlled lakes and ponds and several powerplants. Some small diversions for municipal supply. Figures of daily discharge do not include diversions to cities of Fargo and Moorhead and from Sheyenne River.

AVERAGE DISCHARGE (UNADJUSTED).--75 years, 547 ft³/s (15.49 m³/s), 396,300 acre-ft/yr (489 hm³/yr); median of yearly mean discharges, 440 ft³/s (12.5 m³/s) 319,000 acre-ft/yr (390 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,300 ft³/s (716 m³/s) Apr. 15, 1969, gage height, 37.34 ft (11.381 m); no flow for many days in each year for period 1932-41, Sept. 30, Oct. 1, 2, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 7, 1897 reached a stage of 39.1 ft (11.92 m) present datum, discharge, 25,000 ft³/s (708 m³/s) at site 1.5 mi (2.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft³/s (90.6 m³/s) Mar. 30, gage height, 18.70 ft (5.700 m); minimum daily, 0.50 ft³/s (0.014 m³/s) Aug. 25, gage height, 13.05 ft (3.978 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	406	376	260	180	260	500	2850	563	204	152	48	2.6
2	413	382	250	180	260	490	2480	542	195	148	46	22
3	413	388	230	180	260	490	1830	549	200	148	43	19
4	413	388	220	185	255	480	1700	521	200	140	51	16
5	400	388	230	190	255	480	1660	481	204	132	48	14
6	388	388	240	190	255	470	1490	456	209	125	46	12
7	371	388	250	195	255	465	1340	425	213	121	43	10
8	365	382	240	200	255	440	1220	419	204	121	41	10
9	359	388	230	200	255	390	1050	388	195	104	37	24
10	353	382	240	210	255	380	934	364	182	88	55	18
11	353	382	240	210	255	380	902	359	144	71	53	12
12	318	388	240	220	250	390	890	347	125	77	51	10
13	290	388	230	220	250	400	862	324	132	74	55	10
14	302	394	230	220	250	410	830	313	148	85	58	12
15	274	359	230	230	250	410	822	313	204	101	53	13
16	274	375	220	240	255	400	806	318	223	108	48	12
17	274	380	200	250	260	410	766	318	213	108	46	12
18	296	380	180	260	270	420	758	307	186	101	41	9.2
19	324	380	180	260	280	430	750	302	156	88	41	5.9
20	342	375	190	260	290	500	742	302	125	80	35	10
21	348	375	200	260	300	570	718	302	132	68	32	9.2
22	353	370	210	260	310	700	710	285	121	74	32	12
23	353	290	210	260	320	950	703	248	125	71	19	18
24	376	249	210	260	345	1850	703	223	132	68	7.6	19
25	400	258	200	260	350	2000	675	209	132	65	1.0	14
26	413	268	195	260	360	2400	640	228	136	58	8.4	10
27	419	263	195	260	390	2540	612	236	140	51	18	9.2
28	394	260	190	260	420	2650	591	236	148	53	14	9.2
29	382	260	190	260	440	2800	584	243	140	55	9.2	9.2
30	371	260	185	260	---	3000	570	223	140	48	5.1	5.9
31	376	---	180	260	---	2870	---	218	---	46	1.0	---
TOTAL	11113	10504	6695	7140	8410	31065	31188	10562	5008	2829	1086.3	369.4
MEAN	358	350	216	230	290	1002	1040	341	167	91.3	35.0	12.3
MAX	419	394	260	260	440	3000	2850	563	223	152	58	24
MIN	274	249	180	180	250	380	570	209	121	46	1.0	2.6
AC-FT	22040	20830	13280	14160	16680	61620	61860	20950	9930	5610	2150	733
(+)	800	784	810	804	798	808	786	1180	1240	1560	1600	1150
(-)	0	0	0	0	0	0	0	0	0	0	50	1420
MEAN*	371	363	229	243	304	1015	1053	360	188	117	60.2	7.78
AC-FT*	22840	21610	14090	14960	17480	62430	62650	22130	11170	7170	3700	463

OBSERVED				ADJUSTED			
CAL YR 1975	TOTAL 469658.0	MEAN 1287	MAX 13100	MIN 120	AC-FT 931600	MEAN 1301	AC-FT 941700
WTR YR 1976	TOTAL 125969.7	MEAN 344	MAX 3000	MIN 1.0	AC-FT 249900	MEAN 359	AC-FT 260800

* Diversions in acre-feet to cities of Fargo and Moorhead.

- Diversions in acre-feet from Sheyenne River.

* Adjusted for diversions to cities of Fargo and Moorhead and from Sheyenne River.

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND
(National Water-Quality Accounting Network Station)
(Radiochemical Station)

LOCATION.--Lat 46°55'50", long 96°47'05", in SW¼NE¼ sec.19, T.140 N., R.48 W., Cass County, Hydrologic Unit 09020104, 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.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1973 to September 1974, October 1975 to current year.
WATER TEMPERATURES: October 1973 to September 1974, October 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

REMARKS.--Fragmentary records of specific conductance and temperature for October 1974 to September 1975 are available in the Bismarck District office. 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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 926 micromhos Aug. 31, 1976; minimum, 278 micromhos June 27, 1976.
WATER TEMPERATURES: Maximum, 29.0°C July 25, 1976; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 926 micromhos Aug. 31; minimum, 278 micromhos June 27.
WATER TEMPERATURES: Maximum, 29.0°C July 25; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT												
01...	1100	402	395	8.0	11.5	20	9.4	90	8180	8160	220	17
31...	1100	367	455	8.1	6.5	10	--	91	84700	810000	220	15
NOV												
26...	1030	253	535	8.3	.0	4	14.0	99	85	100	260	38
DEC												
17...	1100	186	590	8.3	.0	4	13.8	97	--	--	280	30
JAN												
21...	1100	250	600	8.0	.0	4	12.4	88	845	875	270	11
FEB												
26...	1030	350	550	7.9	.0	10	12.2	86	81400	2100	260	24
MAR												
24...	1030	700	500	8.0	.0	41	10.6	75	3100	7000	210	65
APR												
28...	1500	500	640	8.3	12.0	27	10.8	103	--	220	290	77
MAY												
27...	0940	262	580	7.8	19.5	15	4.0	44	>8000	3600	270	44
JUL												
01...	0915	149	500	8.1	23.0	20	5.4	64	1100	500	240	36
28...	1130	140	610	8.1	23.5	10	7.0	84	670	210	260	38
SEP												
01...	1830	2.0	940	7.9	18.0	40	6.6	72	4100	830	310	80
28...	0845	10	740	7.8	9.0	15	6.8	60	170	120	230	36

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

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AN- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINIT- AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT												
01...	40	30	13	11	.4	4.4	252	0	207	4.0	36	8.8
31...	40	29	13	11	.4	4.7	249	0	204	3.2	32	8.4
NOV												
26...	50	33	16	12	.4	5.2	272	0	223	2.2	52	9.8
DEC												
17...	53	36	21	14	.5	5.5	306	0	251	2.5	63	12
JAN												
21...	52	35	19	13	.5	5.5	321	0	263	5.1	49	11
FEB												
26...	47	34	18	13	.5	5.6	285	0	234	5.7	45	14
MAR												
24...	43	26	20	16	.6	7.4	182	0	149	2.9	84	10
APR												
28...	58	36	26	16	.7	6.9	264	0	217	2.1	120	11
MAY												
27...	48	36	23	15	.6	5.9	273	0	224	6.9	79	12
JUL												
01...	45	32	16	12	.4	5.2	254	0	208	3.2	49	11
28...	49	34	22	15	.6	5.7	274	0	225	3.5	64	14
SEP												
01...	57	40	82	36	2.0	12	277	0	227	5.6	180	55
28...	41	32	64	36	1.8	9.4	241	0	198	6.1	130	35

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT												
01...	.1	11	283	300	268	.38	307	41	.14	2.2	2.3	.23
31...	.2	9.8	280	--	271	.38	277	--	.08	2.0	2.1	.32
NOV												
26...	.2	9.3	293	330	310	.40	200	6	.18	1.1	1.3	.26
DEC												
17...	.2	8.3	386	--	350	.53	194	--	.18	1.9	2.1	.28
JAN												
21...	.2	15	357	--	345	.49	241	--	.39	1.0	1.4	.41
FEB												
26...	.2	14	327	--	318	.44	309	--	.65	--	--	.38
MAR												
24...	.1	9.7	327	--	290	.44	618	--	1.9	2.6	4.5	.44
APR												
28...	.2	5.7	422	470	394	.57	570	70	.03	1.8	1.8	.20
MAY												
27...	.2	2.8	362	--	345	.49	256	--	.31	1.6	1.9	.40
JUL												
01...	.2	3.4	307	--	287	.42	124	--	.42	1.1	1.5	.41
28...	.3	6.6	321	--	331	.44	121	--	--	.50	.84	.73
SEP												
01...	.4	12	579	--	575	.79	3.13	--	2.5	2.3	4.8	3.0
28...	.6	7.2	461	460	438	.63	12.4	21	1.9	1.3	3.2	3.0

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDED ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBAL T (CO) (UG/L)
OCT 31...	4	1	3	0	0	2	12	12	0	<50
FEB 26...	4	0	4	10	9	1	10	10	0	<50
APR 28...	4	0	4	<10	<9	1	10	10	0	<50
JUL 01...	7	4	3	2	0	2	<10	0	<10	1
28...	--	--	--	--	--	--	--	--	--	--
SEP 28...	5	0	7	<10	<9	1	10	10	0	<50

DATE	SUS- PENDED COBAL T (CO) (UG/L)	DIS- SOLVED COBAL T (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)
OCT 31...	<49	1	10	3	7	710	0	100	99	1
FEB 26...	<50	0	10	0	18	310	20	<100	<95	5
APR 28...	<50	0	20	16	4	1200	60	<100	<91	9
JUL 01...	1	0	120	0	140	820	0	23	17	6
28...	--	--	--	--	--	--	--	--	--	--
SEP 28...	<50	0	10	3	7	1100	20	<100	<91	9

DATE	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)
OCT 31...	140	90	50	.4	.2	.2	0	0	0
FEB 26...	110	0	160	.0	.0	.1	0	0	0
APR 28...	220	210	10	.0	.0	.1	0	0	0
JUL 01...	15	40	110	<.5	.0	<.5	0	0	0
28...	--	--	34	--	--	--	--	--	--
SEP 28...	90	60	30	.0	.0	.1	0	0	0

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE D ZINC (ZN) (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 CS-137 (PC/L)	SUS- PENDE D GROSS BETA AS CS-137 (PC/L)
OCT							
01...	--	--	--	<2.4	1.1	11	1.3
31...	20	0	20	--	--	--	--
NOV							
26...	--	--	--	<3.7	<.4	9.7	.9
FEB							
26...	20	0	30	--	--	--	--
APR							
28...	30	30	0	<7.3	2.6	12	3.1
JUL							
01...	20	10	10	--	--	--	--
SEP							
28...	40	30	10	<6.5	.9	13	1.4

DATE	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE D GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED (DIRECT FLUORIM- ETRIC) (PC/L)	DIS- SOLVED URANIUM (U) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT						
01...	8.5	1.1	.07	--	.60	--
31...	--	--	--	--	--	18
NOV						
26...	7.8	.9	.06	--	.80	--
FEB						
26...	--	--	--	--	--	11
APR						
28...	11	2.5	.09	2.2	--	12
JUL						
01...	--	--	--	--	--	--
SEP						
28...	11	1.2	.09	1.6	--	10

DATE	SUS- PENDE D SEDI- MENT (MG/L)	SUS- PENDE D SEDI- MENT DIS- CHARGE (T/DAY)	SUS- SED. SIEVE DIAM. % FINER THAN .062 MM
OCT			
01...	65	71	93
31...	46	46	81
NOV			
26...	16	11	50
DEC			
17...	6	3.0	42
JAN			
21...	5	3.4	48
FEB			
26...	14	13	61
MAR			
24...	115	217	97
APR			
28...	74	100	96
MAY			
27...	41	29	91
JUL			
01...	67	27	95
28...	25	9.4	98
SEP			
01...	79	.43	96
28...	122	3.3	90

RED RIVER OF THE NORTH BASIN
05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	396	390	443	426	652	621	628	620	599	565	513	509
2	396	381	439	424	663	643	630	624	565	559	502	498
3	467	382	462	437	659	624	628	624	564	562	574	493
4	504	472	514	468	624	599	628	612	562	558	613	563
5	514	498	539	518	619	599	626	617	558	552	624	608
6	512	495	545	528	639	598	630	626	552	550	604	584
7	546	510	536	527	609	598	638	628	553	550	577	571
8	556	531	540	524	599	570	640	628	553	549	575	569
9	551	537	534	515	603	564	628	623	552	549	566	562
10	548	540	542	527	600	582	626	623	552	545	571	555
11	554	548	544	530	627	578	623	610	548	544	586	562
12	559	531	535	503	622	594	610	593	552	546	606	577
13	540	505	540	511	594	571	591	587	550	543	653	592
14	515	465	522	495	569	562	608	589	578	548	660	647
15	489	440	515	486	567	561	608	604	596	577	657	643
16	443	427	537	500	572	566	606	604	599	595	643	629
17	436	422	524	504	601	571	613	606	606	597	636	623
18	433	420	536	516	596	590	608	604	602	598	644	617
19	431	406	520	512	597	590	602	597	598	590	605	595
20	427	412	516	502	596	586	600	598	590	577	583	578
21	461	429	530	509	592	588	600	595	574	571	569	542
22	462	440	541	524	595	592	594	589	568	557	531	448
23	441	424	552	542	594	584	597	590	555	537	501	464
24	468	428	559	551	584	577	597	589	547	528	516	495
25	461	431	574	541	582	577	595	589	543	534	528	512
26	496	455	544	535	676	582	590	587	534	525	529	521
27	498	432	580	550	701	683	599	590	522	515	539	525
28	460	443	647	581	683	667	602	599	521	499	546	532
29	454	446	648	590	667	648	608	600	521	514	542	534
30	460	441	633	597	650	632	609	605	---	---	540	530
31	460	453	---	---	632	622	609	601	---	---	545	534
MONTH	559	381	648	424	701	561	640	587	606	499	660	448

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	549	541	657	653	636	614	---	---	707	638	861	579
2	553	545	654	651	633	601	523	497	692	635	810	593
3	563	549	663	637	623	601	525	505	653	618	813	742
4	581	559	652	649	622	600	534	509	774	607	830	777
5	596	574	650	646	621	594	534	525	821	760	767	724
6	607	576	647	643	615	581	545	529	818	794	756	637
7	609	585	655	637	602	580	549	533	784	729	740	641
8	625	599	649	627	593	538	546	524	751	672	714	616
9	625	598	642	632	556	543	544	523	647	484	648	610
10	634	611	643	636	563	548	553	531	566	517	648	593
11	644	620	644	641	563	553	552	515	590	346	614	578
12	650	633	645	638	575	567	558	422	372	350	616	593
13	656	632	642	632	589	580	565	540	384	362	622	597
14	656	632	643	629	606	598	584	536	396	362	632	612
15	659	634	641	633	624	514	581	525	385	357	639	624
16	662	634	642	631	549	518	570	544	391	372	641	574
17	669	651	639	625	552	535	582	544	414	388	605	578
18	673	647	633	619	571	379	581	544	424	403	632	605
19	680	654	626	613	---	---	574	555	441	422	639	626
20	684	654	624	610	---	---	---	---	468	408	632	618
21	676	653	621	611	---	---	---	---	462	436	637	618
22	676	646	616	599	---	---	---	---	478	442	650	599
23	672	642	613	599	---	---	597	400	495	458	635	622
24	668	638	607	590	---	---	---	---	505	433	684	635
25	664	630	601	588	---	---	---	---	---	---	657	632
26	656	626	595	586	---	---	---	---	---	---	677	654
27	652	626	590	577	493	278	---	---	---	---	---	---
28	655	615	598	586	561	411	621	604	---	---	---	---
29	648	648	608	592	614	509	622	599	631	412	---	---
30	656	638	617	605	483	467	627	587	795	647	---	---
31	---	---	627	611	---	---	701	603	926	655	---	---
MONTH	684	541	663	577	---	---	---	---	926	346	861	574

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.5	6.0	5.5	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0
2	12.5	11.0	6.5	6.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0
3	13.0	11.5	6.5	6.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0
4	14.0	12.5	7.0	6.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0
5	14.0	13.0	7.0	6.5	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0
6	13.5	12.5	7.5	6.5	0.0	0.0	0.0	0.0	1.5	0.5	0.0	0.0
7	14.0	12.5	7.5	7.5	0.0	0.0	0.0	0.0	1.5	1.0	0.0	0.0
8	14.5	13.5	7.0	6.5	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0
9	14.5	12.5	7.0	6.5	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0
10	12.5	11.5	6.5	6.0	0.0	0.0	0.0	0.0	1.5	1.0	0.0	0.0
11	12.0	11.5	6.0	5.5	0.0	0.0	0.0	0.0	1.5	1.0	0.0	0.0
12	12.5	11.0	5.5	4.0	0.0	0.0	0.0	0.0	1.5	1.0	0.0	0.0
13	12.5	11.5	4.0	3.0	0.0	0.0	0.0	0.0	1.5	1.0	0.0	0.0
14	12.5	11.0	3.0	2.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
15	11.0	10.5	3.5	2.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
16	11.0	10.0	3.5	3.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
17	10.5	9.5	3.0	2.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
18	10.5	9.5	2.5	2.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
19	10.5	9.5	2.5	2.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
20	10.5	9.5	2.5	1.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0
21	10.5	10.0	1.0	0.5	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0
22	10.5	9.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0
23	9.5	9.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0
24	8.5	7.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
25	7.0	6.5	0.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
26	7.0	6.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
27	7.0	6.5	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
28	7.0	6.5	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.0
29	6.0	6.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5
30	6.5	6.0	0.0	0.0	0.0	0.0	0.5	0.5	---	---	0.5	0.5
31	6.5	6.0	---	---	0.0	0.0	1.0	0.5	---	---	0.5	0.5
MONTH	14.5	6.0	7.5	0.0	0.0	0.0	1.0	0.0	1.5	0.0	0.5	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.0	0.5	12.5	12.5	22.0	20.5	24.0	21.5	22.5	20.5	19.0	17.0
2	1.0	0.5	12.5	11.5	22.5	21.0	24.0	22.0	22.5	20.0	21.0	16.5
3	2.0	0.5	11.5	11.0	22.5	21.5	24.0	22.5	22.5	20.5	21.0	19.0
4	4.0	2.0	12.0	11.5	22.5	21.0	25.0	23.0	23.5	21.5	21.0	17.5
5	5.0	4.0	12.0	12.0	22.5	21.0	25.0	23.5	22.5	21.5	21.5	18.0
6	6.0	5.0	12.0	12.0	23.0	21.5	26.0	24.5	22.0	20.0	23.0	19.5
7	7.0	6.0	12.5	12.0	23.5	22.0	26.0	24.0	22.0	20.0	22.5	21.0
8	8.0	7.0	13.0	12.5	24.5	22.5	25.5	24.0	22.0	20.0	22.0	20.0
9	8.5	8.0	14.5	13.0	25.0	23.5	26.0	23.5	22.0	20.5	20.0	18.0
10	9.0	8.5	15.0	14.5	25.0	23.5	26.5	25.5	22.0	20.5	19.5	16.5
11	9.5	9.0	15.5	14.5	25.5	23.5	25.5	23.0	24.0	21.0	20.5	16.5
12	9.5	9.0	16.0	15.5	25.0	23.5	24.0	21.5	24.5	21.0	21.0	18.5
13	10.5	9.5	16.5	15.5	23.5	22.5	24.5	22.5	23.5	21.0	20.5	18.5
14	11.5	10.5	17.5	16.0	23.0	21.5	26.0	22.5	23.0	20.0	19.0	17.0
15	11.5	11.5	18.0	17.5	21.0	18.5	25.0	22.0	22.5	19.0	18.0	16.0
16	12.0	11.5	18.0	17.0	20.0	17.5	23.5	20.5	22.5	19.0	18.0	15.5
17	12.5	12.5	18.5	17.0	20.0	18.0	25.0	21.5	22.5	20.0	19.5	16.0
18	12.5	12.0	19.0	18.0	19.0	16.5	26.0	23.0	25.0	21.5	20.0	17.5
19	12.5	12.0	19.5	18.5	21.0	17.0	28.0	24.0	26.0	23.0	19.5	16.0
20	12.5	12.5	20.0	18.5	24.0	18.5	26.5	24.0	25.5	23.0	16.5	14.0
21	12.5	12.0	20.0	19.0	25.0	21.0	26.5	21.5	26.5	23.5	15.5	13.5
22	12.0	12.0	20.0	18.5	25.5	20.5	27.5	23.0	25.5	23.0	14.0	12.5
23	12.0	11.5	20.5	19.0	26.0	20.5	26.5	24.5	25.0	22.0	13.0	11.0
24	11.5	11.5	21.0	19.5	22.5	19.0	27.5	23.0	25.0	22.0	13.0	11.0
25	11.5	11.0	21.5	20.0	22.0	19.0	29.0	24.5	25.0	21.5	13.5	11.0
26	12.0	11.5	21.5	20.0	20.5	19.0	27.5	24.0	26.5	19.5	13.0	11.5
27	12.0	11.5	20.5	20.0	21.5	18.5	27.0	23.0	23.0	17.0	11.0	8.5
28	12.0	12.0	20.5	19.5	21.5	19.5	27.0	21.5	17.5	14.0	12.0	6.0
29	12.5	12.0	21.0	19.5	22.0	19.5	24.0	21.0	20.5	17.5	14.5	8.0
30	12.5	12.5	21.5	20.5	23.5	20.0	23.0	21.0	22.0	18.5	16.0	10.0
31	---	---	22.0	20.5	---	---	22.5	20.5	21.5	19.0	---	---
MONTH	12.5	0.5	22.0	11.0	26.0	16.5	29.0	20.5	26.5	14.0	23.0	6.0

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 1, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,200 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		110	2	
....TETRAEDRON		110	2	
....SCENEDESMACEAE				
LACTINASTRUM			0	
....CRUCIGENIA		460	7	
DSCENEDESMUS		1,600	26	
....TETRASTRUM		460	7	
..ZYGNEMATALES				
..ZYGNEMATACEAE				
....MOUGEOTIA		340	6	
	TOTALS	3,100	50	2.012=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTELLA		1,100	19	
DMELOSIRA		1,600	26	
..PENNALES	PENNATE			
..FRAGILARIACEAE				
....SYNEDRA		110	2	
..NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
....NAVICULA		110	2	
....NITZSCHIACEAE				
....NITZSCHIA		110	2	
	TOTALS	3,100	51	1.550=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..NOSTOCACEAE				
LANABAENA			0	
..OSCILLATORIACEAE				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.000
 CLASS 1.000
 ORDER 1.503
 FAMILY 1.775
 GENERA 2.781

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 31, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

9,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		130	1	
....SCENEDESMACEAE				
....CRUCIGENIA		260	3	
....SCENEDESMUS		260	3	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		66	1	
..ZYGNEMATALES				
...ZYGNEMATAACEAE				
LMOUGEOTIA			0	
	TOTALS	720	8	1.823=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINOIDISCEAE				
DCYCLOTELLA		2,800	29	
...MELDORA		390	4	
...PENNATES	PENNATE			
...FRAGILARIACEAE				
....ASTERIONELLA		850	9	
....SYNEDRA		66	1	
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
LNAVICULA			0	
...NITZSCHIA				
...NITZSCHIA		460	5	
	TOTALS	4,500	48	1.619=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA				
DOSCILLATORIA		4,300	45	
	TOTALS	4,300	45	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.310
 CLASS 1.310
 ORDER 1.762
 FAMILY 1.944
 GENERA 2.213

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 26, 1975
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		110	3	
....OOCYSTIS		450	11	
...SCENEDESMACEAE				
...SCENEDESMUS		230	6	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
...CHLOROCOCCALES				
...OOCYSTACEAE				
DGLOEOACTINIUM		680	17	
	TOTALS	1,500	37	1.738=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISACEAE				
...CYCLOTETRA		560	14	
..PENNIALES	PENNATE			
...FRAGILARIACEAE				
DASTERIONELLA		1,800	44	
...FRAGILARIA		230	6	
	TOTALS	2,600	64	1.149=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.944
 CLASS 0.944
 ORDER 1.786
 FAMILY 1.954
 GENERA 2.305

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 17, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3,700 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
LANKISTRODESMUS			0	
LDICTYOSPHAERIUM			0	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		3,400	91	
LSTEPHANODISCUS			0	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
...ASTERIONELLA		160	4	
...FRAGILARIA		78	2	
...SYNEDRA		78	2	
...NITZSCHIACEAE				
LNITZSCHIA			0	
	TOTALS	3,700	99	0.548=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.420
 FAMILY 0.420
 GENERA 0.548

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 21, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

460 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		26	6	
....SCENEDESMACEAE				
DSCENEDESMUS		86	19	
...ZYGNEMATALES				
...ZYGNEMATACEAE				
....MOUGEOTIA		26	6	
	TOTALS	140	31	1.329=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
D ...CYCLOTELLA		200	43	
...MELOSIRA		34	7	
..PENNALES	PENNATE			
...CYMBELLACEAE				
...CYMBELLA		9	2	
...FRAGILARIACEAE				
...ASTERIONELLA		17	4	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		17	4	
...NITZSCHIACEAE				
...NITZSCHIA		26	6	
	TOTALS	300	66	1.678=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
...OCHROMONADACEAE				
....DINOBRYON		17	4	
	TOTALS	17	4	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS		9	2	
	TOTALS	9	2	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.000

CLASS 1.208
ORDER 1.917
FAMILY 2.387
GENERA 2.690

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 26, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,500 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
LANKISTRODESMUS			0	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		29	2	
...MELOSTIRA		29	2	
...RHIZOSOLENIAEAE				
...RHIZOSOLENIA		14	1	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
LASTERIONELLA			0	
...SYNEDRA		29	2	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		14	1	
...NITZSCHIAEAE				
...NITZSCHIA		29	2	
...SURIRELLACEAE				
LCYMATOPLEURA			0	
TOTALS		140	10	2.522=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
DOSCILLATORIA		1,400	90	
TOTALS		1,400	90	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.457
 CLASS 0.457
 ORDER 0.553
 FAMILY 0.661
 GENERA 0.699

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 24, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		76	4	
	TOTALS	76	4	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
....CYCLOTELLA		230	13	
DMELOSIRA		730	43	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
....ACHNANTHES		25	1	
....RHOICOSPHENIA		25	1	
....EUNOTIACEAE				
....EUNOTIA		25	1	
....FRAGILARIACEAE				
....ASTERIONELLA		130	7	
....FRAGILARIA		25	1	
....SYNEDRA		200	12	
....GOMPHONEMATACEAE				
LGOMPHONEMA			0	
....NAVICULACEAE	NAVICULOID			
....GYROSIGMA		25	1	
....NAVICULA		76	4	
....NITZSCHIA				
....NITZSCHIA		130	7	
....SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	1,600	91	2.541=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.264
 CLASS 0.264
 ORDER 1.195
 FAMILY 1.901
 GENERA 2.691

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 28, 1976
1500 HOURS

IDENTIFICATION OF PHYTOPLANKTON

13,000 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		790	6	
....DOCYSTACEAE				
....ANKISTRODESMUS		590	5	
LDICTYOSPHAERIUM			0	
....KIRCHNERIELLA		200	2	
....SCENEDESMACEAE				
LSCENEDESMUS			0	
	TOTALS	1,600	13	1.406=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		4,000	31	
DMELOSIRA		3,200	25	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
....ASTERIONELLA		200	2	
LFRAGILARIA			0	
...NAVICULACEAE	NAVICULOID			
....GYROSIGMA		400	3	
LNAVICULA			0	
....NITZSCHACEAE				
DNITZSCHIA		3,600	28	
	TOTALS	11,000	89	1.842=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSDOMONADALES				
...CHROMULINACEAE				
LCHRYSOCOCCLUS			0	
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
....CRYPTOMONODACEAE				
LCRYPTOMONAS			0	
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.538
 CLASS 0.538
 ORDER 1.371
 FAMILY 1.727
 GENERA 2.326

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 27, 1976
0940 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		550	13	
...SCENEDESMACEAE				
DSCENEDESMUS		660	16	
	TOTALS	1,200	29	0.994=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DMELOSIRA		2,200	55	
...PENNALES	PENNATE			
...FRAGILARIACEAE		55	1	
...SYNEDRA				
...NITZSCHIA		330	8	
	TOTALS	2,600	64	0.686=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS		160	4	
	TOTALS	160	4	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		110	3	
	TOTALS	110	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.256
CLASS 1.256
ORDER 1.640
FAMILY 1.987
GENERA 1.987

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 1, 1976
0915 HOURS

IDENTIFICATION OF PHYTOPLANKTON

31,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		440	1	
....QUADRIGULA		1,300	4	
....SELENASTRUM		1,300	4	
...SCENEDESMACEAE				
....SCENEDESMUS		2,700	9	
...OOCYSTACEAE				
....GLOEOACTINIUM		3,500	11	
TOTALS		9,300	29	2.058=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		10,000	33	
DMELOSIRA		5,300	17	
...PENNALES	PENNATE			
...NITZSCHACEAE				
DNITZSCHIA		5,300	17	
TOTALS		21,000	67	1.510=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		890	3	
TOTALS		890	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.054
CLASS 1.054
ORDER 1.604
FAMILY 2.076
GENERA 2.685

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 28, 1976
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

7,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...HYDRODICTYACEAE				
....PEDIASTRUM		770	10	
...MICRACTINIACEAE				
....MICRACTINIUM		390	5	
...OOCYSTACEAE				
....ANKISTRODESMUS		48	1	
....OOCYSTIS		390	5	
...SCENEDESMACEAE				
....SCENEDESMUS		390	5	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		240	3	
TOTALS		2,200	29	2.315=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISACEAE				
....CYCLOTELLA		150	2	
....MELOSIRA		340	4	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....GYROSIGMA		48	1	
....NAVICULA		48	1	
...NITZSCHIA				
....NITZSCHIA		240	3	
TOTALS		820	11	1.969=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
....OSCILLATORIA				
DOSCILLATORIA		4,500	59	
TOTALS		4,500	59	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENDIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
LEUGLENA				
....TRACHELOMONAS		48	0	
TOTALS		48	1	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLLAGELLATES			
...PERIDINIALES				
...GLENODINIACEAE				
....GLENODINIUM		48	1	
TOTALS		48	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAPTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.411
 CLASS 1.411
 ORDER 1.662
 FAMILY 2.205
 GENERA 2.302

RED RIVER OF THE NORTH BASIN

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05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 1, 1976
1830 HOURS

IDENTIFICATION OF PHYTOPLANKTON

18,000 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		490	3	
....CHODATELLA		98	1	
....KIRCHNERIELLA		590	3	
...SCENEDESMACEAE				
....SCENEDESMUS		790	4	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		1,500	8	
...PHACOTACEAE				
....PHACOTUS		98	1	
	TOTALS	3,500	20	2.122=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCEAE		290	2	
....CYCLOTELLA		200	1	
....MELOSIRA				
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID	98	1	
....GYROSIGMA				
...NITZSCHACEAE		2,800	16	
DNITZSCHIA				
	TOTALS	3,400	20	0.911=DIVERSITY
..XANTHOPHYCEAE	YELLOW-GREEN ALGAE			
...HETEROCOCCALES				
...CHLOROTHECIACEAE		98	1	
...OPHIOCYTIUM				
	TOTALS	98	1	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DAGMENELLUM		4,700	26	
...OSCILLATORIALES	FILAMENTOUS			
D ...OSCILLATORIACEAE		3,900	22	
DOSCILLATORIA				
	TOTALS	8,600	48	0.994=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
....EUGLENACEAE				
....EUGLENA		790	4	
....PHACUS		690	4	
....TRACHELOMONAS		980	5	
	TOTALS	2,500	13	1.569=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.819
CLASS 1.855
ORDER 2.632
FAMILY 2.801
GENERA 3.125

RED RIVER OF THE NORTH BASIN

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 28, 1976
0845 HOURS

IDENTIFICATION OF PHYTOPLANKTON

900 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		130	14	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....NAVICULA		64	7	
...NITZSCHIACEAE				
DNITZSCHIA		510	57	
	TOTALS	700	78	1.096=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		96	11	
	TOTALS	96	11	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		32	4	
....PHACUS		32	4	
....TRACHELOMONAS		32	4	
	TOTALS	96	12	1.585=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.750
CLASS 0.964
ORDER 1.501
FAMILY 1.825
GENERA 1.995

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a	Chlorophyll b	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight	(mg/m ²)	(mg/m ²)		
Oct. 31	30	12	10	1.1	1.4	1,900	Polyethylene strip
Feb. 26	37	4.7	3.5	.4	.2	3,400	Polyethylene strip
July 1	5	6.00	5.00	.0	.0	0	Polyethylene strip
Sept. 28	28	61.8	48.2	97.5	.257	140	Polyethylene strip

RED RIVER OF THE NORTH BASIN

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05054500 SHEYENNE RIVER ABOVE HARVEY, ND

LOCATION.--Lat 47°42'10", long 99°56'55", in SW¼SE¼ sec.24, T.149 N., R.73 W., Wells County, Hydrologic Unit 09020202, on right bank just downstream from county road and 4.5 mi (7.2 km) south of Harvey.

DRAINAGE AREA.--424 mi² (1,098 km²), of which about 270 mi² (700 km²) is probably noncontributing.

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,547.30 ft (471.617 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--21 years, 6.24 ft³/s (0.177 m³/s), 4,520 acre-ft/yr (5.57 hm³/yr); median of yearly mean discharges, 4.5 ft³/s (0.13 m³/s), 3,300 acre-ft/yr (4.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 410 ft³/s (11.6 m³/s), Mar. 15, 1966, gage height, 9.21 ft (2.807 m); maximum gage height, 10.30 ft (3.139 m) Apr. 1, 1971, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 25 ft³/s (0.708 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 20	--	*220 6.23	ice jam	Apr. 17	1000	50 1.42	7.04 2.146
Mar. 27	--	200 5.60	*a 9.10 2.774				

Minimum discharge, no flow for Aug. 22-25.

a - From high-water mark, backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	2.7	.80	.30	.90	6.0	104	25	.67	.96	.06	.09
2	3.0	2.8	.80	.30	.90	5.0	91	24	.53	.96	.05	.06
3	1.8	2.8	1.0	.20	.90	4.5	83	24	.53	.81	.06	.06
4	1.6	2.7	1.2	.20	.80	4.0	76	22	.56	.59	.06	.05
5	1.7	2.5	1.2	.20	.70	3.5	70	19	.47	.47	.07	.07
6	1.7	2.8	1.1	.20	.60	3.0	65	18	.53	.44	.07	.03
7	1.7	2.3	1.0	.20	.50	3.0	63	17	.50	.44	.07	.06
8	1.7	1.6	1.2	.20	.50	3.0	60	16	.76	.47	.05	.03
9	1.8	1.4	1.4	.20	.50	3.0	55	14	.50	1.1	.06	.08
10	1.6	1.5	1.4	.20	.50	3.0	55	12	.41	.76	.07	.03
11	1.8	2.0	1.1	.20	.50	3.5	50	10	.35	.47	.08	.03
12	2.0	2.4	1.1	.20	.60	3.5	46	8.0	2.5	.41	.10	.07
13	2.2	2.6	1.1	.20	.60	4.0	42	6.7	1.9	.38	.14	.07
14	2.5	2.3	.90	.30	.60	4.5	40	6.2	2.5	.35	.18	.07
15	2.5	2.3	.80	.30	.60	5.0	38	6.7	5.7	.35	.12	.07
16	3.0	2.3	.70	.30	.60	8.0	36	6.1	7.4	.29	.08	.06
17	3.0	2.2	.60	.30	.70	27	48	5.4	5.3	.35	.05	.05
18	2.6	2.0	.60	.30	.70	83	44	4.6	3.5	.83	.10	.05
19	2.4	1.9	.50	.40	.70	152	40	3.5	2.7	.76	.10	.05
20	1.9	1.8	.50	.40	.80	200	44	2.5	2.0	.81	.08	.05
21	1.9	1.7	.50	.40	.90	170	40	2.3	1.0	.22	.04	.05
22	1.9	1.6	.40	.50	1.0	150	37	2.0	.71	.14	0	.05
23	1.9	1.5	.40	.60	1.2	138	35	1.7	.81	.09	0	.05
24	2.0	1.4	.40	.70	4.0	135	42	1.7	2.0	.09	0	.05
25	1.8	1.2	.40	.80	9.0	150	42	1.1	2.1	.07	0	.05
26	1.8	1.1	.30	.80	9.0	170	36	1.3	2.2	.06	.01	.05
27	1.7	1.1	.30	.80	8.0	190	31	1.6	1.8	.06	.09	.05
28	1.6	1.0	.30	.80	7.0	170	29	1.6	1.5	.07	.12	.05
29	2.0	1.0	.30	.80	6.0	153	27	1.5	1.3	.06	.14	.05
30	2.4	1.0	.30	.90	---	130	26	1.4	.81	.04	.14	.05
31	2.4	---	.30	.90	---	120	---	.91	---	.06	.10	---
TOTAL	65.0	57.5	22.90	13.10	59.30	2204.5	1495	267.81	53.54	12.96	2.29	1.83
MEAN	2.10	1.92	.74	.42	2.04	71.1	49.8	8.64	1.78	.42	.074	.061
MAX	3.1	2.8	1.4	.90	9.0	200	104	25	7.4	1.1	.18	.09
MIN	1.6	1.0	.30	.20	.50	3.0	26	.91	.35	.04	0	.05
AC-FT	129	114	45	26	118	4370	2970	531	106	26	4.5	3.6
CAL YR 1975	TOTAL	5406.33	MEAN 14.8	MAX 150	MIN 0	AC-FT 10720						
WTR YR 1976	TOTAL	4255.73	MEAN 11.6	MAX 200	MIN 0	AC-FT 8440						

RED RIVER OF THE NORTH BASIN

05056000 SHEYENNE RIVER NEAR WARWICK, ND

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, Hydrologic Unit 09020203, 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 non-contributing - includes 227 mi² (588 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: 1952(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder and rubble masonry control. Altitude of gage is 1,370 ft (418 m) (by barometer).

REMARKS.--Records fair. Records include flow of spring which enters below gage and just above control. Discharge measurements of spring inflow made during the water year are listed below:

Discharge			Discharge			Discharge		
Date	(ft ³ /s)	(m ³ /s)	Date	(ft ³ /s)	(m ³ /s)	Date	(ft ³ /s)	(m ³ /s)
Oct. 8	1.4	0.040	Mar. 17	1.2	0.034	July 7	1.2	0.034
Dec. 10	1.7	.048	Apr. 15	2.2	.062	Aug. 4	1.4	.040
Jan. 13	1.2	.034	May 12	2.0	.057	Sept. 9	1.5	.042
Feb. 11	1.4	.040	June 7	1.0	.028			

AVERAGE DISCHARGE.--27 years, 53.1 ft³/s (1,504 m³/s), 38,470 acre-ft/yr (47.4 hm³/yr); median of yearly mean discharges, 51 ft³/s (1.44 m³/s), 37,000 acre-ft/yr (46 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,660 ft³/s (132 m³/s) Apr. 14, 1969, gage height, 7.51 ft (2.289 m); maximum gage height, 7.83 ft (2.387 m) Apr. 18, 1956; no flow Aug. 7 to Sept. 1, Sept. 3-9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft³/s (30.9 m³/s) Mar. 31, gage height, 4.70 ft (1.433 m); minimum daily, 0.80 ft³/s (0.023 m³/s Aug. 31, gage height, 2.04 ft (0.622 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	9.2	6.5	5.5	5.5	32	899	150	15	14	1.6	1.1
2	3.2	9.2	6.5	5.5	5.5	35	658	138	14	12	1.6	1.5
3	3.2	9.2	6.5	5.5	5.5	39	528	126	12	10	1.6	1.1
4	3.5	12	6.5	5.5	5.5	44	456	119	12	7.1	1.3	.96
5	3.5	15	6.5	5.5	5.5	46	437	113	11	5.5	1.3	1.1
6	3.2	12	6.5	5.5	5.5	43	385	97	9.2	3.8	1.3	1.1
7	3.2	10	6.5	5.5	5.5	38	340	92	7.1	3.2	1.3	1.3
8	4.1	10	6.5	5.5	6.0	34	302	92	6.0	2.9	1.8	1.6
9	5.5	9.2	6.5	5.5	7.0	28	272	87	7.1	2.9	1.3	1.5
10	4.5	8.4	6.5	5.5	8.0	27	250	79	7.1	2.9	1.8	1.5
11	6.0	8.4	6.5	5.5	9.0	25	220	72	7.7	2.9	1.3	1.5
12	7.1	9.2	6.5	5.5	9.0	23	202	68	14	3.2	1.1	1.5
13	8.4	9.2	6.5	5.5	9.0	23	190	58	20	3.5	1.1	1.5
14	12	8.4	6.0	5.0	9.0	20	182	62	36	2.7	1.1	1.5
15	10	8.4	6.0	5.0	10	18	190	62	47	2.0	1.1	1.5
16	9.2	10	6.0	5.0	10	17	186	58	39	1.6	1.1	1.5
17	7.7	12	6.0	5.0	10	16	182	56	30	1.5	1.1	1.5
18	8.4	14	5.5	5.0	10	19	210	53	27	1.6	1.1	1.5
19	9.2	16	5.5	5.0	11	33	210	48	25	2.0	1.1	1.5
20	9.2	16	5.5	5.0	11	53	186	44	23	2.2	1.1	1.6
21	8.4	16	5.5	5.0	11	87	190	43	20	2.4	1.1	1.6
22	9.2	14	5.5	5.0	12	346	198	39	19	2.7	1.1	1.6
23	9.2	13	5.5	5.0	13	632	206	33	18	2.4	1.1	1.6
24	9.2	12	5.5	5.0	15	850	210	32	19	2.2	1.1	1.6
25	11	12	5.5	5.0	17	990	215	30	17	2.2	1.1	1.6
26	10	10	5.5	5.0	20	980	210	30	19	2.0	1.1	1.8
27	9.2	8.4	5.5	5.0	23	815	190	27	20	2.2	1.5	2.0
28	7.7	7.7	5.5	5.0	24	871	178	26	20	2.2	1.1	2.2
29	7.1	7.1	5.5	5.0	27	948	166	26	17	1.8	.96	2.4
30	7.7	6.5	5.5	5.0	---	1040	154	23	16	1.8	.96	2.2
31	7.7	---	5.5	5.0	---	1050	---	17	---	1.6	.96	---
TOTAL	220.7	322.5	185.5	161.5	319.5	9222	8402	2000	554.2	111.0	38.18	46.46
MEAN	7.12	10.8	5.98	5.21	11.0	297	280	64.5	18.5	3.58	1.23	1.55
MAX	12	16	6.5	5.5	27	1050	899	150	47	14	1.8	2.4
MIN	3.2	6.5	5.5	5.0	5.5	16	154	17	6.0	1.5	.96	.96
AC-FT	438	640	368	320	634	18290	16670	3970	1100	220	76	92
CAL YR 1975	TOTAL	34834.50	MEAN	95.4	MAX	1780	MIN	1.1	AC-FT	69090		
WTR YR 1976	TOTAL	21583.54	MEAN	59.0	MAX	1050	MIN	.96	AC-FT	42810		

RED RIVER OF THE NORTH BASIN

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05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1951 to current year.

WATER TEMPERATURES: January 1951 to September 1962, October 1963 to September 1964, October 1965 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,940 micromhos Feb. 1, 1955; minimum daily, 165 micromhos Mar. 17, 1975.

WATER TEMPERATURES (1951-55, 1956-62, 1963-64, 1965-76): Maximum daily, 30.5°C July 1, 1974, minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
OCT 08...	1230	3.8	810	8.3	13.5	240	0	55	26	80	41	2.2
NOV 08...	1420	10	1130	8.4	6.0	280	0	53	37	130	49	3.4
DEC 10...	1530	6.7	870	7.9	.0	310	0	69	33	79	35	2.0
JAN 13...	1100	5.4	940	7.6	.0	280	0	68	27	63	32	1.6
FEB 11...	1650	8.8	880	7.4	.0	330	0	75	34	71	31	1.7
MAR 17...	1320	17	680	7.7	.0	220	0	49	24	71	40	2.1
APR 15...	1255	184	880	8.3	10.5	220	0	45	27	110	50	3.2
28...	1300	69	1000	8.3	16.0	300	0	57	38	130	48	3.3
JUN 07...	1530	6.9	1060	8.4	24.5	310	0	58	39	140	49	3.5
JUL 07...	1230	3.5	950	8.4	24.0	260	0	50	33	140	53	3.8
AUG 04...	1515	11.4	640	8.2	25.0	230	0	47	27	56	34	1.6
SEP 09...	1540	.10	505	8.2	16.0	230	9	63	18	22	17	.6

DATE	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)
OCT 08...	7.4	397	0	326	3.2	91	11	--	--	489	--	.67
NOV 08...	11	486	10	415	3.2	130	20	--	--	646	--	.88
DEC 10...	7.9	402	0	330	8.1	95	14	--	--	521	--	.71
JAN 13...	6.0	395	0	324	16	100	10	--	--	499	--	.68
FEB 11...	7.1	439	0	360	28	110	14	--	--	568	--	.77
MAR 17...	11	315	0	258	10	100	15	--	--	455	--	.62
APR 15...	10	393	0	322	3.2	130	14	--	--	573	--	.78
28...	9.7	473	0	388	3.8	170	15	--	--	709	--	.96
JUN 07...	11	455	32	426	3.3	160	16	--	--	726	--	.99
JUL 07...	9.8	435	5	365	2.8	170	17	--	--	657	--	.89
AUG 04...	4.5	316	5	268	3.3	72	8.1	.0	16	377	393	.51
SEP 09...	3.2	271	0	222	2.7	46	3.7	.2	21	306	311	.42

E - Estimated.

RED RIVER OF THE NORTH BASIN
05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED RADIUM (RA) (UG/L)	DIS- SOLVED BERYL- LIUM (RE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBAL T (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT												
08...	5.02	.00	.08	--	--	--	--	--	--	--	--	--
NOV												
08...	17.4	.02	.12	--	--	--	--	--	--	--	--	--
DEC												
10...	9.42	.11	.07	--	--	--	--	--	--	--	--	--
JAN												
13...	7.28	.23	.07	--	--	--	--	--	--	--	--	--
FEB												
11...	13.5	.31	.13	--	--	--	--	--	--	--	--	--
MAR												
17...	21.6	.71	.20	--	--	--	--	--	--	--	--	--
APR												
15...	285	.01	.11	20	6	200	10	--	1	10	0	4
28...	132	.01	.09	--	--	--	--	--	--	--	--	--
JUN												
07...	13.5	.06	.20	--	--	--	--	--	--	--	--	--
JUL												
07...	6.21	.41	.19	--	--	--	--	--	--	--	--	--
AUG												
04...	1.43	.19	.16	--	--	--	--	40	--	--	--	--
SEP												
09...	.08	.00	.05	10	8	0	0	60	1	0	0	0

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MANG- ANESE (MN) (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)	CYANIDE (CN) (MG/L)
OCT												
08...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
10...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
17...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
15...	90	1	10	.0	2	7	0	0	200	2.5	0	.00
28...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
07...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
04...	80	--	160	--	--	--	--	--	--	--	--	--
SEP												
09...	10	2	30	.0	2	0	0	0	170	.2	0	.00

RED RIVER OF THE NORTH BASIN

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05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	945	919	780	650	808	975	379	1060	1130	918	725	497
2	939	954	805	721	840	1020	390	1060	1100	936	720	537
3	878	920	797	902	830	1020	403	1050	1110	947	692	500
4	975	961	682	790	852	1360	419	1060	1100	943	674	526
5	947	979	768	877	862	1540	443	1030	1110	947	580	528
6	894	972	742	860	842	1540	479	1040	1130	891	643	518
7	789	953	881	919	795	1460	511	1040	1150	953	627	510
8	861	992	700	872	835	1100	550	1030	1140	906	616	494
9	944	1010	570	920	855	970	600	1040	1140	920	605	494
10	921	960	646	805	875	884	650	1050	1150	913	635	506
11	945	1000	625	465	845	---	708	1060	1120	881	660	504
12	968	976	825	705	845	752	768	1080	1120	884	670	500
13	982	970	---	650	868	722	822	1080	1090	926	647	474
14	974	889	865	792	875	750	862	1080	1140	821	617	457
15	987	712	818	825	875	739	883	1100	1130	872	636	483
16	1000	986	845	783	600	733	883	1100	1140	923	638	485
17	851	1010	890	1000	782	733	884	1110	1070	972	589	477
18	982	980	915	671	897	738	897	1110	1050	877	539	471
19	1020	959	788	593	959	730	884	1120	988	895	651	461
20	1010	941	439	992	906	608	894	1120	964	824	635	459
21	1020	914	691	688	897	381	925	1130	963	825	606	460
22	1030	943	796	900	889	370	932	1130	959	806	615	459
23	1000	951	702	995	910	200	932	1140	959	761	604	463
24	1000	866	570	659	947	269	940	1140	933	793	585	452
25	986	958	697	820	935	235	955	1120	931	761	571	467
26	911	868	720	943	905	252	979	1140	915	681	582	456
27	1000	781	768	887	987	267	1000	1150	908	751	564	455
28	973	758	590	873	980	362	1040	1150	905	739	554	452
29	773	721	762	1000	990	432	1060	1150	912	713	548	457
30	867	692	758	825	---	407	1060	1150	938	680	535	451
31	975	---	690	864	---	378	---	1150	---	664	515	---
MONTH	947	917	738	814	872	731	771	1100	1050	849	615	482

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	5.0	-0.5	-0.5	0.0	0.0	2.0	11.0	22.0	21.0	21.0	23.0
2	13.0	6.0	-0.5	-0.5	0.0	0.0	2.5	9.0	22.0	22.0	23.0	24.0
3	13.0	6.5	-0.5	-0.5	0.0	0.0	3.0	11.0	21.5	21.0	24.0	22.0
4	13.0	8.0	0.0	-0.5	0.0	0.0	4.0	12.0	20.5	22.0	21.0	20.0
5	13.0	8.0	-0.5	-0.5	0.0	0.0	6.5	10.0	21.0	24.0	23.0	23.0
6	13.0	8.5	-0.5	-0.5	0.0	0.0	8.0	12.0	23.0	23.0	21.0	24.0
7	14.0	7.0	0.0	-0.5	0.0	0.0	9.0	13.0	25.0	21.0	22.0	13.0
8	15.0	6.0	0.0	-0.5	1.0	0.5	11.0	12.0	24.0	22.0	22.0	13.0
9	10.0	5.5	0.0	-0.5	2.0	0.0	11.0	13.0	24.0	22.5	21.0	20.0
10	9.0	4.5	-0.5	-0.5	1.0	0.0	10.0	16.0	25.5	25.0	20.0	18.0
11	9.0	3.5	-0.5	-0.5	1.0	---	9.5	17.0	24.5	21.0	22.0	18.0
12	10.0	1.0	-0.5	-0.5	2.0	0.0	11.0	17.0	22.5	23.0	23.0	19.0
13	10.0	0.0	---	-0.5	0.5	0.0	13.0	18.0	20.0	23.0	18.0	15.0
14	8.0	1.5	-0.5	0.0	1.5	0.0	12.0	18.0	20.0	22.5	23.0	16.0
15	8.0	2.0	-0.5	0.0	1.5	0.0	11.0	16.5	17.0	22.0	22.0	17.0
16	9.0	3.0	-0.5	-0.5	1.5	1.0	11.0	18.0	17.5	24.0	22.0	17.0
17	10.0	3.0	-0.5	0.0	2.0	0.5	10.0	19.0	17.0	24.5	20.0	20.0
18	9.0	3.0	-0.5	0.0	1.0	1.0	8.0	18.0	16.0	22.0	21.0	20.0
19	9.0	2.0	-0.5	-0.5	1.0	1.5	8.0	18.0	20.0	23.0	20.0	16.0
20	9.0	1.0	-0.5	0.0	1.0	0.0	9.0	20.0	22.0	23.5	23.0	15.0
21	9.0	1.0	0.0	0.0	1.0	0.0	9.0	18.0	21.0	22.0	25.0	14.0
22	8.0	1.0	0.0	0.0	1.0	1.0	9.5	17.0	20.0	23.0	24.0	14.0
23	8.0	1.0	-0.5	0.0	2.0	2.0	9.0	17.0	21.0	22.0	23.0	14.0
24	6.0	0.0	-0.5	-0.5	3.0	0.0	10.0	20.5	20.0	25.0	25.0	13.0
25	5.0	0.0	-0.5	-0.5	3.0	2.0	9.0	18.5	21.5	23.0	24.0	12.0
26	5.0	0.0	-0.5	-0.5	2.0	0.0	12.0	18.0	20.0	21.0	25.0	11.0
27	4.5	-0.5	-0.5	-0.5	0.5	0.0	12.0	17.0	20.0	21.0	20.0	11.0
28	4.5	-0.5	-0.5	0.0	0.0	0.5	13.0	17.0	19.0	22.0	18.0	11.0
29	5.0	-0.5	0.0	1.0	0.0	0.5	13.0	19.0	19.0	24.0	21.0	14.0
30	6.0	-0.5	0.0	1.0	---	0.5	12.0	21.5	20.5	21.0	24.0	15.0
31	5.0	---	-0.5	2.0	---	0.5	---	21.0	---	21.0	24.0	---
MONTH	9.0	3.0	-0.5	0.0	1.0	0.5	9.5	16.0	21.0	22.5	22.0	16.5

RED RIVER OF THE NORTH BASIN

05056100 MAUVAIS COULEE NEAR CANDO, ND

LOCATION.--Lat 48°26'53", long 99°06'08", in SE&NE&SE& sec.1, T.157 N., R.66 W., Towner County, Hydrologic Unit 09020201, on left bank 0.3 mi (0.5 km) upstream from highway bridge, about 4 mi (6 km) upstream from West Fork, 5.5 mi (8.8 km) southeast of Cando, and 7 mi (11 km) northeast of Maza.

DRAINAGE AREA.--387 mi² (1,000 km²), of which about 10 mi² (25 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,445 ft (440.4 m), from topographic map. Prior to July 2, 1957, nonrecording gage at present site and datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--20 years, 19.4 ft³/s (0.549 m³/s), 14,060 acre-ft/yr (17.3 hm³/yr); median of yearly mean discharges, 14 ft³/s (0.40 m³/s), 10,100 acre-ft/yr (12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s (70.8 m³/s) Apr. 14, 1969, gage height, 11.16 ft (3.402 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1954, reached a stage of 9.83 ft (2.996 m), and flood of Apr. 20, 1956, reached a stage of 10.71 ft (3.264 m), from floodmarks set by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 26	--	70 1.98	(a)	Apr. 8	--	*1120 31.7	^a 9.37 2.86
Mar. 29	--	85 2.41	(a)				

Minimum discharge, no flow Mar. 5-24.

a Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.06	.02	.03	.02	.01	50	158	5.0	1.2	.03	.13
2	.14	.06	.04	.03	.01	.01	40	132	5.0	1.1	.03	.17
3	.14	.10	.05	.02	.01	.01	250	116	4.5	.98	.03	.16
4	.10	.09	.05	.02	.01	.01	350	100	4.3	.78	.03	.14
5	.10	.10	.06	.02	.01	0	500	84	3.5	.78	.03	.15
6	.09	.10	.06	.02	.01	0	533	71	3.0	.70	.02	.14
7	.09	.10	.06	.02	.01	0	718	59	2.5	.62	.01	.14
8	.10	.10	.06	.02	.01	0	1100	52	3.0	.70	.03	.14
9	.12	.10	.06	.02	.01	0	1050	45	2.7	.78	.44	.14
10	.10	.10	.06	.02	.01	0	828	41	1.7	.70	.70	.15
11	.10	.09	.06	.02	.01	0	701	36	.34	.62	.10	.16
12	.09	.08	.06	.02	.01	0	631	32	2.0	.62	.08	.16
13	.09	.08	.06	.02	.01	0	549	29	3.5	.62	.07	.16
14	.14	.08	.05	.02	.01	0	530	27	2.8	.56	.06	.16
15	.11	.08	.04	.02	.01	0	520	26	2.4	.44	.04	.14
16	.10	.08	.04	.02	.01	0	460	24	2.0	.34	.04	.14
17	.09	.08	.04	.02	.01	0	384	21	1.9	.18	.04	.14
18	.09	.08	.04	.02	.01	0	345	20	1.7	.14	.04	.14
19	.08	.08	.04	.02	.01	0	307	18	1.6	.10	.04	.14
20	.08	.08	.04	.02	.01	0	296	16	1.4	.05	.04	.14
21	.07	.07	.04	.02	.01	0	235	14	1.4	.03	.04	.14
22	.06	.07	.04	.02	.01	0	314	13	1.2	.03	.03	.14
23	.06	.07	.04	.02	.01	0	325	11	1.3	.02	.03	.14
24	.06	.07	.04	.02	.01	0	347	10	1.4	.02	.03	.14
25	.06	.06	.04	.02	.01	10	351	10	1.6	.02	.03	.13
26	.07	.06	.04	.02	.01	60	345	8.8	2.0	.02	.04	.13
27	.09	.06	.04	.02	.01	55	307	8.8	1.9	.02	.05	.12
28	.09	.06	.04	.02	.01	40	263	8.8	1.6	.03	.04	.12
29	.12	.06	.04	.02	.01	50	230	7.7	1.3	.03	.04	.10
30	.14	.05	.03	.02	---	75	192	5.5	1.2	.03	.07	.09
31	.12	---	.03	.02	---	50	---	4.5	---	.03	.11	---
TOTAL	2.99	2.25	1.41	.64	.30	340.04	13051	1209.2	69.74	12.29	2.41	4.19
MEAN	.097	.073	.046	.021	.010	11.7	435	39.7	2.32	.40	.078	.14
MAX	.14	.10	.06	.03	.02	75	1100	158	5.0	1.2	.70	.17
MIN	.06	.05	.02	.02	.01	0	40	4.5	.34	.02	.01	.09
AC-FT	5.9	4.7	2.8	1.3	.6	674	25890	2400	138	24	4.8	8.3
CAL YR 1975	TOTAL	8274.59	MEAN	22.7	MAX	485	MIN	0	AC-FT	16410		
WTR YR 1976	TOTAL	14696.56	MEAN	40.2	MAX	1100	MIN	0	AC-FT	29150		

RED RIVER OF THE NORTH BASIN

75

05056200 EDMORE COULEE NEAR EDMORE, ND

LOCATION.--Lat 48°20'14", long 98°39'33", in NW¼ sec.17, T.156 N., R.62 W., Ramsey County, Hydrologic Unit 09020201, on right bank 50 ft (15 m) upstream from bridge on county highway, 11 mi (18 km) southwest of Edmore and about 13 mi (21 km) upstream from Sweetwater Lake.

DRAINAGE AREA.--382 mi² (989 km²), of which about 100 mi² (259 km²) is probably noncontributing.

PERIOD OF RECORD.--April to June 1956, June 1957 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Prior to June 26, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--19 years (1957-76) 13.8 ft³/s (0.391 m³/s), 10,000 acre-ft/yr (12.3 hm³/yr); median of yearly mean discharges, 9.2 ft³/s (0.26 m³/s), 6,700 acre-ft/yr (8.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 890 ft³ (25.2 m³/s) Apr. 17, 1974, gage height, 6.46 ft (1.969 m); maximum gage height, 6.63 ft (2.021 m) Mar. 25, 1966, backwater from ice, no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 420 ft³/s (11.9 m³/s) Apr. 6, gage height, 6.09 ft (1.856 m), maximum gage height, 6.33 ft (1.929 m) Apr. 5, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	41	15	.44	6.9	.80	.03
2						0	45	13	.41	6.5	.60	.01
3						0	50	12	.36	6.5	.50	0
4						0	60	11	.30	6.0	.40	0
5						0	188	10	.24	6.0	.36	0
6						0	262	8.7	.18	5.9	.36	0
7						0	349	7.6	.14	5.7	.34	0
8						0	284	6.6	.12	5.5	.32	0
9						0	256	5.7	.03	5.8	.52	0
10						0	234	4.8	.02	6.2	.90	0
11						0	190	4.0	.02	6.0	1.4	0
12						0	147	3.3	.39	5.5	1.8	0
13						0	108	3.0	.38	5.0	2.7	0
14						0	88	2.5	.38	4.8	2.8	0
15						0	69	2.5	.36	4.5	2.9	0
16						0	65	2.3	.38	4.4	2.9	0
17						0	60	2.1	.38	4.2	2.7	0
18						0	45	2.0	.38	4.0	2.3	0
19						0	39	1.8	.41	3.7	2.2	0
20						0	39	1.6	.44	3.3	2.0	0
21						.50	40	1.4	.47	3.1	1.6	0
22						1.0	38	1.2	.56	2.9	1.4	0
23						5.0	36	1.1	.65	2.7	1.1	0
24						12	34	.94	.71	2.5	.82	0
25						15	30	.82	.78	2.2	.50	0
26						18	26	.71	1.0	2.0	.41	0
27						20	24	.68	2.3	1.8	.34	0
28						18	21	.65	4.2	1.6	.26	0
29						18	18	.56	5.8	1.4	.18	0
30					---	24	17	.53	6.4	1.2	.10	0
31		---			---	30	---	.50	---	1.0	.05	---
TOTAL	0	0	0	0	0	161.50	2903	128.59	28.63	128.8	35.56	.04
MEAN	0	0	0	0	0	5.21	96.8	4.15	.95	4.15	1.15	.001
MAX	0	0	0	0	0	30	349	15	6.4	6.9	2.9	.03
MIN	0	0	0	0	0	0	17	.50	.02	1.0	.05	0
AC-FT	0	0	0	0	0	320	5760	255	57	255	71	.08
CAL YR 1975	TOTAL	3758.35	MEAN 10.3	MAX 195	MIN 0	AC-FT 7450						
WTR YR 1976	TOTAL	3386.12	MEAN 9.25	MAX 349	MIN 0	AC-FT 6720						

RED RIVER OF THE NORTH BASIN

05056390 LITTLE COULEE NEAR BRINSMADE, ND

LOCATION.--Lat 48°11'15", long 99°14'34", in SW¼ sec.2, T.154 N., R.67 W., Benson County, Hydrologic Unit 09020201, on right bank 100 ft (30 m) downstream from bridge on township road, 0.5 mi (0.8 km) downstream from Silver Lake, and 4 mi (6 km) east of Brinsmade.

DRAINAGE AREA.--350 mi² (906 km²), of which 160 mi² (414 km²) is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,435 ft (437 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 125 ft³/s (3.54 m³/s), Mar. 28, gage height, 8.50 ft (2.591 m), backwater from ice; maximum gage height, 9.04 ft (2.755 m) Mar. 26, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	110	43	3.2	.31		
2						0	109	41	2.8	.27		
3						0	102	38	2.3	.23		
4						0	95	37	1.7	.20		
5						0	86	35	1.1	.18		
6						0	83	32	.90	.15		
7						0	70	30	.84	.11		
8						0	64	29	.72	.09		
9						0	60	28	.44	.07		
10						0	54	26	.34	.05		
11						0	44	25	.27	.04		
12						0	48	23	2.0	.02		
13						0	47	20	1.2	.01		
14						0	46	19	1.1	0		
15						0	47	19	1.1	0		
16						0	50	19	.98	0		
17						0	52	18	.78	0		
18						0	52	16	.81	0		
19						0	52	13	.44	0		
20						0	58	11	.27	0		
21						0	59	10	.24	0		
22						0	59	9.8	.27	0		
23						0	58	8.8	.29	0		
24						5.0	57	7.9	.40	0		
25						50	56	7.0	.78	0		
26						102	55	5.6	.84	0		
27						110	53	5.1	.98	0		
28						120	50	4.4	1.3	0		
29						112	48	4.0	1.2	0		
30					---	110	45	3.9	.66	0		
31		---			---	110	---	3.4	---	0		---
TOTAL	0	0	0	0	0	719.0	1869	591.9	30.25	1.73	0	0
MEAN	0	0	0	0	0	23.2	62.3	19.1	1.01	.056	0	0
MAX	0	0	0	0	0	120	110	43	3.2	.31	0	0
MIN	0	0	0	0	0	0	44	3.4	.24	0	0	0
AC-FT	0	0	0	0	0	1430	3710	1170	60	3.4	0	0
WTR YR 1976	TOTAL	3211.88	MEAN	8.78	MAX	120	MIN	0	AC-FT	6370		

RED RIVER OF THE NORTH BASIN

77

05056390 LITTLE COULEE NEAR BRINSMADE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

REMARKS.--No flow Oct. 1 - Mar. 23, July 14 - Sept. 30.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,120 micromhos Mar. 28; minimum daily, 600 micromhos Apr. 8.

WATER TEMPERATURES: Maximum daily, 34°C July 13; minimum daily, 7°C Apr. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)
MAR 29...	1610	103	1100	8.0	3.0	55	380	22	83	43
APR 27...	1435	48	850	8.7	12.0	35	300	12	67	32
JUN 08...	1435	.71	1000	7.9	24.0	35	340	6	75	35

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	RICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
MAR 29...	90	32	2.0	21	442	0	363	7.1	160	42
APR 27...	73	33	1.8	15	321	14	287	1.1	130	33
JUN 08...	82	33	1.9	17	402	0	330	8.1	130	36

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED RESIDUE AT 180 C (MG/L)	DIS-SOLVED SOLIDS (SUM OF TUEENTS) (MG/L)	DIS-SOLVED SOLIDS PER AC-FT	DIS-SOLVED SOLIDS PER DAY	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)
MAR 29...	.3	26	744	688	1.01	207	.82	.82	10	6
APR 27...	.2	11	577	534	.78	74.8	.11	.36	--	--
JUN 08...	.2	19	647	600	.88	1.24	1.4	.78	--	--

DATE	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 IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
MAR 29...	0	10	150	1	0	0	6	40	16	290
APR 27...	--	--	150	--	--	--	--	--	--	--
JUN 08...	--	--	170	--	--	--	--	--	--	--

DATE	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)	CYANIDE (CN) (MG/L)
MAR 29...	.0	1	6	0	0	350	6.4	10	.00

RED RIVER OF THE NORTH BASIN

05056390 LITTLE COULEE NEAR BRINSMADE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	845	857	925	---		
2						---	773	849	917	940		
3						---	795	854	920	943		
4						---	761	876	937	933		
5						---	701	875	967	959		
6						---	675	856	950	964		
7						---	628	871	940	---		
8						---	600	853	1010	956		
9						---	619	867	996	945		
10						---	837	878	1010	1020		
11						---	860	887	1010	1160		
12						---	959	891	978	1280		
13						---	926	867	905	1090		
14						---	892	873	896	---		
15						---	932	885	858	---		
16						---	917	895	858	---		
17						---	911	917	856	---		
18						---	926	899	846	---		
19						---	916	906	883	---		
20						---	900	891	875	---		
21						---	903	916	888	---		
22						---	906	916	---	---		
23						---	891	920	---	---		
24						---	873	904	---	---		
25						---	869	930	---	---		
26						1040	882	869	---	---		
27						1100	840	912	---	---		
28						1120	853	918	---	---		
29						1080	857	---	---	---		
30						963	841	950	---	---		
31						940	---	944	---	---		
MONTH						---	836	891	---	---		

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							7.0	10.0	23.5	---		
2							5.0	9.0	23.0	18.0		
3							5.0	7.0	21.0	23.0		
4							6.0	11.0	20.0	25.0		
5							6.0	9.0	22.0	27.5		
6							6.0	9.0	23.5	28.0		
7							9.0	11.0	18.5	---		
8							8.0	14.0	21.5	19.0		
9							9.0	17.0	24.0	25.0		
10							5.0	13.0	24.0	26.0		
11							6.0	14.0	24.0	24.0		
12							7.0	14.0	23.0	25.0		
13							14.0	16.0	19.0	34.0		
14							10.0	15.0	17.5	---		
15							10.0	14.0	19.5	---		
16							8.5	17.5	18.5	---		
17							10.0	19.5	16.0	---		
18							7.5	18.0	15.5	---		
19							11.0	17.5	15.0	---		
20							9.0	17.0	18.0	---		
21							7.0	15.5	23.0	---		
22							16.0	14.0	---	---		
23							9.0	17.0	---	---		
24							9.0	20.5	---	---		
25							10.0	17.0	---	---		
26							11.0	17.0	---	---		
27							9.0	16.5	---	---		
28							11.0	18.0	---	---		
29							14.0	16.5	---	---		
30							13.0	17.0	---	---		
31							---	24.0	---	---		
MONTH							9.0	15.0	---	---		

RED RIVER OF THE NORTH BASIN

79

05056400 BIG COULEE NEAR CHURCHS FERRY, ND

LOCATION.--Lat 48°10'40", long 99°13'15", in NW¼NW¼ sec.12, T.154 N., R.67 W., Benson County, Hydrologic Unit 09020201, on right bank on downstream side of bridge on U.S. Highway 281, 1 mi (1.6 km) downstream from Little Coulee and 6 mi (10 km) south of Churchs Ferry.

DRAINAGE AREA.--2,510 mi² (6,500 km²), approximately, of which about 690 mi² (1,790 km²) is probably non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1960, published as Mauvais Coulee near Churchs Ferry.

GAGE.--Water-stage recorder. Datum of gage is 1,432.65 ft (436.672 m) above mean sea level. Prior to June 21, 1950, reference marks, and June 21, 1950, to July 17, 1956, nonrecording gage at former bridge on U.S. Highway 281, 0.1 mi (0.2 km) upstream, at datum 0.70 ft (0.213 km) higher.

REMARKS.--Records good except those for the periods of ice effect and no gage height record, which are fair. Flow affected by many lakes on the mainstem and tributaries.

AVERAGE DISCHARGE.--26 years, 38.7 ft³/s (1.096 m³/s), 28,040 acre-ft/yr (34.6 hm³/yr); median of yearly mean discharges, 7.8 ft³/s (0.22 m³/s), 5,700 acre-ft/yr (7.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) June 10, 1974; gage height, 7.06 ft (2.152 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 587 ft³/s (16.6 m³/s) Apr. 20, gage height, 4.32 ft (1.317 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.29	5.0			0	134	520	145	32	0	
2	.12	.24	4.5			0	116	529	129	29	0	
3	.12	.20	4.2			0	127	503	110	26	0	
4	.13	.20	4.0			0	167	490	87	25	0	
5	.11	.24	4.0			0	200	475	85	22	0	
6	.11	.29	3.5			0	227	460	94	23	0	
7	.06	.17	3.0			0	264	445	94	23	0	
8	.11	.17	3.0			0	304	430	89	20	0	
9	.11	.14	3.0			0	345	415	80	20	0	
10	.14	.14	3.0			0	396	400	73	22	.05	
11	.12	.13	3.0			0	438	385	66	24	.06	
12	.13	.13	1.5			0	452	370	91	22	.06	
13	.13	.12	.10			0	476	355	65	17	.06	
14	.20	.12	.10			0	503	340	74	9.6	.06	
15	.20	.11	.08			0	520	330	89	2.3	.04	
16	.29	.10	.08			0	550	320	60	13	.01	
17	.29	.10	.05			0	544	315	59	6.0	0	
18	.47	.10	.05			0	532	310	54	1.8	0	
19	.17	.10	.02			0	541	306	43	.91	0	
20	.13	.10	.02			0	577	304	38	.54	0	
21	.13	.10	.01			0	571	297	41	.40	0	
22	.13	.10	.01			0	568	288	45	.14	0	
23	.13	.10	0			10	568	282	36	.12	0	
24	.12	.10	0			50	568	266	37	.12	0	
25	.12	.10	0			100	562	245	39	.06	0	
26	.13	.08	0			150	562	216	40	.02	0	
27	.13	.08	0			160	559	216	38	.01	0	
28	.13	.08	0			120	547	212	36	0	0	
29	.14	.08	0			85	526	186	38	0	0	
30	.47	2.0	0		---	50	517	169	34	0	0	
31	.29	---	0		---	100	---	162	---	0	0	---
TOTAL	5.17	6.01	42.22	0	0	825	12961	10541	2009	340.02	.34	0
MEAN	.17	.20	1.36	0	0	26.6	432	340	67.0	11.0	.011	0
MAX	.47	2.0	5.0	0	0	160	577	529	145	32	.06	0
MIN	.06	.08	0	0	0	0	116	162	34	0	0	0
AC-FT	10	12	84	0	0	1640	25710	20910	3980	674	.7	0
CAL YR 1975	TOTAL	27812.69	MEAN 76.2	MAX 434	MIN 0	AC-FT 55170						
WTR YR 1976	TOTAL	26729.76	MEAN 73.0	MAX 577	MIN 0	AC-FT 53020						

RED RIVER OF THE NORTH BASIN

05056400 BIG COULEE NEAR CHURCHS FERRY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
OCT 07...	1535	.08	1390	8.7	18.0	50	300	0	67	31	170	55
NOV 04...	1310	.14	1380	8.0	10.5	10	300	18	68	31	160	53
DEC 03...	1420	4.2	2200	8.3	.0	90	790	200	170	89	150	28
APR 27...	1615	562	580	8.9	12.0	50	220	53	50	23	32	23
JUN 08...	1235	88	710	8.2	21.5	45	290	86	63	31	40	22
JUL 15...	1610	1.5	875	8.4	21.0	70	350	93	79	37	54	24

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
OCT 07...	4.3	11	279	40	295	1.2	320	40	.1	14	851	831
NOV 04...	4.0	10	341	0	280	5.5	330	42	.2	12	770	822
DEC 03...	2.3	38	722	0	592	5.8	460	53	--	--	1510	--
APR 27...	.9	11	195	4	167	.4	120	13	.2	13	389	365
JUN 08...	1.0	15	242	0	198	2.4	150	14	.2	20	488	461
JUL 15...	1.3	19	313	0	257	2.0	180	20	.2	30	582	577

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)
OCT 07...	1.16	.18	.01	.04	--	--	--	440	--	--	--
NOV 04...	1.05	.29	.02	.00	--	--	--	380	--	--	--
DEC 03...	2.05	17.1	--	.00	--	--	--	260	--	--	--
APR 27...	.53	590	.41	.14	20	6	0	70	1	0	0
JUN 08...	.66	116	2.0	.29	--	--	--	90	--	--	--
JUL 15...	.79	2.36	.66	.51	--	--	--	140	--	--	--

DATE	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (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)
APR 27...	6	30	3	10	.1	2	14	0	190	4.3	0

RED RIVER OF THE NORTH BASIN

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05056500 DEVILS LAKE NEAR DEVILS LAKE, ND

LOCATION.--Lat 48°04'00", long 98°56'07", in SW¼ sec.18, T.153 N., R.64 W., Ramsey County, Hydrologic Unit 09020201, at Lakewood, on east bank of Creel Bay, 4.5 mi (7.2 km) southwest of city of Devils Lake. Creel Bay, which is 0.5 mi (0.8 km) wide, is an arm of Devils Lake and extends 2 mi (3 km) to the north of the lake.

DRAINAGE AREA.--3,130 mi² (8,110 km²), approximately, of which about 1,000 mi² (2,600 km²) is probably noncontributing.

PERIOD OF RECORD.--1867, 1879, 1883, 1887, 1890, 1896 (one gage height for each year), 1901-63 (fragmentary), 1964 to current year.

REVISED RECORDS.--WSP 1913: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.72 m) above mean sea level; gage readings have been reduced to elevations above mean sea level. June 23, 1950, to June 6, 1963, nonrecording gage at present site and datum. See WSP 1913 for history of changes prior to June 23, 1950.

REMARKS.--Elevation at gage frequently affected by wind.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,438.40 ft (438.424 m) in 1867, present datum; minimum observed, 1,400.87 ft (426.985 m) Oct. 24, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--The lake level was about elevation 1,446 ft (441 m) about 1830 and lower thereafter, according to the tree growth noted 1885-89. Reference is Geological Survey monograph, volume XXV, The Glacial History of Lake Agassiz by Warren Upham.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,425.06 ft (434.358 m) June 13; minimum, 1,423.27 ft (433.813 m) Nov. 11.

MONTHEND ELEVATION, IN FEET, AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Oct. 31.....	1,423.36	Jan. 31.....	1,423.41	Apr. 30.....	1,424.55	July 31.....	1,424.19
Nov. 30.....	1,423.31	Feb. 29.....	1,423.45	May 31.....	1,424.82	Aug. 31.....	1,423.61
Dec. 31.....	1,423.37	Mar. 31.....	1,423.73	June 30.....	1,424.84	Sept.30.....	*1,423.20

* Estimated

RED RIVER OF THE NORTH BASIN

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND

LOCATION.--Lat 47°26'01", long 98°01'43", in NE¼NE¼SE¼ sec.27, T.146 N., R.58 W., Griggs County, Hydrologic Unit 09020203, on right bank 150 ft (46 m) downstream from county bridge and 5 mi (8 km) east of Cooperstown.

DRAINAGE AREA.--6,470 mi² (16,760 km²), approximately, of which about 5,200 mi² (13,470 km²) is probably noncontributing, includes 3,800 mi² (9,840 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,271.04 ft (387.413 m) above mean sea level, Corps of Engineers benchmark. Prior to Aug. 3, 1950, nonrecording gage at site 150 ft (45.7 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--32 years, 104 ft³/s (2.945 m³/s) 75,350 acre-ft/yr (92.9 hm³/yr); median of yearly mean discharges, 82 ft³/s (2.32 m³/s) 59,400 acre-ft/yr (73 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,830 ft³/s (222 m³/s) Apr. 17, 1950, gage height, 18.69 ft (5.697 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 24	--	500 14.2	Backwater from ice	Apr. 2	1000	*1,450 41.1	*13.45 4.100

Minimum discharge, 0.34 ft³/s (0.010 m³/s) Sept. 21, gage height, 3.46 ft (1.055 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	23	16	14	11	11	990	246	49	47	2.0	1.5
2	37	26	16	14	12	14	1360	235	46	43	2.0	1.3
3	58	26	16	14	13	15	1290	223	41	40	2.0	1.1
4	31	23	16	13	13	22	1290	210	38	39	2.0	1.1
5	17	22	16	13	13	23	1270	195	34	38	2.0	1.3
6	13	22	16	13	13	26	1240	184	30	38	2.0	1.2
7	13	22	16	13	13	35	1170	171	27	32	2.0	.90
8	15	20	16	12	13	38	1060	161	24	29	2.0	1.2
9	17	19	16	12	12	36	876	150	21	24	2.0	1.2
10	17	19	16	12	12	33	711	142	20	21	4.5	1.2
11	21	20	16	12	12	38	572	129	18	18	6.0	1.1
12	21	18	16	12	11	39	504	121	18	16	4.9	1.2
13	19	22	16	12	11	29	445	117	19	15	3.5	1.5
14	16	25	16	12	12	26	408	108	18	14	2.2	1.2
15	15	24	16	12	13	29	381	100	18	12	1.8	.90
16	15	24	16	12	12	38	356	95	25	11	1.6	.90
17	15	25	16	12	12	44	338	89	42	10	5.7	.64
18	17	26	16	12	11	54	324	80	40	10	9.1	.52
19	17	27	16	11	11	110	307	78	37	8.0	7.9	.64
20	16	29	16	11	10	200	297	78	53	7.0	5.4	.46
21	20	21	16	11	10	300	290	75	65	7.0	4.1	.40
22	19	24	16	11	10	370	286	72	63	6.0	3.3	.46
23	22	20	16	10	12	420	286	69	57	5.0	2.7	.46
24	25	17	15	10	16	450	285	66	55	4.0	2.1	.46
25	26	16	15	10	16	480	274	64	52	4.0	2.1	.46
26	23	16	15	10	14	480	265	61	53	4.0	2.1	.52
27	23	16	15	10	12	450	259	59	50	4.0	1.8	.52
28	29	16	15	10	12	460	255	56	51	3.0	1.6	.58
29	25	16	15	10	10	520	254	54	54	3.0	1.6	.52
30	23	16	14	11	---	600	250	53	52	3.0	1.4	.64
31	21	---	14	11	---	695	---	52	---	3.0	1.3	---
TOTAL	669	640	486	362	352	6085	17893	3593	1170	518.0	94.7	26.08
MEAN	21.6	21.3	15.7	11.7	12.1	196	596	116	39.0	16.7	3.05	.87
MAX	58	29	16	14	16	695	1360	246	65	47	9.1	1.5
MIN	13	16	14	10	10	11	250	52	18	3.0	1.3	.40
AC-FT	1330	1270	964	718	698	12070	35490	7130	2320	1030	188	52
CAL YR 1975 TOTAL	56914.70			MEAN 156	MAX 1490	MIN 4.7	AC-FT 112900					
WTR YR 1976 TOTAL	31888.78			MEAN 87.1	MAX 1360	MIN .40	AC-FT 63250					

RED RIVER OF THE NORTH BASIN

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05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960, 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

WATER TEMPERATURES: October 1966 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 16-17, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,290 micromhos Dec. 23; minimum daily, 298 micromhos Apr. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)
OCT 02...	1215	28	1000	7.9	10.0	25	300	0	66	33
NOV 06...	1215	21	960	8.2	7.0	10	290	0	68	30
DEC 08...	1200	16	1300	7.9	.0	25	360	0	92	32
JAN 14...	1405	12	1400	7.6	.0	25	380	0	89	39
FEB 06...	1445	13	1090	7.5	.0	10	340	0	79	34
MAR 05...	1630	23	960	7.6	.0	15	330	0	78	34
APR 09...	1715	798	460	8.1	10.0	45	140	0	31	15
MAY 03...	1400	218	975	8.2	8.0	35	290	0	63	32
JUN 03...	1435	39	1020	8.1	22.0	28	330	0	70	38
JUL 02...	1410	43	960	8.2	21.5	45	300	0	65	34
AUG 02...	1440	2.1	950	8.7	25.5	45	300	0	68	32
SEP 01...	1520	1.7	940	8.4	18.0	25	320	0	72	35

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT 02...	95	40	2.4	9.0	421	0	345	8.5	150	15
NOV 06...	83	37	2.1	8.3	409	0	335	4.1	130	15
DEC 08...	120	41	2.7	9.3	549	0	450	11	170	20
JAN 14...	110	38	2.4	9.7	527	0	432	21	170	21
FEB 06...	87	35	2.1	8.2	473	0	388	24	120	19
MAR 05...	83	34	2.0	8.4	454	0	372	18	130	18
APR 09...	39	36	1.4	8.1	174	0	143	2.2	74	6.6
MAY 03...	110	44	2.8	9.2	415	0	340	4.2	170	18
JUN 03...	120	43	2.9	9.9	478	0	392	6.1	170	18
JUL 02...	120	45	3.0	9.6	454	0	372	4.6	190	16
AUG 02...	110	43	2.8	10	442	0	363	1.4	140	17
SEP 01...	94	38	2.3	10	412	0	338	2.6	160	17

RED RIVER OF THE NORTH BASIN

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUOR- IDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TOMS PER AC-FT)	DIS- SOLVED SOLIDS (TOMS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)
OCT										
02...	.3	24	617	602	.84	46.6	.06	.16	10	4
NOV										
06...	.2	15	552	551	.75	31.3	.01	.09	--	--
DEC										
08...	.2	15	704	731	.96	30.4	.29	.09	--	--
JAN										
14...	.5	21	741	722	1.01	24.0	.31	.12	--	--
FEB										
06...	.2	21	617	604	.84	21.7	.42	.12	--	--
MAR										
05...	.3	21	610	599	.83	37.9	.53	.11	--	--
APR										
09...	.3	13	284	275	.39	612	.22	.13	0	2
MAY										
03...	.2	19	647	626	.88	381	.01	.09	--	--
JUN										
03...	.3	23	706	690	.96	74.3	1.0	.13	--	--
JUL										
02...	.3	22	659	682	.90	76.5	.16	.16	--	--
AUG										
02...	.3	28	645	625	.88	3.66	.23	.25	--	--
SEP										
01...	.2	24	621	616	.84	2.85	.08	.14	--	--

DATE	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)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT										
02...	<200	<10	240	1	10	1	5	20	6	850
NOV										
06...	--	--	210	--	--	--	--	--	--	--
DEC										
08...	--	--	260	--	--	--	--	--	--	--
JAN										
14...	--	--	240	--	--	--	--	--	--	--
FEB										
06...	--	--	190	--	--	--	--	--	--	--
MAR										
05...	--	--	210	--	--	--	--	--	--	--
APR										
09...	0	0	130	1	0	2	5	410	1	100
MAY										
03...	--	--	220	--	--	--	--	--	--	--
JUN										
03...	--	--	260	--	--	--	--	--	--	--
JUL										
02...	--	--	260	--	--	--	--	--	--	--
AUG										
02...	--	--	290	--	--	--	--	--	--	--
SEP										
01...	--	--	250	--	--	--	--	--	--	--

DATE	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENIUM (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 VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	CYANIDE (CN) (MG/L)
OCT									
02...	.2	2	7	0	0	330	2.3	10	.00
APR									
09...	.0	2	4	0	0	190	2.1	10	.01

RED RIVER OF THE NORTH BASIN

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05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	730	870	1060	940	969	822	298	952	1050	883	865	913
2	739	850	1060	956	885	877	332	966	1050	924	912	913
3	748	867	1080	940	811	869	350	979	1060	953	918	914
4	734	881	1090	890	880	884	403	987	1060	976	920	916
5	735	879	1110	995	942	826	415	1010	1060	986	925	921
6	764	870	1130	927	890	945	408	1030	1060	969	928	919
7	778	880	1140	925	868	925	407	1050	1060	962	929	---
8	778	895	1130	976	899	884	421	1060	1060	960	931	918
9	769	883	1130	1120	960	895	437	1050	1050	952	931	917
10	770	887	1130	1130	1000	---	470	1050	1040	935	932	906
11	763	882	1140	1060	1000	910	495	1050	1040	925	937	920
12	764	885	1150	955	921	879	523	1060	1040	918	939	921
13	752	900	1060	985	990	887	553	1050	1040	---	942	925
14	750	839	1110	995	910	879	589	1050	1030	919	941	921
15	760	931	938	940	1000	900	625	1050	1010	916	944	925
16	757	920	995	925	967	913	667	1050	1020	914	945	928
17	757	887	1070	895	946	913	712	1040	998	914	943	921
18	761	872	1060	1020	1000	960	764	1040	989	901	944	927
19	770	892	1080	894	980	875	797	1040	1010	901	942	---
20	765	910	1120	1010	945	845	830	970	---	890	923	933
21	769	910	1130	930	979	632	855	1040	---	876	920	937
22	760	945	1090	867	968	730	880	1040	---	892	---	938
23	---	992	1290	1020	970	510	885	1040	1020	894	918	941
24	751	1020	1120	1020	973	420	902	1030	995	897	914	943
25	740	1040	1120	983	960	367	905	1040	859	896	899	942
26	722	1109	1060	941	961	342	910	1050	896	901	895	---
27	722	1150	1050	936	874	360	903	1050	805	907	901	920
28	715	---	1080	955	848	350	906	1050	896	888	899	950
29	710	1150	1090	986	890	394	922	1050	930	906	897	952
30	713	1100	1080	889	---	342	937	1040	927	911	900	952
31	708	---	1070	858	---	310	---	1050	---	917	899	---
MONTH	748	934	1100	963	937	722	650	1030	1000	919	921	927

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.5	5.0	0.0	---	-0.5	---	2.0	---	---	---	23.0	17.5
2	12.0	5.0	2.0	-0.5	-0.5	---	5.5	---	---	---	25.0	22.5
3	12.0	6.5	1.5	0.0	-0.5	---	5.5	---	23.0	23.0	25.0	18.0
4	13.0	7.5	3.0	0.0	-0.5	---	6.5	---	23.0	23.0	24.0	21.0
5	12.0	7.0	7.0	0.0	0.0	---	8.0	---	23.5	24.0	24.0	21.5
6	13.5	8.0	5.0	0.0	-0.5	---	8.0	---	---	25.0	26.5	23.0
7	15.0	6.5	---	0.0	0.0	---	9.0	---	23.0	25.0	24.5	---
8	15.5	7.0	0.0	---	0.5	---	10.0	---	26.0	22.0	22.0	17.0
9	11.5	5.0	0.0	0.0	0.0	---	10.0	---	24.5	24.0	22.0	18.0
10	10.0	4.0	0.0	0.0	0.0	---	10.0	---	27.5	24.5	20.0	13.0
11	11.0	2.0	0.0	0.0	0.0	---	9.0	---	27.0	22.5	19.0	20.0
12	11.5	1.5	0.0	-0.5	0.0	---	11.0	---	25.0	23.0	24.0	20.0
13	10.5	1.0	0.0	0.0	0.0	---	12.0	---	23.0	---	21.0	15.5
14	9.0	1.0	---	0.0	0.0	---	12.5	---	22.5	23.5	20.0	20.0
15	---	2.5	0.0	0.0	0.0	---	11.0	---	18.5	22.0	19.0	18.0
16	9.5	1.5	0.0	0.0	0.0	---	11.0	---	18.0	23.0	23.0	15.0
17	9.5	1.5	0.0	0.0	0.0	---	9.5	---	17.0	22.0	22.0	21.5
18	10.0	1.0	0.0	1.5	0.0	---	7.0	---	18.0	21.5	25.0	23.0
19	9.5	0.0	0.0	0.0	0.0	---	7.0	---	19.0	24.5	24.0	---
20	10.0	0.0	0.0	1.0	0.0	---	9.0	---	---	25.5	26.0	15.0
21	9.0	0.5	0.0	0.0	0.0	---	8.0	---	---	25.0	25.5	14.5
22	8.5	0.5	---	0.0	0.0	---	9.0	---	---	22.5	---	13.5
23	---	0.0	---	0.0	0.5	---	8.5	---	28.0	24.0	24.0	12.0
24	6.0	0.0	---	0.0	0.0	---	9.5	---	---	27.0	26.5	10.5
25	5.0	0.0	0.0	0.0	0.0	---	11.0	---	---	25.0	25.0	12.5
26	5.0	0.0	0.0	0.0	0.0	---	11.0	---	---	26.5	26.5	---
27	4.0	0.0	---	---	1.0	---	12.0	---	---	26.5	22.0	11.5
28	4.5	---	0.0	0.0	0.0	---	12.0	---	---	23.5	20.0	12.0
29	4.0	0.0	2.0	0.0	0.0	---	11.0	---	---	24.5	23.0	19.0
30	5.0	0.0	1.0	5.0	---	---	11.0	---	---	23.0	23.0	14.5
31	5.0	---	0.0	1.5	---	---	---	---	---	25.0	21.5	---
MONTH	9.5	2.5	1.0	0.5	0.0	---	9.0	---	---	24.0	23.0	17.0

RED RIVER OF THE NORTH BASIN

05057200 BALDHILL CREEK NEAR DAZEY, ND

LOCATION.--Lat 47°13'45", long 98°07'28", in NW¼SE¼SW¼ sec.2, T.143 N., R.59 W., Barnes County, Hydrologic Unit 09020203, on left bank 500 ft (150 m) upstream from bridge on county highway, 4.5 mi (7.2 km) northeast of Dazez, and 14 mi (23 km) upstream from mouth.

DRAINAGE AREA.--691 mi² (1,790 km²), of which about 340 mi² (880 km²) is probably noncontributing.

PERIOD OF RECORD.--March 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Prior to Nov. 9, 1956, nonrecording gage 500 ft (150 m) downstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--20 years, 14.7 ft³/s (0.416 m³/s) 10,600 acre-ft/yr (13.1 hm³/yr); median of yearly mean discharges, 12 ft³/s (0.34 m³/s), 8,700 acre-ft/yr (11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,510 ft³/s (71.1 m³/s) Apr. 11, 1969, gage height, 10.90 ft (3.322 m) backwater from ice; maximum gage height, 11.21 ft (3.417 m) Apr. 10, 1969, backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 60 ft³/s (1.70 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 20	--	220	6.23	Mar. 28	--	230	6.51
Mar. 24	--	*400	11.3				
			*6.39				1.948

Minimum discharge, 0.01 ft³/s (0.0003 m³/s) Aug. 22-24.

a - From high-water mark in well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.5	2.2	1.0	1.2	5.1	110	18	2.2	2.0	.20	.02
2	2.7	3.5	2.2	.95	1.2	4.3	86	17	1.9	2.0	.18	.03
3	2.5	3.5	2.2	.95	1.2	3.9	62	15	1.6	1.6	.18	.04
4	2.4	3.5	2.2	.95	1.2	3.7	51	15	1.5	1.3	.18	.04
5	2.4	3.5	2.2	.95	1.2	3.5	45	14	3.9	1.0	.18	.05
6	2.0	3.3	2.2	.95	1.1	3.3	42	12	2.0	1.5	.18	.05
7	1.8	3.7	2.2	.95	1.1	3.3	39	11	1.4	1.2	.14	.05
8	1.6	3.7	2.4	.95	1.1	3.3	35	11	1.2	1.2	.12	.07
9	2.0	3.5	2.4	.90	1.2	3.2	33	10	1.3	1.2	.12	.07
10	2.0	3.5	2.4	.90	1.3	3.3	31	10	1.4	1.2	.12	.07
11	3.3	3.7	2.2	.90	1.3	3.5	28	10	1.2	1.1	.10	.08
12	4.6	3.7	2.2	.90	1.5	4.1	26	10	1.4	1.1	.10	.08
13	3.9	3.9	2.2	.90	1.6	3.3	24	8.4	1.7	1.1	.13	.09
14	3.7	3.9	2.0	.92	1.7	3.0	25	6.9	2.4	1.1	.10	.10
15	3.7	4.1	2.0	.97	2.4	3.0	26	6.3	4.6	1.1	.09	.12
16	3.5	4.6	2.0	.97	2.7	3.0	26	6.0	3.2	1.1	.08	.13
17	3.5	4.6	2.0	.97	3.2	3.5	27	5.1	3.5	1.0	.08	.14
18	3.0	4.1	2.0	.97	2.7	60	26	4.9	3.7	1.0	.08	.15
19	3.2	4.6	2.0	1.0	2.4	170	25	4.9	2.8	1.0	.05	.16
20	3.2	4.6	2.0	1.0	2.1	200	24	4.9	1.8	.90	.03	.16
21	3.2	3.7	1.8	1.0	2.3	115	23	4.9	1.4	.90	.02	.18
22	3.9	3.3	1.8	1.0	2.5	150	24	4.6	1.1	1.6	.01	.20
23	4.6	3.0	1.8	1.1	4.1	180	24	3.7	1.1	2.3	.01	.20
24	4.6	2.5	1.5	1.2	13	240	26	3.5	3.0	2.0	.01	.22
25	4.1	2.4	1.5	1.2	13	200	24	2.8	2.7	1.5	.04	.20
26	3.9	2.2	1.5	1.2	13	210	22	2.8	3.2	1.1	.04	.22
27	3.9	2.2	1.2	1.2	10	180	21	2.2	4.1	.80	.03	.22
28	3.5	2.3	1.2	1.2	8.7	200	20	2.5	3.7	.50	.02	.22
29	3.5	2.4	1.2	1.2	6.0	155	19	2.8	4.1	.40	.02	.24
30	3.5	2.2	1.0	1.2	---	130	18	2.7	3.3	.30	.03	.24
31	3.7	---	1.0	1.2	---	130	---	2.4	---	.20	.03	---
TOTAL	100.1	103.2	58.7	31.65	106.0	2380.3	1012	235.3	72.4	36.30	2.70	3.84
MEAN	3.23	3.44	1.89	1.02	3.66	76.8	33.7	7.59	2.41	1.17	.087	.13
MAX	4.6	4.6	2.4	1.2	13	240	110	18	4.6	2.3	.20	.24
MIN	1.6	2.2	1.0	.90	1.1	3.0	18	2.2	1.1	.20	.01	.02
AC-FT	199	205	116	63	210	4720	2010	467	144	72	5.4	7.6
CAL YR 1975	TOTAL	8167.65	MEAN	22.4	MAX	540	MIN	.26	AC-FT	16200		
WTR YR 1976	TOTAL	4142.49	MEAN	11.3	MAX	240	MIN	.01	AC-FT	8220		

RED RIVER OF THE NORTH BASIN

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05057500 LAKE ASHTABULA AT BALDHILL DAM, ND

LOCATION.--Lat 47°02'00", long 98°05'00", in NW¼ sec.18, T.141 N., R.58 W., Barnes County, Hydrologic Unit 09020203, at Baldhill Dam on Sheyenne River, 8 mi (13 km) northwest of Valley City.

DRAINAGE AREA.--7,470 mi² (19,300 km²), approximately, of which about 5,560 mi² (14,400 km²) is probably noncontributing, including 3,800 mi² (9,800 km²) in closed basins.

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

REVISED RECORDS.--WSP 1238: 1950(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Reservoir is formed by an earth-fill dam, 1,650 ft (503 m) long; storage began on July 30, 1949; dam completed September 1949. Usable capacity, 69,100 acre-ft (85.2 hm³) between invert of outlet conduit, elevation, 1,238.0 ft (377.34 m), and normal pool level, elevation, 1,266.0 ft (385.8 m). Dead storage below elevation 1,238.0 ft (377.34 m), 1,500 acre-ft (1.85 hm³). Maximum pool elevation, 1,273.2 ft (388.07 m), capacity, 116,500 acre-ft (144 hm³). Low flows are controlled by 2 sluice gates 3 ft (0.914 m) in diameter. The spillway crest is 120 ft (36.6 m) long at elevation 1,252.0 ft (381.61 m), surmounted by 3 taintor gates, each 15 ft (4.572 m) high and 40 ft (12.192 m) long. The reservoir is operated for flood control and to increase low-water flow.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 91,400 acre-ft (113 hm³) May 14, 1950, elevation, 1,269.46 ft (386.931 m); minimum since reservoir first reached spillway level, 6,660 acre-ft (8.21 hm³) Aug. 11-14, 1950, elevation, 1,245.13 ft (379.516 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 77,460 acre-ft (95.5 hm³) Apr. 10, elevation, 1,267.20 ft (386.243 m); minimum, 52,300 acre-ft (64.5 hm³) Feb. 23, elevation, 1,262.51 ft (384.813 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	1,265.02	65,110	--
Oct. 31-----	1,264.74	63,050	-2,060
Nov. 30-----	1,264.43	60,720	-2,330
Dec. 31-----	1,263.71	56,630	-4,090
CAL YR 1975-----	--	--	-2,670
Jan. 31-----	1,262.97	54,360	-2,270
Feb. 29-----	1,263.64	52,880	-1,480
Mar. 31-----	1,265.15	65,840	+12,960
Apr. 30-----	1,266.33	72,480	+6,640
May 31-----	1,266.17	71,570	-910
June 30-----	1,266.32	72,420	+850
July 31-----	1,265.80	69,480	-2,940
Aug. 31-----	1,265.07	65,390	-4,090
Sept. 30-----	1,264.16	58,700	-6,690
WTR YR 1976-----	--	--	-6,410

RED RIVER OF THE NORTH BASIN

05058000 SHEYENNE RIVER BELOW BALDHILL DAM, ND

LOCATION.--Lat 47°01'50", long 98°05'50", in NW¼ sec.18, T.141 N., R.58 W., Barnes County, Hydrologic Unit 09020204, on right bank 600 ft (180 m) downstream from Baldhill Dam, 8 mi (13 km) northwest of Valley City, and at mile 270.5 (kilometer 435.2).

DRAINAGE AREA.--7,470 mi² (19,350 km²), approximately, of which about 5,560 mi² (14,400 km²) is probably noncontributing, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISID RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,200.00 ft (365.760 m) above mean sea level.

REMARKS.--Records good. Flow completely regulated by Lake Ashtabula (station 05057500). Records 1955 to 1972 include releases at Baldhill Dam to the fish-rearing ponds of the Fish and Wildlife Service. Small diversions are still made but not published.

AVERAGE DISCHARGE (UNADJUSTED).--27 years, 120 ft³/s (3,398 m³/s), 86,940 acre-ft/yr (107 hm³/yr); median of yearly mean discharges, 88 ft³/s (2.49 m³/s), 63,800 acre-ft/yr (79 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,580 ft³/s (130 m³/s) Apr. 19, 1969, gage height, 35.47 ft (10.811 m); no flow at times in 1950, 1952-53, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 982 ft³/s (27.8 m³/s) Apr. 10, gage height, 27.99 ft (8.531 m); minimum daily, 5.4 ft³/s (0.15 m³/s) Aug. 12, gage height, 25.57 ft (7.794 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	43	68	75	76	59	265	302	15	18	11	35
2	20	43	68	75	76	59	349	302	15	18	12	35
3	20	46	67	75	74	59	402	302	15	17	13	35
4	20	46	66	75	74	57	409	232	16	17	12	35
5	20	46	66	76	74	59	550	181	17	17	10	35
6	20	47	67	78	74	59	602	181	17	17	9.8	35
7	20	47	66	80	74	59	558	181	19	17	9.8	35
8	20	47	66	80	74	59	748	174	22	17	9.8	36
9	20	47	64	80	74	59	880	174	21	17	9.9	37
10	20	47	64	80	74	59	920	170	21	19	9.8	37
11	20	47	65	80	74	58	870	170	19	18	9.2	37
12	20	47	69	80	74	56	748	142	18	18	9.2	37
13	20	47	68	80	78	58	585	96	17	17	9.7	37
14	19	47	69	80	78	58	567	96	18	18	7.6	37
15	18	47	69	80	78	58	594	96	20	20	7.3	37
16	18	47	70	80	78	58	576	96	18	21	7.6	36
17	29	47	70	80	71	58	460	82	18	21	8.3	36
18	41	47	70	80	62	58	394	60	18	21	9.3	36
19	41	47	70	80	62	58	394	59	18	16	148	36
20	42	46	70	80	60	58	387	48	18	12	25	36
21	41	54	71	80	57	58	380	23	18	50	24	36
22	41	65	72	80	57	58	374	15	18	15	33	36
23	41	66	75	76	57	58	374	14	18	15	38	36
24	40	61	74	76	57	58	374	14	18	15	38	36
25	39	61	74	78	57	58	374	14	18	14	38	36
26	39	60	72	78	59	59	368	14	18	14	39	36
27	39	61	74	76	59	59	368	14	18	14	39	36
28	39	66	74	76	59	59	330	15	18	14	39	36
29	38	71	72	76	59	82	297	14	19	14	38	37
30	38	68	72	76	---	112	302	14	18	14	36	38
31	41	---	74	76	---	166	---	14	---	13	36	---
TOTAL	904	1561	2156	2422	1980	1993	14799	3309	541	548	746.3	1083
MEAN	29.2	52.0	69.5	78.1	68.3	64.3	493	107	18.0	17.7	24.1	36.1
MAX	42	71	75	80	78	166	920	302	22	50	148	38
MIN	18	43	64	75	57	56	265	14	15	12	7.3	35
AC-FT	1790	3100	4280	4800	3930	3950	29350	6560	1070	1090	1480	2150
CAL YR 1975	TOTAL	68660.9	MEAN	188	MAX	1620	MIN	6.1	AC-FT	136200		
WYR 1976	TOTAL	32042.3	MEAN	87.5	MAX	920	MIN	7.3	AC-FT	63560		

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LOCATION.--Lat 46°26'49", long 97°40'44", on line between secs.1 and 2, T.134 N., R.56 W., Ransom County, Hydrologic Unit 9020204, on left bank 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, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--September 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.066.46 ft (325.057 m) above mean sea level.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Lake Ashtabula (station 05057500) 108.5 mi (174.6 km) upstream.

AVERAGE DISCHARGE.--20 years, 150 ft³/s (4.248 m³/s), 108,700 acre-ft/yr (134 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 101,000 acre-ft/yr (120 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,270 ft³/s (149 m³/s) July 1, 1975, gage height, 19.04 ft (5.803 m); no flow Sept. 19-21, Oct. 23, 24, 1956, Aug. 16, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 984 ft³/s (27.9 m³/s) Apr. 13, gage height, 6.29 ft (1.917 m); minimum daily, 4.4 ft³/s (0.125 m³/s) Aug. 23, gage height, 1.93 ft (0.588).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	50	92	94	93	160	136	350	40	50	12	20
2	31	50	90	94	93	114	163	345	34	40	12	22
3	34	50	88	94	93	92	251	355	30	30	11	22
4	31	52	88	94	93	80	420	334	25	27	11	22
5	31	55	92	94	93	80	557	329	22	25	9.1	21
6	25	57	94	94	93	80	518	319	22	24	7.7	21
7	25	59	92	94	93	80	579	235	20	20	6.9	25
8	24	57	92	94	93	80	764	212	20	20	6.6	26
9	25	55	90	94	93	80	766	212	20	22	6.0	24
10	21	55	94	94	93	80	796	207	19	22	6.0	25
11	21	59	94	94	93	80	922	204	17	21	6.3	26
12	25	61	92	94	93	95	971	204	19	19	5.7	30
13	27	55	90	94	93	85	979	196	19	17	6.6	31
14	40	57	88	94	93	80	938	196	18	17	6.9	30
15	42	68	88	94	93	80	806	181	34	20	6.9	28
16	30	68	88	94	93	80	774	141	50	24	6.3	30
17	31	61	90	94	93	85	772	114	192	22	6.3	31
18	34	61	94	94	93	150	804	140	220	20	6.3	37
19	37	68	92	94	93	215	766	132	127	19	6.0	34
20	28	66	92	94	93	365	574	129	90	17	6.6	34
21	25	26	92	94	93	600	518	116	70	17	6.3	31
22	37	57	92	94	90	560	518	112	55	17	6.0	31
23	52	72	96	93	90	390	501	110	40	17	5.1	31
24	64	57	96	93	110	250	509	96	45	17	34	34
25	64	57	94	93	120	210	540	72	48	18	31	30
26	66	81	94	93	140	215	546	57	50	17	22	31
27	64	88	96	93	180	185	509	50	45	20	16	37
28	59	90	99	93	240	165	410	50	50	21	13	40
29	55	94	101	93	180	155	378	50	57	17	12	45
30	52	94	99	93	---	140	360	48	50	12	15	48
31	52	---	96	93	---	138	---	45	---	12	20	---
TOTAL	1180	1880	2875	2905	3103	5249	18045	5341	1548	661	332.6	897
MEAN	38.1	62.7	92.7	93.7	107	169	602	172	51.6	21.3	10.7	29.9
MAX	66	94	101	94	240	600	979	355	220	50	34	48
MIN	21	26	88	93	90	80	136	45	17	12	5.1	20
AC-FT	2340	3730	5700	5760	6150	10410	35790	10590	3070	1310	660	1780
WTR YR 1975	TOTAL	104780.0	MEAN	287	MAX	5210	MIN	19	AC-FT	207800		
CAL YR 1976	TOTAL	44016.6	MEAN	120	MAX	979	MIN	5.1	AC-FT	87310		

RED RIVER OF THE NORTH BASIN

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1956 to current year.

WATER TEMPERATURES: August 1956 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,450 micromhos Jan. 30, 1962; minimum daily, 243 micromhos Apr. 2, 1960.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 23, 1959; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,120 micromhos Sept. 1; minimum daily, 580 micromhos Nov. 2.
WATER TEMPERATURES: Maximum daily, 28.0°C July 28-30; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)
OCT 22...	1230	50	1090	8.2	9.5	12	380	130	94	35
NOV 12...	1400	57	890	8.3	2.0	20	320	64	74	32
DEC 10...	1010	92	910	8.0	.0	25	300	28	68	32
FEB 05...	1615	93	1000	7.8	.0	15	290	1	62	33
MAR 02...	1535	108	660	7.8	.5	45	230	32	51	24
31...	1645	144	580	--	1.0	30	190	49	46	19
MAY 04...	1755	318	750	8.2	12.5	25	240	6	52	27
JUN 02...	1340	32	950	7.9	21.0	8	320	61	69	36
JUL 13...	1700	15	760	8.1	24.0	12	290	92	67	30
AUG 10...	1445	5.5	1060	8.4	25.0	25	340	110	75	37
SEP 10...	1350	26	940	8.3	22.0	18	290	56	62	32

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT 22...	85	32	1.9	10	300	0	246	3.0	240
NOV 12...	71	32	1.7	9.7	308	0	253	2.5	180
DEC 10...	81	36	2.0	11	334	0	274	5.3	170
FEB 05...	92	40	2.3	11	353	0	290	9.0	170
MAR 02...	54	33	1.6	12	237	0	194	6.0	130
31...	39	29	1.2	8.1	176	--	144	--	110
MAY 04...	68	37	1.9	9.4	286	0	235	2.9	140
JUN 02...	81	35	2.0	10	317	0	260	6.4	200
JUL 13...	71	34	1.8	11	243	0	199	3.1	200
AUG 10...	100	38	2.4	13	275	0	226	1.8	260
SEP 10...	100	42	2.6	12	281	0	230	2.3	200

RED RIVER OF THE NORTH BASIN

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05058700 SHEYENNE RIVER AT LISBON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED- PHOS- PHORUS (P) (MG/L)
OCT 22...	51	.3	8.9	709	672	.96	95.7	.02	.02
NOV 12...	34	.2	3.7	573	557	.78	88.2	.08	.02
DEC 10...	28	.2	3.6	573	560	.78	142	.33	.10
FEB 05...	29	.3	6.8	618	582	.84	155	.72	.23
MAR 02...	22	.3	9.1	442	424	.60	129	1.1	.27
31...	18	.2	9.2	361	340	.49	140	.77	.15
MAY 04...	19	.2	5.1	485	463	.66	416	.21	.08
JUN 02...	32	.4	6.0	604	592	.82	52.2	.16	.03
JUL 13...	38	.3	15	564	553	.77	22.8	.08	.09
AUG 10...	55	.3	16	702	694	.95	10.4	.04	.05
SEP 10...	57	.3	13	630	615	.86	44.2	.02	.05

DATE	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT 22...	--	--	--	--	250	--	--	--	--
NOV 12...	--	--	--	--	200	--	--	--	--
DEC 10...	--	--	--	--	200	--	--	--	--
FEB 05...	--	--	--	--	240	--	--	--	--
MAR 02...	--	--	--	--	150	--	--	--	--
31...	10	1	0	0	130	1	0	2	4
MAY 04...	--	--	--	--	140	--	--	--	--
JUN 02...	--	--	--	--	210	--	--	--	--
JUL 13...	--	--	--	--	220	--	--	--	--
AUG 10...	10	13	100	0	290	2	0	2	2
SEP 10...	--	--	--	--	280	--	--	--	--

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (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 02...	--	--	--	--	--	--	--	--
31...	20	3	30	190	.1	2	6	0
AUG 10...	60	17	80	880	.2	8	6	1

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)	CYANIDE (CN) (MG/L)
MAR 31...	0	230	.9	0	.01
AUG 10...	0	500	1.8	0	.00

RED RIVER OF THE NORTH BASIN
05058700 SHEYENNE RIVER AT LISBON, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	663	844	935	920	883	857	963	1070	1030	1040	1120
2	1080	580	849	947	927	875	845	914	1070	1020	1020	1100
3	1060	744	848	952	926	875	880	911	1070	1020	1030	1070
4	1060	757	853	930	925	875	871	920	1070	949	1030	1060
5	1070	785	855	945	925	873	828	908	1070	1000	1020	1050
6	1070	990	850	945	921	863	866	917	1080	1010	1010	1060
7	1070	991	852	945	925	881	875	926	1070	983	1030	1050
8	1090	992	859	955	924	882	875	914	1070	983	1030	1020
9	1100	982	850	955	923	863	879	939	1070	963	1020	1000
10	1100	985	860	920	924	863	852	892	1070	965	1020	980
11	1090	983	849	947	919	883	848	920	1070	955	1010	948
12	1090	942	849	955	925	868	859	907	1070	1020	1020	944
13	1100	986	855	970	940	885	841	932	1070	985	1010	956
14	1100	984	850	950	920	885	825	937	1070	1030	1010	960
15	1100	989	850	932	936	885	864	914	1070	974	1010	985
16	1050	981	855	962	927	892	855	916	1070	959	1020	985
17	1110	991	851	941	920	871	839	927	1080	990	1030	979
18	1110	---	851	955	920	880	877	923	1070	960	1030	952
19	1060	990	851	939	920	877	857	907	1070	983	1030	951
20	1060	987	851	950	930	877	882	935	1070	955	1030	924
21	1050	990	852	931	930	873	835	916	1070	1030	1030	912
22	1060	---	851	950	923	870	843	943	1070	1000	1030	870
23	1060	981	860	950	942	874	843	915	1070	998	1040	861
24	1060	994	860	945	932	875	855	919	1080	1000	1040	848
25	1060	1000	865	950	918	865	843	920	1070	972	1070	837
26	1010	995	850	959	929	879	840	938	1070	991	1060	834
27	1010	990	850	965	920	867	881	961	1070	1030	1070	842
28	1010	991	864	962	921	877	882	941	1070	1030	1090	837
29	1010	996	853	968	922	880	882	884	1070	1020	1090	832
30	1010	1000	850	942	---	880	883	965	1070	1040	1100	835
31	1010	---	867	958	---	875	---	905	---	1020	1110	---
MONTH	1060	937	853	949	925	876	859	924	1070	996	1040	953

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	7.0	0.0	0.0	0.0	0.0		14.5	22.0	23.0	24.0	19.5
2	13.0	6.5	0.0	0.0	0.0	0.0		14.0	22.5	23.5	26.0	19.5
3	15.0	7.0	0.0	0.0	0.0	0.0		15.0	24.0	25.0	25.5	20.5
4	15.0	7.0	0.0	0.0	0.0	0.0		16.0	25.0	26.0	24.0	19.0
5	14.5	6.5	0.0	0.0	0.0	0.0		14.5	25.0	25.0	26.0	22.0
6	15.0	7.0	0.0	0.0	0.0	0.0		17.0	24.0	24.0	25.0	21.0
7	14.5	7.0	0.0	0.0	0.0	0.0		17.5	23.0	26.0	25.0	22.5
8	14.0	7.0	0.0	0.0	0.0	0.0		16.5	24.5	24.0	25.0	20.5
9	14.0	6.5	0.0	0.0	0.0	0.0		17.0	26.0	23.0	26.0	19.5
10	14.5	6.0	0.0	0.0	0.0	0.0		19.0	24.0	24.5	28.0	20.5
11	13.0	6.0	0.0	0.0	0.0	0.0		20.0	23.0	25.5	28.0	18.0
12	12.5	6.5	0.0	0.0	0.0	0.0		20.0	25.0	26.0	28.0	21.5
13	12.0	5.0	0.0	0.0	0.0	0.0		19.0	23.5	27.0	25.0	19.0
14	11.0	4.0	0.0	0.0	0.0	0.0		19.5	25.0	28.0	21.5	19.0
15	10.0	4.5	0.0	0.0	0.0	0.0		19.0	26.0	27.0	20.5	18.5
16	11.0	4.0	0.0	0.0	0.0	0.0		20.0	25.0	25.5	24.0	18.0
17	10.5	4.0	0.0	0.0	0.0	0.0		20.5	24.0	26.0	25.0	17.0
18	11.5	5.5	0.0	0.0	0.0	0.0		19.0	23.5	24.0	23.5	18.0
19	11.0	3.5	0.0	0.0	0.0	0.0		21.0	24.0	25.5	27.0	16.5
20	10.0	3.0	0.0	0.0	0.0	0.0		21.5	25.0	27.0	27.5	17.5
21	10.0	2.5	0.0	0.0	0.0	1.0		21.0	24.5	27.0	27.5	17.0
22	9.5	3.0	0.0	0.0	0.0	2.0		21.0	23.0	24.0	25.0	15.5
23	10.0	3.0	0.0	0.0	0.0	2.0		20.0	26.0	25.5	25.0	16.0
24	7.0	3.0	0.0	0.0	0.0	3.0		19.5	25.0	27.5	25.5	16.0
25	7.5	4.0	0.0	0.0	0.0	3.5		20.0	24.5	26.0	25.0	12.5
26	6.5	4.0	0.0	0.0	0.0	5.0		21.0	22.0	25.0	25.5	13.0
27	6.0	2.0	0.0	0.0	0.0	5.0		21.5	23.0	24.5	24.0	13.0
28	5.5	1.0	0.0	0.0	0.0	5.5		22.0	25.0	23.5	21.5	14.0
29	5.5	0.5	0.0	0.0	0.0	7.0		22.0	24.5	25.0	21.0	14.5
30	6.0	0.5	0.0	0.0	---	8.0		22.5	24.0	24.0	21.5	12.5
31	6.0	---	0.0	0.0	---	9.0		23.0	---	24.5	19.5	---
MONTH	11.0	4.5	0.0	0.0	0.0	1.5		19.0	24.0	25.0	24.5	17.5

RED RIVER OF THE NORTH BASIN

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05059000 SHEYENNE RIVER NEAR KINDRED, ND

LOCATION.--Lat 46°37'35", long 97°00'05", in NE¼NW¼ sec.5, T.136 N., R.50 W., Richland County, Hydrologic Unit 09020204, on right bank 25 ft (8 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 (14,970 km²) is probably noncontributing, including 3,800 mi² (9,840 km²) in closed basins.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 925.55 ft (282.108 m) above mean sea level, datum of 1929. July 1949 to Sept. 30, 1962, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated to a large degree by Lake Ashtabula (station 05057500) 202 mi (325 km) upstream and several small reservoirs.

AVERAGE DISCHARGE.--27 years, 196 ft³/s (5.551 m³/s), 142,000 acre-ft/yr (175 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s) 108,700 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s (133 m³/s) Apr. 15, 1969, gage height, 21.03 ft (6.410 m); maximum gage height, 21.54 ft (6.565 m) Apr. 14, 1969, backwater from ice; minimum daily, 13 ft³/s (0.37 m³/s) Nov. 13, 1955, Aug. 22-24, 1959; minimum gage height, 2.64 ft (0.805 m) July 16, 17, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Spring flood in 1947 or 1948 reached a stage of 22.1 ft (6.74 m), from floodmarks, discharge about 3,600 ft³/s (102 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 925 ft³/s (26.2 m³/s) Apr. 16, gage height, 8.75 ft (2.667 m), backwater from trash; maximum gage height, 9.60 ft (2.926 m) Mar. 23, backwater from ice; minimum daily, 28 ft³/s (0.79 m³/s) Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	119	119	110	150	430	369	491	112	94	41	38
2	104	117	119	110	148	430	347	503	105	88	44	35
3	102	113	119	110	145	430	321	477	94	88	40	31
4	101	111	119	110	145	390	393	424	92	86	38	31
5	99	111	119	110	145	290	333	407	88	81	37	35
6	99	110	118	110	140	215	420	415	84	78	36	35
7	101	110	118	110	135	170	542	403	81	74	35	34
8	102	110	118	110	135	160	581	393	78	71	34	36
9	104	110	118	110	135	150	577	374	74	71	34	36
10	104	110	118	110	140	150	654	350	74	68	33	35
11	102	110	118	110	142	148	738	321	72	66	32	37
12	101	110	118	110	145	148	765	316	71	59	30	37
13	99	110	118	110	150	148	776	309	71	56	30	34
14	99	110	117	110	160	148	870	295	70	57	30	35
15	99	112	117	110	165	145	915	290	69	59	30	33
16	95	114	117	110	180	142	920	283	69	60	30	34
17	92	115	117	110	195	142	880	278	70	57	30	34
18	90	117	117	110	225	142	783	259	71	55	28	38
19	88	119	115	110	265	160	761	219	72	53	30	40
20	87	120	112	115	290	190	758	196	108	50	31	42
21	86	120	110	120	300	250	770	195	228	50	35	38
22	87	120	110	120	315	450	740	188	184	49	37	40
23	87	120	110	120	295	490	618	180	146	48	38	40
24	97	120	110	120	315	520	598	173	120	47	36	40
25	110	120	110	120	340	670	596	166	115	45	34	40
26	115	120	110	120	345	630	568	158	106	43	36	40
27	124	120	110	122	355	535	555	150	106	42	36	40
28	126	120	110	125	400	500	555	143	99	43	38	40
29	124	119	110	130	420	513	544	136	101	41	40	40
30	120	119	110	140	---	475	513	128	97	40	42	40
31	120	---	110	150	---	417	---	120	---	40	41	---
TOTAL	3170	3456	3561	3592	6420	9778	18760	8740	2927	1859	1086	1108
MEAN	102	115	115	116	221	315	625	282	97.6	60.0	35.0	36.9
MAX	126	120	119	150	420	670	920	503	228	94	44	42
MIN	86	110	110	110	135	142	321	120	69	40	28	31
AC-FT	6290	6850	7060	7120	12730	19390	37210	17340	5810	3690	2150	2200
CAL YR 1975	TOTAL	150896	MEAN 413	MAX	4590	MIN 60	AC-FT	299300				
WTR YR 1976	TOTAL	64457	MEAN 176	MAX	920	MIN 28	AC-FT	127900				

RED RIVER OF THE NORTH BASIN

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year (partial-record station).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1976 to current year.

WATER TEMPERATURES: November 1970 to September 1975, April 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 28.5°C July 7-8, 19, 20, 1974; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- IDITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)
OCT										
21...	1600	85	950	--	9.0	--	--	--	--	--
NOV										
13...	1000	110	840	--	.0	--	--	--	--	--
FEB										
05...	1135	144	900	--	.0	--	--	--	--	--
MAR										
11...	1155	146	750	--	.0	--	--	--	--	--
20...	1130	776	--	--	--	--	--	--	--	--
25...	1130	683	650	--	.0	--	--	--	--	--
30...	1735	473	530	--	1.5	--	--	--	--	--
APR										
06...	1650	444	670	7.8	8.0	--	--	--	--	--
MAY										
03...	1545	467	800	--	10.0	--	--	--	--	--
JUN										
03...	1155	93	860	--	21.5	--	--	--	--	--
JUL										
12...	1550	58	810	--	22.5	--	--	--	--	--
27...	1240	40	810	8.3	25.0	25	25	8.2	101	3.9
SEP										
01...	1330	40	910	8.2	18.5	8	20	8.1	89	3.4
29...	0950	39	940	8.2	11.0	12	8	10.3	96	1.9

DATE	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
APR										
06...	--	--	250	62	31	42	44	27	1.2	5.6
MAY										
03...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
12...	--	--	--	--	--	--	--	--	--	--
27...	450	200	350	75	91	30	51	24	1.2	7.7
SEP										
01...	--	4	340	73	79	34	65	29	1.5	7.7
29...	80	848	320	55	78	30	82	35	2.0	9.0

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

RED RIVER OF THE NORTH BASIN

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05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
APR 06...	229	0	188	5.8	120	23	.2	15	399	394
MAY 03...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--
JUL 27...	336	0	276	2.7	140	32	.3	22	536	541
SEP 01...	322	0	264	3.3	150	41	.3	21	555	557
SEP 29...	321	0	263	3.2	170	48	.4	18	607	594

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRATE (N) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DIS- SOLVED NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)
APR 06...	.54	478	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--
JUL 27...	.73	57.9	.00	.00	.00	.00	.00	.00	.00	.00
SEP 01...	.75	59.9	.06	.00	.00	.01	.06	.00	.00	.00
SEP 29...	.83	63.9	.01	.01	.00	.00	.01	.01	.00	.00

DATE	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	DIS- SOLVED ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	SUS- PENDE KJEL. NITRO- GEN (N) (MG/L)	DIS- SOLVED KJEL. NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	TOTAL ORTHOPHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHOPHOS- PHORUS (P) (MG/L)
JUL 12...	--	--	--	--	--	--	--	--	--	--
JUL 27...	1.1	.47	1.1	.63	.47	1.1	.17	.04	.06	.01
SEP 01...	.70	.54	.70	.16	.54	.76	.14	.04	.02	.04
SEP 29...	.78	.82	.78	.00	.82	.79	.11	.06	.04	.06

DATE	DIS- SOLVED ORTHOPHOS- PHATE (PO4) (MG/L)	DIS- HYDRO- LYZABLE PHOS- PHORUS (P) (MG/L)	TOTAL ORTHOPHOS- PHORUS (P) (MG/L)	DIS- ORTHOPHOS- PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORGANIC PHOS- PHORUS (P) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)
APR 06...	--	--	--	--	--	--	--	--	--
JUL 27...	.03	--	--	--	.00	--	420	12	100
SEP 01...	.12	--	--	--	.10	--	--	--	--
SEP 29...	.18	.00	.08	.05	.00	.00	140	8	200

RED RIVER OF THE NORTH BASIN

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL BORON (B) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
APR 06...	--	80	--	--	--	--	--	40	--
JUL 27...	180	--	<10	10	<50	10	750	30	<100
SEP 01...	--	--	--	--	--	--	1100	10	--
29...	260	--	<10	0	<50	<10	250	10	<100

DATE	TOTAL LITHIUM (LI) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	SUSPENDED MANGANESE (MN) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL MOLYBDENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)
APR 06...	--	--	--	170	--	--	--	--
JUL 27...	50	680	630	50	.0	2	<50	1
SEP 01...	--	500	450	50	--	--	--	--
29...	70	250	150	100	.0	3	<50	0

DATE	TOTAL SILVER (AG) (UG/L)	TOTAL STRONTIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ORGANIC CARBON (C) (MG/L)	SUSPENDED ORGANIC CARBON (C) (MG/L)	CYANIDE (CN) (MG/L)
JUL 27...	10	380	20	12	2.4	1.0
SEP 29...	<10	360	20	6.1	1.6	.02

DATE	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 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. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM
JUL 27...	74	8.0	94	--	--	--	--	--	--	--	--
SEP 01...	59	6.4	--	16	45	88	94	94	96	98	100

RED RIVER OF THE NORTH BASIN

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05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1											997	865
2											1010	921
3											1020	990
4											1000	945
5											951	898
6											921	903
7											933	909
8											970	927
9											1020	970
10											1020	997
11											1020	997
12											1010	951
13											957	927
14											951	927
15											963	939
16											951	933
17											945	927
18											957	927
19											951	927
20											970	951
21											970	945
22											970	945
23											970	939
24											963	909
25											945	921
26											927	915
27											933	909
28											933	819
29											903	870
30											898	859
31											---	---
MONTH											1020	819

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	12.0	12.0	---	---	---	---	23.5	23.0	20.0	19.0
2	---	---	---	---	---	---	---	---	23.0	22.0	19.0	18.0
3	---	---	---	---	21.5	21.5	---	---	22.5	21.5	19.5	19.5
4	---	---	---	---	21.5	20.5	---	---	24.5	22.5	19.0	18.0
5	---	---	---	---	21.0	20.0	---	---	24.5	23.5	19.0	18.0
6	8.0	8.0	---	---	21.5	20.5	---	---	23.5	22.5	20.5	18.5
7	8.0	8.0	---	---	22.0	21.5	---	---	22.5	22.0	21.0	20.0
8	9.0	8.5	---	---	22.5	22.0	---	---	23.5	22.5	21.0	19.5
9	9.0	8.5	---	---	23.5	22.5	---	---	24.5	23.5	19.5	17.5
10	9.5	8.5	---	---	24.5	22.5	---	---	25.0	24.0	17.5	16.5
11	10.0	10.0	---	---	24.5	23.5	---	---	25.0	24.0	17.0	16.0
12	10.5	10.0	---	---	24.5	23.5	22.5	22.5	25.0	24.0	18.0	17.0
13	10.5	10.5	---	---	23.5	21.5	22.5	22.5	25.0	24.0	18.5	17.5
14	12.0	10.5	---	---	21.5	20.5	24.0	22.5	24.5	24.0	18.0	17.5
15	12.0	12.0	---	---	20.5	16.5	24.0	22.5	24.0	23.0	18.0	16.5
16	12.0	12.0	---	---	16.5	15.5	22.5	20.5	23.5	22.0	16.5	15.5
17	12.5	12.0	---	---	15.5	15.5	22.0	21.0	23.5	22.5	16.5	15.5
18	12.5	12.0	---	---	15.5	14.0	23.0	22.0	25.5	23.5	17.0	16.0
19	12.0	11.5	---	---	17.0	15.0	25.5	23.0	27.5	25.5	17.5	16.5
20	11.5	11.5	---	---	19.5	17.0	25.5	25.0	27.5	26.0	17.0	15.5
21	11.5	11.5	---	---	20.5	19.5	25.0	23.5	---	---	15.5	14.0
22	11.5	11.0	---	---	21.5	20.5	25.0	23.5	---	---	14.0	12.5
23	11.0	11.0	---	---	22.5	21.5	25.0	24.5	---	---	12.5	11.5
24	11.0	11.0	---	---	22.5	21.5	25.0	24.0	---	---	11.5	11.0
25	11.0	10.0	---	---	21.5	19.5	26.5	25.0	---	---	11.5	11.0
26	10.5	10.0	---	---	20.5	20.0	26.5	26.0	---	---	12.0	11.5
27	11.0	10.5	---	---	20.0	18.0	26.5	25.0	---	---	11.5	10.0
28	12.0	11.0	---	---	19.5	19.0	25.5	25.0	---	---	10.0	9.5
29	12.0	12.0	---	---	19.5	19.5	25.0	24.5	---	---	11.0	9.5
30	12.0	12.0	---	---	---	---	24.5	24.0	---	---	12.5	10.5
31	---	---	---	---	---	---	24.0	23.5	---	---	---	---
MONTH	12.5	8.0	---	---	24.5	14.0	---	---	---	---	21.0	9.5

RED RIVER OF THE NORTH BASIN

05059400 SHEYENNE RIVER NEAR HORACE, ND

LOCATION.--Lat 46°48'13", long 96°54'13", in NW¼NW¼ sec. 5, T.138 N., R. 49 W., Cass County, Hydrologic Unit 09020204, at bridge on county road, 3 mi (4.8 km) north and 0.1 mi (0.2 km) east of Horace.

DRAINAGE AREA.--8,800 mi² (22,800 km²), approximately, of which about 5,780 mi (9,300 km) is probably non-contributing, including 3,800 mi (6,114.2 km) in closed basins.

PERIOD OF RECORD.--July 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1976 to current year.

WATER TEMPERATURES: September 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATURATION	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED NITRATE PLUS NITRITE (MG/L)	DIS-SOLVED PHOSPHORUS (MG/L)
JUL 28...	0910	43	820	8.1	22.5	6.4	76	540	.73	62.7	.54	.04
SEP 01...	1000	11	750	8.1	18.5	7.1	75	454	.62	13.5	3.5	.04
27...	1215	12	990	8.1	10.5	9.1	84	652	.89	21.3	.02	.06

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEPTEMBER			SEPTEMBER			SEPTEMBER			SEPTEMBER		
DAY	MAX	MIN	DAY	MAX	MIN	DAY	MAX	MIN	DAY	MAX	MIN
1	756	748	9	1050	983	17	1050	1000	24	1010	963
2	756	709	10	997	903	18	1050	997	25	1020	990
3	748	712	11	945	903	19	1000	976	26	1010	997
4	728	701	12	957	927	20	1000	970	27	1010	983
5	756	716	13	1030	957	21	997	970	28	997	957
6	939	760	14	1070	1030	22	1000	976	29	983	933
7	1040	951	15	1080	1050	23	1010	976	30	983	939
8	1050	1020	16	1090	1050						

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEPTEMBER			SEPTEMBER			SEPTEMBER			SEPTEMBER		
DAY	MAX	MIN	DAY	MAX	MIN	DAY	MAX	MIN	DAY	MAX	MIN
1	18.5	17.5	9	19.5	17.5	17	16.5	15.0	24	11.0	10.5
2	18.5	16.5	10	17.5	16.0	18	17.0	16.0	25	11.0	10.5
3	18.5	17.0	11	17.0	16.0	19	17.0	16.5	26	11.0	11.0
4	18.5	17.0	12	18.0	16.5	20	16.5	15.5	27	11.0	10.5
5	19.0	17.0	13	18.0	17.5	21	15.0	14.0	28	10.5	9.0
6	20.0	18.0	14	18.0	17.0	22	14.0	12.5	29	10.5	9.0
7	20.5	19.5	15	17.0	16.0	23	12.5	11.0	30	11.5	10.0
8	20.0	19.5	16	16.5	15.0						

RED RIVER OF THE NORTH BASIN

99

05059500 SHEYENNE RIVER AT WEST FARGO, ND

LOCATION.--Lat 46°53'28", long 96°54'24", in SE¼SE¼ sec.31, T.140 N., R.49 W., Cass County, Hydrologic Unit 09020204, on right bank at downstream side of county highway bridge, 1 mi (2 km) north of West Fargo, 3 mi (5 km) upstream from Maple River, and at mile 24.5 (kilometer 39.4).

DRAINAGE AREA.--8,870 mi² (22,970 km²), approximately, of which about 5,780 mi² (14,970 km²) is probably noncontributing, includes 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--March to November 1902 (gage heights only), April 1903 to October 1905, March to August 1919, September 1929 to current year. Published as "at or near Haggart" 1902-7, 1919. Records for March to November 1902 and November 1905 to June 1907, published in WSP 100, 171, 207, and 245, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1388: 1904(M). WSP 1728: Drainage area. See also "PERIOD OF RECORD."

GAGE.--Water-stage recorder. Datum of gage is 877.19 ft (267.368 m) above mean sea level. June 27, 1933 to September 1969 on left bank about 600 ft (180 m) downstream on unimproved channel at same datum. See WSP 1728 or 1913 for history of changes prior to June 27, 1933.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated to a large degree by Lake Ashtabula (station 05057500) 246 mi (396 km) upstream. Above 3,000 ft³/s (84.96 m³/s) overflow occurs upstream between Kindred and West Fargo. This overflow bypasses the station in the Maple River basin and drain 21 to the west and in the Wild Rice River basin to the east. This overflow is not included in the flow for this station. Some small diversions for municipal supply. Figures of daily discharge do not include diversions to Red River of the North.

AVERAGE DISCHARGE (ADJUSTED).--49 years (water years 1904-5, 1930-76), 171 ft³/s (4.843 m³/s) 123,900 acre-ft/yr (153 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s) 109,000 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft³/s (88.1 m³/s) Apr. 4, 1966; maximum gage height, 22.25 ft (6.782 m) July 5, 1975, backwater from Red and/or Maple Rivers; minimum daily, 1.0 ft³/s (0.028 m³/s) Sept. 23, 1976, caused by diversion to Red River of the North.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 963 ft³/s (27.3 m³/s) Apr. 17, gage height, 11.46 ft (3.493 m); maximum gage height, 12.99 ft (3.959 m) Mar. 26, 27, backwater from ice; minimum daily, 1.0 ft³/s (0.028 m³/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	121	116	104	150	315	500	566	138	93	40	12
2	101	119	116	104	150	320	485	535	126	92	40	12
3	100	118	116	104	150	330	475	524	122	86	40	13
4	98	117	116	102	150	330	470	523	119	83	42	15
5	98	116	116	102	150	320	465	486	113	84	42	11
6	98	116	115	102	148	300	460	461	109	82	40	11
7	98	116	115	102	145	265	454	461	108	79	37	10
8	99	116	115	102	145	240	520	453	107	76	36	12
9	101	116	115	102	145	210	560	446	102	72	35	9.6
10	97	116	115	102	145	190	600	432	98	69	35	6.1
11	97	116	115	102	150	165	640	393	94	64	36	3.6
12	97	116	115	102	166	165	690	361	90	63	35	3.8
13	97	110	115	102	175	160	727	350	88	62	32	1.5
14	99	110	115	102	180	160	798	340	85	60	32	1.3
15	95	110	115	102	195	155	882	330	86	59	32	1.4
16	95	110	114	102	200	164	927	320	79	58	32	2.4
17	97	111	112	102	205	163	943	310	76	58	32	3.9
18	95	112	110	102	210	166	929	296	76	58	30	2.9
19	95	113	110	102	220	176	828	290	76	58	29	1.4
20	95	114	110	102	240	178	783	266	78	56	29	1.8
21	96	115	108	102	260	183	772	233	83	56	26	1.5
22	97	116	108	102	280	245	778	216	183	27	26	1.7
23	97	116	106	104	300	380	742	213	197	38	26	1.0
24	104	116	104	108	310	470	666	212	158	62	14	6.0
25	107	116	104	115	310	615	634	204	130	50	23	9.0
26	112	116	104	120	300	690	628	194	115	47	14	12
27	123	116	104	120	310	725	614	185	106	44	14	12
28	124	116	104	125	310	720	600	178	104	43	16	14
29	128	116	104	128	310	620	595	172	102	42	20	15
30	129	116	104	130	---	560	588	160	97	41	22	15
31	123	---	104	140	---	540	---	150	---	40	14	---
TOTAL	3193	3452	3440	3340	6109	10220	19753	10260	3245	1902	921	222.9
MEAN	103	115	111	108	211	330	658	331	108	61.4	29.7	7.43
MAX	129	121	116	140	310	725	943	566	197	93	42	15
MIN	95	110	104	102	145	155	454	150	76	27	14	1.0
AC-FT	6330	6850	6820	6620	12120	20270	39180	20350	6440	3770	1830	442
(+)	0	0	0	0	0	0	0	0	0	0	50	1420
MEAN*	103	115	111	108	211	330	658	331	108	61.4	30.6	31.3
AC-FT*	6330	6850	6820	6620	12120	20270	39180	20350	6440	3770	1880	1860

			OBSERVED							ADJUSTED		
CAL YR 1975	TOTAL	146023.0	MEAN	400	MAX	2850	MIN	64	AC-FT	289600	MEAN	400
WTR YR 1976	TOTAL	66057.9	MEAN	180	MAX	943	MIN	1.0	AC-FT	131000	MEAN	183
												AC-FT
												289600
												132500

+ Diversion in acre-feet to Red River of the North.

* Adjusted for diversion to Red River of the North.

RED RIVER OF THE NORTH BASIN

05059600 MAPLE RIVER NEAR HOPE, ND

LOCATION.--Lat 47°19'30", long 97°47'25", in NW¼NW¼ sec.4, T.144 N., R.56 W., Steele County, Hydrologic Unit 09020205, 100 ft (30 m) downstream from box culvert on State Highway 38, 500 ft (152 m) east of the intersection of State Highways 32 and 38, and 3 mi (5 km) west of Hope.

DRAINAGE AREA.--20.2 mi² (52.3 km²), of which about 2.8 mi² (7.3 km²) is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is 1,296.62 ft (395.210 m) above mean sea level.

REMARKS.--Records good.

AVERAGE DISCHARGE.--12 years, 3.25 ft³/s (0.092 m³/s), 2,360 acre-ft/yr (2.91 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 734 ft³/s (20.8 m³/s) June 10, 1968, gage height, 4.78 ft (1.457 m); maximum gage height, 5.46 ft (1.664 m) Mar. 15, 1968, backwater from ice; no flow for many months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 104 ft³/s (2.95 m³/s) Mar. 24, gage height, 3.38 ft (1.030 m); backwater from ice; no flow for many months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	7.8	.24				
2						0	6.1	.21				
3						0	4.4	.21				
4						0	3.4	.21				
5						0	2.7	.15				
6						0	2.0	.10				
7						0	1.5	.08				
8						0	1.1	.08				
9						0	.87	.03				
10						0	.66	.02				
11						0	.55	.01				
12						0	.45	.01				
13						0	.32	.01				
14						0	.28	.01				
15						0	.28	.01				
16						0	.32	.01				
17						0	.40	.01				
18						0	.40	.01				
19						0	.36	.01				
20						0	.40	.01				
21						0	.40	.01				
22						10	.45	.01				
23						40	.50	.01				
24						90	.66	.01				
25						35	.66	0				
26						20	.66	0				
27						11	.55	0				
28						9.0	.40	0				
29						7.6	.36	0				
30					---	11	.28	0				
31		---			---	10	---	0	---			---
TOTAL	0	0	0	0	0	243.6	39.21	1.47	0	0	0	0
MEAN	0	0	0	0	0	7.86	1.31	.047	0	0	0	0
MAX	0	0	0	0	0	90	7.8	.24	0	0	0	0
MIN	0	0	0	0	0	0	.28	0	0	0	0	0
AC-FT	0	0	0	0	0	483	78	2.9	0	0	0	0
CAL YR 1975	TOTAL 769.55	MEAN .11	MAX 70	MIN 0	AC-FT 1530							
WTR YR 1976	TOTAL 284.28	MEAN .78	MAX 90	MIN 0	AC-FT 564							

LOCATION.--Lat 46°37'18", long 97°34'25", on west line sec.2, T.136 N., R.55 W., Ransom County, Hydrologic Unit 09020205, on left bank 25 ft (8 m) downstream from county highway bridge, 1 mi (1.6 km) downstream from South Branch 1.2 mi (1.9 km) east of Enderlin.

PERIOD OF RECORD.--May 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,056.72 ft (322.088 m) above mean sea level. Sept. 21, 1956 to June 9, 1969, recording gage on right bank at same datum. Prior to Sept. 20, 1956, nonrecording gage at site 25 ft (8 m) upstream at same datum.

AVERAGE DISCHARGE.--20 years, 34.4 ft³/s (0.974 m³/s) 24,920 acre-ft/yr (30.7 hm³/yr); median of yearly mean discharges, 23 ft³/s (0.65 m³/s) 16,700 acre-ft/yr (21 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,610 ft³/s (216 m³/s) June 30, 1975, gage height, 15.41 ft (4.697 m); minimum daily, 0.1 ft³/s (0.003 m³/s) Dec. 7-9, 1963; minimum gage height, 1.90 ft (0.579 m) Oct. 5, 1956.

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Mar. 18	--	146	4.13		(a)	Mar. 23	1630	*246	6.97	5.72	1.743
Mar. 21	--		(a)	*5.77	1.759	Mar. 29	0015	206	5.83	5.37	1.637

a Backwater from ice

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	6.4	4.5	4.0	5.0	14	150	18	3.2	3.6	2.5	7.5
2	4.4	5.9	4.2	4.0	5.0	13	132	16	3.2	3.6	2.5	7.5
3	4.8	5.7	4.2	4.0	5.0	9.5	126	16	3.2	3.6	2.6	7.5
4	4.8	5.7	4.2	4.0	4.5	8.5	118	14	3.6	3.6	2.5	7.5
5	4.4	5.9	4.2	4.0	4.1	8.0	117	14	3.2	3.6	2.5	7.5
6	4.6	6.4	4.2	4.0	4.1	7.5	109	11	3.2	3.6	3.2	7.4
7	5.0	6.4	4.2	4.0	4.1	7.5	90	11	3.2	3.6	2.6	8.1
8	5.0	5.7	4.2	4.0	4.1	8.0	72	10	3.4	3.6	2.6	8.5
9	4.6	5.4	4.2	4.0	4.4	8.0	61	10	3.4	3.2	5.2	8.5
10	4.6	5.4	4.6	4.0	5.0	8.0	51	7.3	3.4	2.9	3.0	7.0
11	4.6	5.7	4.2	4.0	5.0	8.0	44	6.9	3.4	3.0	2.5	1.8
12	4.8	7.5	4.6	4.0	5.7	8.0	39	6.7	3.4	3.2	5.9	1.8
13	4.8	6.4	4.6	4.0	8.1	8.0	33	6.7	3.6	3.2	7.1	1.8
14	5.0	6.4	4.6	4.0	12	8.0	28	6.7	3.6	3.4	6.2	1.8
15	5.0	6.4	4.6	4.0	14	8.0	24	6.7	3.8	3.9	3.8	1.8
16	5.0	6.7	4.6	4.0	14	8.0	24	6.4	3.8	3.6	3.6	1.9
17	5.0	7.1	4.6	4.0	14	8.5	22	6.4	3.6	3.3	3.2	1.9
18	5.2	8.1	4.5	4.0	18	39	20	6.7	3.6	3.3	2.7	1.9
19	5.4	9.2	4.4	4.0	13	121	20	5.8	3.6	3.2	2.6	2.0
20	6.4	9.2	4.2	4.1	10	92	20	5.4	3.6	3.0	2.5	1.9
21	10	6.9	4.0	4.0	8.8	24	18	5.0	3.6	3.4	2.7	1.9
22	11	7.1	4.0	4.0	7.5	28	18	5.0	3.6	3.2	2.6	2.1
23	12	7.1	4.0	4.0	9.2	162	18	4.8	3.8	3.0	2.6	1.9
24	10	6.9	4.0	4.0	20	174	23	4.6	3.6	2.4	2.9	2.4
25	6.4	6.4	4.0	4.0	36	137	25	4.2	3.4	3.2	2.9	3.3
26	6.4	6.2	4.0	4.0	43	139	25	3.9	3.6	3.0	2.7	3.4
27	6.4	6.2	4.0	4.0	30	178	22	4.1	3.4	2.6	2.7	2.7
28	6.2	5.9	4.0	4.0	17	198	20	4.1	3.4	2.7	2.9	2.0
29	6.2	5.9	4.0	4.0	14	192	20	3.9	3.6	2.5	2.9	2.0
30	5.7	5.0	4.0	4.5	---	164	18	3.9	3.6	2.4	3.3	2.0
31	6.2	---	4.0	5.0	---	157	---	3.9	---	2.4	5.7	---
TOTAL	184.3	195.2	131.6	125.6	344.6	1953.5	1507	237.6	104.4	98.8	103.2	119.4
MEAN	5.95	6.51	4.25	4.05	11.9	63.0	50.2	7.66	3.48	3.19	3.33	3.98
MAX	12	9.2	4.6	5.0	43	198	150	18	3.8	3.9	7.1	8.5
MIN	4.4	5.0	4.0	4.0	4.1	7.5	18	3.9	3.2	2.4	2.5	1.8
AC-FT	366	387	261	249	684	3870	2990	471	207	196	205	237
CAL YR 1975	TOTAL	48158.3	MEAN	132	MAX	5450	MIN	1.7	AC-FT	95520		
WTR YR 1976	TOTAL	5105.2	MEAN	13.9	MAX							

RED RIVER OF THE NORTH BASIN

05060500 RUSH RIVER AT AMENIA, ND

LOCATION.--Lat 47°01'00", long 97°12'50", in sec.24, T.141 N., R.52 W., Cass County, Hydrologic Unit 09020204, on left bank on downstream side of bridge on State Highway 18, 0.6 mi (1.0 km) north of Amenias.

DRAINAGE AREA.--116 mi² (300 km²).

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is about 943 ft (287 m) above mean sea level, from topographic map. See WSP 1913 for history of changes prior to June 10, 1961.

REMARKS.--Records good except those for the period of ice effect, which are fair.

AVERAGE DISCHARGE.--30 years, 8.93 ft³/s (0.253 m³/s), 6,470 acre-ft/yr (7.98 hm³/yr); median of yearly mean discharges, 5.6 ft³/s (0.16 m³/s), 4,100 acre-ft/yr (5.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft³/s (72.2 m³/s) Apr. 18, 1975; maximum gage height, 12.15 ft (3.703 m) Mar. 23, 1966, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 150 ft³/s (4.24 m³/s) Mar. 24, gage height, 9.93 ft (3.027 m), backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	1.1	.10		0	5.0	35	3.6	.15			
2	0	.02	.10		0	1.0	27	3.3	.12			
3	0	1.6	.10		0	.50	24	2.9	.19			
4	0	.43	.10		0	.30	24	2.6	.12			
5	0	.26	.10		0	.10	22	2.9	.12			
6	0	.31	.10		0	0	20	2.8	.09			
7	0	.37	.09		0	0	18	2.2	.03			
8	0	.37	.09		0	0	16	2.2	0			
9	0	.31	.09		0	0	14	1.6	0			
10	0	.30	.08		0	0	15	1.5	0			
11	0	.30	.08		0	0	13	1.5	0			
12	0	.30	.06		0	0	13	1.7	0			
13	0	.30	.03		0	0	12	1.7	0			
14	0	.30	.03		0	0	10	1.2	0			
15	0	.30	0		0	0	9.1	1.2	0			
16	0	.30	0		0	0	9.8	1.3	0			
17	0	.30	0		0	0	11	1.2	0			
18	0	.30	0		0	5.0	11	1.1	0			
19	0	.30	0		0	20	11	1.1	0			
20	0	.25	0		0	40	10	1.1	0			
21	0	.25	0		0	60	9.1	1.1	0			
22	0	.20	0		0	80	7.6	1.1	0			
23	0	.15	0		0	100	9.1	1.1	0			
24	0	.10	0		1.0	140	11	.71	0			
25	0	.10	0		3.0	120	11	.31	0			
26	0	.10	0		15	110	12	.43	0			
27	0	.10	0		20	105	11	.43	0			
28	0	.10	0		15	100	6.7	.43	0			
29	0	.10	0		10	90	4.4	.50	0			
30	.35	.10	0		---	70	3.8	.22	0			
31	1.9	---	0		---	50	---	.22	---			---
TOTAL	2.25	9.32	1.15	0	64.0	1096.90	410.6	45.25	.82	0	0	0
MEAN	.073	.31	.037	0	2.21	35.4	13.7	1.46	.027	0	0	0
MAX	1.9	1.6	.10	0	20	140	35	3.6	.19	0	0	0
MIN	0	.02	0	0	0	0	3.8	.22	0	0	0	0
AC-FT	4.5	18	2.3	0	127	2180	814	90	1.6	0	0	0
CAL YR 1975	TOTAL	12397.06	MEAN	34.0	MAX	2310	MIN	0	AC-FT	24590		
WTR YR 1976	TOTAL	1630.29	MEAN	4.45	MAX	140	MIN	0	AC-FT	3230		

RED RIVER OF THE NORTH BASIN

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05064500 RED RIVER OF THE NORTH AT HALSTAD, MN

LOCATION.--Lat 47°21'10", long 96°50'50", on line between secs.24 and 25, T.14S N., R.49 W., Traill County, Hydrologic Unit 09020107, on left bank on upstream side of highway bridge, 0.5 mi (0.8 km) west of Halstad, 2.5 mi (4.0 km) downstream from Wild Rice River and at mile 375.2 (kilometer 603.7).

DRAINAGE AREA.--21,800 mi² (56,500 km²), approximately, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937 (no winter records), April 1942 to September 1960 (spring and summer months only), May 1961 to current year.

REVISED RECORDS.--WSP 1388: 1936, 1950. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 826.65 ft (251.963 m) above mean sea level. Prior to July 17, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good except those for the winter period, which are fair. Some regulation by many controlled lakes and reservoirs on tributaries.

AVERAGE DISCHARGE.--15 years, 1,888 ft³/s (53.47 m³/s), 1,368,000 acre-ft/yr (1.69 km³/yr); median of yearly mean discharges, 1,760 ft³/s (49.8 m³/s), 1,280,000 acre-ft/yr (1.6 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,900 ft³/s (1,130 m³/s) July 10, 1975, gage height, 38.55 ft (11.750 m); minimum observed, 5.4 ft³/s (0.15 m³/s) Oct. 8, 9, 12-14, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of about 38.5 ft (11.73 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,950 ft³/s (282 m³/s) Mar. 31, gage height, 23.30 ft (7.102 m), backwater from ice; minimum, 9.8 ft³/s (0.278 m³/s) Sept. 2, gage height, 1.29 ft (0.393 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	677	909	560	400	535	990	9600	1990	607	450	102	11
2	673	894	560	400	535	1080	9100	1920	552	415	102	10
3	687	905	560	400	535	1200	8010	1860	499	396	102	14
4	708	882	560	420	535	1200	7880	1780	450	396	102	31
5	701	882	520	430	535	1200	6280	1730	437	392	104	36
6	687	878	510	430	535	1190	5330	1670	434	376	105	46
7	673	867	510	430	535	1170	4600	1590	437	367	112	58
8	649	859	510	420	535	1150	4010	1510	456	354	118	54
9	621	848	510	440	535	1120	3620	1450	469	335	111	48
10	610	837	510	470	535	1100	3300	1400	460	317	109	46
11	628	835	500	520	540	1040	3160	1350	456	297	109	48
12	642	841	500	520	540	950	2960	1300	399	269	109	54
13	645	830	540	530	540	910	2850	1220	376	226	113	46
14	649	787	550	540	545	890	2800	1170	329	207	113	37
15	631	780	540	540	550	890	2750	1110	408	209	107	34
16	642	770	520	540	560	890	2760	1090	466	200	105	34
17	617	760	500	540	570	890	2790	1060	453	200	105	36
18	583	760	470	540	580	880	2800	1030	466	195	104	42
19	576	750	420	540	600	880	2730	1010	460	188	102	44
20	583	740	390	540	620	900	2650	977	418	185	100	46
21	600	740	390	540	620	1000	2580	951	373	176	92	46
22	614	660	400	540	640	1090	2530	924	326	165	86	40
23	624	650	420	540	640	1300	2510	878	305	148	80	37
24	642	630	440	540	650	2320	2490	834	341	140	72	34
25	666	610	460	540	700	3700	2460	754	440	132	68	34
26	769	600	460	540	790	5920	2380	705	431	136	58	32
27	845	600	470	535	890	7160	2290	670	421	140	48	37
28	840	590	460	535	970	8250	2200	674	405	129	30	42
29	863	580	440	535	980	9190	2120	677	405	122	20	38
30	901	570	420	535	---	9750	2040	664	428	116	19	36
31	909	---	410	535	---	9850	---	664	---	107	14	---
TOTAL	21155	22844	15010	15505	17875	80050	113580	36612	12907	7485	2721	1151
MEAN	682	761	484	500	616	2582	3786	1181	430	241	87.8	38.4
MAX	909	909	560	540	980	9850	9600	1990	607	450	118	58
MIN	576	570	390	400	535	880	2040	664	305	107	14	10
AC-FT	41960	45310	29770	30750	35460	158800	225300	72620	25600	14850	5400	2280
CAL YR 1975	TOTAL	1462161	MEAN	4006	MAX	39900	MIN	174	AC-FT	2900000		
WTR YR 1976	TOTAL	346895	MEAN	948	MAX	9850	MIN	10	AC-FT	688100		

RED RIVER OF THE NORTH BASIN

05064900 BEAVER CREEK NEAR FINLEY, ND
(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, Hydrologic Unit 09020109, on right bank 500 ft (150 m) upstream from bridge on county highway, 7 mi (11 km) northeast of Finley.

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

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete broad-crested weir. Datum of gage is 1,170.08 ft (356.640 m) above mean sea level.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--12 years, 9.88 ft³/s (0.280 m³/s) 7,160 acre-ft/yr (8.83 hm³/yr).EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,320 ft³/s (37.4 m³/s) Apr. 9, 1969, gage height, 6.55 ft (1.996 m); maximum gage height, 9.70 ft (2.957 m) Mar. 14, 1966, backwater from ice; no flow for several months each year.EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.416 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 24	--	*290 8.213	*a5.26 1.600	Mar. 31	1330	74 2.096	3.66 1.116

Minimum, no flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	0	31	4.9	0	0		
2					0	0	27	4.4	0	0		
3					0	0	27	4.0	0	0		
4					0	0	22	3.5	0	0		
5					0	0	20	3.1	0	0		
6					0	0	19	2.1	0	.43		
7					0	0	18	1.9	0	.47		
8					0	0	16	1.6	0	.35		
9					0	0	13	1.5	0	.24		
10					0	0	11	1.3	0	.15		
11					0	0	9.2	1.2	0	.01		
12					0	0	7.8	1.0	0	0		
13					0	0	12	.96	0	0		
14					0	0	16	.69	0	0		
15					0	0	16	.64	0	0		
16					0	0	15	.64	0	0		
17					0	0	15	.58	.09	0		
18					0	1.0	13	.64	.12	0		
19					0	50	12	.55	.01	0		
20					0	80	11	.51	.01	0		
21					0	100	10	.51	.01	0		
22					0	140	9.8	.35	0	0		
23					0	150	9.5	.31	0	0		
24					0	200	9.0	.27	0	0		
25					2.0	83	8.3	.15	0	0		
26					1.5	80	7.3	.07	.24	0		
27					1.0	68	6.6	.07	.47	0		
28					.50	55	5.9	.02	.27	0		
29					0	52	5.3	0	.24	0		
30					---	50	5.2	0	.21	0		
31					---	47	---	0	---	0		
TOTAL	0	0	0	0	5.00	1156.0	407.9	37.36	1.67	1.65	0	0
MEAN	0	0	0	0	.17	37.3	13.6	1.21	.056	.053	0	0
MAX	0	0	0	0	2.0	200	31	4.9	.47	.47	0	0
MIN	0	0	0	0	0	0	5.2	0	0	0	0	0
AC-FT	0	0	0	0	9.9	2290	809	74	3.3	3.3	0	0
CAL YR 1975	TOTAL	2766.37	MEAN 7.58	MAX 186	MIN 0	AC-FT 5490						
WTR YR 1976	TOTAL	1609.58	MEAN 4.40	MAX 200	MIN 0	AC-FT 3190						

RED RIVER OF THE NORTH BASIN

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05064900 BEAVER CREEK NEAR FINLEY, ND--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA,MG (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
MAR												
24...	1250	194	255	--	.0	--	--	--	--	--	--	--
25...	1715	70	300	--	.0	--	--	--	--	--	--	--
27...	1555	74	330	--	.0	--	--	--	--	--	--	--
31...	1850	61	480	--	.5	--	--	--	--	--	--	--
APR												
07...	1710	19	780	--	12.0	--	--	--	--	--	--	--
12...	1815	7.1	950	8.6	12.5	10.6	103	160	880	8100	370	160
29...	1410	5.3	1340	8.3	11.5	10.6	100	680	150	90	540	280
MAY												
28...	0955	.02	1690	8.0	17.5	6.8	74	880	400	340	710	400

DATE	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
MAR												
24...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	--	--	--	--	--	--	--	--	--	--	--	--
12...	34	61	26	1.4	9.0	249	0	204	1.0	280	15	.2
29...	53	98	28	1.8	9.8	316	0	259	2.5	460	20	.2
MAY												
28...	75	130	28	2.1	14	378	0	310	6.0	650	36	.2

DATE	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)
MAR											
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
07...	--	--	--	--	--	--	--	--	--	--	--
12...	17	666	750	630	.91	12.8	6	.01	.13	3	0
29...	16	1000	--	943	1.36	14.3	--	.06	.13	--	--
MAY											
28...	17	1350	--	1280	1.84	.07	--	.03	.19	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

[illegible]

RED RIVER OF THE NORTH BASIN

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05066500 GOOSE RIVER AT HILLSBORO, ND

LOCATION.--Lat 47°24'20", long 97°03'40", in NW¼ sec.5, T.14S N., R.50 W., Traill County, Hydrologic Unit 09020109, on right bank 600 ft (180 m) upstream from Foogman Dam in Hillsboro 27.5 mi (44 km) upstream from mouth.

DRAINAGE AREA.--1,203 mi² (3,116 km²), of which 110 mi² (285 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1931 to current year (no winter records 1932-34). Monthly discharge only for some periods, published in WSP 1308.

GAGE.--Water-stage recorder and masonry dam. Datum of gage is 879.52 ft (268.078 m) above mean sea level. Sept. 26, 1941, to Oct. 27, 1965, at site 600 ft (180 m) downstream at same datum. See WSP 1728 or 1913 for history of changes prior to Sept. 26, 1941.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--43 years (1931-32, 1934-76), 65.3 ft³/s (1.849 m³/s) 47,310 acre-ft/yr (58.3 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s) 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Apr. 19, 1950; maximum gage height, 14.94 ft (4.554 m) Apr. 19, 1950; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 ft³/s (35.7 m³/s) Mar. 29, gage height, 3.98 ft (1.213 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.85	.94	4.5	3.5	4.0	11	913	52	9.4	3.0	.20	
2	.97	.94	4.0	3.5	4.0	11	935	49	8.0	2.5	.18	
3	1.1	.94	4.0	3.5	4.0	11	955	45	4.7	2.5	.16	
4	1.0	.94	4.0	3.5	4.0	11	700	40	2.5	2.5	.14	
5	1.0	.94	3.5	3.5	4.0	11	468	36	4.7	2.5	.13	
6	1.0	.94	3.5	3.5	4.0	11	361	34	4.7	2.0	.12	
7	1.0	.94	3.5	3.5	4.0	11	277	33	4.7	2.0	.11	
8	1.0	.94	3.5	3.5	4.0	11	228	33	4.7	2.0	.10	
9	1.0	.94	3.5	3.8	4.0	11	193	33	4.7	1.9	.09	
10	1.0	.94	3.5	4.0	4.0	11	171	32	4.5	1.3	.08	
11	1.0	.94	3.5	4.0	4.0	5.0	156	28	4.5	1.6	.07	
12	1.0	7.0	3.5	4.0	4.0	4.0	135	26	4.5	1.4	.06	
13	1.3	8.0	3.5	4.0	4.0	4.0	121	24	4.5	1.2	.06	
14	1.4	8.0	3.5	4.0	4.0	4.0	105	21	4.5	1.0	.05	
15	1.4	8.0	3.5	4.0	4.0	4.0	105	21	33	.90	.05	
16	.94	8.0	3.5	4.0	4.0	4.0	89	21	20	.90	.04	
17	.94	8.0	3.5	4.0	4.0	4.0	74	20	10	.70	.04	
18	.94	8.0	3.5	4.0	4.0	4.0	74	20	8.0	.60	.04	
19	.94	8.0	3.5	4.0	4.0	4.0	74	20	7.0	.50	.03	
20	.94	8.0	3.5	4.0	4.0	4.0	74	18	5.0	.40	.03	
21	.94	8.0	3.5	4.0	4.0	4.0	74	17	4.5	.38	.03	
22	.94	8.0	3.5	4.0	4.0	8.0	74	15	4.5	.37	.02	
23	.94	6.8	3.5	4.0	4.0	33	74	11	4.5	.36	.02	
24	.94	6.0	3.5	4.0	5.0	114	74	9.4	4.5	.35	.02	
25	.94	5.5	3.5	4.0	5.5	407	74	5.5	4.0	.34	.01	
26	.94	5.5	3.5	4.0	8.0	899	72	5.5	4.0	.32	.01	
27	.94	5.0	3.5	4.0	12	1110	69	6.8	4.0	.30	.01	
28	.94	5.0	3.5	4.0	12	1180	66	6.8	4.0	.29	0	
29	.94	5.0	3.5	4.0	12	1200	61	8.0	3.5	.26	0	
30	.94	4.5	3.5	4.0	---	1190	56	9.4	3.0	.24	0	
31	.94	---	3.5	4.0	---	997	---	11	---	.22	0	---
TOTAL	31.06	140.64	111.0	119.8	146.5	7293.0	6902	711.6	194.1	35.22	1.90	0
MEAN	1.00	4.69	3.58	3.86	5.05	235	230	23.0	6.47	1.14	.061	0
MAX	1.4	8.0	4.5	4.0	12	1200	955	52	33	3.0	.20	0
MIN	.85	.94	3.5	3.5	4.0	4.0	56	5.6	2.5	.22	0	0
AC-FT	62	279	220	238	291	14470	13690	1410	385	70	3.8	0
CAL YR 1975	TOTAL	41281.66	MEAN	113	MAX	3740	MIN	.38	AC-FT	81880		
WTR YR 1976	TOTAL	15686.82	MEAN	42.9	MAX	1200	MIN	0	AC-FT	31110		

RED RIVER OF THE NORTH BASIN

05066500 GOOSE RIVER AT HILLSBORO, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
DEC 11...	1550	3.5	2520	7.9	.5	780	380	180	80	270
JAN 09...	1505	3.8	3400	7.4	.0	930	500	210	98	330
FEB 10...	1330	4.0	2180	7.6	.0	780	370	170	86	230
MAR 10...	1135	11	1780	7.9	.0	730	330	170	74	130
APR 16...	1115	91	960	8.3	11.5	420	220	100	41	54
MAY 06...	0900	35	1350	8.3	9.0	610	310	150	57	76
JUN 04...	1050	2.7	1590	7.9	20.5	670	350	160	66	100
JUL 09...	1045	1.8	1400	8.0	23.5	560	280	130	57	110
AUG 11...	1405	.07	1350	8.4	26.0	500	220	120	49	110

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DEC 11...	42	4.2	14	483	0	396	9.7	640	260
JAN 09...	43	4.7	20	528	0	433	34	800	310
FEB 10...	39	3.6	15	502	0	412	20	590	190
MAR 10...	28	2.1	12	492	0	404	9.9	470	110
APR 16...	22	1.1	7.8	245	0	201	2.0	300	37
MAY 06...	21	1.3	8.2	360	0	295	2.9	410	46
JUN 04...	24	1.7	10	390	0	320	7.9	480	68
JUL 09...	30	2.0	9.6	336	0	276	5.4	400	94
AUG 11...	32	2.1	11	310	18	284	2.2	340	83

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
DEC 11...	.7	21	1840	1710	2.50	17.4	600	0	800
JAN 09...	.8	19	2190	2060	2.98	22.7	800	60	1100
FEB 10...	.5	14	1630	1550	2.22	17.6	1100	210	160
MAR 10...	.3	13	1330	1230	1.81	39.5	960	20	660
APR 16...	.1	18	680	682	.92	167	40	0	280
MAY 06...	.2	14	982	942	1.34	92.8	160	0	80
JUN 04...	.2	11	1139	1090	1.55	8.31	560	60	400
JUL 09...	.3	17	991	991	1.35	4.82	230	80	330
AUG 11...	.1	16	891	903	1.21	.17	190	20	120

RED RIVER OF THE NORTH BASIN

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05082500 RED RIVER OF THE NORTH AT GRAND FORKS, ND

LOCATION.--Lat 47°56'34", long 97°03'10", in SW¼NE¼ sec.33, T.152 N., R.50 W., Grand Forks County, Hydrologic Unit 09020301, on left bank on second floor of old sewage plant in Grand Forks, 2.3 mi (3.7 km) downstream from Red Lake River, and at mile 295.7 (kilometer 475.8).

DRAINAGE AREA.--30,100 mi² (78,000 km²), approximately, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--April 1882 to current year. Monthly discharge only prior to May 1901, published in WSP 1308.

REVISED RECORDS.--WSP 855: 1936(M). WSP 1115: 1942. WSP 1175: 1897(M). WSP 1388: 1904, 1914-15, 1917-19, 1921-22, 1927, 1950. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 778.35 ft (237.241 m) above mean sea level. Nov. 3, 1933, to Apr. 13, 1965, water-stage recorder 0.3 mi (0.5 km) upstream at present datum. See WSP 1728 or 1913 for history of changes prior to Nov. 3, 1933.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by many lakes and reservoirs on tributaries.

AVERAGE DISCHARGE.--94 years, 2,524 ft³/s (71.48 m³/s) 1,829,000 acre-ft/yr (2.26 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 80,000 ft³/s (2,270 m³/s) Apr. 10, 1897, gage height, 50.2 ft (15.30 m), site and datum then in use, from rating curve extended above 54,000 ft³/s (1,530 m³/s) minimum, 2.4 ft³/s (0.068 m³/s) Feb. 3-5, 12, 14, 16-19, 1937, caused by unusual regulation during repair of dam at Grand Forks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,600 ft³/s (668 m³/s) Apr. 3, gage height 34.58 ft (10.540 m); minimum discharge, 506 ft³/s (14.3 m³/s) Sept. 26, gage height, 3.82 ft (1.164 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2120	2690	1790	1740	1670	2200	16200	4120	1590	1430	933	849
2	2240	2640	1790	1740	1660	2290	20000	4000	1560	1420	929	881
3	2240	2530	1790	1740	1660	2200	22800	3850	1530	1450	921	833
4	2270	2490	1780	1730	1650	2150	22900	3700	1510	1360	929	857
5	2150	2470	1780	1730	1650	2250	22800	3540	1490	1320	949	857
6	2200	2450	1780	1730	1650	2400	20800	3400	1470	1280	957	857
7	2290	2430	1780	1730	1670	2490	16800	3260	1450	1250	953	829
8	2230	2430	1780	1720	1680	2500	11700	3110	1430	1210	961	841
9	2120	2430	1780	1720	1680	2480	9300	2970	1410	1250	993	857
10	2150	2460	1780	1720	1680	2380	8200	2830	1390	1260	1100	873
11	2190	2480	1780	1710	1680	2300	7500	2720	1370	1240	1110	869
12	2210	2500	1780	1710	1680	2300	6570	2600	1350	1200	1060	861
13	2160	2490	1780	1710	1680	2200	6200	2530	1370	1160	1080	829
14	2260	2420	1780	1710	1680	2100	5800	2470	1400	1120	1040	805
15	2280	2390	1770	1710	1680	1970	5600	2400	1540	1050	1030	729
16	2300	2410	1770	1700	1680	1860	5550	2340	1640	1020	1010	657
17	2260	2420	1770	1700	1680	1840	5370	2300	1780	1000	997	640
18	2280	2470	1770	1700	1680	1850	5320	2190	1860	981	997	620
19	2340	2510	1770	1700	1680	1900	5330	2130	1910	961	993	600
20	2350	2500	1770	1690	1680	1950	5270	2080	1920	957	985	580
21	2320	2490	1770	1690	1680	1980	5060	2060	1860	949	973	560
22	2340	2510	1770	1690	1680	2000	4920	1990	1790	965	969	540
23	2400	2100	1760	1680	1680	2210	4840	1900	1680	949	961	521
24	2420	2020	1760	1680	1630	2270	4800	1820	1530	957	953	523
25	2470	1740	1760	1680	1650	3050	4780	1750	1500	949	933	521
26	2530	1810	1760	1680	1700	4900	4760	1700	1510	945	929	513
27	2600	1800	1760	1680	1730	6800	4690	1670	1490	937	937	517
28	2720	1800	1760	1680	1900	9000	4580	1660	1450	921	953	519
29	2790	1790	1750	1680	2160	11200	4410	1640	1460	925	937	514
30	2780	1790	1750	1680	---	13200	4250	1620	1450	937	909	514
31	2700	---	1750	1680	---	14600	---	1610	---	945	885	---
TOTAL	72710	69460	54920	52840	49260	114820	277100	77960	46690	34298	30266	21006
MEAN	2345	2315	1772	1705	1699	3704	9237	2515	1556	1106	976	700
MAX	2790	2690	1790	1740	2160	14600	22900	4120	1920	1450	1110	889
MIN	2120	1740	1750	1680	1630	1840	4250	1610	1350	921	885	513
AC-FT	144200	137800	108900	104800	97710	227700	549600	154600	92610	68030	60030	41670
CAL YR 1975 TOTAL	2476320			6784		42400			4912000			
WTR YR 1976 TOTAL		901330		2463		22900		513		1788000		

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN
(National Water-Quality Accounting Network Station)
(Pesticide Station)

LOCATION.--Lat 48°11'40", long 97°08'30", in SW¼SW¼ sec.36, T.155 N., R.51 W., in Walsh County, Hydrologic Unit 09020306, on interstate highway bridge at Oslo, and at mile 271.2 (kilometer 436.4).

DRAINAGE AREA.--31,200 mi² (80,800 km²) approximately, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since December 1974.

REMARKS.--Discharge obtained by hydrographic comparison of stations 05082500 Red River of the North at Grand Forks and 05092000 Red River of the North at Drayton.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 800 micromhos Dec. 4, 1975; minimum, 352 micromhos Aug. 11 and 12, 1976.

WATER TEMPERATURES: Maximum, 26.5°C Aug. 24, 25, 26, 1976; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 800 micromhos Dec. 4; minimum, 352 micromhos Aug. 11 and 12.

WATER TEMPERATURES: Maximum, 26.5°C Aug. 24, 25, 26; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT 30...	1100	3000	450	8.1	5.0	20	12.4	94	200	230	200	18
DEC 17...	1100	2000	635	8.0	.0	7	13.4	94	--	--	220	0
JAN 20...	1100	1500	520	7.4	.0	7	11.4	80	410	790	240	18
FEB 24...	1000	1600	500	7.8	.0	6	11.6	81	--	--	230	9
MAR 23...	1030	1700	620	7.9	.0	5	10.6	74	360	400	270	42
APR 27...	1145	5060	600	8.1	10.0	26	10.0	91	440	290	270	62
MAY 25...	1130	2020	550	8.6	17.0	20	8.8	93	830	820	240	32
JUN 29...	1115	1620	470	8.1	20.5	60	7.0	79	1000	240	220	43
JUL 27...	1130	1000	480	8.2	25.0	40	7.2	88	820	840	200	25
AUG 17...	1155	1070	395	8.4	24.0	40	8.0	97	8360	100	190	22
SEP 21...	1145	584	380	8.5	15.0	20	9.2	93	250	100	180	13

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHORUS (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT 30...	49	20	13	12	.4	3.8	228	0	187	2.9	35	11
DEC 17...	43	28	25	19	.7	5.2	285	0	234	4.6	63	20
JAN 20...	60	22	17	13	.5	3.9	271	0	222	17	49	12
FEB 24...	54	22	18	15	.5	3.7	264	0	217	6.7	39	14
MAR 23...	61	28	24	16	.6	5.6	275	0	226	5.5	81	19
APR 27...	60	28	27	18	.7	5.5	248	0	203	3.2	93	15
MAY 25...	55	25	20	15	.6	4.5	254	0	208	1.0	66	13
JUN 29...	52	22	16	13	.5	3.8	216	0	177	2.7	46	12
JUL 27...	49	19	21	18	.6	3.6	214	0	176	2.2	34	24
AUG 17...	44	19	11	11	.4	3.0	202	0	166	1.3	30	11
SEP 21...	43	17	10	11	.3	3.2	201	0	165	1.0	20	8.4

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

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)
OCT 30...	.1	4.2	275	261	.37	2230	.01	2.2	2.2	.12	--
DEC 17...	.2	6.1	398	331	.54	2150	.21	2.5	2.7	.28	--
JAN 20...	.2	5.6	319	303	.43	1290	.22	.85	1.1	.08	--
FEB 24...	.2	7.1	313	300	.43	1350	.40	1.4	1.8	.11	--
MAR 23...	.0	9.6	407	364	.55	1870	.61	2.2	2.8	.18	--
APR 27...	.2	5.8	373	357	.51	5100	.22	1.3	1.5	.17	--
MAY 25...	.2	3.2	338	321	.46	1840	.00	.93	.93	.13	--
JUN 29...	.1	6.5	294	265	.40	1290	.34	1.6	1.9	.28	--
JUL 27...	.2	8.2	302	264	.41	815	.04	.78	.82	.17	.09
AUG 17...	.2	8.0	229	226	.31	662	.02	.88	.90	.16	--
SEP 21...	.1	5.4	217	206	.30	342	.01	.84	.85	.09	--

DATE	DIS- SOLVED ORTHO- PHOS- PHATE (P04) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT 30...	--	3	0	3	0	0	1	4	4	0
FEB 24...	--	1	1	0	<10	<9	1	0	0	0
APR 27...	--	4	2	2	<10	<9	1	0	0	10
JUN 29...	--	5	3	2	2	1	1	10	0	<10
JUL 27...	.28	--	--	--	--	--	--	--	--	--
SEP 21...	--	4	1	3	<10	<10	0	0	0	0

DATE	TOTAL COBALT (CO) (UG/L)	SUS- PENDE D COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)
OCT 30...	<50	<48	2	10	1	9	820	10	<100	<100
FEB 24...	<50	<47	3	20	15	5	320	30	<100	<96
APR 27...	<50	<50	0	20	16	4	2300	10	<100	<91
JUN 29...	2	2	0	10	0	10	2400	30	12	9
JUL 27...	--	--	--	--	--	--	--	--	--	--
SEP 21...	<50	<50	0	10	5	5	1500	10	<100	<94

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)
OCT 30...	0	1200	1200	0	.2	.1	.1	0	0	0
FEB 24...	4	70	10	60	.1	.1	.0	0	0	0
APR 27...	9	300	290	10	.1	.0	.1	0	0	0
JUN 29...	3	190	180	8	<.5	.0	<.5	1	1	0
JUL 27...	--	--	--	--	--	--	--	--	--	--
SEP 21...	6	110	100	10	.4	.4	.0	2	2	0

DATE	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)
OCT 30...	0	0	0	14	ND	--	ND	ND	--	ND	--	ND
FEB 24...	10	0	20	33	ND	--	ND	ND	--	ND	--	ND
APR 27...	30	30	0	18	ND	ND	ND	ND	ND	ND	ND	ND
JUN 29...	20	10	8	17	--	--	--	--	--	--	--	--
JUL 27...	--	--	--	--	ND	--	ND	ND	--	ND	--	ND
SEP 21...	20	10	10	14	--	--	--	--	--	--	--	--

DATE	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)
OCT 30...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
FEB 24...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 29...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
SEP 21...	--	--	--	--	--	--	--	--	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)
OCT 30...	--	ND	--	ND	--	ND	--	ND	--	ND	--
FEB 24...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 29...	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	--	ND	--	ND	--	ND	--	ND	--	ND	--
SEP 21...	--	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL METHYL TRI- THION (UG/L)	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4-D (UG/L)
OCT 30...	ND	--	ND	--	ND	--	ND	--	ND
JAN 20...	--	--	--	--	--	--	--	--	--
FEB 24...	ND	--	ND	--	ND	--	ND	--	ND
MAR 23...	--	--	--	--	--	--	--	--	--
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 25...	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	--	--	--	--	--	--	--
JUL 27...	ND	--	ND	--	ND	--	ND	--	ND
AUG 17...	--	--	--	--	--	--	--	--	--
SEP 21...	--	--	--	--	--	--	--	--	--

DATE	2,4-D IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MA- TERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MA- TERIAL (UG/KG)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS- SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 30...	ND	ND	ND	ND	ND	42	340	93
JAN 20...	--	--	--	--	--	8	32	62
FEB 24...	--	ND	--	ND	--	6	26	46
MAR 23...	--	--	--	--	--	7	32	71
APR 27...	ND	ND	ND	ND	ND	115	1570	98
MAY 25...	--	--	--	--	--	66	360	89
JUN 29...	--	--	--	--	--	151	660	96
JUL 27...	--	ND	--	ND	--	123	332	95
AUG 17...	--	--	--	--	--	157	454	89
SEP 21...	--	--	--	--	--	46	73	95

Whole water ND - Not detected at 0.01 ug/L level.
 Bed material ND - Not detected at 0.1 ug/mg level.

RED RIVER OF THE NORTH BASIN
05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	402	395	487	475	736	725	557	552	499	496	537	530
2	403	397	494	488	765	734	554	539	504	499	549	543
3	404	400	498	489	784	763	539	529	506	503	554	547
4	413	403	509	497	800	781	529	524	508	504	557	554
5	417	412	509	500	796	784	524	521	509	504	559	557
6	417	408	509	497	791	777	526	523	508	505	567	560
7	420	411	513	507	771	754	543	521	505	502	582	569
8	426	421	516	511	747	727	555	543	505	501	587	580
9	427	421	515	508	723	714	553	533	511	503	582	570
10	437	417	512	509	707	690	537	532	509	504	574	562
11	415	409	511	486	690	669	538	524	507	503	574	553
12	423	410	508	489	667	659	522	517	508	505	607	585
13	430	421	513	508	666	656	529	521	509	506	607	601
14	431	426	520	513	660	656	529	529	509	506	605	601
15	433	424	525	524	653	643	536	531	507	499	605	595
16	452	433	538	528	643	631	541	532	502	497	597	592
17	461	452	536	527	624	616	536	533	501	493	597	591
18	460	450	536	529	616	609	534	529	498	493	602	597
19	452	445	565	541	607	585	530	526	497	492	602	600
20	447	435	569	543	585	575	527	512	499	494	606	602
21	455	441	574	556	576	568	511	506	498	492	609	606
22	464	458	575	566	566	554	504	500	498	491	615	609
23	464	460	606	564	554	537	499	494	501	491	622	616
24	468	459	659	613	555	541	496	491	500	495	637	626
25	477	468	711	661	573	556	491	486	505	499	658	624
26	484	476	711	705	576	571	489	486	513	505	660	615
27	475	460	712	689	571	558	491	487	520	515	---	---
28	467	448	706	692	559	550	499	488	523	520	---	---
29	458	448	714	692	552	547	499	491	528	525	---	---
30	455	449	730	707	552	547	493	489	---	---	---	---
31	471	457	---	---	552	549	496	492	---	---	---	---
MONTH	484	395	730	475	800	537	557	486	528	491	660	530

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	516	509	475	464	440	427	375	370
2	---	---	---	---	516	495	465	458	434	420	373	355
3	441	437	---	---	502	494	462	456	435	423	361	353
4	442	435	---	---	497	489	467	458	434	399	365	354
5	701	435	---	---	497	492	471	464	403	377	369	359
6	---	---	---	---	500	494	475	467	386	377	368	361
7	---	---	---	---	497	492	478	470	380	374	369	365
8	---	---	---	---	499	489	478	471	377	357	372	363
9	---	---	---	---	492	486	476	468	370	359	371	364
10	---	---	---	---	494	487	484	473	365	357	368	360
11	---	---	---	---	491	483	486	479	366	352	369	362
12	---	---	---	---	489	484	486	478	359	352	370	365
13	---	---	---	---	489	484	486	478	369	357	371	367
14	---	---	---	---	486	481	492	484	392	370	370	367
15	---	---	---	---	483	473	494	489	405	394	372	364
16	---	---	---	---	475	428	495	486	414	387	378	367
17	---	---	---	---	446	428	499	489	408	388	381	371
18	---	---	---	---	456	450	500	494	413	392	386	375
19	---	---	---	---	456	444	500	494	411	394	392	383
20	---	---	553	546	444	427	504	494	416	401	392	381
21	---	---	555	550	428	424	507	495	416	405	389	378
22	---	---	555	546	441	425	511	495	410	403	396	392
23	---	---	550	538	471	440	512	504	412	389	397	393
24	---	---	544	535	473	467	514	504	398	390	400	396
25	---	---	546	540	475	470	509	499	399	389	408	390
26	---	---	544	537	471	468	499	479	400	382	402	394
27	---	---	542	529	473	470	483	452	390	383	402	391
28	---	---	535	524	475	471	455	447	389	380	398	388
29	---	---	531	516	478	471	461	446	390	375	401	374
30	---	---	521	509	478	471	459	452	380	371	380	366
31	---	---	516	506	---	---	456	438	373	366	---	---
MONTH	---	---	---	---	516	424	514	438	440	352	408	353

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	12.0	11.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12.0	11.0	6.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12.0	11.0	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	12.5	11.5	7.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.5	11.5	7.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	12.0	7.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	14.0	12.5	7.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	13.5	12.5	7.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	12.5	12.0	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	12.5	11.5	6.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	12.0	11.5	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	11.5	11.0	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	11.0	10.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	10.5	10.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	10.0	9.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	9.5	9.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	9.5	8.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	9.0	8.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.5	8.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	9.5	9.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	9.0	9.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.0	8.5	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
24	8.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	7.5	7.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	7.0	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	6.5	6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	6.0	5.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---
29	5.5	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---
30	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---
31	5.5	5.0	---	---	0.0	0.0	0.0	0.0	---	---	---	---
MONTH	14.0	5.0	7.5	0.0	0.0	-0.5	0.0	0.0	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	---	---	---	---	20.5	19.0	23.0	21.0	24.5	23.0	21.0	19.5
2	---	---	---	---	21.5	19.5	23.5	21.5	24.5	22.5	21.0	19.0
3	---	---	---	---	21.5	20.5	24.0	22.5	24.0	23.0	20.5	19.5
4	---	---	---	---	22.0	20.0	24.5	23.0	24.0	23.0	20.5	19.0
5	---	---	---	---	22.0	20.0	25.0	23.5	23.5	22.5	21.0	19.0
6	---	---	---	---	22.5	21.0	25.5	24.0	23.5	22.0	22.0	20.0
7	---	---	---	---	22.5	21.5	26.0	24.0	24.5	22.5	21.5	20.0
8	---	---	---	---	23.5	21.5	25.0	24.0	24.0	22.5	20.0	18.5
9	---	---	---	---	24.0	22.5	25.5	23.5	24.0	23.5	19.5	18.0
10	---	---	---	---	25.0	22.5	26.0	25.0	25.0	23.0	20.0	18.0
11	---	---	---	---	25.5	23.5	25.5	24.0	25.0	23.5	20.0	18.0
12	---	---	---	---	25.0	24.0	24.5	22.5	24.5	24.0	19.5	18.5
13	---	---	---	---	24.5	22.5	25.5	23.0	24.0	23.5	19.0	17.0
14	---	---	---	---	23.0	22.0	25.5	23.5	24.5	23.0	17.0	16.5
15	---	---	---	---	22.0	19.5	25.0	23.0	24.5	23.0	18.0	15.0
16	---	---	---	---	20.0	18.5	23.5	21.5	24.0	22.5	18.0	16.0
17	---	---	---	---	20.0	18.0	24.5	22.0	24.5	23.0	19.0	16.5
18	---	---	---	---	18.5	17.0	24.0	22.5	25.0	23.5	19.5	17.0
19	---	---	---	---	19.0	17.5	24.0	22.5	25.0	24.0	18.0	16.5
20	---	---	17.5	16.0	19.5	17.5	24.5	22.5	26.0	24.0	15.5	15.0
21	---	---	17.0	16.0	19.5	18.5	24.5	22.5	26.5	24.5	15.5	14.0
22	---	---	17.0	15.5	20.5	18.5	24.5	23.0	26.5	24.5	15.5	14.5
23	---	---	17.0	15.5	22.5	20.0	24.5	23.0	26.0	24.5	14.5	13.0
24	---	---	17.5	15.5	21.5	20.5	25.0	23.0	26.5	24.5	14.0	12.5
25	---	---	18.0	16.0	22.5	20.5	24.5	23.5	26.5	25.0	13.5	12.0
26	---	---	17.5	16.5	22.0	20.5	25.0	23.0	26.5	25.0	13.5	12.0
27	---	---	17.0	16.0	20.5	19.5	25.0	23.5	26.0	23.5	12.0	11.0
28	---	---	18.0	16.5	21.0	20.0	25.0	23.5	23.0	22.0	12.5	10.5
29	---	---	18.0	17.0	21.5	20.0	25.0	24.0	23.0	21.5	13.5	11.0
30	---	---	19.5	18.0	22.5	20.5	24.5	23.5	23.5	21.5	14.5	12.0
31	---	---	19.5	18.5	---	---	24.5	23.0	22.0	21.0	---	---
MONTH	---	---	---	---	25.5	17.0	26.0	21.0	26.5	21.0	22.0	10.5

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 30, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

98,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...HYDRODICTYACEAE				
....PEDIASTRUM		5,000	5	
....DOCYSTACEAE				
LANKISTRODESMUS			0	
LDICTYOSPHAERIUM			0	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
LTETRASTRUM			0	
	TOTALS	5,300	5	0.323=DIVERSITY
CHRYSTOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		630	1	
LMELOSIRA			0	
LSTEPHANODISCUS			0	
..PENNALES	PENNALE			
...FRAGILARIACEAE				
LFRAGILARIA			0	
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
LNAVICULA			0	
...NITZSCHIA				
....NITZSCHIA		2,200	2	
	TOTALS	3,100	3	1.157=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
.MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
LAGMENELLUM			0	
DANACYSTIS		68,000	70	
LGOMPHOSPHAERIA			0	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LAPHANIZOMENON			0	
...OSCILLATORIA				
DLYNGBYA		21,000	22	
	TOTALS	89,000	92	0.791=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTEDANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:PHYL/DIV 0.506
CLASS 0.506
ORDER 1.257
FAMILY 1.275
GENERA 1.283

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 25, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

78,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...HYDRODICTYACEAE				
LPEDIASTRUM			0	
...OOCYSTACEAE				
....ANKISTRODESMUS		520	1	
LSELENASTRUM			0	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
TOTALS		910	1	1.379=DIVERSITY
CHRYSOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		6,300	8	
....MELOSIRA		1,000	1	
LSTEPHANODISCUS			0	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
....ASTERIONELLA		650	1	
...NITZSCHACEAE				
LNITZSCHIA			0	
TOTALS		8,200	10	1.157=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
.MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		68,000	87	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
....APHANIZOMENON		1,000	1	
TOTALS		69,000	88	0.113=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.573
 CLASS 0.573
 ORDER 0.727
 FAMILY 0.733
 GENERA 0.810

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 16, 1975
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

25,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...ODCOSTACEAE				
....ANKISTRODESMUS		130	1	
...SCENEDESMACEAE				
....SCENEDESMUS		590	2	
	TOTALS	730	3	0.684=DIVERSITY
CHRYSDOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		990	4	
LMELOSIRA			0	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
....ASTERIONELLA		330	1	
...NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
	TOTALS	1,400	5	1.049=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS				
DA.INSERTA		22,000	91	
....ANACYSTIS		200	1	
	TOTALS	23,000	92	0.072=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.500
 CLASS 0.500
 ORDER 0.544
 FAMILY 0.564
 GENERA 0.579

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 20, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

780 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...HYDRODICTYACEAE				
L ...PEDIASTRUM			0	
...MICRACTINIACEAE				
...MICRACTINIUM		73	9	
...ODCYSTACEAE				
...ANKISTRODESMUS		9	1	
...SCENEDESMACEAE				
...SCENEDESMUS		73	9	
..ZYGNEMATALES				
...DESMIDIACEAE	PLACODERM DESMIDS			
...CLOSTERIUM		9	1	
	TOTALS	160	20	1.503=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		37	5	
...MELOSIRA		37	5	
...STEPHANODISCUS		9	1	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		9	1	
...FRAGILARIACEAE				
...ASTERIONELLA		73	9	
D ...FRAGILARIA		130	16	
...SYNEDRA		9	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		27	4	
...NITZSCHACEAE				
...NITZSCHIA		37	5	
	TOTALS	370	47	2.670=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
...OCHROMONADACEAE				
...DINOBYRON		9	1	
	TOTALS	9	1	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
D ...APHANIZOMENON		240	31	
	TOTALS	240	31	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.504
 CLASS 1.584
 ORDER 2.012
 FAMILY 2.697
 GENERA 3.159

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 24, 1976
1000 HOURS

IDENTIFICATION OF PHYTOPLANKTON

840 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..HYDRODICTYACEAE				
....PEDIASTRUM		77	9	
....ODCSTACEAE				
....ANKISTRODESMUS		14	2	
....KIRCHNERIELLA		10	1	
....SCENEDESMACEAE				
LCRUCIGENTIA			0	
....SCENEDESMUS		10	1	
TOTALS		110	13	1.360=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
....CYCLOTELLA		43	5	
....MELOSIRA		19	2	
LSTEPHANODISCUS			0	
..PENNALES	PENNALE			
..ACHNANTHACEAE				
..COCCONEIS		14	2	
..CYMBELLACEAE				
....CYMBELLA		5	1	
....EPITHEMIA		5	1	
..DIATOMACEAE				
....DIATOMA		5	1	
..FRAGILARIACEAE				
....ASTERIONELLA		5	1	
....FRAGILARIA		5	1	
..GOMPHONEMACEAE				
....GOMPHONEMA		14	2	
..NAVICULACEAE	NAVICULOID			
....NAVICULA		19	2	
..NITZSCHACEAE				
....NITZSCHIA		24	3	
..SURIPELLACEAE				
....SURIPELLA		5	1	
TOTALS		160	22	3.157=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....ANACYSTIS				
DA.INSERTA		380	46	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE				
....LYNGBYA		19	2	
DOSCILLATORIA		160	19	
TOTALS		560	67	1.057=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.231
 CLASS 1.231
 ORDER 2.024
 FAMILY 2.516
 GENERA 2.738

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 23, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

460 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		9	2	
....SCENEDESMACEAE				
....SCENEDESMUS		18	4	
	TOTALS	28	6	0.918=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		37	8	
LMELOSIRA			0	
....STEPHANODISCUS		9	2	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		14	3	
...CYMBELLACEAE				
...CYMBELLA		9	2	
...FRAGILARIACEAE				
LASTERIONELLA			0	
...NITZSCHIA				
...NITZSCHIA		18	4	
...SURIPELLACEAE				
....SURIPELLA		5	1	
	TOTALS	92	20	2.284=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		250	54	
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA				
DOSCILLATORIA		92	20	
	TOTALS	350	74	0.837=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.023
 CLASS 1.023
 ORDER 1.843
 FAMILY 2.080
 GENERA 2.152

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 27, 1976
1145 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,300 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...DOCYSTACEAE				
....ANKISTRODESMUS		320	6	
LDICTYOSPHAERIUM			0	
...SCENEDESMACEAE		650	12	
....SCENEDESMUS			0	
LTETRASTRUM				
	TOTALS	970	18	0.918=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		1,100	21	
...MELOSIRA		240	5	
...STEPHANODISCUS		160	3	
..PENNALES	PENNATE			
...CYMBELLACEAE				
LAMPHORA			0	
LCYMBELLA			0	
...FRAGILARIACEAE				
DFRAGILARIA		1,100	20	
LSYNEDRA			0	
...GOMPHONEMACEAE				
...GOMPHONEMA		81	2	
...NAVICULACEAE	NAVICULOID			
LCALONEIS			0	
LNAVICULA			0	
...NITZSCHACEAE				
DNITZSCHIA		1,500	27	
...SURIRELLACEAE		240	5	
....SURIRELLA				
	TOTALS	4,400	83	2.274=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
LGOMPHOSPHAERIA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.684
 CLASS 0.684
 ORDER 1.450
 FAMILY 2.398
 GENERA 2.711

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 25, 1976
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

24,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT
CHLOROPHYTA	GREEN ALGAE		
CHLOROPHYCEAE			
CHLOROCOCCALES			
HYDRODICTYACEAE			
L PEDIASTRUM			0
MICRACTINIACEAE			
MICRACTINIUM		1,900	8
OCCYSTACEAE			
ANKISTRODESMUS		1,400	6
CHODATELLA		160	1
DICTYOSPHAERIUM		1,600	7
KIRCHMERIELLA		640	3
L OOCYSTIS			0
WESTELLA		320	1
SCENEDESMACEAE			
ACTINASTRUM		2,500	10
L CRUCIGENIA			0
D SCENEDESMUS		3,500	15
TETRASTRUM		640	3
TETRASPORALES			
PALMELLACEAE			
SPHAEROCYSTIS		720	3
CHRYSTOPHYTA			
BACILLARIOPHYCEAE	DIATOMS		
CENTRALES	CENTRIC		
COSCINODISCACEAE			
CYCLOTELLA		1,000	4
MELOSIRA		400	2
L STEPHANODISCUS			0
PENNALES	PENNATE		
FRAGILARIACEAE			
L ASTERIONELLA			0
FRAGILARIA		400	2
NAVICULACEAE	NAVICULOID		
NAVICULA		160	1
NITZSCHACEAE			
NITZSCHIA		1,800	8
CYANOPHYTA	BLUE-GREEN ALGAE		
MYXOPHYCEAE			
CHROOCOCCALES	COCCOID		
CHROOCOCCACEAE			
D ANACYSTIS		6,400	27
EUGLENOPHYTA	EUGLENIDS		
CRYPTOPHYCEAE	CRYPTOMONADS		
CRYPTOMONIDALES			
CRYPTOMONODACEAE			
CRYPTOMONAS		160	1
EUGLENOPHYCEAE			
EUGLENALES			
EUGLENACEAE			
TRACHELOMONAS		240	1

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.500
 CLASS 1.516
 ORDER 1.835
 FAMILY 2.685
 GENERA 3.457

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 29, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,300 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
...CHLOROCOCCALES			
...OCYSTACEAE			
....KIRCHNERIELLA		23	1
....OCYSTIS		93	2
...SCENEDESMACEAE			
....CRUCIGENIA		93	2
...SCENEDESMUS		330	8
....TETRASTRUM		190	4
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
....CYCLOTELLA		300	7
....STEPHANODISCUS		23	1
..PENNALES	PENNATE		
...ACHNANTHACEAE			
....OCONEIS		23	1
...NITZSCHACEAE			
....NITZSCHIA		47	1
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
...CHROOCOCCALES	COCCOID		
...CHROOCOCCACEAE			
....AGMENELLUM		93	2
DANACYSTIS		3,100	72

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.066
 CLASS 1.066
 ORDER 1.127
 FAMILY 1.248
 GENERA 1.635

RED RIVER OF THE NORTH BASIN

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05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 27, 1976
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,500 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
...HYDRODICTYACEAE			
D ...PEDIASTRUM		4,900	89
...OCYSTACEAE			
...ANKISTRODESMUS		100	2
L ...OOCYSTIS			0
...SCENEDESMACEAE			
L ...SCENEDESMUS			0
..VOLVOCALES			
...CHLAMYDOMONADACEAE			
...CHLAMYDOMONAS		100	2
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNALES	PENNATE		
...NITZSCHIACEAE			
...NITZSCHIA		310	6
EUGLENOPHYTA	EUGLENOIDS		
..CRYPTOPHYCEAE	CRYPTOMONADS		
..CRYPTOMONIDALES			
...CRYPTOMONODACEAE			
...CRYPTOMONAS		100	2

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.441
 CLASS 0.441
 ORDER 0.572
 FAMILY 0.702
 GENERA 0.702

RED RIVER OF THE NORTH BASIN

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 17, 1976
1155 HOURS

IDENTIFICATION OF PHYTOPLANKTON

13,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
...HYDROICTYACEAE			
...PEDIASTRUM		910	7
...DICTYOSPHAERTUM			
...ANKISTRODESMUS		300	2
...HODATELLA		100	1
...KIRCHNERIELLA		100	1
...TREIBARIA		300	2
...SCENEDESMUS		410	3
...ACTINASTRUM		1,700	13
...RUCIGENIA		410	3
...CHRYSOPHYTA		410	3
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINOIDISCAEAE			
D ...CYCLOTELLA		4,000	30
...MELOSIRA		100	1
..PENNALES	PENNATE		
...NITZSCHIAEAE			
...NITZSCHIA		1,400	11
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..CHROCOCCALES	COCROID		
...CHROCOCCACEAE			
D ...ANACYSTIS		2,800	22
EUGLENOPHYTA	EUGLENOIDS		
..CRYPTOPHYCEAE	CRYPTOMONADS		
..CRYPTOMONIDAE			
...CRYPTOCHRYSIDACEAE			
...CHROMONAS		100	1

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.589
CLASS 1.589
ORDER 1.935
FAMILY 2.450
GENERA 2.937

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 21, 1976
1145 HOURS

IDENTIFICATION OF PHYTOPLANKTON

11,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
CHLOROPHYCEAE			
CHLOROCOCCALES			
HYDRODICTYACEAE			
L PEDIASTRUM			0
OCYSTACEAE			
ANKISTRODESMUS		190	2
OCYSTIS		190	2
SCENEDESMACEAE			
CRUCIGENTIA		750	7
D SCENEDESMUS		3,000	26
L TETRASTRUM			0
VOLVOCALES			
CHLAMYDOMONADACEAE			
L CHLAMYDOMONAS			0
CHRYSTOPHYTA			
BACILLARIOPHYCEAE	DIATOMS		
CENTRALES	CENTRIC		
COSCINODISCACEAE			
D CYCLOTELLA		7,110	62
L MELOSIRA			0
PENNALES	PENNATE		
CYMBELLACEAE			
L CYMBELLA			0
NAVICULACEAE	NAVICULOID		
NAVICULA		190	2
NITZSCHACEAE			
L NITZSCHIA			0
CYANOPHYTA	BLUE-GREEN ALGAE		
MYXOPHYCEAE			
CHROCOCCALES	COCOCID		
CHROCOCCACEAE			
ANACYSTIS			
L ANACYSTIS INCERTA			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAPTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.943
 CLASS 0.943
 ORDER 1.053
 FAMILY 1.212
 GENERA 1.481

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 30	31	19	1.7	5.8	0.0	2,900	Polyethylene strip
May 25	32	27	24.9	2.81	.0	740	Polyethylene strip
June 29	34	1.85	.846	.893	.0	1,100	Polyethylene strip
July 27	32	18.2	17.3	1.38	.042	610	Polyethylene strip
Aug. 17	21	10.8	9.85	9.67	.057	100	Polyethylene strip

RED RIVER OF THE NORTH BASIN

05083600 MIDDLE BRANCH FOREST RIVER NEAR WHITMAN, ND

LOCATION.--Lat 48°14'50", long 98°07'00", in SE&NW¼ sec.16, T.155 N., R.58 W., Walsh County, Hydrologic Unit 09020308, 150 ft (46 m) downstream from bridge on State Highway 35, and 6 mi (10 km) north of Whitman.

DRAINAGE AREA.--47.7 mi² (123.5 km²), 8.8 mi² (22.8 km²) noncontributing.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,510 ft (460.2 m) from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--16 years, 2.91 ft³/s (0.082 m³/s), 2,110 acre-ft/yr (2.60 hm³/yr); median of yearly mean discharges, 2.1 ft³/s (0.060 m³/s) 1,500 acre-ft/yr (1.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 984 ft³/s (27.9 m³/s) May 19, 1974, gage height, 7.11 ft (2.167 m); no flow for many months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft³/s (1.982 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 31	--	90 2.55	* ^a 6.40 1.951	June 12	0830	*140 3.97	5.30 1.615
Apr. 4	--	125 3.54	(a)				

Minimum, no flow for many months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0				0	50	.22	0	.07	0	
2	0	0				0	40	.17	0	.01	0	
3	0	0				0	25	.11	0	0	0	
4	0	0				0	80	.07	0	0	0	
5	0	0				0	75	.04	0	0	0	
6	0	.01				0	65	.04	0	0	0	
7	0	.01				0	45	.03	0	0	0	
8	0	.02				0	35	.01	0	0	2.3	
9	0	.01				0	25	0	0	0	.95	
10	0	.01				0	20	0	0	.32	.15	
11	0	.01				0	7.0	0	0	.13	1.0	
12	0	.01				0	5.5	0	58	.01	.21	
13	0	.01				0	5.0	0	23	0	.01	
14	.04	.01				0	6.0	0	14	0	0	
15	.44	.01				0	6.0	0	6.1	0	0	
16	.49	.02				0	6.7	0	2.2	0	0	
17	.27	.50				0	9.1	0	2.8	0	0	
18	.19	.20				0	8.8	0	4.2	0	0	
19	.11	.10				0	6.0	0	5.2	0	0	
20	.10	.05				0	5.0	0	3.2	0	0	
21	.07	.02				0	3.8	0	2.2	0	0	
22	.05	.01				0	3.0	0	1.5	0	0	
23	.04	0				0	2.4	0	2.4	0	0	
24	.04	0				0	2.0	0	1.5	0	0	
25	.01	0				.50	1.1	0	1.9	0	0	
26	0	0				2.0	.69	0	1.0	0	0	
27	0	0				5.0	.44	0	.58	0	0	
28	0	0				16	.35	0	.36	0	0	
29	0	0				55	.27	0	.26	0	0	
30	0	0				55	.26	0	.17	0	0	
31	0	---				70	---	0	---	0	---	---
TOTAL	1.85	1.01	0	0	0	203.50	539.41	.69	130.57	.54	4.62	0
MEAN	.060	.034	0	0	0	6.56	18.0	.022	4.35	.017	.15	0
MAX	.49	.50	0	0	0	70	80	.22	.58	.32	2.3	0
MIN	0	0	0	0	0	0	.26	0	0	0	0	0
AC-FT	3.7	2.0	0	0	0	404	1070	1.4	259	1.1	9.2	0
CAL YR 1975	TOTAL 633.02	MEAN 1.73	MAX 36	MIN 0	AC-FT 1260							
WTR YR 1976	TOTAL 882.19	MEAN 2.41	MAX 80	MIN 0	AC-FT 1750							

RED RIVER OF THE NORTH BASIN

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05084000 FOREST RIVER NEAR FORDVILLE, ND

LOCATION.--Lat 48°11'50", long 97°43'49", on line between secs.32 and 33, T.155 N., R.55 W., Walsh County, Hydrologic Unit 09020308, on right bank 50 ft (15 m) upstream from highway bridge, 0.5 mi (0.8 km) downstream from South Branch, and 3 mi (5 km) southeast of Fordville.

DRAINAGE AREA.--456 mi² (1,181 km²), of which about 120 mi² (311 km²) is probably noncontributing.

PERIOD OF RECORD.--April 1940 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,035 ft (315 m), from topographic map. Prior to July 21, 1951, nonrecording gage at site 50 ft (15 m) downstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair. Some regulation of high flows by temporary retention in several retarding basins above station. Retarding basins have a combined capacity of about 14,000 acre-ft (17.3 hm³).

AVERAGE DISCHARGE.--36 years, 38.1 ft³/s (1.079 m³/s) 27,600 acre-ft/yr (34.0 hm³/yr); median of yearly mean discharges, 36 ft³/s (1.02 m³/s), 26,100 acre-ft/yr (32 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s (464 m³/s) Apr. 18, 1950, gage height 14.48 ft (4.414 m), from floodmark, from rating curve extended above 5,600 ft³/s (159 m³/s) on basis of contracted-opening and slope-area measurements of peak flow; no flow Apr. 1-13, Sept. 3, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft³/s (31.2 m³/s) Mar. 29, gage height 5.46 ft (1.664 m), backwater from ice; minimum 2.2 ft³/s (0.062 m³/s), Aug. 24, gage height 1.24 ft (0.378 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	11	8.5	9.5	9.8	11	643	34	13	11	4.8	6.7
2	6.5	10	8.2	9.5	9.8	10	639	31	13	9.9	4.4	7.6
3	6.5	10	8.0	9.2	10	11	460	30	12	9.1	4.2	6.2
4	6.5	10	9.0	9.0	9.0	11	376	28	11	8.3	5.9	5.5
5	6.5	10	10	9.0	8.3	11	362	26	9.9	8.0	6.5	5.9
6	6.5	10	10	9.0	7.5	11	326	25	9.5	7.6	6.4	4.4
7	6.5	10	9.5	9.0	7.5	11	294	24	11	7.2	5.2	4.3
8	6.9	10	10	9.0	7.6	11	256	23	11	7.6	7.2	5.2
9	11	10	10	9.0	7.5	11	232	22	11	12	7.9	5.2
10	11	10	10	9.0	7.5	11	223	22	11	11	8.1	4.8
11	9.5	9.5	10	9.0	7.5	11	210	22	11	8.7	6.7	4.4
12	7.6	9.5	9.8	9.0	7.4	9.0	177	22	11	8.3	5.6	4.4
13	6.6	9.2	9.5	9.0	7.3	9.5	151	22	11	8.0	5.7	4.8
14	6.2	9.0	9.5	9.0	7.3	11	135	22	11	7.6	5.6	5.5
15	6.6	9.0	9.5	9.0	7.3	11	126	22	16	6.9	5.5	5.5
16	6.9	9.0	9.5	9.0	7.3	11	110	22	20	6.6	5.1	5.2
17	6.9	9.0	9.5	9.0	7.6	11	107	22	18	6.9	4.8	5.2
18	7.2	9.0	9.5	9.0	7.6	11	104	22	17	6.6	4.4	5.2
19	7.2	9.0	9.5	9.0	8.0	12	83	21	16	6.9	4.8	5.2
20	7.2	9.0	9.5	9.0	7.7	12	76	21	14	6.6	4.4	5.5
21	7.2	8.7	9.5	9.0	7.2	11	76	21	14	6.2	3.9	5.5
22	7.6	8.5	9.5	9.0	7.8	11	73	21	14	5.9	3.6	5.9
23	8.0	8.5	9.5	9.0	8.6	14	64	21	13	5.5	3.6	6.2
24	8.3	8.5	9.5	9.0	9.9	300	57	20	14	5.9	3.0	6.2
25	8.7	8.5	9.5	9.0	10	326	53	20	14	5.5	3.3	6.6
26	9.5	8.5	9.5	9.0	11	303	47	19	14	5.5	3.6	5.9
27	10	8.5	9.5	9.0	11	261	44	20	14	4.8	7.9	6.6
28	10	8.5	9.5	9.0	9.7	479	40	19	14	5.5	7.7	6.2
29	11	8.5	9.5	9.5	11	752	39	17	13	5.2	6.7	5.9
30	11	8.5	9.5	10	---	935	37	16	12	4.8	4.8	6.2
31	11	---	9.5	10	---	838	---	14	---	4.4	4.8	---
TOTAL	248.6	277.4	293.5	282.7	245.7	4447.5	5620	691	392.4	224.0	166.1	167.9
MEAN	8.02	9.25	9.47	9.12	8.47	143	187	22.3	13.1	7.23	5.36	5.60
MAX	11	11	10	10	11	935	643	34	20	12	8.1	7.6
MIN	6.2	8.5	8.0	9.0	7.2	9.0	37	14	9.5	4.4	3.0	4.3
AC-FT	493	550	582	561	487	8820	11150	1370	778	444	329	333
CAL YR 1975	TOTAL	14535.6	MEAN	39.8	MAX	945	MIN	4.4	AC-FT	28830		
WTR YR 1976	TOTAL	13056.8	MEAN	35.7	MAX	935	MIN	3.0	AC-FT	25900		

RED RIVER OF THE NORTH BASIN

05085000 FOREST RIVER AT MINTO, ND

LOCATION.--Lat 48°16'10", long 97°22'10", in SE¼ sec.31, T.156 N., R.52 W., Walsh County, Hydrologic Unit 09020308, on right bank 30 ft (9 m) upstream from dam in Minto, 150 ft (45 m) upstream from Burlington Northern Railway bridge, and 900 ft (270 m) east of U.S. Highway 81.

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1944 to current year.

REVISED RECORDS.--WSP 1438: 1948-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 806.95 ft (245.958 m) above mean sea level. Prior to July 15, 1954, nonrecording gage at site 400 ft (120 m) upstream at same datum.

REMARKS.--Records fair. Occasionally during high stages, particularly when the channel is filled with snow, overflow occurs 0.5 mi (0.8 km) below the municipality of Forest River and bypasses the gage 3 mi (5 km) south of Minto and flows into Lake Ardoch. Bypass flow is not included in computation of discharge record for station at Minto.

AVERAGE DISCHARGE.--32 years, 50.4 ft³/s (1.427 m³/s) 36,520 acre-ft/yr (45.0 hm³/yr); median of yearly mean discharges, 46 ft³/s (1.30 m³/s), 33,300 acre-ft/yr (41 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,600 ft³/s (470 m³/s) Apr. 18, 1950, gage height, 11.80 ft (3.597 m) from floodmarks, from rating curve extended above 7,200 ft³/s (204 m³/s) on basis of contracted-opening measurement of peak flow; no flow at times each year 1945-47, 1953-55, 1959-64.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,500 ft³/s (42.5 m³/s) Mar. 31, gage height 7.03 ft (2.143 m), backwater from ice; minimum, 0.20 ft³/s (0.006 m³/s) Sept. 17, gage height 0.79 ft (0.241 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	10	4.6	3.7	3.5	8.0	1300	58	22	17	1.6	2.8
2	4.6	11	4.0	3.7	3.5	8.0	1260	55	21	16	.66	3.4
3	5.3	12	4.0	3.7	3.0	7.7	1050	53	20	15	.42	3.4
4	4.6	10	3.7	3.7	3.0	7.5	750	53	18	15	2.0	2.8
5	5.3	11	3.7	3.7	3.0	6.5	590	51	17	14	3.0	2.4
6	4.6	12	3.7	3.7	3.0	6.0	565	46	17	11	2.8	2.0
7	4.0	12	3.7	3.7	3.0	5.0	510	44	16	9.5	2.8	2.0
8	6.0	12	3.7	3.7	3.0	4.0	500	44	15	8.6	3.4	2.4
9	11	10	3.7	3.7	3.0	3.0	490	42	16	9.5	4.0	2.0
10	12	10	3.7	3.7	3.0	3.0	440	42	16	10	5.3	1.9
11	11	10	3.7	3.7	3.0	3.0	410	37	15	11	6.0	1.6
12	11	10	3.7	3.7	3.0	2.5	385	35	14	10	6.8	1.2
13	14	10	3.7	3.7	3.0	2.0	336	32	14	8.6	6.0	1.2
14	16	10	3.7	3.7	3.0	2.0	310	32	16	9.5	5.3	1.2
15	15	10	3.7	3.7	3.0	2.0	306	30	16	8.6	4.6	.92
16	15	10	3.7	3.5	3.0	2.0	294	30	16	7.7	4.0	.66
17	14	10	3.7	3.5	3.0	2.0	264	30	18	7.7	3.4	.42
18	14	10	3.7	3.5	3.0	2.0	239	30	21	6.0	2.8	.66
19	14	10	3.7	3.5	3.0	2.0	232	28	22	7.7	2.8	.92
20	15	10	3.7	3.5	3.0	2.0	222	28	21	7.7	2.8	1.2
21	14	10	3.7	3.5	3.0	2.0	214	28	20	7.7	2.4	1.6
22	14	10	3.7	3.5	3.0	2.0	188	27	18	6.8	2.0	.92
23	12	10	3.7	3.5	3.0	2.0	161	25	17	6.0	2.0	.92
24	14	10	3.7	3.5	8.0	2.0	140	24	16	5.3	1.2	1.6
25	14	8.6	3.7	3.5	8.0	2.0	120	24	15	5.3	.66	1.6
26	14	6.0	3.7	3.5	8.0	1.6	98	24	17	4.6	1.3	2.0
27	14	5.5	3.7	3.5	8.0	100	80	24	17	4.0	2.8	.20
28	11	5.5	3.7	3.5	8.0	160	70	24	18	3.4	2.0	.42
29	12	5.3	3.7	3.5	8.0	450	65	24	18	4.0	1.6	.66
30	12	5.3	3.7	3.5	---	1100	60	24	17	3.4	1.6	.92
31	12	---	3.7	3.5	---	1450	---	24	---	2.8	2.0	---
TOTAL	344.0	286.2	116.2	111.5	120.0	3351.8	11629	1072	524	263.4	90.04	45.92
MEAN	11.1	9.54	3.75	3.60	4.14	108	388	34.6	17.5	8.50	2.90	1.53
MAX	16	12	4.6	3.7	8.0	1450	1300	58	22	17	6.8	3.4
MIN	4.0	5.3	3.7	3.5	3.0	1.6	60	24	14	2.8	.42	.20
AC-FT	682	568	230	221	238	6650	23070	2130	1040	522	179	91
CAL YR 1975	TOTAL	19504.40	MEAN	53.4	MAX	1290	MIN	3.4	AC-FT	38690		
WTR YR 1976	TOTAL	17954.06	MEAN	49.1	MAX	1450	MIN	.20	AC-FT	35610		

RED RIVER OF THE NORTH BASIN

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05088500 HOMME LAKE NEAR PARK RIVER, ND

LOCATION.--Lat 48°24'20", long 97°47'10", in SE¼NW¼ sec.19, T.157 N., R.55 W., Walsh County, Hydrologic Unit 09020310, at Homme Dam on South Branch Park River, 2 mi (3 km) west of town of Park River.

DRAINAGE AREA.--226 mi² (585 km²).

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Reservoir is formed by an earth-fill dam, 865 ft (264 m) long; storage began in September 1949, dam completed in October 1950. Usable capacity between invert of outlet, elevation, 1,048.0 ft (319.43 m), and crest of spillway, elevation, 1,080.0 ft (329.18 m), is 3,550 acre-ft (4.38 hm³). Dead storage is 100 acre-ft (0.12 hm³). Low flows are controlled by two sluice gates 3 x 5 ft (0.914 x 1.524 m). The spillway, which is 150 ft (46 m) long, is uncontrolled. The records herein represent total contents. The reservoir is operated for flood control, water supply, and pollution abatement during low-flow periods.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,500 acre-ft (5.55 hm³) Apr. 11, 1965, elevation, 1,083.70 ft (330.312 m); minimum since first reaching spillway level, 184 acre-ft (0.23 hm³) Feb. 8, 1952, elevation, 1,051.22 ft (320.412 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents during year, 3,970 acre-ft (4.90 hm³) Apr. 3, elevation, 1,081.52 ft (329.647 m); minimum, 2,110 acre-ft (2.60 hm³) Mar. 31, elevation, 1,071.54 ft (326.605 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	1,078.98	3,470	--
Oct. 31-----	1,078.80	3,430	-40
Nov. 30-----	1,077.46	3,180	-250
Dec. 31-----	1,075.80	2,860	-320
CAL YR 1975-----	--	--	+90
Jan. 31-----	1,074.69	2,650	-210
Feb. 29-----	1,073.21	2,370	-280
Mar. 31-----	1,071.54	2,110	-260
Apr. 30-----	1,080.02	3,660	+1,550
May 31-----	1,080.08	3,680	+20
June 30-----	1,080.08	3,680	0
July 31-----	1,079.16	3,500	-180
Aug. 31-----	1,078.00	3,280	-220
Sept. 30-----	1,076.87	3,060	-220
WTR YR 1976-----	--	--	-410

RED RIVER OF THE NORTH BASIN

05089000 SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND

LOCATION.--Lat 48°24'07", long 97°46'55", in SE¼ sec.19, T.157 N., R.55 W., Walsh County, Hydrologic Unit 09020310, on right bank 0.5 mi (0.8 km) downstream from Homme Dam and 2 mi (3 km) west of town of Park River.

DRAINAGE AREA.--226 mi² (585 km²).

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for October and November 1949, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft (304.800 m) above mean sea level.

REMARKS.--Records fair. Flow regulated by Homme Lake (station 05088500).

AVERAGE DISCHARGE.--27 years, 27.3 ft³/s (0.773 m³/s), 19,780 acre-ft/yr (24.4 hm³/yr); median of yearly mean discharges, 22 ft³/s (0.62 m³/s), 15,900 acre-ft/yr (20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 13,000 ft³/s (368 m³/s) Apr. 24, 1950, gage height, 37.52 ft (11.436 m), from rating curve extended above 5,500 ft³/s (156 m³/s), result of failure of emergency embankment at site of Homme Dam; no flow Oct. 1 to Dec. 3, 1949, Oct. 1-4, 1969, Sept. 21, 1970, July 1, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,240 ft³/s (35.1 m³/s) Apr. 2, gage height, 27.08 ft (8.254 m); minimum daily, 0.74 ft³/s (0.021 m³/s) Sept. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	.90	12	2.0	8.6	6.0	330	8.2	3.1	5.7	3.6	3.1
2	3.2	.90	12	2.0	8.6	6.0	612	6.3	3.3	5.9	3.8	3.2
3	3.4	.84	12	2.0	8.6	6.0	826	6.1	3.6	5.7	3.8	3.2
4	3.4	.84	12	2.0	8.6	6.0	674	6.1	3.6	5.3	3.8	3.4
5	3.2	.94	12	2.0	8.6	6.0	662	6.5	3.6	5.3	3.8	3.8
6	2.9	1.0	12	2.0	8.6	6.0	490	11	3.6	5.5	3.8	3.8
7	2.7	.94	12	3.2	8.6	6.0	251	8.5	3.6	5.3	3.6	3.4
8	2.7	.84	12	3.4	8.6	6.5	242	7.9	3.6	5.1	3.6	3.6
9	2.7	.94	8.5	8.6	8.6	7.3	201	10	3.6	5.1	3.8	3.6
10	2.7	.94	2.7	8.6	8.6	7.3	233	7.4	3.6	5.1	3.6	3.4
11	2.4	.94	2.4	8.6	8.6	7.3	160	5.3	3.6	5.1	3.8	3.2
12	2.4	8.8	2.3	8.6	8.6	7.3	109	5.9	11	5.1	4.0	2.9
13	2.6	10	2.0	8.6	8.6	7.3	100	4.1	626	5.1	4.1	2.7
14	2.4	12	2.0	8.6	8.6	7.3	119	4.3	242	5.1	4.0	2.6
15	2.0	12	2.0	8.6	8.6	7.3	115	7.1	140	5.1	3.8	2.4
16	2.0	12	2.0	8.6	8.6	7.5	105	6.3	81	4.9	3.8	2.3
17	1.9	12	2.0	8.6	8.6	7.5	109	5.5	58	4.9	3.4	2.0
18	1.7	12	2.0	8.6	8.6	7.5	98	5.3	39	4.9	3.4	1.9
19	1.6	12	2.0	8.6	8.6	7.5	72	5.7	30	4.6	3.4	1.7
20	1.2	12	2.0	8.6	6.5	7.5	30	4.0	21	4.6	3.2	1.7
21	1.2	12	2.0	8.6	6.3	7.5	21	5.1	18	4.9	2.9	1.6
22	1.3	12	2.0	8.6	6.0	7.5	18	4.9	16	4.6	2.9	1.6
23	1.3	12	2.0	8.6	6.0	7.5	8.2	4.6	13	4.5	2.9	1.6
24	1.1	12	2.0	8.6	6.0	7.5	8.8	4.3	12	4.3	2.9	1.6
25	1.2	12	2.0	8.6	6.0	10	6.8	4.1	10	4.1	2.9	1.9
26	1.2	12	2.0	8.6	6.0	47	7.9	4.3	8.2	4.0	2.9	1.7
27	1.2	12	2.0	8.6	6.0	62	11	4.9	7.9	3.8	2.9	.74
28	1.2	12	2.0	8.6	6.0	70	7.6	4.5	7.1	3.6	2.9	.74
29	1.1	12	2.0	8.6	6.0	138	9.4	4.3	5.9	3.6	2.7	1.0
30	1.1	12	2.0	8.6	---	260	8.8	4.1	5.5	3.8	2.9	1.3
31	1.0	---	2.0	8.6	---	260	---	3.6	---	3.6	3.1	---
TOTAL	63.4	232.82	149.9	216.4	224.2	1014.1	5645.5	180.2	1390.4	148.2	106.0	71.68
MEAN	2.05	7.76	4.84	6.98	7.73	32.7	188	5.81	46.3	4.78	3.42	2.39
MAX	3.4	12	12	8.6	8.6	260	826	11	626	5.9	4.1	3.8
MIN	1.0	.84	2.0	2.0	6.0	6.0	6.8	3.6	3.1	3.6	2.7	.74
AC-FT	126	462	297	429	445	2010	11200	357	2760	294	210	142
CAL YR 1975	TOTAL	6848.83	MEAN	18.8	MAX	856	MIN	.84	AC-FT	13580		
WTR YR 1976	TOTAL	9442.80	MEAN	25.8	MAX	826	MIN	.74	AC-FT	18730		

RED RIVER OF THE NORTH BASIN

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05089100 MIDDLE BRANCH PARK RIVER NEAR UNION, ND

LOCATION.--Lat 48°32'32", long 98°01'10", on north line of sec.5, T.158 N., R.57 W., Walsh County, Hydrologic Unit 09020310, on left bank 20 ft (6 m) downstream from bridge on county highway between Walsh and Cavalier Counties, 3.5 mi (5.6 km) southwest of Union.

DRAINAGE AREA.--15.3 mi² (39.6 km²).

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,495 ft (456 m), from topographic map.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--11 years, 2.36 ft³/s (0.0668 m³/s) 1,710 acre-ft/yr (2.11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 687 ft³/s (19.5 m³/s) May 6, 1967, gage height, 7.22 ft (2.201 m), from floodmark; maximum gage height, 7.51 ft (2.289 m) May 4, 1966, from floodmark, backwater from snowdrift; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.566 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 2	--	150 4.25	*a6.17 1.881	June 12	1000	*285 8.07	3.37 1.027

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.06	.03	.03		0	34	.12	.08	.17	0	.01
2	.06	.06	.03	.03		0	78	.10	.07	.07	0	.01
3	.06	.07	.03	.03		0	60	.10	.04	.06	0	.01
4	.06	.06	.03	.02		0	45	.10	.03	.04	0	.01
5	.06	.07	.03	.02		0	30	.09	.02	.06	.01	.01
6	.04	.07	.03	.02		0	25	.08	.02	.06	.01	.01
7	.04	.07	.03	.02		0	21	.09	.03	.03	.01	0
8	.04	.08	.03	.02		0	15	.09	.06	.02	.01	0
9	.07	.08	.03	.02		0	12	.10	.06	.02	.01	.01
10	.07	.08	.03	.02		0	10	.10	.04	.02	.02	.01
11	.06	.06	.03	.02		0	5.9	.10	.35	.02	.01	0
12	.04	.06	.03	.02		0	5.1	.12	.90	.02	.01	0
13	.04	.06	.03	.02		0	5.2	.12	14	.02	.01	0
14	.08	.05	.03	.02		0	7.3	.17	7.9	.01	.01	.01
15	.07	.05	.03	.02		0	8.9	.26	4.6	.01	.01	.01
16	.06	.05	.03	.01		0	6.9	.15	3.2	.01	.01	.01
17	.06	.05	.03	.01		0	7.2	.12	2.5	.01	0	.01
18	.04	.04	.03	.01		0	5.3	.10	1.6	.01	0	.01
19	.06	.04	.03	.01		0	3.5	.09	1.1	.01	0	.01
20	.04	.04	.03	.01		0	3.3	.09	.77	.01	0	.01
21	.04	.04	.03	.01		0	2.6	.09	.52	.01	0	.01
22	.04	.04	.03	.01		0	2.1	.09	.32	0	0	.01
23	.04	.04	.03	.01		0	1.8	.10	.32	0	0	.02
24	.04	.04	.03	.01		0	1.4	.10	.29	0	0	.02
25	.06	.04	.03	.01		0	1.1	.09	.29	0	0	.03
26	.04	.03	.03	.01		0	.90	.09	.26	0	0	.03
27	.04	.03	.03	0		0	.69	.13	.29	0	0	.03
28	.04	.03	.03	0		.50	.47	.23	.32	0	0	.04
29	.04	.03	.03	0		1.0	.20	.13	.57	0	0	.03
30	.04	.03	.03	0	---	2.3	.12	.09	.32	0	0	.03
31	.06	---	.03	0	---	7.5	---	.09	---	0	0	---
TOTAL	1.57	1.55	.93	.44	0	11.30	399.98	3.52	129.97	.69	.13	.40
MEAN	.051	.052	.030	.014	0	.36	13.3	.11	4.33	.022	.004	.013
MAX	.08	.08	.03	.03	0	7.5	78	.26	.90	.17	.02	.04
MIN	.04	.03	.03	0	0	0	.12	.08	.02	0	0	0
AC-FT	3.1	3.1	1.8	.9	0	22	793	7.0	258	1.4	.3	.8
CAL YR 1975	TOTAL 305.63	MEAN .84	MAX 40	MIN 0	AC-FT 606							
WTR YR 1976	TOTAL 550.48	MEAN 1.50	MAX 90	MIN 0	AC-FT 1090							

RED RIVER OF THE NORTH BASIN

05089500 CART CREEK AT MOUNTAIN, ND

LOCATION.--Lat 48°40'37", long 97°51'41", in SW¼ sec.15, T.160 N., R.56 W., Pembina County, Hydrologic Unit 09020310, on right bank 50 ft (15 m) downstream from bridge on State Highway 32 and 0.7 mi (1.1 km) south of Mountain.

DRAINAGE AREA.--16.9 mi² (43.8 km²).

PERIOD OF RECORD.--June 1954 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 1,027.40 ft (313.152 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--22 years; 2.80 ft³/s (0.0793 m³/s) 2,030 acre-ft/yr (2.50 hm³/yr); median of yearly mean discharges, 2.8 ft³/s (0.079 m³/s) 2,000 acre-ft/yr (2.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft³/s (36.8 m³/s) June 18, 1964, gage height, 9.18 ft (2.798 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 30 ft³/s (0.85 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 23	--	Backwater from ice	*5.80 1.768	June 12	0630	*188 5.32	3.88 1.183
Apr. 2	--	54 1.53	Backwater from ice				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.19	.02		.01	.25	50	1.0	.34	.38		
2	0	.16	.02		.02	.25	54	1.0	.31	.31		
3	0	.14	.02		.03	.25	30	1.0	.25	.22		
4	0	.16	.02		.03	.25	16	1.0	.22	.14		
5	0	.19	.01		.03	.25	15	1.0	.16	.22		
6	0	.19	.01		.03	.23	24	1.0	.19	.08		
7	0	.19	0		.05	.23	23	1.0	.19	.02		
8	.03	.19	0		.10	.20	18	1.0	.28	.01		
9	.14	.19	0		.10	.20	20	.86	.31	.47		
10	.14	.16	0		.10	.20	16	.90	.34	.28		
11	.12	.16	0		.10	.20	14	.90	.19	.01		
12	.14	.15	0		.10	.20	11	.95	.58	.02		
13	.14	.15	0		.10	.20	12	.95	12	.01		
14	.38	.15	0		.10	.20	18	.86	5.4	.01		
15	.28	.15	0		.15	.20	12	1.2	3.6	.01		
16	.10	.15	0		.15	.20	7.8	.95	3.0	.01		
17	.08	.15	0		.15	.20	22	.64	2.8	.01		
18	.08	.12	0		.15	.20	9.4	.86	2.0	.01		
19	.06	.12	0		.10	.29	6.6	.78	1.6	.01		
20	.06	.12	0		.10	.20	6.0	.64	1.0	.01		
21	.06	.10	0		.10	.20	5.5	.47	.95	.01		
22	.06	.10	0		.10	.20	5.0	.52	.95	0		
23	.06	.10	0		.10	.20	4.5	.52	1.0	0		
24	.06	.05	0		.15	.50	4.0	.52	.78	0		
25	.06	.03	0		.20	1.0	3.6	.52	.95	0		
26	.10	.02	0		.30	2.0	3.5	.58	.78	0		
27	.12	.02	0		.30	1.8	3.0	.58	.71	0		
28	.08	.02	0		.28	1.6	2.5	.47	.71	0		
29	.14	.02	0		.28	1.5	2.0	.47	.78	0		
30	.25	.02	0		---	1.5	1.5	.38	.58	0		
31	.22	---	0		---	1.2	---	.34	---	0		---
TOTAL	2.96	3.66	.10	0	3.51	16.01	419.9	23.86	100.37	2.25	0	0
MEAN	.096	.12	.003	0	.12	.52	14.0	.77	3.35	.073	0	0
MAX	.38	.19	.02	0	.30	2.0	54	1.2	58	.47	0	0
MIN	0	.02	0	0	.01	.20	1.5	.34	.16	0	0	0
AC-FT	5.9	7.3	.2	0	7.0	32	833	.47	199	4.5	0	0
CAL YR 1975	TOTAL 527.07	MEAN 1.44	MAX 35	MIN 0	AC-FT 1050							
WTR YR 1976	TOTAL 572.62	MEAN 1.56	MAX 58	MIN 0	AC-FT 1140							

RED RIVER OF THE NORTH BASIN

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05090000 PARK RIVER AT GRAFTON, ND

LOCATION.--Lat 48°25'24", long 97°24'30", in NE¼ sec.13, T.157 N., R.53 W., Walsh County, Hydrologic Unit 09020310, on right bank 30 ft (9 m) upstream from Wakeman Avenue bridge in Grafton and 3.5 mi (5.6 km) downstream from South Branch.

DRAINAGE AREA.--695 mi² (1,800 km²), approximately.

PERIOD OF RECORD.--April 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 955: 1941. WSP 1438: 1932, 1933(M), 1936-37(M), 1939(M), 1944. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 807.39 ft (246.092 m) above mean sea level. Prior to Sept. 30, 1940, nonrecording gage at site 30 ft (9 m) downstream at same datum. Oct. 1, 1940, to Sept. 17, 1946, nonrecording gage at site 2 mi (3 km) downstream above masonry dam at same datum. Sept. 18, 1946, to July 25, 1952, nonrecording gage at site 30 ft (9 m) downstream at same datum.

REMARKS.--Records fair. Flow regulated by Homme Lake (station 05088500) and several small reservoirs. Diversion by city of Grafton started in 1955. Figures of daily discharge do not include diversion by city of Grafton.

AVERAGE DISCHARGE (UNADJUSTED).--45 years (water years 1932-76), 57.3 ft³/s (1.623 m³/s) 41,510 acre-ft/yr (51.2 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s) 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) Apr. 19, 1950, gage height, 20.13 ft (6.136 m) from rating curve extended above 9,000 ft³/s (255 m³/s); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft³/s (56.6 m³/s) Apr. 4, gage height, 14.06 ft (4.286 m), backwater from ice; minimum daily discharge, 0.20 ft³/s (0.006 m³/s) for several days; minimum gage height, 6.80 ft (2.073 m) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.35	9.0	6.0	5.0	4.5	635	58	12	16	.50	.25
2	.20	.35	8.8	6.0	5.0	4.5	1260	42	12	14	.50	.20
3	.20	.35	8.8	5.5	5.0	4.5	1700	39	9.6	12	.50	.20
4	.23	.35	8.8	5.5	4.5	4.5	1440	32	8.8	10	.50	.30
5	2.5	.40	8.8	5.5	4.5	4.5	1330	30	8.0	8.8	.45	.30
6	.20	.40	8.8	5.5	4.5	4.5	1160	25	8.8	8.0	.45	.30
7	.20	.40	8.8	5.5	4.5	4.5	1020	19	8.8	5.8	.50	.30
8	.20	.40	8.8	5.1	4.5	4.5	921	19	8.0	5.1	.50	.40
9	3.6	.40	8.8	5.1	4.5	4.5	872	14	10	7.2	.45	.40
10	1.0	.50	8.8	5.1	4.5	4.5	728	20	8.8	5.8	.45	.40
11	2.0	1.0	8.0	5.1	4.5	4.5	602	32	8.0	3.8	.40	.40
12	.50	1.6	7.2	5.1	4.5	4.5	473	33	13	2.6	.40	.40
13	.25	1.0	7.2	5.1	4.5	4.5	395	32	8.1	2.0	.40	.40
14	.81	1.3	6.5	5.1	4.5	4.5	371	33	4.88	1.3	.40	.40
15	.80	1.1	6.5	5.0	4.5	4.5	365	32	3.29	1.0	.30	.40
16	2.0	2.1	6.0	5.0	4.5	4.5	347	32	2.87	1.3	.30	.40
17	1.3	1.9	5.0	5.0	4.5	4.5	344	30	2.14	.80	.30	.45
18	1.3	1.7	4.5	5.0	4.5	4.5	338	29	1.78	1.3	.30	.50
19	1.0	1.9	5.0	5.0	4.5	5.0	311	27	1.46	1.0	.50	1.0
20	.80	1.5	6.0	5.0	4.5	5.0	272	26	1.17	.80	.45	.60
21	.60	1.5	6.0	5.0	4.5	5.0	244	28	.94	.80	.45	.50
22	.32	1.3	6.0	5.0	4.5	5.0	221	22	.77	.60	.40	.50
23	.60	1.3	6.0	5.0	4.5	5.5	189	21	.65	.50	.40	.32
24	.60	1.0	6.0	5.0	4.5	5.5	153	20	.56	.50	.40	.21
25	.50	1.0	6.0	5.0	4.5	5.5	134	20	.46	.50	.40	.28
26	.50	1.0	6.0	5.0	4.5	6.0	118	19	.39	.50	.30	.50
27	.60	1.0	6.0	5.0	4.5	10	102	21	.38	.50	.30	.32
28	.50	1.0	6.0	5.0	4.5	15	87	21	.31	.50	.30	.22
29	.40	9.5	6.0	5.0	4.5	100	73	20	.27	.50	.30	.20
30	.40	9.5	6.0	5.0	---	350	68	17	.21	.50	.30	.20
31	.40	---	6.0	5.0	---	450	---	16	---	.50	.30	---
TOTAL	24.71	220.80	216.1	160.2	132.0	1048.5	16273	829	2449.8	114.50	12.40	11.25
MEAN	.80	7.36	6.97	5.17	4.55	33.8	542	26.7	81.7	3.69	.40	.38
MAX	3.6	21	9.0	6.0	5.0	450	1700	58	4.88	16	.50	1.0
MIN	.20	.35	4.5	5.0	4.5	4.5	68	14	8.0	.50	.30	.20
AC-FT	49	438	429	318	262	2080	32280	1640	4860	227	25	22
(+)	72	61	60	60	60	68	52	66	65	72	64	58
MEAN*	1.97	8.39	7.95	6.14	5.59	35.1	543	27.8	82.8	4.86	1.45	1.36
AC-FT*	121	499	489	378	322	2150	32330	1710	4920	299	89	80

OBSERVED											ADJUSTED			
CAL YR 1975	TOTAL	15679.28	MEAN	43.0	MAX	880	MIN	.20	AC-FT	31100	MEAN	43.9	AC-FT	31860
WTR YR 1976	TOTAL	21492.26	MEAN	58.7	MAX	1700	MIN	.20	AC-FT	42630	MEAN	58.7	AC-FT	43400

+ Diversion in acre-feet by city of Grafton.

* Adjusted for diversion by city of Grafton.

RED RIVER OF THE NORTH BASIN

05092000 RED RIVER OF THE NORTH AT DRAYTON, ND

LOCATION.--Lat 48°34'20", long 97°08'50", in SE¼SE¼SE¼ sec.24, T.159 N., R.51 W., Pembina County, Hydrologic Unit 09020311, 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 (90,130 km²), approximately, includes 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937, April 1941 to current year (fragmentary prior to April 1949).

REVISED RECORDS.--WSP 1388: 1949-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 755.00 ft (230.124 m) above mean sea level (Minnesota highway benchmark). Prior to Nov. 30, 1954, nonrecording gage at site 1.5 mi (2.4 km) upstream at datum 1.59 ft (0.485 m) higher.

REMARKS.--Records good except those for the periods of ice effect, which are fair. Some regulation by reservoirs on tributaries.

AVERAGE DISCHARGE.--27 years (1949-76) 3,861 ft³/s (109.3 m³/s) 2,797,000 acre-ft/yr (3.45 km³/yr); median of yearly mean discharges, 2,650 ft³/s (75.0 m³/s) 1,920,000 acre-ft/yr (2.4 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,500 ft³/s (2,450 m³/s) May 12, 1950, gage height, 41.58 ft (12.674 m), former site and datum; minimum observed, 7.7 ft³/s (0.22 m³/s) Oct. 16, 1936, gage height, 1.75 ft (0.533 m), former site and datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known since 1860, that of May 12, 1950. Flood of April 1897 reached a stage of about 41 ft (12.5 m), at site and datum in use prior to Nov. 30, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,600 ft³/s (782 m³/s) Apr. 7; gage height, 35.00 ft (10.668 m); minimum, 490 ft³/s (13.9 m³/s) Sept. 30, gage height, 9.49 ft (1.673 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2240	3000	1820	1670	1600	1800	17100	4850	1930	1760	1090	960
2	2200	2950	1820	1670	1600	1800	20700	4600	1920	1720	1110	920
3	2200	2920	1800	1670	1620	1820	24400	4400	1900	1690	1100	870
4	2210	2780	1800	1670	1620	1920	25900	4300	1840	1660	1100	860
5	2170	2740	1800	1660	1620	1960	26800	4250	1760	1630	1110	830
6	2210	2710	1780	1660	1620	2100	27400	4200	1700	1600	1110	820
7	2200	2650	1780	1660	1650	2300	27500	4060	1660	1570	1120	811
8	2230	2630	1760	1650	1660	2520	24500	3840	1620	1530	1150	811
9	2200	2630	1760	1650	1670	2650	22200	3650	1610	1520	1180	811
10	2200	2630	1740	1650	1680	2700	19800	3460	1620	1490	1220	802
11	2180	2630	1740	1650	1700	2700	17600	3350	1640	1500	1260	811
12	2170	2710	1720	1640	1720	2700	15300	3220	1670	1500	1370	811
13	2130	2710	1720	1640	1730	2700	12800	3040	1650	1450	1380	811
14	2160	2680	1720	1640	1750	2700	11100	2940	1640	1380	1350	820
15	2210	2650	1700	1640	1790	2680	9800	2840	1870	1330	1340	802
16	2250	2590	1700	1640	1790	2340	8800	2740	1930	1320	1300	775
17	2280	2590	1700	1630	1790	2030	8000	2660	2000	1260	1260	718
18	2280	2600	1700	1630	1790	1780	7600	2590	2180	1220	1220	658
19	2270	2660	1690	1630	1790	1770	7200	2480	2310	1220	1210	634
20	2350	2710	1690	1620	1790	1770	7000	2440	2380	1220	1200	598
21	2390	2720	1690	1620	1790	1770	6700	2380	2410	1180	1170	586
22	2390	2680	1690	1610	1790	1830	6400	2340	2350	1150	1160	562
23	2390	2600	1690	1610	1790	1910	6200	2280	2300	1160	1140	550
24	2410	2500	1680	1610	1790	1990	6000	2240	2250	1180	1130	526
25	2520	2380	1680	1600	1790	2500	5700	2200	2140	1140	1110	550
26	2540	2250	1680	1580	1800	2560	5580	2140	1910	1150	1090	526
27	2440	2100	1680	1570	1800	3000	5490	2100	1870	1140	1070	550
28	2740	2020	1680	1580	1800	7000	5250	2030	1870	1140	1010	538
29	2890	1950	1680	1590	1800	9040	5200	2000	1820	1120	1020	538
30	3000	1830	1670	1600	---	11700	5050	1960	1780	1090	1010	526
31	3030	---	1670	1600	---	14200	---	1930	---	1100	960	---
TOTAL	73280	77200	53430	50540	50130	102240	399070	93510	57430	42120	36050	21385
MEAN	2364	2573	1724	1630	1729	3298	13300	3016	1914	1359	1163	713
MAX	3030	3000	1820	1670	1800	14200	27500	4850	2410	1760	1380	960
MIN	2130	1830	1670	1570	1600	1770	5050	1930	1610	1090	960	526
AC-FT	145400	153100	106000	100200	99430	202800	791600	185500	113900	83550	71510	42420
CAL YR 1975 TOTAL	2788630	MEAN	7640	MAX	44000	MIN	1010	AC-FT	5531000			
WTR YR 1976 TOTAL	1056385	MEAN	2886	MAX	27500	MIN	526	AC-FT	2095000			

RED RIVER OF THE NORTH BASIN

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05092200 PEMBINA COUNTY DRAIN 20 NEAR GLASSTON, ND

LOCATION.--Lat 48°41'49", long 97°23'03", in NW¼ sec.8, T.160 N., R.52 W., Pembina County, Hydrologic Unit 09020311, on left bank 50 ft (15 m) downstream from bridge on county highway 3 mi (5 km) southeast of Glasston.

DRAINAGE AREA.--40.7 mi² (105 km²).

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 808 ft (246 m) above mean sea level, from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--5 years, 2.16 ft³/s (0.0612 m³/s), 1,560 acre-ft/yr (1.92 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 268 ft³/s (7.59 m³/s) Apr. 3, 1976, gage height, 7.10 ft (2.164 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 268 ft³/s (7.59 m³/s) Apr. 3, gage height, 7.10 ft (2.164 m); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	62					
2						0	77					
3						0	208					
4						0	142					
5						0	111					
6						0	63					
7						0	26					
8						0	8.7					
9						0	6.0					
10						0	6.4					
11						0	1.8					
12						0	.78					
13						0	.22					
14						0	.25					
15						0	2.8					
16						0	2.4					
17						0	3.3					
18						0	3.0					
19						0	1.1					
20						0	.36					
21						0	.22					
22						0	.25					
23						0	.10					
24						0	.06					
25						0	.02					
26						0	0					
27						0	0					
28						0	0					
29						0	0					
30					---	1.0	0					
31		---			---	10	---		---			---
TOTAL	0	0	0	0	0	11.0	726.76	0	0	0	0	0
MEAN	0	0	0	0	0	.35	24.2	0	0	0	0	0
MAX	0	0	0	0	0	10	208	0	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	22	1440	0	0	0	0	0
CAL YR 1975	TOTAL 421.71		MEAN 1.16	MAX 69	MIN 0	AC-FT 836						
WTR YR 1976	TOTAL 737.76		MEAN 2.02	MAX 208	MIN 0	AC-FT 1460						

RED RIVER OF THE NORTH BASIN

05098700 HIDDEN ISLAND COULEE NEAR HANSBORO, ND
(International gaging station)

LOCATION.--Lat 48°57'10", long 99°25'35", in SE¼SW¼ sec.11, T.163 N., R.68 W., Towner County, Hydrologic Unit 09020313, on right bank 400 ft (122 m) downstream from bridge on county highway 2.5 mi (4.0 km) west of Hansboro.

DRAINAGE AREA.--38 mi² (98 km²), approximately.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,615 ft (492 m), from topographic map. Prior to May 20, 1962, nonrecording gage 400 ft (122 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--15 years, 4.12 ft³/s (0.117 m³/s), 2,980 acre-ft/yr (3.67 hm³/yr); median of yearly mean discharges, 3.4 ft³/s (0.096 m³/s), 2,500 acre-ft/yr (3.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft³/s (30.0 m³/s) Apr. 21, 1974, gage height, 8.61 ft (2.624 m); maximum gage height observed, 8.90 ft (2.713 m) Apr. 14, 1975; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 31	--	(a)	*8.15 2.484	Apr. 20	2200	73 2.07	6.79 2.070
Apr. 1	--	*330 9.35	(a)				

No flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	200	3.4	0			
2						0	200	2.8	0			
3						0	140	2.7	0			
4						0	150	2.5	0			
5						0	116	2.1	0			
6						0	82	2.1	0			
7						0	64	2.0	0			
8						0	52	1.6	0			
9						0	43	1.4	0			
10						0	33	1.3	0			
11						0	26	1.1	0			
12						0	24	.64	0			
13						0	23	.32	.06			
14						0	20	.26	.02			
15						0	16	.26	.02			
16						0	14	.22	0			
17						0	40	.18	0			
18						0	50	.12	0			
19						0	49	.10	0			
20						0	58	.08	0			
21						0	67	.05	0			
22						0	51	.04	0			
23						0	37	.01	0			
24						0	29	0	0			
25						0	18	0	0			
26						0	13	0	0			
27						0	8.1	0	0			
28						.50	5.5	0	0			
29						1.0	4.5	0	0			
30					---	2.2	3.8	0	0			
31		---			---	220	---	0	---			---
TOTAL	0	0	0	0	0	223.70	1636.9	25.28	.10	0	0	0
MEAN	0	0	0	0	0	7.22	54.6	.82	.003	0	0	0
MAX	0	0	0	0	0	220	200	3.4	.06	0	0	0
MIN	0	0	0	0	0	0	3.8	0	0	0	0	0
AC-FT	0	0	0	0	0	444	3250	50	.2	0	0	0
CAL YR 1975	TOTAL	2439.14	MEAN 6.68	MAX 350	MIN 0	AC-FT 4840						
WTR YR 1976	TOTAL	1885.98	MEAN 5.15	MAX 220	MIN 0	AC-FT 3740						

RED RIVER OF THE NORTH BASIN

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05098800 CYPRESS CREEK NEAR SARLES, ND
(International gaging station)

LOCATION.--Lat 48°56'35", long 98°57'05", in SW¼SE¼ sec.9, T.163 N., R.64 W., Cavalier County, Hydrologic Unit 09020313, on right bank 150 ft (46 m) downstream from twin multiplate culverts on county highway, 2.5 mi (4.0 km) east of Sarles.

DRAINAGE AREA.--71 mi² (184 km²), approximately.

PERIOD OF RECORD.--May 1961 to current year. Prior to October 1973, published as Long River near Sarles.

GAGE.--Water-stage recorder. Altitude of gage is 1,545 ft (471 m) from topographic map.

REMARKS.--Records good except those for the winter period, which are fair.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--15 years, 7.07 ft³/s (0.200 m³/s), 5,120 acre-ft/yr (6.31 hm³/yr); median of yearly mean discharges, 5.0 ft³/s (0.14 m³/s), 3,600 acre-ft/yr (4.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,920 ft³/s (54.4 m³/s) Apr. 10, 1971, gage height, 8.56 ft (2.609 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.4 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 4	--	*650 18.4	* ^a 7.30 2.225	Apr. 17	1300	55 1.56	3.50 1.067

No flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							20	1.6	0		0	
2							60	1.0	0		0	
3							130	.74	0		0	
4							480	.56	0		0	
5							620	.50	0		0	
6							370	.40	0		0	
7							208	.27	0		0	
8							129	.31	0		0	
9							82	.20	.01		0	
10							49	.12	0		0	
11							44	.10	0		0	
12							40	.08	.02		0	
13							32	.07	.04		0	
14							29	.06	.03		0	
15							25	.05	.02		0	
16							25	.03	.01		0	
17							48	.03	.01		0	
18							38	.01	.01		0	
19							29	.03	0		0	
20							32	0	0		.44	
21							43	0	0		.16	
22							34	0	0		.05	
23							25	0	0		.02	
24							17	0	0		0	
25							10	0	0		0	
26							6.6	0	0		0	
27							4.3	0	0		0	
28							3.1	0	0		0	
29							2.4	0	0		0	
30							2.0	0	0		0	
31		---			---		---	0	---		0	---
TOTAL	0	0	0	0	0	0	2637.4	6.16	.15	0	.67	0
MEAN	0	0	0	0	0	0	87.9	.20	.005	0	.022	0
MAX	0	0	0	0	0	0	620	1.6	.04	0	.44	0
MIN	0	0	0	0	0	0	2.0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	5230	12	.3	0	1.3	0
CAL YR 1975	TOTAL	1513.44	MEAN	4.15	MAX	200	MIN	0	AC-FT	3000		
WTR YR 1976	TOTAL	2644.38	MEAN	7.23	MAX	620	MIN	0	AC-FT	5250		

RED RIVER OF THE NORTH BASIN

05099100 SNOWFLAKE CREEK NEAR SNOWFLAKE, MAN
(International gaging station)

LOCATION.--Lat 49°01'17", long 98°36'13", in SW¼ sec.10, T.1, R.9 W., 1st meridian, at traffic bridge, 2.5 mi (4.0 km) east and 1.5 mi (2.4 km) south of Snowflake.

DRAINAGE AREA.--348 mi² (901 km²).

PERIOD OF RECORD.--March 1961 to current year.

GAGE.--Water-stage recorder since March 1968 and nonrecording gage prior thereto. Datum of gage is 1,222.63 ft (372.658 m) above mean sea level, Geodetic Survey of Canada datum. Prior to Apr. 2, 1964, nonrecording gage at present site and datum. Apr. 2, 1964, to May 10, 1965, nonrecording gage at site 0.5 mi (0.8 km) down-stream at present datum.

REMARKS.--Records good.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--15 years, 17.7 ft³/s (0.501 m³/s) 12,820 acre-ft/yr (15.8 hm³/yr); median of yearly mean discharges, 16 ft³/s (0.45 m³/s) 11,600 acre-ft/yr (14 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 823 ft³/s (23.3 m³/s) May 21, 1974, gage height 5.98 ft (1.823 m); maximum gage height, 7.39 ft (2.252 m) Apr. 11, 1969; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 344 ft³/s (9.74 m³/s) Apr. 8, backwater from ice; maximum gage height, 5.64 ft (1.719 m) Apr. 4, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.25				0	13	124	23	13	6.3	4.5
2	.01	.25				0	7.4	103	23	13	6.1	4.7
3	.01	.20				0	5.0	111	22	13	5.9	4.6
4	.01	.15				0	104	122	20	13	6.0	4.0
5	.01	.10				0	271	95	21	12	5.9	3.5
6	.01	.05				0	262	95	22	12	5.6	3.0
7	.01	.01				0	296	92	20	11	5.3	2.6
8	.30	.01				0	344	93	19	11	6.2	2.3
9	.20	0				0	193	86	19	12	16	1.9
10	.10	0				0	176	74	18	10	15	1.8
11	.01	0				0	134	69	18	9.1	10	1.7
12	.01	0				0	161	75	28	8.3	7.7	1.5
13	.10	0				0	177	64	24	8.0	7.0	1.4
14	.50	.10				0	309	60	21	9.5	6.6	1.3
15	.40	.20				0	275	57	19	12	6.5	1.2
16	.40	.10				0	268	51	18	13	6.2	1.1
17	.39	0				0	284	50	19	12	6.0	.94
18	.39	0				0	271	49	18	12	6.0	.82
19	.38	0				0	251	50	17	12	6.0	.70
20	.38	0				0	264	41	16	11	6.4	.63
21	.36	0				0	271	39	16	10	6.6	.59
22	.36	0				0	251	38	16	9.6	6.3	.54
23	.34	0				0	227	35	14	9.0	6.1	.50
24	.34	0				0	211	34	14	8.4	5.8	.45
25	.32	0				0	193	32	14	7.7	5.5	.41
26	.32	0				.50	179	32	14	7.4	5.4	.37
27	.30	0				.80	166	32	13	7.4	5.2	.32
28	.30	0				1.5	160	29	14	7.4	4.8	.28
29	.29	0				3.1	153	27	14	7.1	4.6	.24
30	.28	0			---	4.5	139	26	13	7.2	4.3	.24
31	.25	---			---	8.1	---	24	---	6.7	4.2	---
TOTAL	7.09	1.42	0	0	0	18.50	6015.4	1909	547	314.8	205.5	48.13
MEAN	.23	.047	0	0	0	.60	201	61.6	18.2	10.2	6.63	1.60
MAX	.50	.25	0	0	0	8.1	344	124	28	13	16	4.7
MIN	.01	0	0	0	0	0	5.0	24	13	6.7	4.2	.24
AC-FT	14	2.8	0	0	0	37	11930	3790	1080	624	408	95
CAL YR 1975	TOTAL	2440.09	MEAN	6.69	MAX	99	MIN	0	AC-FT	4840		
WTR YR 1976	TOTAL	9066.84	MEAN	24.8	MAX	344	MIN	0	AC-FT	17980		

RED RIVER OF THE NORTH BASIN

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05099150 MOWBRAY CREEK NEAR MOWBRAY, MAN

LOCATION.--Lat 49°00'00", long 98°27'15", in SE¼ sec.3, T.1, R.8 W., 1st meridian, on downstream side of bridge on Municipal Road on international boundary, 1.5 mi (2.4 km) east of Mowbray.

DRAINAGE AREA.--93.9 mi² (243.2 km²).

PERIOD OF RECORD.--March to October, 1962 to current year.

GAGE.--Water-stage recorder. Nonrecording gage prior to 1971.

REMARKS.--Records good.

COOPERATION.--Records furnished by Water Survey of Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 670 ft³/s (19.0 m³/s) Apr. 21, 1974, gage height, 7.02 ft (2.140 m); maximum gage height, 7.88 ft (2.402 m) Mar. 29, 1966, backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 455 ft³/s (12.9 m³/s) Apr. 7, gage height, 6.49 ft (1.978 m); maximum gage height, 6.50 ft (1.981 m) Apr. 5, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							13	9.4	0	2.1	0	
2							8.9	7.7	0	1.9	0	
3							60	6.9	0	1.6	0	
4							129	6.3	0	1.3	0	
5							353	5.1	0	1.0	0	
6							426	4.3	0	.79	0	
7							447	3.8	0	.42	0	
8							407	3.3	0	.27	0	
9							325	2.9	0	.09	.42	
10							216	2.3	0	0	2.8	
11							167	2.1	0	0	.19	
12							140	1.9	0	0	0	
13							116	2.3	0	0	0	
14							115	1.9	0	0	0	
15							95	1.6	0	0	0	
16							77	1.0	0	0	0	
17							78	.86	0	0	0	
18							66	.94	0	0	0	
19							55	.83	0	0	0	
20							53	.56	0	0	.38	
21							52	.37	0	0	.08	
22							46	.24	1.9	0	0	
23							40	.08	2.9	0	0	
24							32	0	3.1	0	0	
25							28	0	3.3	0	0	
26							21	0	3.3	0	0	
27							17	0	3.1	0	0	
28							14	0	2.9	0	0	
29							13	0	2.5	0	0	
30							11	0	2.3	0	0	
31							---	0	---	0	0	---
TOTAL	0					0	3620.9	66.68	25.3	9.47	3.87	0
MEAN	0					0	121	2.15	.84	.31	.12	0
MAX	0					0	447	9.4	3.3	2.1	2.8	0
MIN	0					0	8.9	0	0	0	0	0
AC-FT	0					0	7180	132	50	19	7.7	0

RED RIVER OF THE NORTH BASIN

05099300 PEMBINA RIVER NEAR WINDYGATES, MAN
(International gaging station)

LOCATION.--Lat 49°01'53", long 98°16'40", in SE¼ sec.13, T.1, R.7 W., 1st meridian, on left bank 0.2 mi (0.3 km) downstream from bridge, 3 mi (5 km) northeast of Windygates.

DRAINAGE AREA.--3,020 mi² (7,820 km²).

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder and nonrecording gage. Datum of recording gage is 1,102.02 ft (335.896 m) above mean sea level. Datum of nonrecording gage is 1,105.00 ft (336.804 m) above mean sea level, both gages referred to Geodetic Survey of Canada datum.

REMARKS.--Records fair.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--14 years, 267 ft³/s (7.561 m³/s) 193,400 acre-ft/yr (238 hm³/yr); median of yearly mean discharges, 210 ft³/s (5.95 m³/s) 152,000 acre-ft/yr (190 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s (326 m³/s) Apr. 26, 1974, gage height, 19.50 ft (5.944 m); no flow in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,210 ft³/s (119 m³/s) Apr. 17, gage height, 13.11 ft (3.996 m); minimum daily discharge, 8.6 ft³/s (0.24 m³/s) Dec. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	28	9.2	9.0	16	93	161	2450	685	198	55	32
2	30	28	9.9	9.1	14	85	281	2310	648	191	53	31
3	30	27	11	9.1	14	80	560	2210	622	180	52	35
4	32	27	11	9.1	12	72	1320	2090	575	173	50	32
5	31	27	8.9	9.2	11	63	1520	2010	540	166	50	30
6	29	27	8.9	9.2	11	54	2220	1900	513	161	48	29
7	29	26	8.9	9.2	11	51	2370	1830	494	154	46	29
8	28	26	8.8	9.3	11	46	2840	1610	465	151	45	29
9	30	26	8.8	9.3	11	43	2780	1520	443	148	51	28
10	31	26	8.8	9.4	10	41	2320	1470	423	138	60	26
11	29	26	8.8	9.4	10	41	2000	1430	399	130	61	25
12	29	29	8.8	9.5	12	39	2030	1390	431	125	53	25
13	28	30	8.7	9.5	15	36	2390	1360	414	120	48	25
14	31	22	8.7	9.3	16	34	3040	1250	388	114	45	24
15	32	22	8.7	10	20	31	3720	1230	353	105	43	24
16	31	22	8.7	10	23	30	3990	1200	333	101	40	23
17	30	22	8.7	11	25	30	4080	1160	313	99	38	23
18	30	20	8.6	11	27	31	3940	1110	302	97	37	23
19	31	19	8.6	11	30	30	3800	1060	293	96	38	22
20	30	19	8.6	11	42	30	3670	1010	287	94	43	22
21	29	23	8.7	11	70	28	3580	980	278	90	41	23
22	29	16	8.7	12	111	27	3470	942	267	87	38	22
23	29	14	8.7	12	115	30	3280	897	258	84	36	22
24	29	12	8.8	13	115	31	3100	853	246	82	34	22
25	30	12	8.8	15	118	29	2960	820	238	78	33	22
26	30	12	8.8	16	115	27	2830	786	234	68	33	22
27	30	12	8.9	17	110	25	2750	746	238	68	32	22
28	29	11	8.9	17	100	25	2710	725	238	68	31	22
29	29	9.9	8.9	16	96	26	2650	690	223	65	31	22
30	28	9.1	9.0	17	---	28	2540	684	211	60	30	22
31	28	---	9.0	18	---	41	---	677	---	57	30	---
TOTAL	922	630.0	278.3	357.6	1291	1277	78902	40400	11352	3548	1325	758
MEAN	29.7	21.0	8.98	11.5	44.5	41.2	2630	1303	378	114	42.7	25.3
MAX	32	30	11	18	118	93	4080	2450	685	198	61	35
MIN	28	9.1	8.6	9.0	10	25	161	677	211	57	30	22
AC-FT	1830	1250	552	709	2560	2530	156500	80130	22520	7040	2630	1500
CAL YR 1975	TOTAL	72092.7	MEAN 198	MAX 1490	MIN 2.4	AC-FT 143000						
WTR YR 1976	TOTAL	141040.9	MEAN 385	MAX 4080	MIN 8.6	AC-FT 279800						

RED RIVER OF THE NORTH BASIN

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05099380 PEMBINA RIVER NEAR VANG, ND

LOCATION.--Lat 48°54'10", long 98°13'40", in SW¼NW¼ sec.29, T.163 N., R.57 W., Cavalier County, Hydrologic Unit 09020313, at bridge on county highway, 3 mi (4.8 km) east of Vang.

DRAINAGE AREA.--3,100 mi² (8,000 km²), approximately.

PERIOD OF RECORD.--Water years 1962, 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)
JAN 14...	1110	9.2	1010	7.6	.0	10	--	--	--	--
APR 05...	1840	1780	440	7.7	2.0	150	1300	--	--	4.9
07...	1200	2800	440	7.7	2.0	--	--	--	--	--
09...	1430	3130	400	7.6	7.0	180	200	10.8	92	--
13...	1430	--	530	7.7	6.5	--	--	9.4	76	3.2
14...	1420	3190	470	7.7	9.5	50	270	9.4	85	--
21...	1415	3000	410	7.5	6.5	--	170	11.2	94	2.5
MAY 14...	0855	1280	640	8.4	13.5	--	120	8.8	87	--
JUN 08...	1600	480	740	8.2	21.0	--	70	7.4	86	2.2
JUL 14...	0930	119	800	8.1	21.5	8	25	7.8	91	2.0
20...	1515	275	670	7.8	21.0	--	2000	--	--	--
AUG 17...	1620	45	840	8.5	22.5	22	15	9.2	110	1.7
SEP 22...	0930	--	890	8.5	11.0	--	15	9.4	87	.9

DATE	FECAL COLIFORM (COL. PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)
JAN 14...	--	430	120	100	43	63	24	1.3	9.6
APR 05...	--	200	100	58	14	29	23	.9	6.7
07...	--	--	--	--	--	--	--	--	--
09...	880	140	39	33	13	26	28	1.0	5.7
13...	--	--	--	--	--	--	--	--	--
14...	8100	180	57	41	18	30	26	1.0	7.7
21...	830	--	--	--	--	--	--	--	--
MAY 14...	--	--	--	--	--	--	--	--	--
JUN 08...	845	--	--	--	--	--	--	--	--
JUL 14...	--	300	61	69	40	59	25	1.2	11
20...	--	--	--	--	--	--	--	--	--
AUG 17...	0	350	120	80	37	51	23	1.2	10
SEP 22...	828	--	--	--	--	--	--	--	--

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

RED RIVER OF THE NORTH BASIN

05099380 PEMBINA RIVER NEAR VANG, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (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 SILICA (SiO ₂) (MG/L)	DIS- SOLVED (RESI- DUE AT 180 C) (MG/L)
JAN 14...	377	0	309	15	250	16	.3	19	716
APR 05...	121	0	99	3.9	120	19	.2	14	300
07...	--	--	--	--	--	--	--	--	--
09...	118	0	97	4.7	91	4.0	.2	16	262
13...	--	--	--	--	--	--	--	--	--
14...	146	0	120	4.7	120	7.0	.2	16	336
21...	--	--	--	--	--	--	--	--	--
MAY 14...	--	--	--	--	--	--	--	--	--
JUN 08...	--	--	--	--	--	--	--	--	--
JUL 14...	286	0	235	3.6	200	11	.2	30	576
20...	--	--	--	--	--	--	--	--	--
AUG 17...	271	8	236	1.5	190	13	.3	25	567
SEP 22...	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)
JAN 14...	688	.97	17.8	.17	--	--	--	.10	--
APR 05...	338	.41	1440	2.5	--	.17	9.1	.17	.12
07...	--	--	--	--	--	--	--	--	--
09...	259	.36	2210	2.6	--	.09	4.3	.26	.16
13...	--	--	--	--	--	--	--	--	--
14...	318	.46	2890	1.2	--	.09	4.4	.19	.12
21...	--	--	--	.80	--	.04	2.4	.13	.07
MAY 14...	--	--	--	.08	--	.04	1.4	.10	.06
JUN 08...	--	--	--	.10	--	.01	1.1	.16	.14
JUL 14...	541	.78	185	.00	235	.00	.75	.18	.49
20...	--	--	--	.40	--	.28	12	.27	.07
AUG 17...	548	.77	68.9	--	--	--	.63	--	--
SEP 22...	--	--	--	.06	--	.00	.93	.12	.10

DATE	DIS- SOLVED ORTHO- PHOS- PHATE (PO ₄) (MG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
JAN 14...	--	130	--	0	230
APR 05...	.37	100	--	3900	1300
09...	.49	70	--	80	60
14...	.37	60	--	40	30
21...	.21	--	--	--	--
MAY 14...	.18	--	--	--	--
JUN 08...	.43	--	--	--	--
JUL 14...	.16	130	20	30	20
20...	.21	--	--	--	--
AUG 17...	--	--	--	0	30
SEP 22...	.31	--	--	--	--

DATE	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR- DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL D1- AZINON (UG/L)
APR 07...	.0	.00	.00	.0	.00	.00	.00	.00
JUL 14...	.0	.00	.00	.0	.00	.00	.00	.00

[illegible][illegible]

RED RIVER OF THE NORTH BASIN

05099380 PEMBINA RIVER NEAR VANG, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	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	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM
JAN 14...	--	--	--	--	--	--	--	--	--
APR 05...	54	78	97	99	99	100	--	--	--
07...	51	77	95	97	99	100	--	--	--
09...	57	79	96	98	100	--	--	--	--
14...	56	76	95	97	98	100	--	--	--
21...	50	72	90	91	94	98	100	--	--
MAY 14...	--	--	--	--	--	--	--	--	--
JUL 14...	--	--	--	--	--	--	--	--	--
20...	68	92	98	99	100	--	--	1	1
AUG 17...	--	--	--	--	--	--	--	--	--

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 2.00 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	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
JAN 14...	--	--	--	--	--	--	--	--
APR 05...	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
MAY 14...	--	--	--	--	--	--	--	--
JUL 14...	--	--	--	--	--	--	--	--
20...	2	10	12	24	48	79	95	100
AUG 17...	--	--	--	--	--	--	--	--

DISSOLVED OXYGEN PROFILE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HOURL	MG/L	HOURL	MG/L	HOURL	MG/L	HOURL	MG/L
Aug. 17, 1976		2200	8.2	0500	7.4	1100	8.1
1630	9.2	2300	7.9	0600	7.4	1115	8.3
1700	9.2	2345	7.5	0700	7.4	1200	8.4
1730	9.0	2400	7.4	0730	7.5	1300	8.5
1800	9.0	0100	7.4	0800	7.5	1400	8.6
1900	9.0	0200	7.4	0900	7.6	1500	8.7
2000	8.7	0300	7.4	1000	7.8	1600	8.8
2100	8.5	0400	7.4				

RED RIVER OF THE NORTH BASIN

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05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND

LOCATION.--Lat 48°51'55", long 98°00'20", in SW¼ sec.10, T.162 N., R.57 W., Cavalier County, Hydrologic Unit 09020313, on right bank 25 ft (8 m) upstream from county bridge, 3.5 mi (5.6 km) above mouth, and 6 mi (10 km) southwest of Walhalla.

DRAINAGE AREA.--182 mi², (471 km²), of which 10 mi² (26 km²) is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1956 to current year. Prior to October 1973, published as Little Pembina River near Walhalla.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,099.48 ft (335.122 m) above mean sea level. Prior to Sept. 10, 1956, nonrecording gage at bridge 25 ft (8 m) downstream at same datum.

REMARKS.--Records fair. Flow regulated since March 1971 by Mt. Carmel Reservoir, 30 mi (48 km) upstream, capacity, 4,200 acre-ft (5.18 hm³).

AVERAGE DISCHARGE.--20 years, 23.0 ft³/s (0.651 m³/s), 16,660 acre-ft/yr (20.5 hm³/yr); median of yearly mean discharges, 19 ft³/s (0.54 m³/s), 13,800 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,600 ft³/s (187 m³/s) Apr. 25, 1970, gage height, 13.95 ft (4.252 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,450 ft³/s (69.4 m³/s) Apr. 2, gage height, 12.39 ft (3.776 m); minimum daily, 0.05 ft³/s (0.001 m³/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	.36	.36	.36	.36	.62	16	30	5.7	3.1	11	1.5
2	.36	.36	.36	.36	.36	.62	200	26	5.4	2.7	9.4	1.5
3	.36	.36	.36	.36	.36	.62	1050	23	5.1	2.4	8.4	1.0
4	.36	.36	.36	.36	.36	.62	1080	20	5.0	2.3	7.5	.88
5	.36	.36	.36	.36	.49	.62	1340	17	4.8	2.2	5.4	.88
6	.36	.36	.36	.36	.49	.62	1010	15	4.8	2.2	4.1	.75
7	.36	.36	.36	.36	.49	.62	628	14	5.3	2.0	3.6	.52
8	.36	.36	.36	.36	.49	.49	371	14	5.1	1.9	4.4	.62
9	.36	.36	.36	.36	.62	.49	290	13	4.8	1.8	6.9	.36
10	.36	.36	.36	.36	.62	.36	225	12	4.8	1.7	40	.10
11	.36	.36	.36	.36	.62	.36	149	12	4.6	1.4	16	.08
12	.36	.36	.36	.36	.62	.23	123	11	435	1.3	8.4	.05
13	.36	.36	.36	.36	.62	.23	118	10	114	1.1	6.7	.08
14	.36	.36	.36	.36	.62	.36	169	9.4	49	1.3	4.4	.30
15	.36	.36	.36	.36	.75	.36	161	9.4	25	1.5	3.6	.30
16	.36	.36	.36	.36	.75	.36	114	8.7	19	1.4	3.2	.20
17	.36	.36	.36	.36	.75	.36	151	8.4	33	1.0	3.1	.10
18	.36	.36	.36	.36	.75	.36	120	7.7	16	.75	3.2	.10
19	.36	.36	.36	.36	.75	.62	89	7.7	11	299	3.4	.15
20	.36	.36	.36	.36	.75	.62	86	7.5	8.4	449	2.4	.10
21	.36	.36	.36	.36	.88	.36	100	7.2	6.7	100	4.1	.10
22	.36	.36	.36	.36	.88	.62	80	6.7	5.9	48	5.0	.49
23	.36	.36	.36	.36	.88	1.8	66	6.7	5.1	29	4.8	.62
24	.36	.36	.36	.36	.88	2.2	55	6.4	4.8	21	4.7	.62
25	.36	.36	.36	.36	.88	1.9	47	6.4	4.8	26	4.7	.62
26	.36	.36	.36	.36	.62	2.6	40	6.4	4.4	25	4.4	.62
27	.36	.36	.36	.36	.62	3.0	34	6.4	4.3	21	3.4	.52
28	.36	.36	.36	.36	.62	4.0	33	6.2	3.9	18	2.4	.62
29	.36	.36	.36	.36	.62	5.0	32	6.2	3.9	16	2.0	.52
30	.36	.36	.36	.36	---	9.0	32	5.9	3.4	15	1.8	.62
31	.36	---	.36	.36	---	12	---	5.4	---	12	1.5	---
TOTAL	11.03	10.80	11.16	11.16	18.50	52.02	8009	345.7	813.0	1111.05	193.9	15.22
MEAN	.36	.36	.36	.36	.64	1.68	267	11.2	27.1	35.8	6.25	.51
MAX	.36	.36	.36	.36	.88	12	1340	30	435	449	40	1.5
MIN	.23	.36	.36	.36	.36	.23	16	5.4	3.4	.75	1.5	.05
AC-FT	22	21	22	22	37	103	15890	686	1610	2200	385	30
CAL YR 1975	TOTAL	2500.08	MEAN	6.85	MAX	220	MIN	.10	AC-FT	4960		
WTR YR 1976	TOTAL	10602.54	MEAN	29.0	MAX	1340	MIN	.05	AC-FT	21030		

RED RIVER OF THE NORTH BASIN

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER-QUALITY RECORD

PERIOD OF RECORD.--Water years 1962 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	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)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLI- FORM (COL. PER 100 ML)	HARD- NESS (CA, MG) (MG/L)
OCT												
08...	1430	.39	750	--	15.0	--	--	--	--	--	--	--
NOV												
05...	1240	.34	780	--	10.0	--	--	--	--	--	--	--
JAN												
13...	1135	.32	740	7.5	.0	5	--	--	--	--	--	360
FEB												
05...	1415	.49	760	--	.0	--	--	--	--	--	--	--
MAR												
01...	1705	.64	790	--	.0	--	--	--	--	--	--	--
APR												
01...	1330	18	840	7.9	.5	6	21	--	--	--	--	340
06...	0925	930	380	7.6	1.5	65	600	--	--	4.0	--	120
07...	0915	628	--	--	1.5	--	--	--	--	--	--	--
09...	1045	286	420	7.7	6.0	40	34	13.6	113	--	100	140
13...	1230	10	480	7.9	10.5	40	130	11.0	102	1.7	B64	150
21...	0945	100	595	8.0	4.5	200	100	12.0	96	1.8	B50	200
MAY												
13...	1435	10	800	8.1	17.0	--	2	11.8	166	1.7	--	--
JUN												
09...	1100	4.7	900	8.3	19.0	--	1	--	108	1.9	B60	--
JUL												
13...	1550	.84	900	8.1	27.0	3	2	7.8	100	.9	B33	330
20...	1210	380	295	7.7	18.5	--	500	--	--	--	--	--
AUG												
18...	1005	3.1	890	8.1	20.0	--	8	9.2	104	.3	2	--
SEP												
23...	0930	.54	805	8.1	5.5	--	6	9.9	81	.5	B6	--

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT												
08...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	83	100	27	49	22	1.1	6.6	339	0	278	17	180
FEB												
05...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
01...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
01...	160	93	25	55	26	1.3	7.6	214	0	176	4.3	250
06...	28	34	9.2	29	33	1.1	4.9	116	0	95	4.7	81
07...	--	--	--	--	--	--	--	--	--	--	--	--
09...	42	35	12	33	33	1.2	5.4	115	0	94	3.7	100
13...	48	42	12	40	35	1.4	6.7	129	0	106	2.6	120
21...	65	53	16	48	34	1.5	6.4	163	0	134	2.6	140
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
13...	110	95	23	60	27	1.4	11	265	0	217	3.4	230
20...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
18...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
23...	--	--	--	--	--	--	--	--	--	--	--	--

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

RED RIVER OF THE NORTH BASIN

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05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED OR THO- PHOS- PHORUS (P) (MG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	15	.4	18	580	566	.79	.50	.46	--	--	.10	--
FEB 05...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 01...	--	--	--	--	--	--	--	--	--	--	--	--
APR 01...	17	.3	17	608	575	.83	29.5	.82	.02	.95	.16	.14
06...	4.9	.2	14	270	245	.37	678	2.2	.05	8.9	.19	.13
07...	--	--	--	--	--	--	--	--	--	--	--	--
09...	6.3	.2	17	296	275	.40	229	2.0	.17	2.8	.22	.16
13...	8.7	.2	19	344	320	.47	9.29	1.6	.09	1.7	.22	.15
21...	11	.2	17	409	377	.56	110	1.1	.03	1.3	.19	.13
MAY 13...	--	--	--	--	--	--	--	.15	.02	.53	.15	.11
JUN 09...	--	--	--	--	--	--	--	.09	.01	.38	.16	.15
JUL 13...	17	.3	27	635	595	.86	1.44	.02	.00	.33	.16	.15
20...	--	--	--	--	--	--	--	.70	.44	4.1	.25	.19
AUG 18...	--	--	--	--	--	--	--	--	--	.24	--	--
SEP 23...	--	--	--	--	--	--	--	.01	.00	.91	.15	.13

DATE	DIS- SOLVED ORTHO PHOS- PHATE (PO4) (MG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
JAN 13...	--	130	0	220
APR 01...	.43	90	10	130
06...	.40	80	140	40
09...	.49	70	40	20
13...	.46	90	70	50
21...	.40	80	60	10
MAY 13...	.34	--	--	--
JUN 09...	.46	--	--	--
JUL 13...	.46	170	0	40
20...	.58	--	--	--
SEP 23...	.40	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

[illegible][illegible]

RED RIVER OF THE NORTH BASIN

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05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	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	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM	SUS. SED. FALL DIAM. % FINER THAN 2.00 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM
JAN 13...	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--
06...	48	70	84	87	92	100	--	--	--
07...	54	75	91	93	96	100	--	--	--
09...	59	81	90	91	94	95	97	97	--
13...	48	61	65	71	77	86	91	96	--
21...	55	79	79	80	82	99	100	--	2
MAY 13...	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--
20...	66	88	98	99	100	--	--	--	--

DATE	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 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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM
JAN 13...	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
13...	0	1	19	23	40	62	86	97	100
21...	2	4	34	37	54	70	84	94	100
MAY 13...	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--

DISSOLVED OXYGEN PROFILE, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

HOURL	MG/L	HOURL	MG/L	HOURL	MG/L	HOURL	MG/L
Aug. 18, 1976		2300	6.9	0600	6.6	1200	8.8
1800	9.2	2400	6.8	0700	6.7	1300	8.9
1900	9.0	0100	6.5	0715	7.1	1400	9.1
2000	8.6	0200	6.4	0800	7.2	1500	9.2
2100	7.8	0300	6.4	0900	7.7	1600	9.1
2200	7.2	0400	6.4	1000	8.4	1700	8.8
2300	7.0	0500	6.5	1100	8.8	1715	8.8

RED RIVER OF THE NORTH BASIN

05099600 PEMBINA RIVER AT WALHALLA, ND

LOCATION.--Lat 48°54'50", long 97°55'00", in NE¼NE¼ sec.29, T.163 N., R.56 W., Pembina County, Hydrologic Unit 09020313, on left bank at downstream side of bridge on State Highway 32, at south edge of Walhalla, and 7 mi (11 km) downstream from Little South Pembina River.

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1963, published as "near Walhalla."

REVISED RECORDS.--WSP 1388: 1943, 1950(P). WSP 1558: 1957. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 934 ft (284.7 m), from topographic map. Prior to Nov. 10, 1943, nonrecording gage and Nov. 10, 1943, to Sept. 30, 1963, water-stage recorder at site 5.5 mi (8.8 km) upstream at different datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--37 years, 249 ft³/s (7.052 m³/s) 180,400 acre-ft/yr (222 hm³/yr); median of yearly mean discharges, 200 ft³/s (5.66 m³/s) 145,000 acre-ft/yr (180 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s (578 m³/s) Apr. 18, 1950, gage height, 19.2 ft (5.85 m) former site and datum, 16.2 ft (4.938 m) present site and datum, from rating curve extended above 7,000 ft³/s (198 m³/s) on basis of contracted-opening measurement of peak flow; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.33 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 6	0100	4,100 116.1	9.32 2.841	June 12	1130	1,810 51.3	6.28 1.914
Apr. 17	1600	*4,530 128.3	*9.81 2.990	July 19	--	3,140 88.9	8.15 2.484

Minimum daily discharge, 9.5 ft³/s (0.27 m³/s) Dec. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	33	9.8	13	14	109	170	2840	641	230	79	40
2	37	32	9.5	13	14	110	900	2710	610	220	75	41
3	36	32	9.5	13	14	110	1650	2600	573	210	73	41
4	35	31	9.8	13	14	105	2400	2450	548	198	70	40
5	35	30	10	13	14	100	3140	2340	521	187	69	39
6	35	32	11	13	14	95	3920	2220	503	184	65	38
7	34	32	11	13	14	90	3620	2110	494	177	62	38
8	34	31	11	13	14	85	3440	2030	485	172	65	36
9	37	30	11	13	14	80	3640	1950	470	172	82	36
10	37	29	12	13	14	75	3280	1850	455	166	96	33
11	37	25	12	13	14	70	2810	1770	437	161	91	33
12	37	20	12	13	14	65	2690	1680	1030	154	80	32
13	37	18	12	13	14	60	2800	1640	577	149	73	32
14	39	20	12	13	14	55	3290	1530	449	144	64	31
15	41	22	12	13	14	50	3880	1490	413	138	60	30
16	40	24	12	13	17	45	4240	1420	392	126	54	29
17	39	28	12	13	20	40	4490	1360	392	125	52	29
18	37	28	12	13	21	40	4440	1300	365	122	51	28
19	37	26	12	13	22	40	4280	1250	347	1310	52	27
20	37	24	12	13	23	40	4150	1170	335	1250	52	26
21	37	20	12	13	24	40	4070	1120	317	320	54	25
22	37	17	12	13	25	40	3940	1060	317	152	54	24
23	35	15	13	13	26	38	3760	1010	290	131	50	24
24	35	12	13	14	27	35	3570	956	287	113	50	23
25	35	11	13	14	28	30	3410	878	272	104	48	23
26	35	10	13	14	28	30	3280	854	255	103	47	22
27	35	10	13	14	29	28	3160	816	252	96	47	22
28	35	9.9	13	14	30	26	3080	788	260	91	44	22
29	33	9.8	13	14	60	26	3020	740	255	85	41	22
30	33	9.8	13	14	---	25	2940	710	235	84	39	22
31	33	---	13	14	---	25	---	675	---	82	39	---
TOTAL	1121	671.5	365.6	411	590	1807	97460	47317	12777	6956	1878	908
MEAN	36.2	22.4	11.8	13.3	20.3	58.3	3249	1526	426	224	60.6	30.3
MAX	41	33	13	14	60	110	4490	2840	1030	1310	96	41
MIN	33	9.8	9.5	13	14	25	170	675	235	82	39	22
AC-FT	2220	1330	725	815	1170	3580	193300	93850	25340	13800	3730	1800
CAL YR 1975 TOTAL	79087.4			MEAN 217	MAX 1440	MIN 4.6	AC-FT 156900					
WTR YR 1976 TOTAL	172262.1			MEAN 471	MAX 4490	MIN 9.5	AC-FT 341700					

RED RIVER OF THE NORTH BASIN

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05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1962 to September 1972, October 1974 to current year.

WATER TEMPERATURES: April 1962 to September 1972, October 1974 to current year.

SUSPENDED SEDIMENT DISCHARGE: April 1962 to current year.

INSTRUMENTATION.--Water-quality monitor since August 1976.

REMARKS.--Stream ice covered, Dec. 1, 1975 to Mar. 30, 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,290 micromhos Feb. 17, 1972; minimum daily, 223 micromhos

Apr. 9, 1971.

WATER TEMPERATURES: Maximum daily, 31.0°C July 24, 1963; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 21,400 mg/L Aug. 9, 1973; minimum daily mean, 3 mg/L Feb. 23, 1965.

SEDIMENT LOADS: Maximum daily, 169,000 tons (153,000 tonnes) Apr. 11, 1971; minimum daily, less than 0.50 ton (0.45 tonne) on many days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,200 mg/L July 19; minimum daily mean, 12 mg/L Nov. 5-13.

SEDIMENT LOADS: Maximum daily, 52,000 tons (47,000 tonnes) Apr. 6; minimum daily 0.53 ton (0.48 tonne) Jan. 16-22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLIFORM (COL. PER 100 ML)	HARDNESS (CA, MG/L)
OCT 08...	1555	35	870	8.5	15.5	10	--	--	--	--	--	360
NOV 05...	1425	28	900	8.3	10.0	10	--	--	--	--	--	370
DEC 03...	1425	9.5	990	7.5	.0	10	--	--	--	--	--	470
JAN 13...	1540	13	960	7.5	.0	15	--	--	--	--	--	430
29...	1420	14	990	7.4	.0	5	--	--	--	--	--	410
MAR 01...	1410	78	1170	7.9	.0	20	--	--	--	--	--	500
APR 01...	1645	150	700	7.7	.5	30	82	--	--	--	--	290
05...	1415	2840	350	7.7	1.0	--	750	--	--	4.4	--	--
07...	1000	3620	350	7.6	2.0	--	--	--	--	--	--	--
10...	1015	3190	375	7.6	6.5	150	120	9.2	77	--	B27	150
13...	1345	E3000	540	7.7	9.5	--	--	10.4	94	3.2	--	--
14...	0900	3160	500	7.7	9.0	60	270	10.0	89	--	B80	190
16...	1130	4170	380	7.4	9.5	--	24	--	--	--	--	--
20...	1320	3500	380	7.9	7.0	70	230	11.2	95	2.7	B50	140
MAY 13...	1530	1630	640	8.6	16.0	17	150	9.2	96	2.2	--	240
14...	1030	1530	--	--	13.5	--	--	--	--	--	--	--
JUN 08...	1225	480	720	8.3	21.0	18	70	7.4	85	1.9	420	300
JUL 13...	0900	140	810	8.3	20.5	23	25	7.8	89	1.3	B5	320
21...	0945	320	540	7.8	18.5	--	1000	--	--	--	--	--
AUG 17...	1030	50	840	8.4	20.5	30	20	8.2	93	1.1	0	360
SEP 22...	1150	23	860	8.5	13.5	36	10	10.9	107	1.4	40	350

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

E - Estimated.

RED RIVER OF THE NORTH BASIN
05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	NON-CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AN- ION- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITAS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT 08...	110	82	38	52	23	1.2	9.4	298	4	251	1.5	210
NOV 05...	120	86	38	52	23	1.2	9.2	309	0	253	2.5	200
DEC 03...	140	120	42	48	18	1.0	8.7	405	0	332	20	240
JAN 13...	120	110	38	48	19	1.0	7.9	375	0	308	19	220
29...	110	100	39	49	20	1.1	8.3	372	0	305	24	210
MAR 01...	170	100	60	74	24	1.4	12	404	0	331	8.1	310
APR 01...	110	72	27	37	21	.9	7.6	215	0	176	6.9	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
10...	52	35	14	26	27	.9	6.2	114	0	94	4.6	98
13...	--	--	--	--	--	--	--	--	--	--	--	--
14...	61	45	19	33	26	1.0	7.7	158	0	130	5.0	130
16...	--	--	--	--	--	--	--	--	--	--	--	--
20...	42	34	14	23	25	.8	6.3	123	0	101	2.5	86
MAY 13...	57	53	25	36	24	1.0	7.0	217	0	178	.9	140
14...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 08...	90	69	31	40	22	1.0	9.3	256	0	210	2.1	160
JUL 13...	82	78	30	46	23	1.1	9.8	288	0	236	2.3	190
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 17...	120	84	37	51	23	1.2	10	282	5	240	1.9	200
SEP 22...	97	81	37	52	24	1.2	9.7	314	0	258	1.6	200

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)
OCT 08...	12	.2	16	593	571	.81	56.0	.02	--	--	.09	--
NOV 05...	13	.2	16	591	567	.80	44.7	.01	--	--	.07	--
DEC 03...	15	.3	22	707	696	.96	18.1	.08	--	--	.06	--
JAN 13...	13	.3	20	656	643	.89	23.0	.17	--	--	.08	--
29...	14	.3	19	637	624	.87	24.1	.26	--	--	.08	--
MAR 01...	19	.2	18	841	794	1.14	177	.34	--	--	.10	--
APR 01...	--	.2	13	478	--	.65	194	1.0	.04	1.7	.16	.13
05...	--	--	--	--	--	--	--	2.4	.10	7.3	.15	.10
07...	--	--	--	--	--	--	--	--	--	--	--	--
10...	4.4	.2	17	284	272	.39	2450	2.3	.08	3.4	.21	.14
13...	--	--	--	--	--	--	--	--	--	--	--	--
14...	7.7	.2	17	347	343	.47	2960	1.2	.09	3.6	.20	.11
16...	--	--	--	--	--	--	--	1.3	.04	3.6	.15	.10
20...	5.7	.2	14	273	248	.37	2580	.88	.03	2.9	.13	.08
MAY 13...	7.3	.1	16	409	401	.56	1800	.08	.00	1.6	.11	.08
14...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 08...	7.9	.2	24	504	476	.69	653	.17	.04	1.1	.16	.14
JUL 13...	10	.2	30	558	537	.76	211	.01	.01	.70	.20	.15
21...	--	--	--	--	--	--	--	.46	.18	3.5	.17	.12
AUG 17...	13	.3	25	539	565	.73	72.8	.08	.00	.71	.13	.06
SEP 22...	13	.3	19	578	567	.79	35.9	.02	.00	.71	.10	.08

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

[illegible]

RED RIVER OF THE NORTH BASIN

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUS- PENDE MENT (MG/L)	SUS- PENDE MENT DIS- CHARGE (T/DAY)
APR									
05...	--	--	--	--	--	--	--	4040	31000
07...	.00	.00	0	.00	.00	.00	.00	3290	32200
10...	--	--	--	--	--	--	--	1960	16900
14...	--	--	--	--	--	--	--	1720	14700
16...	--	--	--	--	--	--	--	2000	22500
20...	--	--	--	--	--	--	--	1400	13200
MAY									
14...	--	--	--	--	--	--	--	817	3380
JUN									
08...	--	--	--	--	--	--	--	430	557
JUL									
13...	.00	.00	0	.00	.00	.00	.00	--	--
21...	--	--	--	--	--	--	--	2660	2300

DATE	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	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM	SUS. SED. FALL DIAM. % FINER THAN 2.00 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM
APR									
05...	54	75	93	94	96	98	98	100	--
07...	52	78	95	96	98	100	--	--	0
10...	47	74	87	88	90	97	100	--	--
14...	50	73	94	95	97	100	--	--	--
16...	43	61	79	81	84	93	100	--	--
20...	44	71	89	90	94	100	--	--	0
MAY									
14...	45	67	79	85	92	99	100	--	--
JUN									
08...	38	59	73	81	87	100	--	--	0
JUL									
13...	--	--	--	--	--	--	--	--	--
21...	75	91	99	99	100	--	--	--	3

DATE	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. SIEVE DIAM. % FINER THAN 2.00 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	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
APR									
05...	--	--	--	--	--	--	--	--	--
07...	1	2	10	26	44	64	82	94	100
10...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
20...	1	4	28	46	58	71	86	96	100
MAY									
14...	--	--	--	--	--	--	--	--	--
JUN									
08...	1	2	37	47	65	80	93	98	100
JUL									
13...	--	--	--	--	--	--	--	--	--
21...	4	17	27	62	74	86	94	97	100

DISSOLVED OXYGEN PROFILE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HOURL	MG/L	HOURL	MG/L	HOURL	MG/L	HOURL	MG/L
Aug. 16, 1976		2100	8.8	0300	7.9	0900	7.9
1500	8.8	2200	8.6	0400	7.9	1000	8.0
1600	9.1	2300	8.4	0500	7.8	1100	8.2
1700	9.1	2330	8.0	0600	7.8	1200	8.4
1800	9.0	2400	7.9	0700	7.8	1300	8.4
1830	8.8	0100	8.0	0730	7.8	1400	8.4
1900	8.8	0200	8.0	0800	7.8	1500	8.4
2000	8.7						

RED RIVER OF THE NORTH BASIN

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05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHDS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---					630	475	625	---	---	---
2	---	---					380	500	---	---	---	---
3	---	---					395	490	600	---	---	---
4	---	---					340	520	660	---	---	---
5	---	---					390	525	---	---	---	---
6	---	---					395	535	665	---	860	---
7	---	---					415	545	---	---	---	---
8	833	---					385	550	---	695	---	785
9	---	879					410	545	---	---	650	---
10	---	---					360	515	---	---	---	---
11	---	---					390	495	---	---	---	---
12	---	---					430	560	---	---	---	---
13	---	---					440	510	600	---	---	---
14	779	---					510	560	---	---	---	---
15	---	841					420	580	---	---	780	---
16	---	---					345	565	670	---	---	855
17	---	---					395	575	---	---	---	---
18	---	---					400	585	---	680	---	---
19	---	---					345	560	---	660	---	---
20	763	---					375	555	---	280	---	---
21	---	---					305	570	---	460	---	---
22	---	---					380	540	---	485	---	---
23	---	---					395	580	---	645	770	---
24	---	910					400	595	640	---	---	---
25	---	---					365	585	---	---	---	---
26	---	---					390	530	---	---	---	735
27	---	---					375	575	---	---	---	---
28	---	---					330	540	---	---	---	---
29	---	---					430	---	---	---	735	---
30	882	---					455	595	685	---	---	---
31	---	---					---	550	---	---	---	---
MONTH	---	---					399	547	---	---	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---					1.0	7.0	15.0	---	---	---
2	---	---					1.0	6.0	---	---	---	---
3	---	---					0.0	5.0	16.0	---	---	---
4	---	---					1.0	7.0	17.0	---	---	---
5	---	---					0.0	7.0	---	---	---	---
6	---	---					1.0	5.0	17.0	---	25.0	---
7	---	---					1.0	6.0	---	---	---	---
8	17.0	---					4.0	14.0	---	24.0	---	15.0
9	---	2.0					6.0	14.0	---	---	19.0	---
10	---	---					4.0	11.0	---	---	---	---
11	---	---					3.0	12.0	---	---	---	---
12	---	---					4.0	12.0	---	---	---	---
13	---	---					5.0	11.0	20.0	---	---	---
14	4.0	---					7.0	---	---	---	---	---
15	---	0.0					6.0	12.0	---	---	23.0	---
16	---	---					5.0	15.0	17.0	---	---	18.0
17	---	---					6.0	11.0	---	---	---	---
18	---	---					4.0	12.0	---	27.0	---	---
19	---	---					6.0	12.0	---	22.0	---	---
20	10.0	---					4.0	13.0	---	24.0	---	---
21	---	---					2.0	12.0	---	25.0	---	---
22	---	---					5.0	11.0	---	25.0	---	---
23	---	---					5.0	15.0	---	25.0	24.0	---
24	---	0.0					6.0	12.0	21.0	---	---	---
25	---	---					5.0	16.0	---	---	---	---
26	---	---					6.0	12.0	---	---	---	9.0
27	---	---					7.0	12.0	---	---	---	---
28	---	---					7.0	17.0	---	23.0	---	---
29	---	---					9.0	---	---	---	19.0	---
30	4.0	---					8.0	18.0	20.0	---	---	---
31	---	---					---	14.0	---	---	---	---
MONTH	---	---					4.5	11.5	---	---	---	---

RED RIVER OF THE NORTH BASIN
05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	37	24	2.4	33	14	1.2	9.8	41	1.1
2	37	24	2.4	32	14	1.2	9.5	40	1.0
3	36	24	2.3	32	13	1.1	9.5	40	1.0
4	35	24	2.3	31	13	1.1	9.8	39	1.0
5	35	24	2.3	30	12	.97	10	38	1.0
6	35	24	2.3	32	12	1.0	11	38	1.1
7	34	24	2.2	32	12	1.0	11	37	1.1
8	34	24	2.2	31	12	1.0	11	37	1.1
9	37	26	2.6	30	12	.97	11	37	1.1
10	37	24	2.4	29	12	.94	12	37	1.2
11	37	24	2.4	25	12	.81	12	36	1.2
12	37	24	2.4	20	12	.65	12	32	1.0
13	37	24	2.4	18	12	.58	12	31	1.0
14	39	24	2.5	20	23	1.2	12	30	.97
15	41	28	3.1	22	32	1.9	12	30	.97
16	40	24	2.6	24	49	3.2	12	27	.87
17	39	24	2.5	28	71	5.4	12	27	.87
18	37	23	2.3	28	70	5.3	12	26	.84
19	37	23	2.3	26	68	4.8	12	25	.81
20	37	22	2.2	24	64	4.1	12	24	.78
21	37	22	2.2	20	60	3.2	12	23	.75
22	37	22	2.2	17	56	2.6	12	23	.75
23	35	21	2.0	15	52	2.1	13	22	.77
24	35	20	1.9	12	50	1.6	13	22	.77
25	35	19	1.8	11	48	1.4	13	21	.74
26	35	18	1.7	10	46	1.2	13	21	.74
27	35	18	1.7	10	45	1.2	13	21	.74
28	35	17	1.6	9.9	44	1.2	13	21	.74
29	33	16	1.4	9.8	43	1.1	13	21	.74
30	33	15	1.3	9.8	42	1.1	13	21	.74
31	33	14	1.2	---	---	---	13	20	.70
TOTAL	1121	---	67.1	671.5	---	55.12	365.6	---	28.19

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	13	19	.67	14	15	.57	109	22	6.5
2	13	19	.67	14	15	.57	110	22	6.5
3	13	19	.67	14	15	.57	110	22	6.5
4	13	19	.67	14	15	.57	105	21	6.0
5	13	19	.67	14	15	.57	100	20	5.4
6	13	19	.67	14	15	.57	95	19	4.9
7	13	18	.63	14	15	.57	90	19	4.6
8	13	18	.63	14	15	.57	85	19	4.4
9	13	18	.63	14	15	.57	80	18	3.9
10	13	17	.60	14	15	.57	75	18	3.6
11	13	17	.60	14	15	.57	70	18	3.4
12	13	17	.60	14	15	.57	65	17	3.0
13	13	16	.56	14	15	.57	60	17	2.8
14	13	16	.56	14	15	.57	55	17	2.5
15	13	16	.56	14	15	.57	50	17	2.3
16	13	15	.53	17	15	.69	45	16	1.9
17	13	15	.53	20	16	.86	40	16	1.7
18	13	15	.53	21	16	.91	40	16	1.7
19	13	15	.53	22	16	.95	40	16	1.7
20	13	15	.53	23	16	.99	40	16	1.7
21	13	15	.53	24	17	1.1	40	16	1.7
22	13	15	.53	25	18	1.2	40	16	1.7
23	13	16	.56	26	18	1.3	38	16	1.6
24	14	17	.64	27	19	1.4	35	16	1.5
25	14	18	.68	28	19	1.4	30	16	1.3
26	14	18	.68	28	20	1.5	30	16	1.3
27	14	18	.68	29	21	1.6	28	16	1.2
28	14	17	.64	30	22	1.8	26	16	1.1
29	14	17	.64	60	22	3.6	26	16	1.1
30	14	16	.60	---	---	---	25	16	1.1
31	14	16	.60	---	---	---	25	16	1.1
TOTAL	411	---	18.82	590	---	27.85	1807	---	89.7

RED RIVER OF THE NORTH BASIN

159

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APRIL					MAY			JUNE		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	170	300	138	2840	1210	9280	641	395	684	
2	900	1480	3600	2710	1260	9220	610	380	626	
3	1650	1520	6770	2600	1150	8070	573	355	549	
4	2400	3790	24600	2450	1100	7280	548	325	481	
5	3140	4690	39800	2340	1060	6700	521	315	443	
6	3920	4910	52000	2220	1000	5990	503	310	421	
7	3620	3210	31400	2110	910	5180	494	390	520	
8	3440	2480	23000	2030	860	4710	485	410	537	
9	3640	2300	22600	1950	860	4530	470	380	482	
10	3280	1780	15800	1850	900	4500	455	310	381	
11	2810	1600	12100	1770	900	4300	437	290	342	
12	2690	1500	10900	1680	890	4040	1030	4620	12800	
13	2800	1550	11700	1640	810	3590	577	1100	1710	
14	3290	2300	20400	1530	695	2870	449	930	1130	
15	3880	2000	21000	1490	680	2740	413	680	758	
16	4240	1760	20100	1420	620	2380	392	380	402	
17	4490	1740	21100	1360	610	2240	392	235	249	
18	4440	1680	20100	1300	595	2090	365	235	232	
19	4280	1400	16200	1250	580	1960	347	215	201	
20	4150	1500	16800	1170	560	1770	335	230	208	
21	4070	1490	16400	1120	545	1650	317	215	184	
22	3940	1400	14900	1060	505	1450	317	205	175	
23	3760	1420	14400	1010	495	1350	290	205	161	
24	3570	1300	12500	956	485	1250	287	560	434	
25	3410	1290	11900	878	480	1140	272	380	279	
26	3280	1280	11300	854	470	1080	255	380	262	
27	3160	1200	10200	816	450	991	252	275	187	
28	3080	1270	10600	788	445	947	260	395	277	
29	3020	1270	10400	740	445	889	255	410	282	
30	2940	1350	10700	710	415	796	235	195	124	
31	---	---	---	675	405	738	---	---	---	
TOTAL	97460	---	513408	47317	---	105721	12777	---	25521	

JULY					AUGUST			SEPTEMBER		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	230	200	124	79	32	6.8	40	37	4.0	
2	220	200	119	75	30	6.1	41	32	3.5	
3	210	190	108	73	29	5.7	41	31	3.4	
4	198	125	67	70	27	5.1	40	37	4.0	
5	187	105	53	69	25	4.7	39	28	2.9	
6	184	100	50	65	22	3.9	38	26	2.7	
7	177	100	48	62	21	3.5	38	25	2.6	
8	172	100	46	65	51	9.0	36	25	2.4	
9	172	170	79	82	64	14	36	25	2.4	
10	166	100	45	96	109	28	33	25	2.2	
11	161	100	43	91	80	20	33	25	2.2	
12	154	100	42	80	48	10	32	25	2.2	
13	149	80	32	73	36	7.1	32	25	2.2	
14	144	75	29	64	29	5.0	31	25	2.1	
15	138	70	26	60	24	3.9	30	25	2.0	
16	126	70	24	54	32	4.7	29	25	2.0	
17	125	70	24	52	38	5.3	29	25	2.0	
18	122	65	21	51	38	5.2	28	25	1.9	
19	1310	13200	46700	52	37	5.2	27	25	1.8	
20	1250	6700	22600	52	34	4.8	26	25	1.8	
21	320	3300	2850	54	68	9.9	25	25	1.7	
22	152	1100	451	54	48	7.0	24	25	1.6	
23	131	372	132	50	42	5.7	24	24	1.6	
24	113	229	70	50	40	5.4	23	22	1.4	
25	104	121	34	48	44	5.7	23	21	1.3	
26	103	79	22	47	41	5.2	22	16	.95	
27	96	54	14	47	39	4.9	22	15	.89	
28	91	44	11	44	38	4.5	22	15	.89	
29	85	40	9.2	41	38	4.2	22	15	.89	
30	84	38	8.6	39	38	4.0	22	15	.89	
31	82	35	7.7	39	37	3.9	---	---	---	
TOTAL	6956	---	73889.5	1878	---	218.4	908	---	62.41	
YEAR	172262.1		719107.1							

RED RIVER OF THE NORTH BASIN

161

05100500 HERZOG CREEK NEAR CONCRETE, ND

LOCATION.--Lat 48°45'13", long 97°54'22", in SE¼ sec.20, T.161 N., R.56 W., Pembina County, Hydrologic Unit 09020313, on left bank 1.7 mi (2.7 km) northeast of Concrete and 1.7 mi (2.7 km) upstream from mouth.

DRAINAGE AREA.--18.9 mi² (49.0 km²).

PERIOD OF RECORD.--June 1954 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,108.95 ft (338.008 m) above mean sea level (levels by Soil Conservation Service). Prior to Sept. 15, 1971, recording gage at site 0.5 mi (0.8 km) downstream at same datum.

REMARKS.--Records fair. Flood flow affected by temporary retention in four retarding basins above station. The farthest downstream retarding basin, located 0.8 mi (1.3 km) above station, is used to regulate summer flow.

AVERAGE DISCHARGE.--22 years, 3.24 ft³/s (0.0918 m³/s) 2,350 acre-ft/yr (2.90 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260 ft³/s (7.36 m³/s) Apr. 2, 1955, gage height, 9.74 ft (2.969 m), from floodmarks, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44 ft³/s (1.25 m³/s) Apr. 6, gage height, 10.64 ft (3.243 m), backwater from debris; maximum gage height, 12.59 ft (3.837 m) Mar. 25, backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.10	.06	.04	.02	0	2.5	7.7	.04	.08	.03	.01
2	0	.10	.06	.04	.02	0	2.8	6.9	.04	.08	.02	.01
3	0	.10	.06	.04	.02	0	3.0	6.1	.04	.08	.02	.01
4	0	.10	.06	.04	.02	0	3.0	6.1	.03	.04	.02	.03
5	0	.10	.06	.04	.02	0	3.0	5.4	.03	.03	.02	.03
6	0	.10	.06	.04	.02	0	30	4.4	.03	.03	.02	.03
7	0	.10	.06	.04	.02	0	35	3.3	.03	.03	.02	1.4
8	0	.10	.06	.04	.02	0	33	3.7	.35	.03	.02	12
9	0	.10	.06	.03	.02	0	34	2.6	.35	.03	.02	12
10	0	.10	.06	.03	.02	0	33	2.0	.35	.03	.02	12
11	0	.10	.05	.03	.02	0	31	1.1	.35	.02	.02	12
12	0	.09	.05	.03	.02	0	30	.55	22	.02	.20	12
13	0	.08	.05	.03	.02	0	30	.85	34	.08	.03	6.1
14	0	.08	.05	.03	.02	0	34	1.1	30	.20	.08	0
15	.05	.08	.05	.03	.02	0	33	1.1	25	.20	.03	0
16	.10	.08	.05	.03	.02	0	31	1.7	10	.03	.02	0
17	.10	.08	.05	.03	.02	0	30	1.7	4.0	.03	.02	0
18	.10	.08	.05	.03	.02	0	27	1.4	2.3	.03	.02	0
19	.10	.08	.04	.03	.02	0	17	1.1	1.7	.03	.02	0
20	.10	.08	.04	.03	.02	0	16	.55	.85	.03	.02	0
21	.10	.07	.04	.03	.01	0	17	.35	.55	.03	.02	0
22	.10	.07	.04	.03	.01	0	16	.35	.20	.03	.02	0
23	.10	.07	.04	.03	.01	0	14	.20	.20	.03	.02	0
24	.10	.07	.04	.03	.01	0	12	.20	.20	.03	.02	0
25	.10	.07	.04	.03	.01	.05	11	.20	.20	.03	.01	0
26	.10	.06	.04	.03	.01	.10	9.7	.20	.20	.03	.02	0
27	.10	.06	.04	.02	.01	.20	8.9	.20	.20	.03	.01	0
28	.10	.06	.04	.02	.01	.50	8.5	.20	.20	.03	.01	0
29	.10	.06	.04	.02	0	1.0	7.7	.20	.20	.03	.01	0
30	.10	.06	.04	.02	---	1.5	7.7	.20	.20	.03	.01	0
31	.10	---	.04	.02	---	2.0	---	.03	---	.03	.01	---
TOTAL	1.65	2.48	1.52	.96	.48	5.35	570.8	61.68	133.84	1.50	.83	67.62
MEAN	.053	.083	.049	.031	.017	.17	19.0	1.99	4.46	.048	.027	2.25
MAX	.10	.10	.06	.04	.02	2.0	35	7.7	34	.20	.20	12
MIN	0	.06	.04	.02	0	0	2.5	.03	.03	.02	.01	0
AC-FT	3.3	4.9	3.0	1.9	1.0	11	1130	122	265	3.0	1.6	134
CAL YR 1975	TOTAL	422.12	MEAN	1.16	MAX	51	MIN	0	AC-FT	837		
WTR YR 1976	TOTAL	848.71	MEAN	2.32	MAX	35	MIN	0	AC-FT	1680		

RED RIVER OF THE NORTH BASIN

05101000 TONGUE RIVER AT AKRA, ND

LOCATION.--Lat 48°46'42", long 97°44'43" in SW¼ sec.10, T.161 N., R.55 W., Pembina County, Hydrologic Unit 09020313, on left bank 300 ft (90 m) downstream from Renwick Dam, 0.9 mi (1.4 km) northwest of Akra, and 6 mi (10 km) west of Cavalier. Prior to Dec. 19, 1973, at site 2.7 mi (4.3 km) downstream.

DRAINAGE AREA.--160 mi² (414 km²).

PERIOD OF RECORD.--April to June 1950 (WSP 1137-B), October 1951 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 930.00 ft (283.464 m) above mean sea level. Prior to July 10, 1954, nonrecording gage 1.2 mi (1.9 km) downstream at datum 30.00 ft (9.144 m) lower. July 23, 1954 to Dec. 19, 1973, water stage recorder 2.7 mi (4.3 km) downstream at datum 9.10 ft (2.774 m) lower.

REMARKS.--Records fair. Flow regulated by temporary retention in ten retarding basins beginning 300 ft (90 m) above station, four of which have slow release outlet structures to regulate the flow. Retarding basins were completed during the period 1955 to 1961 and have a combined capacity of 19,245 acre-ft (23.7 hm³).

AVERAGE DISCHARGE.--25 years (1951-76) 21.8 ft³/s (0.617 m³/s), 15,790 acre-ft/yr (19.5 hm³/yr); median of yearly mean discharges, 19 ft³/s (0.54 m³/s) 13,800 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s (334 m³/s) Apr. 18, 1950, gage height, 48.7 ft (14.844 m), from floodmarks, site and datum then in use, from rating curve extended above 1,500 ft³/s (42.5 m³/s) on basis of contracted-opening measurement of peak flow; no flow Dec. 1-27, 1952, Aug. 13, 14, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 18, 1950, is the highest known since settlement of the region (about 1860).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 313 ft³/s (8.86 m³/s) Apr. 9, gage height, 13.31 ft (4.057 m); minimum daily discharge, 0.02 ft³/s (0.001 m³/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	1.4	.70	.70	4.6	5.8	3.0	4.5	2.0	3.1	.64	2.0
2	1.8	1.4	.70	.70	4.6	6.2	50	4.3	1.3	2.8	.74	2.0
3	1.7	1.0	.70	.70	4.6	6.2	120	5.0	.40	2.3	.49	2.0
4	1.7	.02	.70	1.5	4.6	6.2	135	6.4	.31	1.9	1.0	2.0
5	1.6	.07	.70	1.5	4.6	5.8	170	6.7	.13	1.6	2.4	2.0
6	1.6	.25	.70	1.5	4.6	5.5	256	7.1	.13	1.3	2.4	1.7
7	1.5	.28	.70	4.3	4.5	5.0	296	7.3	.10	1.4	2.4	1.7
8	1.5	.54	.70	4.9	4.3	7.0	311	7.8	.16	1.1	2.4	1.7
9	1.4	.60	.70	4.9	4.3	7.5	312	7.8	.25	1.0	2.4	1.7
10	1.4	.60	.70	4.9	4.3	7.5	304	7.6	.25	.99	2.4	1.7
11	1.4	.60	.70	4.8	4.3	7.3	286	7.1	.13	.84	2.3	1.6
12	1.4	.60	.70	4.8	4.3	6.5	253	6.7	16	.59	2.3	1.6
13	1.4	.54	.70	4.8	4.3	6.5	215	6.6	92	.54	2.3	1.5
14	1.4	.49	.70	4.8	4.3	5.5	184	6.6	126	.37	2.3	1.5
15	1.4	.44	.70	4.8	4.3	7.5	176	7.5	143	.28	2.3	1.5
16	1.4	.44	.70	4.7	4.3	8.0	169	7.6	125	.25	2.2	1.5
17	1.4	.44	.70	4.7	4.4	7.5	164	7.1	111	.19	2.2	1.5
18	1.4	.40	.70	4.7	4.4	7.5	160	6.6	91	.22	2.2	1.5
19	1.4	.40	.70	4.7	4.5	7.5	135	6.0	69	1.1	2.2	1.5
20	1.4	.40	.70	4.7	4.6	7.0	111	5.4	46	3.8	2.1	1.5
21	1.4	.40	.70	4.6	4.6	5.5	95	4.5	28	5.6	2.1	1.5
22	1.4	.50	.70	4.6	4.6	5.0	86	4.5	20	4.7	2.1	1.5
23	1.4	.50	.70	4.6	4.5	.50	79	3.9	14	3.7	2.1	1.5
24	1.4	.50	.70	4.6	4.5	.30	70	3.7	9.1	3.6	2.0	1.5
25	1.4	.60	.70	4.6	4.5	.30	64	3.5	7.6	2.5	2.0	1.5
26	1.4	.60	.70	4.6	4.6	.30	32	3.3	5.7	2.1	2.0	1.5
27	1.4	.70	.70	4.6	4.9	.30	4.3	3.1	4.6	2.1	2.0	1.5
28	1.4	.70	.70	4.6	5.4	.20	4.4	2.9	4.3	2.0	2.0	1.5
29	1.4	.70	.70	4.6	5.8	.25	4.7	2.9	4.2	1.5	2.0	1.5
30	1.4	.70	.70	4.6	---	.30	4.6	2.5	3.5	1.1	2.0	1.5
31	1.4	---	.70	4.6	---	.30	---	2.3	---	.84	2.0	---
TOTAL	45.4	16.1	21.70	123.70	132.1	146.75	4254.0	168.8	925.16	55.41	61.97	48.7
MEAN	1.46	.56	.70	3.99	4.56	4.73	142	5.45	30.8	1.79	2.00	1.62
MAX	1.8	1.4	.70	4.9	5.8	8.0	312	7.8	143	5.6	2.4	2.0
MIN	1.4	.02	.70	.70	4.3	.20	3.0	2.3	.10	.19	.49	1.5
AC-FT	90	33	43	245	262	291	8440	335	1840	110	123	97
CAL YR 1975	TOTAL	2655.66	MEAN	7.28	MAX	76	MIN	.02	AC-FT	5270		
WTR YR 1976	TOTAL	6000.50	MEAN	16.4	MAX	312	MIN	.02	AC-FT	11900		

RED RIVER OF THE NORTH BASIN

163

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN
(International gaging station)

LOCATION.--Lat 49°00'30", long 97°12'40", in sec.2, T.1, R.2 E., on right bank 1,500 ft (460 m) downstream from Canadian National Railway bridge in Emerson, 0.8 mi (1.3 km) downstream from international boundary, 3.6 mi (5.8 km) downstream from Pembina River, and at mile 154.3 (kilometer 248.3).

DRAINAGE AREA.--40,200 mi² (104,100 km²), approximately, includes 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--March to November 1902 (gage heights only), May 1912 to September 1929 (monthly discharge only, published in WSP 1308). October 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft (213.360 m) above mean sea level, datum of 1929, by Geodetic Survey of Canada. See WSP 1728 or 1913 for history of changes prior to Apr. 10, 1953.

REMARKS.--Records good. Discharge partially regulated by reservoirs on tributaries.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--64 years (water years 1913-76) 3,260 ft³/s (92.32 m³/s), 2,362,000 acre-ft/yr (2.91 km³/yr); median of yearly mean discharges, 2,640 ft³/s (74.8 m³/s), 1,910,000 acre-ft/yr (2.4 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,500 ft³/s (2,700 m³/s) May 13, 1950, gage height, 90.89 ft (27.703 m); minimum observed, 0.9 ft³/s (0.025 m³/s) Feb. 6-8, 1937, gage height, 44.00 ft (13.411 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32,900 ft³/s (932 m³/s) Apr. 6; gage height, 79.06 ft (24.097 m); minimum discharge, 492 ft³/s (13.9 m³/s) Sept. 30, gage height, 46.33 ft (14.121 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2370	2900	1630	1530	1520	1760	11800	7590	2560	2010	1080	948
2	2360	2870	1650	1530	1520	1840	14400	7290	2520	1960	1080	926
3	2330	2830	1670	1540	1520	1970	17300	7020	2470	1930	1070	888
4	2330	2810	1780	1540	1530	2090	20500	6660	2420	1890	1070	879
5	2320	2740	1710	1530	1540	2170	24800	6360	2340	1850	1060	882
6	2320	2670	1660	1530	1580	2200	29300	6090	2280	1810	1060	855
7	2320	2620	1620	1520	1620	2210	31300	5830	2200	1770	1060	851
8	2340	2620	1600	1500	1670	2280	31100	5570	2160	1700	1070	849
9	2330	2590	1570	1460	1720	2370	30900	5340	2120	1660	1120	838
10	2320	2580	1560	1410	1720	2470	29900	5080	2100	1620	1150	830
11	2340	2580	1550	1400	1730	2550	28200	4900	2090	1590	1170	820
12	2320	2590	1540	1420	1720	2590	25800	4660	2210	1580	1210	821
13	2300	2630	1530	1470	1700	2600	22800	4440	2300	1570	1300	821
14	2330	2630	1530	1500	1670	2580	20700	4280	2490	1550	1330	821
15	2320	2610	1520	1520	1650	2520	18600	4140	2440	1490	1330	851
16	2370	2580	1520	1540	1650	2440	16900	3960	2440	1450	1300	833
17	2390	2540	1510	1560	1650	2350	15400	3830	2490	1430	1240	802
18	2420	2540	1510	1570	1650	2250	14000	3700	2540	1390	1190	743
19	2400	2580	1520	1580	1660	2140	12900	3550	2620	1360	1180	693
20	2400	2600	1530	1590	1660	2080	12000	3460	2680	1340	1150	541
21	2440	2610	1550	1590	1660	2040	11400	3370	2680	1720	1120	603
22	2460	2410	1560	1580	1660	2040	10800	3270	2670	2240	1100	564
23	2460	2150	1550	1560	1650	2070	10300	3180	2620	1550	1080	537
24	2460	1870	1540	1550	1650	2130	9880	3100	2530	1360	1060	522
25	2490	1760	1530	1540	1650	2220	9510	3030	2450	1300	1040	518
26	2540	1720	1510	1540	1650	2410	9150	2950	2330	1250	1040	503
27	2570	1690	1500	1530	1660	2750	8780	2880	2220	1210	1050	498
28	2620	1670	1500	1530	1680	3530	8450	2790	2140	1200	1030	499
29	2690	1650	1510	1520	1720	5140	8130	2730	2100	1170	995	503
30	2780	1630	1510	1520	---	7300	7840	2670	2150	1140	981	495
31	2850	---	1510	1520	---	9510	---	2630	---	1090	961	---
TOTAL	75290	72270	48480	47220	47660	86600	522840	136350	71260	48180	34677	21844
MEAN	2429	2409	1564	1523	1643	2794	17430	4398	2375	1554	1119	728
MAX	2850	2900	1780	1590	1730	9510	31300	7590	2680	2240	1330	948
MIN	2300	1630	1500	1400	1520	1760	7840	2630	2050	1090	961	495
AC-FT	149300	143300	96160	93660	94530	171800	1037000	270500	141300	95570	68780	43330
CAL YR 1975 TOTAL	2861921			7841		MAX 42700	MIN 981	AC-FT	5677000			
WTR YR 1976 TOTAL	1212671			3313		MAX 31300	MIN 495	AC-FT	2405000			

RED RIVER OF THE NORTH BASIN

05113360 LONG CREEK AT WESTERN CROSSING OF INTERNATIONAL BOUNDARY, SASK.
(International gaging station)

LOCATION.--Lat 49°00'01", long 103°21'08", in SE¼ sec.1, T.1, R.11 W., 2d meridian, Hydrologic Unit 09010001, on right bank 10 mi (16 km) south of Outram, Saskatchewan.

DRAINAGE AREA.--1,320 mi² (3,420 km²).

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder and artificial control. Datum of gage is 1,894.00 ft (577.291 m) above mean sea level, international boundary survey.

REMARKS.--Records good. Discharge affected by storage in upstream reservoirs.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--17 years, 41.2 ft³/s (1.167 m³/s) 29,850 acre-ft/yr (36.8 hm³/yr); median of yearly mean discharges, 31 ft³/s (0.88 m³/s) 22,500 acre-ft/yr (28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s (133 m³/s) Apr. 1, 1976, gage height, 12.05 ft (3.673 m); maximum gage height, 12.70 ft (3.871 m) Mar. 31, 1976 backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,690 ft³/s (133 m³/s) Apr. 1, gage height, 12.05 ft (3.673 m); maximum gage height, 12.70 ft (3.871 m) Mar. 31, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	1.2	1.1	.40		0	4350	91	11	119	5.7	.08
2	.38	1.2	1.1	.40		0	3460	82	12	107	4.8	.09
3	.34	1.1	1.1	.40		0	2960	71	20	96	3.6	.09
4	.30	1.1	1.1	.40		0	2960	61	17	85	2.8	.09
5	.27	1.0	1.1	.30		0	2790	54	18	75	2.6	.09
6	.27	1.0	1.1	.30		0	2180	50	40	65	2.2	.07
7	.29	1.0	1.0	.30		0	1670	46	166	59	1.9	.06
8	.28	.90	1.0	.30		0	1350	42	146	55	1.7	.05
9	.16	.90	1.0	.20		0	1130	37	149	54	1.5	.05
10	.14	.80	1.0	.20		0	954	34	160	53	1.2	.05
11	.45	.80	1.0	.20		0	740	31	119	52	6.8	.05
12	2.4	.70	.90	.20		0	560	32	69	50	20	.06
13	1.7	.70	.90	.10		0	435	31	232	50	14	.06
14	1.9	.70	.90	.10		0	354	31	896	48	8.9	.07
15	1.5	.60	.80	.10		0	301	31	1080	48	5.7	.08
16	2.2	.60	.80	.05		0	281	28	614	45	4.1	.08
17	3.9	.52	.80	0		0	295	25	511	42	2.5	.09
18	4.4	2.0	.70	0		0	259	22	942	39	2.1	.18
19	4.9	1.9	.70	0		0	255	19	1220	37	1.5	.25
20	4.0	1.8	.70	0		0	307	17	1050	35	.86	.21
21	2.6	1.7	.60	0		0	295	15	778	31	.42	.16
22	2.3	1.6	.60	0		0	260	14	522	30	.23	.12
23	1.9	1.5	.60	0		0	227	13	383	25	.21	.09
24	1.4	1.4	.50	0		.74	202	12	334	20	.25	.08
25	1.3	1.4	.50	0		16	180	11	315	18	.35	.08
26	1.2	1.3	.50	0		120	160	12	276	15	.33	.08
27	1.2	1.3	.50	0		1030	140	11	231	13	.21	.06
28	1.2	1.2	.50	0		1570	125	11	189	11	.10	.05
29	1.2	1.2	.50	0		2140	110	11	157	9.6	.10	.05
30	1.3	1.2	.50	0	---	3110	99	12	134	7.7	.09	.04
31	1.3	---	.50	0	---	4320	---	12	---	6.9	.08	---
TOTAL	47.13	34.32	24.60	3.95	0	12306.74	29389	969	10791	1401.2	96.83	2.66
MEAN	1.52	1.14	.79	.13	0	397	980	31.3	360	45.2	3.12	.089
MAX	4.9	2.0	1.1	.40	0	4320	4350	91	1220	119	20	.25
MIN	.14	.52	.50	0	0	0	99	11	11	6.9	.08	.04
AC-FT	93	68	49	7.8	0	24410	58290	1920	21400	2780	192	5.3
CAL YR 1975	TOTAL	28304.94	MEAN	77.5	MAX	2340	MIN	0	AC-FT	56140		
WTR YR 1976	TOTAL	55066.43	MEAN	150	MAX	4350	MIN	0	AC-FT	109200		

RED RIVER OF THE NORTH BASIN

165

05113600 LONG CREEK NEAR NOONAN, ND
(International gaging station)

LOCATION.--Lat 48°58'52", long 103°04'34", near north line of NE¼ sec.1, T.163 N., R.96 W., Divide County, Hydrologic Unit 09010001, on right bank 150 ft (46 m) upstream from county highway bridge, 1.5 mi (2.4 km) upstream from international boundary, and 7 mi (11 km) northwest of Noonan.

DRAINAGE AREA.--1,790 mi² (4,640 km²), approximately, of which about 1,160 mi² (3,000 km²) is probably non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,840 ft (561 m), from topographic map. Prior to Aug. 18, 1960, nonrecording gage at same site and datum.

REMARKS.--Records fair.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--17 years, 53.1 ft³/s (1,504 m³/s), 38,470 acre-ft/yr (47.4 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s), 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,310 ft³/s (179 m³/s) Mar. 31, 1976, gage height, 17.61 ft (5.367 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 31	1745	*6,310 179	*17.61 5.367	June 15	2000	1,210 34.3	10.82 3.298
Apr. 21	0200	502 14.2	7.57 2.307	June 19	2330	1,230 34.8	10.91 3.325

Minimum, no flow, Sept. 16, 17 (construction diversion).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	8.5	5.1	5.7	5.1	3.8	5710	133	28	148	11	1.0
2	9.4	7.9	5.1	5.7	5.1	4.7	4790	121	26	134	9.3	1.2
3	8.3	7.8	5.1	5.5	5.1	4.4	3720	115	23	119	8.6	1.0
4	7.8	7.8	5.1	5.4	5.1	4.3	3400	108	28	108	7.4	1.0
5	8.6	7.8	5.0	5.4	4.5	4.5	3250	97	29	98	7.3	1.0
6	6.5	7.8	4.4	5.4	4.5	5.0	2830	90	25	86	7.2	.77
7	6.3	7.3	4.0	5.4	4.5	4.8	2240	82	44	77	6.0	.55
8	5.7	6.6	4.0	4.9	5.0	4.6	1790	74	152	76	6.3	.73
9	7.4	6.1	4.3	4.8	4.9	4.7	1470	66	132	71	6.6	.88
10	5.8	6.0	4.5	4.9	5.1	4.6	1240	58	135	68	6.0	.82
11	4.8	6.2	4.4	4.8	4.3	4.7	1020	53	138	63	5.1	.84
12	5.5	6.3	4.0	5.0	4.5	5.4	795	56	108	60	4.4	.74
13	5.8	6.0	4.0	5.0	4.3	5.7	595	52	76	58	3.8	.69
14	9.4	7.2	4.0	4.8	4.0	5.6	477	54	372	54	7.6	.78
15	10	7.8	4.0	4.8	4.7	5.6	383	53	1060	53	7.5	.26
16	10	7.2	3.9	4.8	4.7	5.4	401	51	974	50	7.0	0
17	11	6.6	3.0	4.8	4.5	5.9	468	49	654	48	6.3	0
18	14	6.4	3.2	4.8	4.4	14	445	45	751	44	5.4	1.6
19	18	6.2	3.9	5.1	4.4	20	406	42	1100	42	5.4	.53
20	19	6.0	4.5	5.1	4.4	20	459	37	1180	40	4.8	.63
21	18	6.0	4.5	5.1	4.0	16	492	35	954	36	4.1	.64
22	17	5.4	4.4	4.9	4.2	300	456	34	785	32	3.7	.72
23	15	5.4	4.2	5.2	4.0	300	385	32	532	30	3.3	.65
24	14	5.1	4.2	5.3	4.5	400	338	31	405	27	2.8	.71
25	13	5.1	4.0	5.1	4.4	900	286	30	354	25	2.5	.62
26	13	5.1	4.3	4.8	5.0	1150	245	33	324	21	2.5	.60
27	12	5.1	4.5	4.8	4.7	1350	213	34	276	18	2.2	.60
28	10	5.1	4.6	5.0	4.7	2200	190	32	234	17	1.7	.69
29	9.6	5.4	4.8	5.4	4.0	2700	168	32	197	16	1.8	.59
30	9.2	5.4	4.8	5.4	---	3700	149	30	169	14	1.4	.64
31	8.9	---	5.1	5.4	---	5300	---	30	---	13	1.3	---
TOTAL	323.0	192.6	134.9	158.5	132.6	18453.7	38811	1789	11265	1746	160.3	21.48
MEAN	10.4	6.42	4.35	5.11	4.57	595	1294	57.7	376	56.3	5.17	.72
MAX	19	8.5	5.1	5.7	5.1	5300	5710	133	1180	148	11	1.6
MIN	4.8	5.1	3.0	4.8	4.0	3.8	149	30	23	13	1.3	0
AC-FT	641	382	268	314	263	36600	76980	3550	22340	3460	318	43
CAL YR 1975 TOTAL	33954.89			MEAN 93.0	MAX 2530	MIN .02	AC-FT 67350					
WTR YR 1976 TOTAL	73188.08			MEAN 200	MAX 5710	MIN 0	AC-FT 145200					

RED RIVER OF THE NORTH BASIN

05113750 EAST BRANCH SHORT CREEK RESERVOIR NEAR COLUMBUS, ND

LOCATION.--Lat 48°59'26", long 102°47'07", in SW¼NW¼ sec.32, T.164 N., R.93 W., Burke County, Hydrologic Unit 09010001, on left bank of reservoir on East Branch Short Creek, 0.5 mi (0.8 km) south of international boundary, and 6.0 mi (9.7 km) north of Columbus.

DRAINAGE AREA.--280 mi² (725 km²), of which 175 mi² (453 km²) is noncontributing.

PERIOD OF RECORD.--April 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) above mean sea level.

REMARKS.--Reservoir is formed by earth-fill dam; storage began April 1963. Outlet of lake is a fixed-crest concrete dam; average crest elevation, 1,886.90 ft (575.127 m) above mean sea level. Reservoir capacity at crest elevation, 1,200 acre-ft (1.48 hm³). The reservoir is operated for water supply and recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,850 acre-ft (2.28 hm³) Mar. 28, 1976, elevation, 32.13 ft (9.793 m); minimum, 1,000 acre-ft (1.23 hm³) Dec. 10-13, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,850 acre-ft (2.28 hm³) Mar. 28, elevation, 32.13 ft (9.793 m); minimum, 1,120 acre-ft (1.38 hm³) Sept. 29, 30, elevation 26.26 ft (8.004 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	28.10	1,330	--
Oct. 31-----	28.22	1,350	+20
Nov. 30-----	27.88	1,310	-40
Dec. 31-----	27.64	1,280	-30
CAL YR 1975-----	--	--	+160
Jan. 31-----	*27.55	1,270	-10
Feb. 29-----	*27.55	1,270	0
Mar. 31-----	31.48	1,760	+490
Apr. 30-----	28.96	1,440	-320
May 31-----	28.00	1,320	-120
June 30-----	27.77	1,290	-30
July 31-----	27.21	1,220	-70
Aug. 31-----	26.69	1,170	-50
Sept. 30-----	26.26	1,120	-50
WTR YR 1976-----	--	--	-210

* - Estimated

RED RIVER OF THE NORTH BASIN

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05113800 SHORT CREEK BELOW INTERNATIONAL BOUNDARY NEAR ROCHE PERCEE, SASK.
(International gaging station)

LOCATION.--Lat 49°01'42", long 102°51'00", in SW¼ sec.14, T.1, R.7 W., 2d meridian, Hydrologic Unit 09010001, 4 mi (6 km) southwest of Roche Percee, Saskatchewan and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--480 mi² (1,240 km²).

PERIOD OF RECORD.--March 1960 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are fair.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--16 years, 14.7 ft³/s (0.416 m³/s) 10,650 acre-ft/yr (13.1 hm³/yr); median of yearly mean discharges, 4.8 ft³/s (0.14 hm³/s) 3,500 acre-ft/yr (4.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,700 ft³/s (48.1 m³/s) Apr. 7, 1969, gage height, 14.33 ft (4.368 m); maximum gage height, 14.39 ft (4.386 m) Mar. 28, 1960; no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s (38.8 m³/s) Mar. 28, gage height, 13.33 ft (4.063 m); backwater from ice; maximum gage height, 13.66 ft (4.164 m) Mar. 25, backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.7	2.6	.50	.30	3.5	954	81	2.9	.90		
2	9.9	9.5	2.5	.45	.30	3.7	836	67	2.2	.77		
3	9.0	9.1	2.4	.40	.30	4.0	685	59	1.9	.65		
4	8.0	8.7	2.3	.35	.30	4.2	552	52	1.8	.49		
5	7.8	8.4	2.2	.30	.30	4.4	432	45	1.8	.44		
6	7.1	8.0	2.1	.25	.30	4.6	352	39	3.4	.34		
7	6.5	7.4	2.0	.25	.30	5.0	287	35	4.3	.25		
8	5.5	7.0	1.9	.25	.30	5.8	235	31	4.8	.23		
9	4.7	6.6	1.8	.25	.30	6.0	200	26	14	.16		
10	4.3	6.2	1.7	.25	.30	6.4	185	22	26	.18		
11	4.4	6.1	1.6	.25	.30	6.6	174	20	18	.24		
12	4.5	5.9	1.5	.25	.30	7.2	163	16	17	.15		
13	4.1	5.7	1.5	.25	.30	7.8	149	15	15	.09		
14	6.3	5.6	1.4	.25	.30	8.2	134	14	13	.11		
15	6.6	5.2	1.4	.25	.30	9.0	124	14	11	.09		
16	7.7	5.1	1.3	.25	.30	10	118	12	9.3	.11		
17	9.8	5.3	1.3	.25	.30	12	143	11	7.8	.16		
18	23	6.5	1.2	.25	.40	15	164	10	5.9	.16		
19	28	6.6	1.2	.25	.60	21	160	8.4	4.7	.19		
20	26	6.4	1.1	.25	.90	30	181	7.7	3.8	.22		
21	22	5.9	1.1	.25	1.2	60	242	7.4	2.8	.20		
22	19	5.3	1.0	.25	1.4	120	376	6.5	2.3	.24		
23	16	4.9	.98	.25	1.6	250	418	5.6	2.5	.18		
24	14	4.5	.93	.25	1.8	433	399	4.9	2.5	.20		
25	12	4.1	.87	.25	2.0	908	300	4.4	2.1	.19		
26	11	3.8	.82	.30	2.2	1020	217	4.4	1.8	.12		
27	10	3.5	.77	.30	2.4	1190	181	4.4	1.7	.13		
28	9.9	3.2	.72	.30	2.7	1300	151	4.2	1.4	.14		
29	10	3.0	.67	.30	3.0	1250	121	4.0	1.3	.11		
30	10	2.8	.61	.30	---	1110	97	3.5	1.1	.07		
31	10	---	.56	.30	---	1020	---	3.0	---	0		---
TOTAL	338.1	180.0	44.03	8.80	25.30	8835.4	8730	637.4	188.1	7.51	0	0
MEAN	10.9	6.00	1.42	.28	.87	285	291	20.6	6.27	.24	0	0
MAX	28	9.7	2.6	.50	3.0	1300	954	81	26	.90	0	0
MIN	4.1	2.8	.56	.25	.30	3.5	97	3.0	1.1	0	0	0
AC-FT	671	357	87	17	50	17530	17320	1260	373	15	0	0
CAL YR 1975	TOTAL	16311.86	MEAN	44.7	MAX	884	MIN	.02	AC-FT	32350		
WTR YR 1976	TOTAL	18994.64	MEAN	51.9	MAX	1300	MIN	0	AC-FT	37680		

RED RIVER OF THE NORTH BASIN

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05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued
(International gaging station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,050 micromhos Dec. 19, 1975; minimum, 343 micromhos Apr. 14, 1976.

WATER TEMPERATURES: Maximum, 23 °C July 10, 1976; minimum, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 306 mg/L May 22, 1975; minimum daily mean, 6 mg/L Feb. 10, 11, 1976.

SEDIMENT LOADS: Maximum daily, 2,810 tons (2,550 tonnes) Apr. 9, 1976; minimum daily, 0.13 tons (0.12 tonne) Oct. 1, 1975.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 2,050 micromhos Dec. 19; minimum, 343 micromhos Apr. 14.

WATER TEMPERATURES: Maximum, 23°C July 10; minimum, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 264 mg/L May 6, 7; minimum daily, 6 mg/L Feb. 10, 11.

SEDIMENT LOADS: Maximum daily, 2,810 tons (2,550 tonnes) Apr. 9; minimum daily, 0.58 ton (0.53 tonne) Feb. 10, 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
OCT											
01...	1715	E100	1130	8.1	11.0	--	10	9.0	86	33	B217
16...	1700	67	1300	8.1	5.0	40	9	10.9	91	42	820
29...	1600	E75	1410	8.1	3.0	--	--	11.9	94	47	--
NOV											
13...	1200	31	1380	8.3	.0	32	5	13.8	100	33	--
26...	1430	E40	1520	8.1	.0	--	6	12.2	88	36	B12
DEC											
10...	1200	62	1880	7.8	.0	50	9	8.6	62	47	110
JAN											
07...	1200	E60	1520	7.5	.0	--	10	6.6	48	26	20
21...	1400	46	1280	7.4	.0	35	7	6.4	46	25	28
FEB											
03...	1415	E40	1240	7.5	.0	--	7	7.0	51	27	B64
19...	1230	41	1250	7.5	.0	25	6	7.0	51	34	62
MAR											
04...	1700	120	1060	7.8	.0	--	10	10.0	73	28	480
18...	1620	300	850	8.0	.0	35	11	11.4	83	30	220
30...	1540	1440	410	7.7	.5	--	58	11.1	82	40	560
APR											
14...	1730	E8300	340	7.8	9.5	60	24	9.0	83	31	B50
28...	1200	4500	450	8.0	9.0	--	56	9.4	86	43	B190
MAY											
12...	1430	1500	510	7.8	13.5	65	160	7.5	77	20	B40
25...	1235	E380	770	8.1	17.0	--	--	6.3	69	38	B20
JUN											
08...	1330	E400	790	8.0	18.5	--	--	6.8	76	56	2900
22...	1240	1700	520	7.8	20.0	34	60	6.6	76	42	B3500
JUL											
07...	1415	E700	540	7.9	23.0	--	45	6.4	78	42	B2667
20...	1435	300	690	8.0	21.5	35	15	7.6	86	43	4200
AUG											
03...	1130	E150	820	8.2	20.5	--	10	7.4	86	34	2600
17...	1305	110	890	8.3	20.5	60	20	8.1	94	50	B1560
31...	1115	E90	910	8.2	16.0	--	10	8.0	88	31	B757
SEP											
14...	1150	50	920	8.4	14.0	25	10	9.8	100	89	B290

E - Estimated.

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

RED RIVER OF THE NORTH BASIN

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	FECAL COLIFORM (COL. PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT										
01...	B27	--	--	--	--	--	--	--	--	--
16...	B730	360	51	76	41	160	48	3.7	9.5	375
29...	B15	--	--	--	--	--	--	--	--	--
NOV										
13...	B10	440	64	90	53	160	43	3.3	9.9	463
26...	B16	--	--	--	--	--	--	--	--	--
DEC										
10...	B6	480	9	100	57	300	57	5.9	12	580
JAN										
07...	B15	--	--	--	--	--	--	--	--	--
21...	B3	370	37	83	40	150	46	3.4	11	408
FEB										
03...	E1	--	--	--	--	--	--	--	--	--
19...	E1	350	29	79	38	140	45	3.2	11	396
MAR										
04...	B28	--	--	--	--	--	--	--	--	--
18...	B15	230	49	52	25	93	45	2.7	11	224
30...	E5	--	--	--	--	--	--	--	--	--
APR										
14...	B5	120	20	25	13	20	25	.8	9.6	117
28...	B5	--	--	--	--	--	--	--	--	--
MAY										
12...	B16	180	17	41	20	35	28	1.1	10	204
25...	B27	--	--	--	--	--	--	--	--	--
JUN										
08...	B160	--	--	--	--	--	--	--	--	--
22...	280	160	23	36	18	44	35	1.5	8.9	172
JUL										
07...	323	--	--	--	--	--	--	--	--	--
20...	B67	270	36	67	26	58	31	1.5	10	290
AUG										
03...	B34	--	--	--	--	--	--	--	--	--
17...	125	330	26	69	39	81	34	1.9	11	374
31...	109	--	--	--	--	--	--	--	--	--
SEP										
14...	B5	320	25	71	35	85	36	2.1	11	347

DATE	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)
OCT										
01...	--	--	--	--	--	--	--	757	--	1.03
16...	0	308	4.8	350	33	.2	8.7	887	864	1.21
29...	--	--	--	--	--	--	--	968	--	1.32
NOV										
13...	0	380	3.7	360	39	.2	5.8	977	948	1.33
26...	--	--	--	--	--	--	--	1120	--	1.52
DEC										
10...	0	476	15	540	50	.3	7.3	1420	1360	1.93
JAN										
07...	--	--	--	--	--	--	--	1010	--	1.37
21...	0	335	26	330	33	.2	10	873	863	1.19
FEB										
03...	--	--	--	--	--	--	--	839	--	1.14
19...	0	325	20	300	35	.3	11	837	814	1.14
MAR										
04...	--	--	--	--	--	--	--	738	--	1.00
18...	0	184	3.6	230	9.6	.2	7.6	588	542	.80
30...	--	--	--	--	--	--	--	272	--	.37
APR										
14...	0	96	3.0	64	4.4	.1	7.4	226	203	.31
28...	--	--	--	--	--	--	--	308	--	.42
MAY										
12...	0	167	5.2	95	7.8	.2	11	335	322	.46
25...	--	--	--	--	--	--	--	528	--	.72
JUN										
08...	--	--	--	--	--	--	--	542	--	.74
22...	0	141	4.4	120	8.4	.1	8.5	352	329	.48
JUL										
07...	--	--	--	--	--	--	--	374	--	.51
20...	0	238	4.6	130	19	.2	4.8	450	458	.61
AUG										
03...	--	--	--	--	--	--	--	557	--	.76
17...	0	307	3.0	150	30	.2	9.4	579	574	.79
31...	--	--	--	--	--	--	--	597	--	.81
SEP										
14...	7	296	2.3	160	35	.2	7.9	617	584	.84

B - Results based on colony count outside the acceptable range (non-ideal colony count).
 E - Estimated.

RED RIVER OF THE NORTH BASIN

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05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	TOTAL ORTHO- PHOS- PHORUS (P) (MG/L)
OCT										
01...	--	.09	--	.03	1.9	1.9	2.0	.10	--	--
16...	160	.18	.18	.09	1.6	1.7	1.9	.15	.06	.09
29...	--	.11	--	.10	2.0	2.1	2.2	.10	--	--
NOV										
13...	81.8	.15	.15	.00	1.5	1.5	1.7	.05	.02	.02
26...	--	.29	--	.04	.20	.24	.53	.09	--	--
DEC										
10...	238	.62	.61	.14	2.2	2.3	2.9	.07	.03	.05
JAN										
07...	--	.80	--	.13	1.8	1.9	2.7	.08	--	--
21...	108	.89	.89	.09	3.5	3.6	4.5	.06	.02	.01
FEB										
03...	--	1.0	--	.08	.90	.98	2.0	.05	--	--
19...	92.7	1.0	1.0	.01	.89	.90	1.9	.04	.00	.04
MAR										
04...	239	.75	--	--	--	1.4	2.2	.08	--	--
18...	476	.76	.65	.03	.91	.94	1.7	.09	.05	.04
30...	1060	.53	--	.05	1.8	1.8	2.3	.27	--	--
APR										
14...	--	.53	.39	.04	1.4	1.4	1.9	.35	.07	.08
28...	3740	.31	--	.02	1.3	1.3	1.6	.24	--	--
MAY										
12...	1360	.44	.37	.04	2.1	2.1	2.5	.34	.12	.08
25...	--	.26	--	.01	1.3	1.3	1.6	.16	--	--
JUN										
08...	--	.27	--	.11	1.5	1.6	1.9	.24	--	--
22...	1620	.41	--	.01	.97	.98	1.4	.22	.08	.09
JUL										
07...	--	.35	--	.05	1.3	1.3	1.7	.31	--	--
20...	365	.04	.07	.00	.84	.84	.88	.19	.09	.11
AUG										
03...	--	.01	--	.00	1.1	1.1	1.1	.13	--	--
17...	172	.06	.00	.00	1.2	1.2	1.3	.12	.05	.04
31...	--	.10	--	.00	.78	.78	.88	.12	--	--
SEP										
14...	83.3	.07	.07	.00	.93	.93	1.0	.12	.03	.03

DATE	TOTAL ORGANIC PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT								
16...	.03	--	--	--	--	180	--	--
NOV								
13...	.03	10	1	100	0	220	1	0
DEC								
10...	.02	--	--	--	--	400	--	--
JAN								
21...	.02	--	--	--	--	390	--	--
FEB								
19...	.00	--	--	--	--	360	--	--
MAR								
18...	--	--	--	--	--	330	--	--
APR								
14...	.19	30	1	100	0	70	1	0
MAY								
12...	.00	--	--	--	--	60	--	--
JUN								
22...	.11	--	--	--	--	80	--	--
JUL								
20...	.00	--	--	--	--	150	--	--
AUG								
17...	.08	--	--	--	--	190	--	--
SEP								
14...	.07	--	--	--	--	170	--	--

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYBDENUM (MO) (UG/L)
NOV 13...	0	2	60	1	70	120	.0	1
APR 14...	2	2	110	3	20	0	.0	0

DATE	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)	TOTAL ORGANIC CARBON (C) (MG/L)	CYANIDE (CN) (MG/L)	PHENOLS (UG/L)	TOTAL PCB (UG/L)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)
OCT												
01...	--	--	--	--	--	--	18	--	--	--	--	--
16...	--	--	--	--	--	--	15	--	0	--	--	--
29...	--	--	--	--	--	--	22	--	--	--	--	--
NOV												
13...	3	1	0	530	.7	2	18	.00	2	.0	--	.00
26...	--	--	--	--	--	--	18	--	--	--	--	--
DEC												
10...	--	--	--	--	--	--	18	--	6	--	--	--
JAN												
07...	--	--	--	--	--	--	15	--	--	--	--	--
21...	--	--	--	--	--	--	9.9	--	0	.0	--	.00
FEB												
03...	--	--	--	--	--	--	9.9	--	--	--	--	--
19...	--	--	--	--	--	--	27	--	1	--	--	--
MAR												
04...	--	--	--	--	--	--	12	--	--	--	--	--
18...	--	--	--	--	--	--	9.2	--	2	--	--	--
30...	--	--	--	--	--	--	15	--	--	--	--	--
APR												
14...	2	0	0	150	1.7	0	13	.00	4	.0	.00	.00
26...	--	--	--	--	--	--	15	--	--	--	--	--
MAY												
12...	--	--	--	--	--	--	19	--	2	--	--	--
25...	--	--	--	--	--	--	13	--	--	--	--	--
JUN												
08...	--	--	--	--	--	--	20	--	--	--	--	--
22...	--	--	--	--	--	--	17	--	1	--	--	--
JUL												
20...	--	--	--	--	--	--	16	--	2	.0	.00	.00
AUG												
03...	--	--	--	--	--	--	17	--	--	--	--	--
17...	--	--	--	--	--	--	15	--	1	--	--	--
31...	--	--	--	--	--	--	14	--	--	--	--	--
SEP												
14...	--	--	--	--	--	--	40	--	1	--	--	--

[illegible]

RED RIVER OF THE NORTH BASIN

173

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
NOV 13...	.00	.00	.00	.00	0	.00	.03	.01	.00
JAN 21...	.00	.00	.00	.00	0	.00	.03	.00	.00
APR 14...	.00	.00	.00	.00	0	.00	.00	.00	.00
MAY 12...	--	--	--	--	--	--	--	--	--
JUN 22...	--	--	--	--	--	--	--	--	--
JUL 20...	.00	.00	.00	.00	0	.00	.05	.00	.00

DATE	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)	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	BED MAT. FALL DIAM. % FINER THAN .004 MM
NOV 13...	--	--	--	--	--	--	--	--	3
JAN 21...	--	--	--	--	--	--	--	--	--
APR 14...	--	--	--	--	--	--	--	--	--
MAY 12...	224	907	85	93	100	--	--	--	--
JUN 22...	134	615	60	73	94	98	99	100	--
JUL 20...	--	--	--	--	--	--	--	--	5

DATE	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. SIEVE DIAM. % FINER THAN 2.00 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
NOV 13...	12	21	67	86	92	94	96	99	100
JAN 21...	--	--	--	--	--	--	--	--	--
APR 14...	--	--	--	--	--	--	--	--	--
MAY 12...	--	--	--	--	--	--	--	--	--
JUN 22...	--	--	--	--	--	--	--	--	--
JUL 20...	19	28	69	85	88	90	93	96	100

RED RIVER OF THE NORTH BASIN
05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1400	1770	1500	1120	1200	381	447	858	536	---	907
2	821	1040	1790	1600	1210	1190	443	---	871	519	793	---
3	889	1380	1830	1490	1240	1130	473	449	885	529	---	921
4	1000	1390	1890	1490	1220	1090	500	446	901	535	809	---
5	1000	1380	1920	1490	1240	1020	545	446	923	553	---	907
6	1060	1200	1850	1440	1250	1000	545	449	940	548	819	---
7	1080	1390	1750	1490	1260	968	519	460	859	556	---	894
8	905	1390	1900	1420	1140	970	495	469	721	565	840	---
9	1030	1390	2040	1300	1270	980	468	478	854	575	---	895
10	1040	1380	1930	1360	1260	1000	400	495	909	589	852	---
11	1040	1380	2020	1400	1250	1000	360	527	953	611	---	909
12	834	1390	2000	1310	1240	1090	385	529	911	628	835	---
13	1080	1410	2010	1320	1240	1020	348	544	876	621	---	912
14	1120	1430	1930	1280	1210	1020	343	571	908	630	839	---
15	1190	1430	2020	1270	1240	935	347	617	993	640	---	923
16	---	1490	2000	1340	1210	890	352	655	1050	649	877	---
17	---	1440	1970	1280	1210	865	355	674	1020	679	---	927
18	---	1430	2010	1290	1240	822	372	732	1000	687	859	---
19	---	1420	2050	1300	1240	838	375	738	855	688	---	938
20	---	1400	1960	1210	1240	786	390	721	644	700	861	---
21	---	1430	1830	1260	1220	852	388	748	623	715	---	950
22	---	1460	1960	1280	1110	842	398	762	558	---	882	---
23	---	1550	2000	1240	1210	810	408	769	507	713	---	960
24	---	1510	1930	1240	1210	757	421	775	499	---	883	963
25	---	1520	1960	1180	1210	717	450	792	522	734	---	945
26	1240	1550	1900	1240	1220	632	460	805	543	---	882	957
27	---	1630	1860	1250	1210	645	468	820	561	747	---	1010
28	1400	1630	1710	1180	1200	512	462	822	546	---	882	978
29	1240	1660	1860	1240	1270	442	455	830	527	779	---	990
30	1400	1790	1780	1240	---	408	447	842	533	---	877	983
31	1410	---	1740	1240	---	390	---	848	---	805	---	---
MONTH	---	1440	1910	1330	1220	865	425	642	778	636	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	4.0	0.0	0.5	1.0	0.0	2.0	11.0	19.0	18.0	---	15.5
2	10.0	4.5	0.0	1.0	0.5	0.0	1.0	9.0	21.5	19.5	17.5	---
3	10.0	4.5	0.0	0.5	0.5	0.5	2.0	10.0	20.5	19.5	---	15.0
4	12.0	6.0	1.5	1.0	0.5	0.5	4.0	10.0	21.5	19.5	20.5	---
5	8.0	6.0	0.5	0.5	0.5	0.5	6.0	11.0	21.5	20.5	---	14.5
6	11.0	5.0	0.5	0.5	0.0	0.5	6.0	11.0	22.0	21.5	17.5	---
7	11.5	5.0	0.5	0.5	0.5	1.0	7.0	11.0	21.0	21.0	---	17.5
8	10.0	4.0	0.5	0.0	1.0	1.0	8.0	11.0	18.0	22.0	19.5	---
9	8.0	2.0	1.0	0.5	1.0	0.5	9.0	13.0	20.0	22.5	---	12.0
10	8.0	1.5	1.0	0.5	0.5	0.5	7.0	13.0	21.0	23.0	20.0	---
11	7.0	1.0	0.5	0.5	0.5	0.5	6.5	13.0	21.0	22.5	---	12.0
12	7.0	1.0	0.0	0.5	0.5	0.5	7.5	15.0	22.0	21.0	20.0	---
13	7.0	1.0	0.0	0.5	0.5	0.5	8.0	14.0	21.0	21.5	---	14.5
14	4.5	1.0	1.0	0.5	0.5	1.0	10.0	14.0	20.0	21.0	19.0	---
15	4.0	2.0	0.0	0.0	0.5	1.0	10.0	14.0	19.0	20.5	---	12.5
16	---	2.0	1.0	0.0	0.5	1.0	10.0	16.0	19.0	18.0	19.0	---
17	---	2.0	0.5	0.0	0.5	1.5	7.0	15.0	18.0	19.0	---	13.5
18	---	3.0	1.0	1.0	0.5	1.5	7.0	16.0	17.0	20.0	20.0	---
19	---	1.5	1.0	0.5	0.5	1.0	6.0	16.0	20.0	20.5	---	13.5
20	---	1.0	1.0	0.5	0.5	1.0	7.0	16.0	20.0	19.5	19.5	---
21	---	1.0	1.0	1.0	1.0	1.0	6.0	16.0	21.0	19.0	---	11.5
22	---	1.0	0.5	0.5	1.0	1.0	7.0	16.0	20.0	---	18.0	---
23	---	0.5	1.0	1.0	1.0	0.5	7.0	16.5	20.0	19.0	---	11.5
24	---	0.5	0.5	1.0	1.0	0.5	8.0	17.0	18.5	---	21.0	11.0
25	---	0.5	0.5	1.0	1.0	1.0	9.0	17.0	18.5	22.0	---	10.0
26	4.0	0.5	1.0	0.5	1.0	1.0	9.0	17.0	18.5	---	20.0	11.0
27	4.0	0.5	0.5	0.5	0.5	1.0	9.0	16.0	18.0	21.0	---	10.0
28	4.5	0.5	1.5	1.0	0.5	1.5	10.0	16.0	17.5	---	14.5	10.5
29	4.5	0.0	1.0	1.0	1.5	1.0	11.0	18.0	17.0	19.0	---	13.0
30	4.5	0.0	1.0	1.0	---	1.0	11.0	19.0	18.0	---	16.0	10.0
31	4.0	---	1.0	1.0	---	1.5	---	18.0	---	---	---	---
MONTH	---	2.0	0.5	0.5	0.5	1.0	7.5	14.5	19.5	20.5	---	---

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	115	40	12	65	18	3.2	47	12	1.5
2	110	36	11	64	18	3.1	47	10	1.3
3	101	32	8.7	63	18	3.1	47	10	1.3
4	89	30	7.2	59	16	2.5	49	10	1.3
5	81	28	6.1	58	16	2.5	50	10	1.4
6	77	26	5.4	57	16	2.5	52	10	1.4
7	70	24	4.5	55	14	2.1	52	10	1.4
8	65	22	3.9	54	14	2.0	52	8	1.1
9	61	20	3.3	53	14	2.0	55	10	1.5
10	61	20	3.3	52	14	2.0	58	12	1.9
11	65	22	3.9	53	14	2.0	57	10	1.5
12	68	22	4.0	48	12	1.6	54	10	1.5
13	63	20	3.4	46	24	3.0	54	10	1.5
14	63	20	3.4	50	20	2.7	51	10	1.4
15	63	18	3.1	55	18	2.7	48	10	1.3
16	67	18	3.3	53	14	2.0	46	10	1.2
17	68	18	3.3	50	14	1.9	39	10	1.1
18	74	20	4.0	50	14	1.9	36	10	.97
19	75	20	4.1	50	14	1.9	35	10	.94
20	79	20	4.3	46	16	2.0	35	10	.94
21	77	20	4.2	42	16	1.8	38	10	1.0
22	88	24	5.7	40	16	1.7	43	12	1.4
23	111	30	9.0	45	18	2.2	49	12	1.6
24	115	30	9.3	40	18	1.9	51	12	1.7
25	105	26	7.4	38	18	1.8	50	12	1.6
26	95	26	6.7	38	20	2.1	48	10	1.3
27	91	24	5.9	39	20	2.1	47	10	1.3
28	85	24	5.5	41	14	1.5	47	10	1.3
29	79	22	4.7	42	12	1.4	47	10	1.3
30	76	22	4.5	45	10	1.2	48	10	1.3
31	69	20	3.7	---	---	---	46	10	1.2
TOTAL	2506	---	168.8	1491	---	64.4	1478	---	41.45

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	46	12	1.5	44	10	1.2	90	16	3.9
2	46	12	1.5	44	10	1.2	100	18	4.9
3	46	12	1.5	44	10	1.2	110	18	5.3
4	46	12	1.4	42	10	1.1	120	20	6.5
5	44	12	1.4	42	10	1.1	120	20	6.5
6	44	12	1.4	42	10	1.1	130	20	7.0
7	46	12	1.4	42	10	1.1	130	22	7.7
8	42	14	1.6	40	8	.86	140	22	8.3
9	42	14	1.6	38	8	.82	150	20	8.1
10	42	14	1.6	36	6	.58	160	20	8.6
11	42	14	1.6	36	6	.58	180	20	9.7
12	42	14	1.6	38	8	.82	220	20	12
13	42	14	1.6	40	8	.86	250	20	13
14	44	14	1.7	40	8	.86	260	20	14
15	44	14	1.7	40	10	1.1	270	20	15
16	46	14	1.7	40	8	.86	280	20	15
17	46	14	1.7	40	8	.86	290	20	16
18	46	14	1.7	40	8	.86	300	18	15
19	46	14	1.7	40	8	.86	310	18	15
20	46	12	1.5	40	10	1.1	310	18	15
21	46	12	1.5	40	10	1.1	320	22	19
22	46	12	1.5	42	12	1.4	340	28	26
23	46	12	1.5	42	12	1.4	450	35	43
24	46	10	1.2	44	12	1.4	600	45	73
25	46	10	1.2	44	12	1.4	800	50	108
26	46	10	1.2	46	12	1.5	950	54	139
27	44	10	1.2	50	14	1.9	1300	56	197
28	44	10	1.2	70	14	2.6	1700	60	275
29	44	10	1.2	80	16	3.5	2000	60	324
30	44	10	1.2	---	---	---	2300	60	373
31	44	10	1.2	---	---	---	2800	62	469
TOTAL	1380	---	45.5	1266	---	35.22	17480	---	2252.5

RED RIVER OF THE NORTH BASIN

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APRIL					MAY			JUNE		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	4200	64	726	4040	225	2450	300	70	57	
2	5900	64	1020	3860	238	2480	283	66	50	
3	5480	60	888	3680	242	2400	266	66	47	
4	4950	58	775	3510	245	2320	258	80	56	
5	4830	60	782	3330	250	2250	248	90	60	
6	5780	60	936	3140	264	2240	268	112	81	
7	7220	60	1170	2890	264	2060	325	132	116	
8	8600	60	1390	2570	250	1730	375	175	177	
9	13000	80	2810	2250	244	1480	321	98	85	
10	13700	75	2770	1980	238	1270	306	85	70	
11	12300	72	2390	1710	230	1060	322	80	70	
12	10400	68	1910	1500	225	911	343	90	83	
13	9300	60	1510	1290	225	784	363	92	90	
14	8500	54	1240	1050	220	624	366	94	93	
15	7840	46	974	864	210	490	392	92	97	
16	7360	42	835	807	190	414	411	90	100	
17	6900	40	745	761	168	345	404	95	104	
18	6480	40	700	706	156	297	740	194	388	
19	6210	45	755	662	152	272	1110	190	569	
20	5850	55	869	609	145	238	1360	158	580	
21	5450	64	942	546	135	199	1550	142	594	
22	5250	72	1020	498	120	161	1690	134	611	
23	5020	80	1080	461	110	137	1800	126	612	
24	4880	90	1190	423	104	119	1880	116	589	
25	4750	95	1220	396	98	105	1940	112	587	
26	4630	100	1250	380	90	92	1980	110	588	
27	4510	110	1340	365	80	79	2000	108	583	
28	4400	125	1490	352	74	70	1980	98	524	
29	4290	155	1800	348	86	81	1890	96	490	
30	4180	190	2140	334	85	77	1750	100	472	
31	---	---	---	317	80	68	---	---	---	
TOTAL	202160	---	38667	45629	---	27303	27221	---	8623	

JULY					AUGUST			SEPTEMBER		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	1570	110	466	145	35	14	75	28	5.7	
2	1390	130	488	138	35	13	77	28	5.8	
3	1200	145	470	126	35	12	79	28	6.0	
4	990	145	388	117	35	11	73	28	5.5	
5	867	125	293	108	35	10	69	30	5.6	
6	783	105	222	99	35	9.4	67	32	5.8	
7	711	95	182	95	35	9.0	63	32	5.4	
8	644	88	153	105	35	9.9	61	30	4.9	
9	587	80	127	108	35	10	57	30	4.6	
10	537	70	101	106	35	10	56	30	4.5	
11	484	65	85	111	35	10	56	28	4.2	
12	450	70	85	103	35	9.7	54	22	3.2	
13	469	95	120	99	35	9.4	52	20	2.8	
14	446	65	78	96	35	9.1	50	20	2.7	
15	410	50	55	98	32	8.5	47	22	2.8	
16	366	44	43	111	24	7.2	47	24	3.0	
17	351	42	40	114	30	9.2	49	26	3.4	
18	342	40	37	108	44	13	52	26	3.7	
19	323	36	31	105	42	12	52	24	3.4	
20	307	34	28	108	42	12	50	26	3.5	
21	288	32	25	109	42	12	47	26	3.3	
22	277	32	24	109	46	14	43	22	2.6	
23	263	32	23	110	54	16	36	16	1.6	
24	253	35	24	108	54	16	34	12	1.1	
25	244	35	23	101	54	15	43	12	1.4	
26	232	35	22	92	54	13	53	12	1.7	
27	215	35	20	85	46	11	54	12	1.7	
28	200	35	19	87	42	9.9	50	12	1.6	
29	182	35	17	79	44	9.4	44	10	1.2	
30	166	35	16	76	43	8.8	37	10	1.0	
31	152	35	14	77	35	7.3	---	---	---	
TOTAL	15699	---	3719	3233	---	340.8	1627	---	103.7	
YEAR	321170.0		81364.37							

RED RIVER OF THE NORTH BASIN

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05115500 LAKE DARLING NEAR FOXHOLM, ND

LOCATION.--Lat 48°27'27", long 101°35'14", in NE¼NE¼ sec.1, T.157 N., R.85 W., Ward County, Hydrologic Unit 09010001, on control structure of Lake Darling Dam, reservoir of Fish and Wildlife Service, on Souris River about 6 mi (10 km) north of Foxholm, and at mile 430.0 (kilometer 691.9).

DRAINAGE AREA.--9,450 mi² (24,480 km²), approximately, of which about 6,200 mi² (16,100 km²) is probably noncontributing.

PERIOD OF RECORD.--April 1936 to current year (no winter records 1936-39).

REVISED RECORDS.--WSP 1338: 1942. WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,577.00 ft (480.670 m) above mean sea level. April 1936 to Aug. 8, 1963, nonrecording gages at same site and datum.

REMARKS.--Gage heights frequently affected by wind. Reservoir is formed by earth dam; storage began in April 1936; dam completed in July 1936. Usable capacity, 108,500 acre-ft (134 hm³) between gage heights 0.0 ft, sill of control gages, and 21.0 ft (6.40 m), crest of spillway. Dead storage, 3,500 acre-ft (4.32 hm³). Figures given herein represent total contents based on capacity table dated June 7, 1943. Water is used during periods of low flow at wildlife refuge downstream.

COOPERATION.--Supplementary gage readings furnished by Fish and Wildlife Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 145,400 acre-ft (179 hm³) Apr. 17, 1976, gage height, 24.24 ft (7.388 m); minimum observed since April 1943 when reservoir was first filled to spillway level, 31,200 acre-ft (38.5 hm³) Feb. 18, 25, 1963, gage height, 10.04 ft (3.060 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 145,400 acre-ft (179 hm³) Apr. 17, gage height, 24.24 ft (7.388 m); minimum, 48,600 acre-ft (59.9 hm³) Apr. 1; gage height, 13.44 ft (4.097 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	18.16	85,400	--
Oct. 31-----	18.41	87,700	+2,300
Nov. 30-----	18.15	85,400	-2,300
Dec. 31-----	17.72	81,600	-3,800
CAL YR 1975-----	--	--	+2,900
Jan. 31-----	17.06	76,000	-5,600
Feb. 29-----	16.03	67,300	-8,700
Mar. 31-----	13.48	48,900	-18,400
Apr. 30-----	22.31	125,100	+76,200
May 31-----	19.27	95,400	-29,700
June 30-----	20.85	110,500	+15,100
July 31-----	19.68	99,100	-11,400
Aug. 31-----	17.35	78,500	-20,600
Sept. 30-----	16.68	72,800	-5,700
WTR YR 1976-----	--	--	-12,600

RED RIVER OF THE NORTH BASIN

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05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1972 to current year.

WATER TEMPERATURE: October 1972 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,320 micromhos Jan. 4, 5, 1974; minimum, 234 micromhos June 26, 1974.
WATER TEMPERATURE: Maximum, 28.0°C on several days during July 1974 and June 16, 1975; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,050 micromhos Mar. 17; minimum, 336 micromhos May 5.
WATER TEMPERATURES: Maximum, 25.0°C Aug. 24; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)
OCT										
17...	1700	86	685	8.3	6.5	30	9	11.5	97	41
22...	1515	86	715	8.1	7.5	--	--	--	--	--
NOV										
14...	1300	93	700	8.4	2.0	20	10	13.0	101	38
DEC										
17...	1645	E100	710	8.3	.0	22	3	11.5	83	32
JAN										
20...	1400	200	820	7.8	.0	20	4	10.1	73	31
FEB										
20...	1015	220	900	8.0	.0	35	4	12.2	88	31
MAR										
26...	1030	1850	970	8.0	2.0	40	9	11.7	89	18
APR										
20...	1400	E8500	430	7.7	7.0	50	14	9.8	85	28
MAY										
11...	1300	4200	435	8.3	13.5	42	10	9.6	97	33
JUN										
24...	1030	1000	480	8.8	19.0	18	7	8.1	92	45
JUL										
21...	1330	660	560	9.2	22.0	28	6	9.5	114	43
AUG										
19...	1115	250	605	9.1	22.0	35	10	7.1	105	67
SEP										
16...	1125	2.8	640	8.4	17.0	35	35	3.1	34	63

DATE	BIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM PER 100 ML	FECAL COLIFORM PER 100 ML	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
OCT										
17...	2.8	B20	B4	230	22	49	26	54	32	1.6
22...	--	--	--	--	--	--	--	--	--	--
NOV										
14...	2.6	E1	B3	230	20	51	26	60	34	1.7
DEC										
17...	1.2	B40	B1	260	36	55	29	61	33	1.7
JAN										
20...	1.7	B13	E1	280	38	60	32	70	34	1.8
FEB										
20...	1.3	--	E1	300	50	62	36	78	35	2.0
MAR										
26...	3.0	125	B4	320	45	67	36	92	38	2.3
APR										
20...	2.3	B28	B3	150	38	32	16	31	30	1.1
MAY										
11...	4.1	150	B2	160	29	34	19	29	27	1.0
JUN										
24...	4.0	B53	B15	170	21	37	20	34	28	1.1
JUL										
21...	8.3	B150	B5	210	18	45	24	46	31	1.4
AUG										
19...	8.5	B143	B21	230	35	48	27	52	32	1.5
SEP										
16...	6.8	B461	39	210	7	48	23	56	35	1.7

B - Results based on colony count outside the acceptable range (non-ideal colony count).
E - Estimated.

RED RIVER OF THE NORTH BASIN
05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
OCT										
17...	12	253	0	208	2.0	130	11	.2	.6	409
22...	--	--	--	--	--	--	--	--	--	--
NOV										
14...	12	262	0	215	1.7	150	14	.2	.3	444
DEC										
17...	12	269	0	221	2.2	160	14	.1	.5	465
JAN										
20...	13	297	0	244	7.5	190	17	.2	3.5	533
FEB										
20...	13	296	6	253	4.9	200	21	.2	5.8	569
MAR										
26...	13	330	0	271	5.3	230	22	.2	6.2	631
APR										
20...	9.9	132	0	108	4.2	100	7.0	.1	7.8	272
MAY										
11...	9.1	163	0	134	1.3	96	5.3	.2	7.0	280
JUN										
24...	9.3	188	0	154	.5	98	6.5	.1	1.0	299
JUL										
21...	11	236	0	194	.2	110	10	.1	2.1	365
AUG										
19...	11	239	0	196	.3	120	13	.2	8.8	399
SEP										
16...	11	253	0	208	1.6	130	12	.2	15	427

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE IN BOT. MAT. (MG/KG)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL KJEL NITRO- GEN IN BOTTOM MAT. (MG/KG)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT									
17...	.56	95.0	.05	--	.24	1.3	1.5	--	.18
22...	--	--	--	3.5	--	--	--	1400	--
NOV									
14...	.60	112	.11	--	.00	2.4	2.4	--	.00
DEC									
17...	.63	--	.12	--	.15	2.1	2.2	--	.07
JAN									
20...	.72	288	.10	--	.21	1.4	1.6	--	.07
FEB									
20...	.77	338	.12	--	.16	1.3	1.5	--	.09
MAR									
26...	.86	3150	.18	--	.23	1.7	1.9	--	.17
APR									
20...	.37	--	.71	--	.09	1.2	1.3	--	.14
MAY									
11...	.38	3180	.09	--	.02	1.2	1.2	--	.11
JUN									
24...	.41	807	.02	--	.55	1.2	1.7	--	.31
JUL									
21...	.50	650	.02	--	.19	2.1	2.3	--	.28
AUG									
19...	.54	269	.09	--	.79	2.0	2.8	--	.51
SEP									
16...	.58	3.23	1.4	--	.97	1.4	2.4	--	.43

RED RIVER OF THE NORTH BASIN

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05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO4) (MG/L)	TOTAL PHOS- IN BOT- TOM MA- TERIAL (MG/KG)	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL ARSENIC IN BOTTOM MA- TERIAL (UG/G)	TOTAL BARIUM (BA) (UG/L)	TOTAL BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CADMIUM IN BOTTOM MA- TERIAL (UG/G)	TOTAL CHRO- MIUM (CR) (UG/L)
OCT											
17...	.23	.71	--	360	4	--	100	200	30	--	--
22...	--	--	240	--	--	12	--	--	--	1	--
NOV											
14...	.01	.03	--	--	--	--	--	--	--	--	--
DEC											
17...	.02	.06	--	--	--	--	--	--	--	--	--
JAN											
20...	.03	.09	--	80	3	--	100	0	<10	--	0
FEB											
20...	.04	.12	--	--	--	--	--	--	--	--	--
MAR											
26...	.06	.18	--	--	--	--	--	--	--	--	--
APR											
20...	.04	.12	--	490	3	--	100	90	<10	--	0
MAY											
11...	.01	.03	--	--	--	--	--	--	--	--	--
JUN											
24...	.18	.55	--	--	--	--	--	--	--	--	--
JUL											
21...	.15	.46	--	140	12	--	0	120	<10	--	0
AUG											
19...	.24	.74	--	--	--	--	--	--	--	--	--
SEP											
16...	.24	.74	--	--	--	--	--	--	--	--	--

DATE	TOTAL CHRO- MIUM IN BOTTOM MA- TERIAL (UG/G)	TOTAL COBALT (CO) (UG/L)	TOTAL COBALT IN BOTTOM MA- TERIAL (UG/G)	TOTAL COPPER (CU) (UG/L)	TOTAL COPPER IN BOTTOM MA- TERIAL (UG/G)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON IN BOTTOM MA- TERIAL (UG/G)	TOTAL LEAD (PB) (UG/L)	TOTAL LEAD IN BOTTOM MA- TERIAL (UG/G)	TOTAL LITHIUM (LI) (UG/L)
OCT											
17...	--	--	--	10	--	720	0	--	<100	--	30
22...	50	--	5	--	12	--	--	9600	--	10	--
NOV											
14...	--	--	--	--	--	--	150	--	--	--	--
DEC											
17...	--	--	--	--	--	--	20	--	--	--	--
JAN											
20...	--	50	--	<10	--	130	20	--	<100	--	40
FEB											
20...	--	--	--	--	--	--	30	--	--	--	--
MAR											
26...	--	--	--	--	--	--	20	--	--	--	--
APR											
20...	--	<50	--	10	--	910	130	--	<100	--	30
MAY											
11...	--	--	--	--	--	--	30	--	--	--	--
JUN											
24...	--	--	--	--	--	--	30	--	--	--	--
JUL											
21...	--	<50	--	10	--	230	20	--	<100	--	30
AUG											
19...	--	--	--	--	--	--	40	--	--	--	--
SEP											
16...	--	--	--	--	--	--	90	--	--	--	--

RED RIVER OF THE NORTH BASIN

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MANGANESE (MN) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)	TOTAL MANGANESE IN BOTTOM MA- TERIAL (UG/G)	TOTAL MERCURY (HG) (UG/L)	TOTAL MERCURY IN BOTTOM MA- TERIAL (UG/G)	TOTAL MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SELE- NIUM IN BOTTOM MA- TERIAL (UG/G)	TOTAL SILVER (AG) (UG/L)
OCT 17...	280	210	--	.0	--	1	0	0	--	0
22...	--	--	120	--	.0	--	--	--	0	--
NOV 14...	--	180	--	--	--	--	--	--	--	--
DEC 17...	--	110	--	--	--	--	--	--	--	--
JAN 20...	670	600	--	.2	--	2	<50	0	--	<10
FEB 20...	--	820	--	--	--	--	--	--	--	--
MAR 26...	--	520	--	--	--	--	--	--	--	--
APR 20...	50	20	--	.0	--	2	50	0	--	<10
MAY 11...	--	40	--	--	--	--	--	--	--	--
JUN 24...	--	50	--	--	--	--	--	--	--	--
JUL 21...	130	50	--	.0	--	0	<50	1	--	<10
AUG 19...	--	140	--	--	--	--	--	--	--	--
SEP 16...	--	240	--	--	--	--	--	--	--	--

DATE	TOTAL STRONTIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ZINC IN BOTTOM MA- TERIAL (UG/G)	TOTAL ORGANIC CARBON (C) (HG/L)	ORGANIC CARBON IN BOT- TOM MA- TERIAL (C) (G/KG)	CYANIDE (CN) (MG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)
OCT 17...	250	70	--	14	--	.00	.4	--	--	--
22...	--	--	73	--	15	--	--	.0	0	--
NOV 14...	--	--	--	--	--	--	.0	--	--	--
DEC 17...	--	--	--	--	--	--	2.0	--	--	--
JAN 20...	280	20	--	12	--	.00	.1	--	--	--
FEB 20...	--	--	--	--	--	--	.0	--	--	--
MAR 26...	--	--	--	--	--	--	.0	--	--	--
APR 20...	140	30	--	12	--	.01	.1	.0	--	.00
MAY 11...	--	--	--	--	--	--	.1	--	--	--
JUN 24...	--	--	--	--	--	--	.1	--	--	--
JUL 21...	210	10	--	17	--	.00	--	--	--	--
AUG 19...	--	--	--	--	--	--	.0	--	--	--
SEP 16...	--	--	--	--	--	--	.0	--	--	--

DATE	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)
OCT 17...	--	--	--	--	--	--	--	--	--
22...	.00	.0	.0	0	.00	.0	.00	.0	.00
APR 20...	.00	--	.0	--	.00	--	.00	--	.00

RED RIVER OF THE NORTH BASIN

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05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)
OCT 22...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00
APR 20...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.00

DATE	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)
OCT 22...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	0
APR 20...	--	.00	--	.00	--	.00	--	.00	--	.00	--	0

DATE	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MA- TERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MA- TERIAL (UG/KG)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)
OCT 22...	0	.00	.0	.03	0	.00	0	.00	0	20	4.6
NOV 14...	--	--	--	--	--	--	--	--	--	20	5.0
DEC 17...	--	--	--	--	--	--	--	--	--	8	--
JAN 20...	--	--	--	--	--	--	--	--	--	14	7.6
FEB 20...	--	--	--	--	--	--	--	--	--	10	5.9
MAR 26...	--	--	--	--	--	--	--	--	--	35	175
APR 20...	--	.00	--	.04	--	.00	--	.00	--	17	--
MAY 11...	--	--	--	--	--	--	--	--	--	21	238
JUN 24...	--	--	--	--	--	--	--	--	--	14	38
JUL 21...	--	--	--	--	--	--	--	--	--	11	20
AUG 19...	--	--	--	--	--	--	--	--	--	12	8.1
SEP 16...	--	--	--	--	--	--	--	--	--	58	.44

DATE	BED MAT. FALL DIAM. % FINER THAN .004 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 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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM
OCT 22...	31	49	50	51	59	84	87	93	96	100	--
JUL 21...	15	27	28	29	36	41	49	54	62	78	100

RED RIVER OF THE NORTH BASIN

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	713	706	706	701	731	726	849	827	952	949
2	---	---	715	706	702	698	735	732	841	825	953	946
3	---	---	715	713	699	694	741	732	853	834	972	945
4	664	---	722	715	698	696	753	734	862	851	977	971
5	688	664	722	711	700	695	759	754	878	863	986	973
6	693	684	715	704	708	701	768	760	882	879	982	975
7	693	686	715	709	710	707	778	770	883	880	990	980
8	691	684	718	707	711	709	784	779	880	868	995	982
9	687	666	716	707	708	706	788	785	871	862	998	987
10	676	669	709	700	707	702	792	786	869	863	1000	993
11	676	668	705	691	704	701	798	793	866	861	1020	1000
12	679	672	705	694	701	---	802	800	879	850	1030	1020
13	686	677	709	703	700	695	806	803	880	871	1030	1020
14	679	644	705	696	696	696	805	799	890	871	1040	1030
15	667	646	719	700	698	696	800	795	888	881	1040	1030
16	678	671	722	706	699	697	801	796	891	882	1040	1030
17	689	680	705	700	---	---	805	800	895	886	1050	1040
18	700	689	699	689	710	707	812	809	892	886	1040	976
19	713	697	690	683	711	708	816	810	899	893	972	952
20	718	707	694	689	709	705	822	817	906	897	1000	945
21	718	713	698	691	708	706	826	823	915	902	1030	1000
22	717	715	702	695	709	707	829	826	930	883	1020	995
23	719	715	703	701	710	708	838	830	923	895	1000	981
24	722	717	707	702	712	707	839	827	919	898	1000	984
25	727	717	711	706	715	710	839	834	925	909	994	970
26	727	722	712	710	719	714	845	840	919	907	995	970
27	724	720	714	711	723	715	857	846	911	905	1010	980
28	724	717	715	708	721	719	864	855	928	912	1030	939
29	722	717	710	707	722	720	865	856	947	932	1040	997
30	720	709	709	704	723	718	856	842	---	---	1040	969
31	715	702	---	---	725	720	846	818	---	---	993	912
MONTH	727	644	722	683	725	694	865	726	947	825	1050	912

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	899	784	380	368	482	479	490	482	600	590	617	596
2	813	762	382	361	486	483	492	486	598	592	625	602
3	762	699	389	372	485	483	501	490	601	580	622	597
4	696	640	385	353	489	482	505	494	609	598	636	600
5	637	573	382	336	478	469	511	502	612	601	633	608
6	569	503	397	364	480	468	513	507	611	600	648	613
7	499	452	401	385	486	465	522	509	609	601	647	629
8	451	425	405	373	486	485	516	509	619	604	642	619
9	425	410	416	400	489	485	522	511	627	619	649	631
10	407	376	430	412	491	486	535	521	624	616	648	640
11	407	394	444	427	492	487	544	531	617	606	651	633
12	423	406	442	414	489	481	550	539	622	573	655	636
13	490	424	441	427	491	483	546	542	601	582	658	631
14	514	484	---	---	494	491	548	537	605	585	640	620
15	515	512	---	---	495	493	548	526	---	---	645	612
16	516	463	---	---	497	492	535	526	615	605	657	624
17	466	444	---	---	495	491	542	535	---	---	679	638
18	475	467	---	---	496	493	546	540	605	580	681	644
19	471	442	---	---	495	493	552	540	617	588	680	654
20	443	430	---	---	492	482	568	550	618	594	672	650
21	428	414	---	---	492	475	570	557	620	601	678	656
22	414	411	487	470	---	---	577	569	617	601	691	657
23	412	393	---	---	---	---	593	574	630	611	698	668
24	389	384	---	---	---	---	596	588	636	624	671	651
25	384	381	---	---	490	482	592	575	---	---	665	648
26	379	375	---	---	495	489	595	574	585	533	674	659
27	375	372	---	---	493	481	596	577	612	588	683	659
28	376	373	---	---	487	479	606	589	620	612	675	651
29	376	370	---	---	489	483	612	601	611	563	677	644
30	377	370	---	---	491	485	613	596	610	566	675	658
31	---	---	481	469	---	---	601	593	612	597	---	---
MONTH	899	370	---	---	497	465	613	482	636	533	698	596

RED RIVER OF THE NORTH BASIN

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05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	14.0	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	14.5	14.0	5.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	14.5	14.5	6.0	4.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	13.0	11.5	7.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.5	11.5	8.0	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	13.0	11.5	7.5	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	12.5	12.0	7.0	6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0
8	12.0	11.5	6.0	4.5	0.5	0.0	0.0	0.0	0.0	0.0	2.0	0.5
9	11.0	6.0	4.5	4.0	1.5	0.0	0.0	0.0	0.0	0.0	2.0	2.0
10	6.5	6.0	4.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.5
11	7.5	6.5	3.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0
12	7.5	7.0	1.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
13	7.0	7.0	2.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	1.5	0.0
14	7.0	3.5	2.0	1.5	0.0	0.0	0.0	0.0	1.0	0.0	2.0	0.5
15	4.5	2.5	3.0	2.0	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.0
16	5.0	4.0	3.0	2.5	0.0	0.0	0.0	0.0	1.5	0.5	3.0	1.0
17	6.5	5.0	3.0	2.5	0.0	0.0	0.0	0.0	1.5	1.0	3.5	2.0
18	8.5	7.5	3.0	2.5	0.0	0.0	0.0	0.0	1.5	1.0	4.0	2.5
19	8.5	7.5	3.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	3.5	3.0
20	8.5	8.0	2.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	2.5	1.5
21	8.5	7.0	1.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0	2.5	1.0
22	7.5	7.0	1.5	0.5	0.0	0.0	0.0	0.0	1.5	0.0	3.5	1.5
23	7.0	6.0	1.5	1.0	0.0	0.0	0.0	0.0	1.5	0.5	4.0	2.0
24	6.0	4.5	1.0	0.5	0.0	0.0	0.0	0.0	2.5	1.5	3.0	2.0
25	5.0	4.0	1.0	0.5	0.0	0.0	0.0	0.0	3.0	2.0	3.0	2.0
26	5.5	4.5	0.5	0.5	0.0	0.0	0.0	0.0	2.5	2.0	2.0	1.5
27	4.5	3.5	1.0	0.5	0.0	0.0	0.0	0.0	2.0	1.0	2.5	1.5
28	3.5	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	3.5	2.5
29	4.0	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	4.0	2.5
30	4.5	3.5	0.5	0.0	0.0	0.0	0.0	0.0	---	---	4.5	3.5
31	4.5	4.0	---	---	0.0	0.0	0.0	0.0	---	---	4.5	3.5
MONTH	14.5	2.5	8.0	0.0	1.5	0.0	0.0	0.0	3.0	0.0	4.5	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	4.0	11.0	10.0	20.5	19.5	20.5	19.0	22.0	21.0	19.0	18.0
2	4.0	3.0	9.5	8.0	21.5	19.5	20.5	19.0	22.5	21.0	19.0	17.5
3	4.0	2.0	11.0	9.0	23.0	20.5	20.5	19.5	23.0	22.0	19.0	16.0
4	4.5	3.0	12.0	10.0	22.5	20.5	21.0	19.5	23.0	22.0	20.5	17.0
5	4.5	3.5	12.5	10.0	23.0	21.0	22.5	20.0	22.0	20.5	20.0	17.5
6	5.0	3.5	12.5	10.0	23.0	21.5	22.5	21.0	22.5	20.5	20.5	18.5
7	5.5	4.0	12.5	10.5	23.0	21.0	22.5	21.0	22.5	21.5	20.0	17.0
8	6.0	4.0	14.0	11.0	22.0	21.0	22.5	22.0	23.0	21.0	19.0	14.5
9	5.5	4.5	14.5	13.0	23.5	20.5	23.5	22.0	23.0	22.0	16.0	14.0
10	5.0	4.0	15.0	13.0	24.5	22.0	24.0	22.0	23.0	22.5	17.0	14.5
11	4.0	2.5	15.0	13.5	23.0	22.0	23.5	22.0	23.0	22.5	17.5	15.5
12	5.0	3.0	15.0	13.5	22.5	21.0	22.0	20.5	24.0	22.0	18.5	17.0
13	7.0	4.5	16.0	12.5	20.5	19.5	22.5	21.5	22.0	21.0	18.0	16.5
14	8.0	7.0	16.0	15.0	20.0	18.0	22.5	21.5	22.0	20.5	18.0	15.0
15	8.0	7.5	16.0	14.5	19.0	17.5	22.5	20.0	22.5	21.0	18.5	16.0
16	8.0	6.0	17.5	15.0	19.0	18.5	21.0	20.5	22.5	20.5	18.5	17.0
17	6.0	5.5	17.5	16.0	18.5	17.5	22.5	20.5	24.5	22.0	20.0	18.0
18	6.0	5.0	19.0	15.5	19.5	17.5	22.0	21.5	24.5	22.0	19.5	18.0
19	7.5	5.5	19.5	17.5	20.0	18.5	22.5	21.0	23.5	21.5	19.5	17.0
20	7.0	6.5	19.0	16.5	21.5	19.5	22.5	21.0	24.5	22.0	17.0	15.5
21	7.0	6.0	19.0	17.5	20.5	20.0	22.5	22.0	24.0	22.5	16.5	15.0
22	7.5	6.5	20.0	17.5	---	---	23.0	22.0	23.5	22.0	16.5	15.0
23	7.5	7.0	19.5	18.0	---	---	23.0	21.5	24.0	22.0	15.0	13.5
24	9.0	7.0	19.5	17.5	19.0	---	23.5	22.0	25.0	22.5	15.0	14.0
25	10.0	8.0	19.5	18.0	19.0	18.5	24.0	23.5	23.0	19.5	15.0	14.0
26	10.0	8.5	18.5	17.0	18.5	17.5	23.5	21.5	22.0	18.5	14.5	12.0
27	10.0	8.5	18.0	16.0	18.5	17.5	23.5	22.5	20.0	16.5	13.5	11.0
28	10.5	9.0	19.0	16.5	18.0	17.0	22.5	21.0	18.0	16.0	13.0	11.0
29	11.0	9.5	20.0	17.5	19.5	17.0	22.5	21.0	20.5	17.0	14.0	12.0
30	11.0	9.5	21.5	19.0	20.5	18.5	22.0	21.0	20.5	19.0	15.0	13.0
31	---	---	21.0	19.5	---	---	22.0	21.0	20.5	19.0	---	---
MONTH	11.0	2.0	21.5	8.0	24.5	17.0	24.0	19.0	25.0	16.0	20.5	11.0

RED RIVER OF THE NORTH BASIN
05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

DISSOLVED OXYGEN PROFILE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

<u>HOURL</u>	<u>MG/L</u>	<u>HOURL</u>	<u>MG/L</u>	<u>HOURL</u>	<u>MG/L</u>	<u>HOURL</u>	<u>MG/L</u>
Oct. 17, 1975		Jan. 19, 1976		1500	10.3	2225	8.5
1220	10.9	2000	10.2	1600	10.3	2300	8.4
1330	11.0	2100	10.1	1700	10.2	2400	8.4
1400	11.1	2200	9.9	1800	10.2	0100	7.9
1500	11.4	2300	9.8	1900	10.0	0200	7.8
1600	11.5	2400	9.9	2000	10.0	0300	7.8
1700	11.5	0100	9.9			0400	7.7
1800	11.7	0200	10.0	July 20, 1976		0500	7.7
1900	11.6	0300	9.9	1000	6.5	0600	7.6
2000	11.6	0400	9.9	1100	6.9	0700	7.5
2100	11.5	0500	9.9	1200	7.4	0800	7.5
2200	11.4	0600	10.0	1300	7.8	0900	7.8
2300	11.3	0700	10.0	1400	8.3	1000	7.9
2400	11.2	0800	9.9	1500	8.8	1100	8.1
0100	10.9	0810	9.9	1600	9.1	1200	8.6
0200	10.8	0900	9.9	1700	9.6	1300	9.1
0300	10.5	1000	9.9	1800	9.9	1400	9.6
0400	10.4	1100	9.9	1900	9.9	1500	9.9
0500	10.3	1200	9.9	2000	9.7	1600	10.2
0715	10.1	1300	9.9	2100	9.5	1700	10.2
1100	10.2	1400	10.1	2200	8.9		
1300	10.6						

RED RIVER OF THE NORTH BASIN

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05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 17, 1975
1700 HOURS

IDENTIFICATION OF PHYTOPLANKTON

19,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..CHARACIACEAE				
LSCHROEDERIA			0	
..SCENEDESMACEAE				
LSCENEDESMUS			0	
..VOLVOCALES				
..PHACOTACEAE				
LPHACOTUS			0	
	TOTALS	94	0	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
..CYCLOTELLA		380	2	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
LCOCconeis			0	
LRHOICOSPHEA			0	
..CYMBELLACEAE				
LAMPHORA			0	
..DIATOMACEAE				
LDIATOMA			0	
..GOMPHONEMACEAE				
LGOMPHONEMA			0	
..NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
LSTAURONEIS			0	
..NITZSCHIACEAE				
LNITZSCHIA			0	
	TOTALS	470	2	0.722=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
..MALLONADACEAE				
LCHRYSPHAERELLA			0	
	TOTALS	94	0	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..NOSTOCACEAE				
DANABAENA		16,000	80	
..OSCILLATORIAEAE				
DOSCILLATORIA		3,300	17	
	TOTALS	19,000	97	0.669=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%

L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.233

CLASS 0.252

ORDER 0.269

FAMILY 0.916

GENERA 0.916

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 14, 1975
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

10,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
...ANKISTRODESMUS		510	5	
...SCENEDESMACEAE				
L ...ACTINASTRUM		410	0	
...SCENEDESMUS			4	
...VOLVOCALES				
...VOLVOCAEAE				
L ...EUDORINA			0	
	TOTALS	920	9	0.991=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
D ...CYCLOTELLA		3,600	34	
L ...MELOSIRA			0	
L ...STEPHANODISCUS			0	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
L ...COCONEIS			0	
...RHODOSPHENIA		100	1	
...CYMBELLACEAE				
L ...CYMBELLA			0	
...DIATOMACEAE				
L ...DIATOMA			0	
...FRAGILARIACEAE				
...FRAGILARIA		610	6	
...NAVICULACEAE	NAVICULOID			
L ...NAVICULA			0	
L ...STAURONEIS			0	
...NITZSCHIAEAE				
L ...NITZSCHIA			0	
	TOTALS	4,300	41	0.749=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
...OCHROMONADACEAE				
L ...UROGLENA			0	
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
D ...APHANIZOMENON		5,200	50	
...OSCILLATORIAEAE				
L ...OSCILLATORIA			0	
	TOTALS	5,200	50	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
L ...CRYPTOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.336
 CLASS 1.336
 ORDER 1.604
 FAMILY 1.732
 GENERA 1.732

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 17, 1975
1645 HOURS

IDENTIFICATION OF PHYTOPLANKTON

54 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...VOLVOCALES				
...VOLVOCAEAE				
LPANDORINA			0	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...PENNALES	PENNATE			
...FRAGILARIACEAE				
LFRAGILARIA		5	9	
....SYNEDRA				
....SURIPELLACEAE		5	9	
....SURIPELLA				
TOTALS		10	18	1.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
DAPHANIZOMENON		35	64	
TOTALS		35	64	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDAE				
...CRYPTOMONODACEAE				
DCRYPTOMONAS		10	18	
TOTALS		10	18	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.309
 CLASS 1.309
 ORDER 1.309
 FAMILY 1.491
 GENERA 1.491

JAN. 20, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

340 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		12	4	
....MELDUSIRA		12	4	
...PENNALES	PENNATE			
...ACHNANTHACEAE				
LRHODOSPHENIA			0	
...FRAGILARIACEAE				
LFRAGILARIA			0	
...GOMPHONEMACEAE				
DGOMPHONEMA		290	85	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		12	4	
...NITZSCHACEAE				
....NITZSCHIA		12	4	
TOTALS		340	101	0.901=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.381
 FAMILY 0.827
 GENERA 0.901

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 20, 1976
1015 HOURS

IDENTIFICATION OF PHYTOPLANKTON

190 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....KIRCHNERIELLA		7	4	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		7	4	
	TOTALS	14	8	1.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
....CYCLOTELLA		21	11	
..PENNALES	PENNATE			
..CYMBELLACEAE				
....EPITHEMIA		7	4	
..FRAGILARIACEAE				
DFRAGILARIA		28	15	
....SYNEDRA		7	4	
..NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
..SURIRELLACEAE				
....SURIRELLA		7	4	
	TOTALS	69	38	2.046=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
DANACYSTIS		41	22	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE				
LOSCILLATORIA			0	
	TOTALS	41	22	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
..CRYPTOCHRYSIDACEAE				
DCHROMONAS		62	33	
	TOTALS	62	33	0.000=DIVERSITY
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.819

CLASS 1.819

ORDER 2.220

FAMILY 2.518

GENERA 2.651

RED RIVER OF THE NORTH BASIN

191

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 26, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

320 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
..CHARACIACEAE			
LSCHROEDERIA			0
..SCENEDESMACEAE			
LSCENEDESMUS			0
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINODISCEAE			
..CYCLOTELLA		17	5
LMELOSIRA			0
..STEPHANODISCUS		17	5
..PENNALES	PENNATE		
..ACHNANTHACEAE			
LCOCCONEIS			0
LRHODOSPHENIA			0
..CYMBELLACEAE			
LEPISTEMIA			0
LRHODALODIA			0
..DIATOMACEAE			
LDIATOMA			0
..FRAGILARIACEAE			
DFRAGILARIA		120	37
..GOMPHONEMACEAE			
..GOMPHONEMA		17	5
..NAVICULACEAE	NAVICULOID		
..NAVICULA		33	11
..NITZSCHIACEAE			
DNITZSCHIA		100	32
..SURIRELLACEAE			
..SURIRELLA		17	5
TOTALS		320	100
			2.292=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS		
..EUGLENOPHYCEAE			
..EUGLENALES			
..EUGLENACEAE			
LEUGLENA			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.485
 FAMILY 2.187
 GENERA 2.292

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 20, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		190	4	
...OOCYSTACEAE				
....ANKISTRODESMUS		120	3	
....KIRCHNERIELLA		62	1	
...SCENEDESMACEAE				
....SCENEDESMUS		370	9	
	TOTALS	750	17	1.730=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
D ...CYCLOTELLA		3,100	71	
...MELOSIRA		120	3	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
L ...COCONEIS			0	
...DIATOMACEAE				
L ...DIATOMA			0	
...FRAGILARIACEAE				
...ASTERIONELLA		250	6	
L ...FRAGILARIA			0	
L ...SYNEDRA			0	
...GOMPHONEMACEAE				
L ...GOMPHONEMA			0	
...NAVICULACEAE	NAVICULOID			
L ...NAVICULA			0	
...NITZSCHIAEAE				
...NITZSCHIA		62	1	
...SURIRELLACEAE				
L ...SURIRELLA			0	
	TOTALS	3,600	81	0.707=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
L ...APHANIZOMENON			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...PERIDINIACEAE				
....PERIDINIUM		62	1	
	TOTALS	62	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.765
 CLASS 0.765
 ORDER 1.114
 FAMILY 1.423
 GENERA 1.637

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 11, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

9,700 CELLS/ML

_ORGANISM__NAME_	_COMMON__NAME_	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		550	6	
...OOCYSTACEAE				
....ANKISTRODESMUS		1,100	11	
...DICTYOSPHAERIUM		1,100	11	
...SCENEDESMACEAE				
....TETRASTRUM		550	6	
	TOTALS	3,300	34	1.918=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
D ...CYCLOTELLA		5,700	59	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
....ASTERIONELLA		550	6	
...NITZSCHIA				
....NITZSCHIA		140	1	
	TOTALS	6,400	66	0.574=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.928

CLASS 0.928

ORDER 1.253

FAMILY 1.734

GENERA 1.963

JUNE 24, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

190,000 CELLS/ML

_ORGANISM__NAME_	_COMMON__NAME_	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...COELASTRACEAE				
....COELASTRUM		1,600	1	
...OOCYSTACEAE				
LANKISTRODESMUS			0	
	TOTALS	1,700	1	0.297=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
L ...CYCLOTELLA			0	
..PENNALES	PENNATE			
...CYMBELLACEAE				
LEPITHEMIA			0	
	TOTALS	88	0	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
....ANABAENA		3,500	2	
DAPHANIZOMENON		190,000	97	
	TOTALS	190,000	99	0.133=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.078

CLASS 0.078

ORDER 0.078

FAMILY 0.081

GENERA 0.213

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 21, 1976
1330 HOURS

IDENTIFICATION OF PHYTOPLANKTON

590,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
LSTEPHANODISCUS			0
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..OSCILLATORIALES	FILAMENTOUS		
...OSCILLATORIA			
DOSCILLATORIA		590,000	100
	TOTALS	590,000	100
			0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE

AUG. 19, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

290,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
LCYCLOTELLA			0
	TOTALS	130	0
			0.000=DI VERSI TY
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..OSCILLATORIALES	FILAMENTOUS		
...NOSTOCACEAE			
DAPHANIZOMENON		290,000	100
	TOTALS	290,000	100
			0.000=DI VERSI TY
EUGLENOPHYTA	EUGLENIDS		
..CRYPTOPHYCEAE	CRYPTOMONADS		
..CRYPTOMONIDALES			
...CRYPTOMONODACEAE			
LCRYPTOMONAS			0
	TOTALS	130	0
			0.000=DI VERSI TY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.011
 CLASS 0.011
 ORDER 0.011
 FAMILY 0.011
 GENERA 0.011

RED RIVER OF THE NORTH BASIN

195

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 16, 1976
1125 HOURS

IDENTIFICATION OF PHYTOPLANKTON

9,500 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHARACIACEAE		170	2	
...SCHROEDERIA				
...MICRACTINIACEAE		350	4	
...MICRACTINIUM				
...OOCYSTACEAE		170	2	
...ANKISTRODESMUS				
...SCENEDESMACEAE		170	2	
...SCENEDESMUS				
...VOLVOCALES				
...CHLAMYDOMONADACEAE		87	1	
...CHLAMYDOMONAS				
TOTALS		960	11	2.187=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISACEAE		870	9	
...CYCLOTELLA				
..PENNALES	PENNATE			
...GOMPHONEMACEAE		87	1	
...GOMPHONEMA				
...NITZSCHACEAE		440	5	
...NITZSCHIA				
TOTALS		1,400	15	1.198=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
...OCHROMONADACEAE		520	6	
...OCHROMONAS				
TOTALS		520	6	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA		6,500	69	
D				
TOTALS		6,500	69	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE		87	1	
...EUGLENA				
TOTALS		87	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.233
 CLASS 1.404
 ORDER 1.588
 FAMILY 1.800
 GENERA 1.800

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 14, 1975
1300 HOURSIDENTIFICATION OF PERIPHYTON
LENGTH OF EXPOSURE - 21 DAYS

__ORGANISM__NAME_____	__COMMON__NAME_____
CHLOROPHYTA	GREEN ALGAE
..CHLOROPHYCEAE	
...CLADOPHORALES	
...CLADOPHORACEAE	
OCLADOPHORA	
...DEDOGONIALES	
...DEDOGONIACEAE	
ODEDOGONIUM	
...ULOTRICHALES	
...CHAE TOPHORACEAE	
OSTIGEOCLONIUM	
...ZYGNEMATALES	
...ZYGNEMATAACEAE	
OMOUGEOTIA	
OSPIROGYRA	
CHRYSTOPHYTA	
..BACILLARIOPHYCEAE	DIATOMS
..CENTRALES	CENTRIC
...COSCINODISCEAE	
OCYCLOTELLA	
OMELOSIRA	
..PENNIALES	PENNATE
...ACHNANTHACEAE	
OCOCCONEIS	
ORHODOSPHENIA	
...CYMBELLACEAE	
OAMPHORA	
OCYMBELLA	
OEPITHEMIA	
...DIATOMACEAE	
EDIATOMA	
...FRAGILARIACEAE	
EFRAGILARIA	
OSYNEDRA	
...GOMPHONEMACEAE	
OGOMPHONEMA	
...NAVICULACEAE	NAVICULOID
OCALONEIS	
ONAVICULA	
OPINNULARIA	
...NITZSCHIAEAE	
ONITZSCHIA	
...SURIPELLACEAE	
OCYMATOPLEURA	
OSURIPELLA	
CYANOPHYTA	BLUE-GREEN ALGAE
..MYXOPHYCEAE	
...OSCILLATORIALES	FILAMENTOUS
...OSCILLATORIACEAE	
OOSCILLATORIA	
EUGLENOPHYTA	EUGLENOIDS
..EUGLENOPHYCEAE	
...EUGLENALES	
...EUGLENACEAE	
OEUGLENA	

NOTE: E - ESTIMATED DOMINANT ORGANISM; NOT ACTUALLY COUNTED

O - OBSERVED ORGANISM; NOT ACTUALLY COUNTED

SAMPLING METHOD: PLASTIC SLIDES, TIMED SAMPLING INTERVAL

ANALYSIS METHOD: SLIDE MOUNTING, 200-X MICROSCOPE

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 20, 1976
LENGTH OF EXPOSURE - 24 DAYS

IDENTIFICATION OF PERIPHYTON

__ORGANISM__NAME__	__COMMON__NAME__
CHLOROPHYTA	GREEN ALGAE
..CHLOROPHYCEAE	
...ULOTRICHAELES	
...ULOTRICHACEAE	
O ...ULOTHRIX	
CHRYSOPHYTA	
..BACILLARIOPHYCEAE	DIATOMS
...CENTRALES	CENTRIC
...COSCINODISCACEAE	
O ...CYCLOTELLA	
...PENNALES	PENNATE
...ACHNANTHACEAE	
O ...COCCONEIS	
...CYMBELLACEAE	
O ...CYMBELLA	
O ...EPITHEMIA	
...DIATOMACEAE	
O ...DIATOMA	
...FRAGILARIACEAE	
E ...FRAGILARIA	
O ...SYNEDRA	
...GOMPHONEMACEAE	
O ...GOMPHONEMA	
...NAVICULACEAE	NAVICULOID
O ...GYROSIGMA	
O ...NAVICULA	
...NITZSCHACEAE	
O ...NITZSCHIA	
...SURIRELLACEAE	
O ...SURIRELLA	
CYANOPHYTA	BLUE-GREEN ALGAE
..MYXOPHYCEAE	
...OSCILLATORIALES	FILAMENTOUS
...OSCILLATORIAEAE	
O ...LYNGBYA	

NOTE: E - ESTIMATED DOMINANT ORGANISM; NOT ACTUALLY COUNTED
 O - OBSERVED ORGANISM; NOT ACTUALLY COUNTED
 SAMPLING METHOD: PLASTIC SLIDES, TIMED SAMPLING INTERVAL
 ANALYSIS METHOD: SLIDE MOUNTING, 200-X MICROSCOPE

AUG. 19, 1976
LENGTH OF EXPOSURE - 22 DAYS

IDENTIFICATION OF PERIPHYTON

__ORGANISM__NAME__	__COMMON__NAME__
CHLOROPHYTA	GREEN ALGAE
..CHLOROPHYCEAE	
...ULOTRICHAELES	
...CHAE TOPHORACEAE	
O ...STIGEOCLONIUM	
CHRYSOPHYTA	
..BACILLARIOPHYCEAE	DIATOMS
...PENNALES	PENNATE
...ACHNANTHACEAE	
E ...COCCONEIS	
O ...RHODICOSPHEMIA	
...CYMBELLACEAE	
O ...CYMBELLA	
...GOMPHONEMACEAE	
O ...GOMPHONEMA	
...NAVICULACEAE	NAVICULOID
E ...NAVICULA	
...NITZSCHACEAE	
O ...NITZSCHIA	
CYANOPHYTA	BLUE-GREEN ALGAE
..MYXOPHYCEAE	
...OSCILLATORIALES	FILAMENTOUS
...OSCILLATORIAEAE	
O ...LYNGBYA	
E ...OSCILLATORIA	

NOTE: E - ESTIMATED DOMINANT ORGANISM; NOT ACTUALLY COUNTED
 O - OBSERVED ORGANISM; NOT ACTUALLY COUNTED
 ANALYSIS METHOD: SLIDE MOUNTING, 200-X MICROSCOPE

RED RIVER OF THE NORTH BASIN

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 14, 1975
1259 HOURS

IDENTIFICATION OF BENTHIC INVERTEBRATES

103 COUNT

__ORGANISM__NAME_____	__COMMON__NAME_____	COUNT
ANNELIDA		
..OLIGOCHAETA	AQUATIC EARTHWORMS	1
ARTHROPODA		
..CRUSTACEA		
..CYCLOPOIDA	COPEPODS	1
..CLADOCERA	WATER FLEAS	3
INSECTA		
..DIPTERA		
...CHIRONOMIDAE	MIDGES	37
..EPHEMEROPTERA	MAY FLIES	27
..ODONATA	DRAGONFLIES	
...AGRIONIDAE		7
..TRICHOPTERA	CADDIS FLIES	5
CNIDARIA	CNIDARIANS	
..HYDROZOA		
..HYDROIDA		1
MOLLUSCA		
..BIVALVIA	BIVALVES	
..NUCULOIDEA		
...SPHAERIIDAE	FINGERNAIL CLAMS	10
..GASTROPODA	SNAILS	
..BASOMMATOPHORA		
...PHYSIDAE	POND SNAILS	4
..MESOGASTROPODA		
...HYDROBIIDAE		7

NOTE: SAMPLING METHOD: MULTIPLATE(HESTER DENDY)
 ANALYSIS METHOD: STAIN & SCREEN, 50-X & 200-X MICROSCOPES
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.881
 CLASS 1.307
 INSECTA 1.611

NOV. 14, 1975
1300 HOURS

IDENTIFICATION OF BENTHIC INVERTEBRATES

83 COUNT

__ORGANISM__NAME_____	__COMMON__NAME_____	COUNT
ARTHROPODA		
..CRUSTACEA		
..CYCLOPOIDA	COPEPODS	1
..ARACHNOIDEA		
..HYDRACARINA	WATER MITES	1
..CRUSTACEA		
..AMPHIPODA	SCUDS	2
INSECTA		
..DIPTERA		
...CERATOPOGONIDAE	BITING MIDGES	1
..CHIRONOMIDAE	MIDGES	42
..EPHEMEROPTERA	MAY FLIES	18
..HEMIPTERA		1
..ODONATA	DRAGONFLIES	
...AGRIONIDAE		11
..TRICHOPTERA	CADDIS FLIES	1
MOLLUSCA		
..BIVALVIA	BIVALVES	
..NUCULOIDEA		
...SPHAERIIDAE	FINGERNAIL CLAMS	2
..GASTROPODA	SNAILS	
..BASOMMATOPHORA		
...PHYSIDAE	POND SNAILS	2
..UNKNOWN ORDER		
..UNKNOWN FAMILY		1

NOTE: SAMPLING METHOD: MULTIPLATE(HESTER DENDY)
 ANALYSIS METHOD: STAIN & SCREEN, 50-X & 200-X MICROSCOPES
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.328
 CLASS 0.733
 ORDER 2.129
 INSECTA 1.528

RED RIVER OF THE NORTH BASIN

199

05116000 SOURIS RIVER NEAR FOXHOLM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 20, 1976
1015 HOURS

IDENTIFICATION OF BENTHIC INVERTEBRATES

8 COUNT

__ORGANISM__NAME_____	__COMMON__NAME_____	COUNT
ARTHROPODA		
..CRUSTACEA		
...CLADOCERA	WATER FLEAS	
...DAPHNIDAE		6
....DAPHNIA		
..INSECTA		
...DIPTERA		
....CHIRONOMIDAE	MIDGES	2
....MICROPSECTRA		

NOTE: ANALYSIS METHOD: SCREEN, 50-X & 200-X MICROSCOPES
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:CLASS 0.811
ORDER 0.811
FAMILY 0.811
GENERA 0.811AUG. 19, 1976
1115 HOURS

IDENTIFICATION OF BENTHIC INVERTEBRATES

704 COUNT

__ORGANISM__NAME_____	__COMMON__NAME_____	COUNT
ANNELIDA		
..HIRUDINEA	LEECHES	2
ARTHROPODA		
..CRUSTACEA		
...AMPHIPODA	SCUDS	310
...PODOCOPA	SEED SHRIMPS	24
..INSECTA		
...COLEOPTERA	BEETLES	
...ELMIDAE	RIFFLE BEETLES	1
...DIPTERA		
....CHIRONOMIDAE	MIDGES	189
...EPHEMEROPTERA	MAY FLIES	57
...ODONATA	DRAGONFLIES	
...AGRIONIDAE		6
...TRICHOPTERA	CADDIS FLIES	101
MOLLUSCA		
..GASTROPODA	SNAILS	
...BASOMMATOPHORA		
...PHYSIDAE	POND SNAILS	14

NOTE: ANALYSIS METHOD: SUB SAMPLING, DISSECTING MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:PHYL/DIV 0.169
CLASS 1.146
INSECTA 1.547

RED RIVER OF THE NORTH BASIN

05116500 DES LACS RIVER AT FOXHOLM, ND

LOCATION.--Lat 48°22'14", long 101°34'11", in NW¼NE¼NW¼ sec.2, T.156 N., R.85 W., Ward County, Hydrologic Unit 09010002, on left bank 200 ft (60 m) upstream from county highway bridge in Foxholm, and at mile 23.0 (kilometer 37.0).

DRAINAGE AREA.--939 mi² (2,432 km²), of which about 400 mi² (1,040 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1904 to July 1906, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,632.98 ft (497.732 m) above mean sea level. June 14 to Oct. 23, 1955, nonrecording gage at site 200 ft (60 m) downstream from present gage at same datum. See WSP 1728 to 1913 for history of changes prior to June 14, 1955.

REMARKS.--Records good except those for the winter period, which are fair. Some regulation at low flow by a series of wildlife refuge ponds, beginning about 53 mi (85 km) upstream, combined capacity about 64,000 acre-ft (79 hm³). Some small diversions for irrigation above station.

AVERAGE DISCHARGE.--33 years, 32.6 ft³/s (0.923 m³/s), 23,620 acre-ft/yr (29.1 hm³/yr); median of yearly mean discharges, 17 ft³/s (0.48 m³/s), 12,300 acre-ft/yr (15 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,660 ft³/s (103.7 m³/s) Apr. 30, 1970, gage height, 20.71 ft (6.312 m), from floodmark; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,550 ft³/s (43.9 m³/s) Mar. 24, gage height, 16.61 ft (5.063 m), backwater from ice; minimum daily, 3.6 ft³/s (0.10 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	74	26	9.5	7.0	50	543	463	192	89	15	11
2	88	72	26	9.0	6.5	35	530	455	186	86	14	11
3	86	71	24	8.5	6.5	30	493	434	179	82	14	10
4	84	70	24	8.0	6.0	26	519	414	173	78	13	9.7
5	84	68	24	7.5	6.0	23	641	397	172	77	13	9.4
6	83	68	22	7.0	5.5	20	838	391	170	74	12	9.1
7	82	68	20	6.5	5.5	18	997	381	161	72	12	8.3
8	79	66	18	6.0	5.5	16	1060	364	156	70	13	8.0
9	80	64	17	6.0	6.0	14	1070	350	155	68	13	7.5
10	81	64	17	6.0	6.5	12	1020	337	151	66	12	7.7
11	82	63	17	6.0	7.0	10	961	328	147	64	13	7.7
12	80	60	16	6.0	7.0	9.0	900	321	145	61	13	7.1
13	78	55	16	6.0	6.5	8.0	818	314	140	59	14	6.3
14	80	55	16	6.0	6.5	7.0	751	309	135	56	13	6.1
15	84	55	15	6.0	6.5	6.0	702	304	132	55	12	6.1
16	86	55	14	6.0	7.0	6.0	682	298	129	52	12	6.1
17	92	50	13	6.0	7.0	6.0	751	290	126	49	12	5.9
18	99	50	12	6.0	7.0	30	930	283	122	45	12	5.7
19	99	50	12	6.0	6.5	400	836	275	119	42	15	5.5
20	94	45	11	6.0	6.5	900	820	267	114	39	19	5.5
21	87	40	11	6.0	6.0	800	841	261	114	36	17	5.5
22	84	35	10	6.0	6.0	600	746	255	110	34	15	5.4
23	82	30	10	6.0	6.0	550	685	248	111	32	15	5.5
24	82	28	10	6.0	10	1400	633	241	112	30	15	5.4
25	80	28	10	6.0	20	1500	602	235	108	28	21	5.0
26	80	28	10	6.0	50	1200	563	229	104	25	14	4.5
27	78	28	10	6.0	70	945	518	224	100	23	12	4.5
28	77	28	10	6.0	30	754	494	220	98	20	11	4.2
29	76	28	10	6.5	40	658	493	212	96	18	11	3.8
30	75	26	10	7.0	---	627	471	205	92	17	12	3.6
31	74	---	10	7.0	---	577	---	198	---	16	10	---
TOTAL	2587	1522	471	202.5	366.5	11237.0	21908	9503	4049	1563	419	201.1
MEAN	83.5	50.7	15.2	6.53	12.6	362	730	307	135	50.4	13.5	6.70
MAX	99	74	26	9.5	70	1500	1070	463	192	89	21	11
MIN	74	26	10	6.0	5.5	6.0	471	198	92	16	10	3.6
AC-FT	5130	3020	934	402	727	22290	43450	18850	8130	3100	831	399
CAL YR 1975	TOTAL	47428.5	MEAN	130	MAX	2530	MIN	3.0	AC-FT	94070		
WTR YR 1976	TOTAL	54029.1	MEAN	148	MAX	1500	MIN	3.6	AC-FT	107200		

RED RIVER OF THE NORTH BASIN

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05116500 DES LACS RIVER AT FOXHOLM, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-51, 1969-70, 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT 31...	1520	74	1130	8.2	4.0	330	91	61	43	130
DEC 10...	1715	17	1500	7.7	.0	490	120	94	62	180
JAN 06...	1700	7.0	1750	7.6	.0	600	140	120	73	210
FEB 06...	1130	5.4	2070	--	.0	660	140	140	75	260
JUL 09...	1100	70	850	8.5	22.5	260	34	50	33	93
AUG 05...	1550	13	1140	8.9	22.5	350	60	59	49	140
SEP 02...	1140	11	1130	8.7	16.5	330	36	110	13	140

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT 31...	45	3.1	14	290	0	238	2.9	340	15
DEC 10...	44	3.5	13	451	0	370	14	480	22
JAN 06...	43	3.7	11	558	0	458	22	570	35
FEB 06...	46	4.4	7.4	629	0	516	--	660	39
JUL 09...	42	2.5	12	277	0	227	1.4	240	12
AUG 05...	45	3.3	13	353	0	290	.7	330	20
SEP 02...	47	3.4	12	356	0	292	1.1	320	19

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TOMS PER AC-FT)	DIS- SOLVED SOLIDS (TOMS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 31...	.1	5.3	803	759	1.09	160	320	100	20
DEC 10...	.3	9.1	1140	1090	1.55	52.3	80	20	260
JAN 06...	.5	13	1390	1320	1.89	26.3	40	0	340
FEB 06...	.2	11	1530	1510	2.08	22.3	800	130	300
JUL 09...	.1	11	645	591	.88	122	40	0	10
AUG 05...	.0	18	810	816	1.10	28.4	0	40	80
SEP 02...	.2	19	804	819	1.09	23.9	0	190	180

RED RIVER OF THE NORTH BASIN

05117500 SOURIS (MOUSE) RIVER ABOVE MINOT, ND

LOCATION.--Lat 48°14'45", long 101°22'15", in NW¼NW¼SE¼ sec.17, T.155 N., R.83 W., Ward County, Hydrologic Unit 09010001, on right bank 180 ft (55 m) downstream from county highway bridge 3.5 mi (5.6 km) west of Minot, 7 mi (11 km) downstream from Des Lacs River, and at mile 388.5 (kilometer 625.1).

DRAINAGE AREA.--10,600 mi² (27,500 km²), approximately, of which about 6,700 mi² (17,400 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1903 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Mouse River at Minot 1903-24, Souris River at Minot, 1927-28, 1929-34, and Souris River near Minot 1928-29.

REVISED RECORDS.--WSP 1308: 1905, 1909-14, 1918, 1924-25, 1927. WSP 1338: 1903-4, 1906, 1917, 1928, 1929(M). WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,545.75 ft (471.145 m) above mean sea level. May 5, 1903, to Sept. 30, 1928, Oct. 1, 1929, to Sept. 30, 1934, nonrecording gages at mile 377.6 (kilometer 607.6) in Minot, at datum 12.5 ft (3.8 m) lower, Oct. 1, 1928, to Sept. 30, 1929, nonrecording gages at Saugstad bridge at mile 366.8 (kilometer 590.2), 5 mi (8 km) southeast of Minot and at datum 19.2 ft (5.85 m) lower than present datum. Records equivalent except those for periods of extreme low flow, as some industrial and sanitary waste enters river between the sites.

REMARKS.--Records good except those for the winter period, which are fair. Flow almost completely regulated by Lake Darling (station 05115500), 41 mi (66 km) upstream and several smaller reservoirs; combined capacity, about 248,000 acre-ft (306 hm³). Some small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--73 years, 170 ft³/s (4.814 m³/s), 123,200 acre-ft/yr (152 hm³/yr); median of yearly mean discharges, 91 ft³/s (2.58 m³/s), 65,900 acre-ft/yr (81 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Apr. 20, 1904, gage height, 21.9 ft (6.675 m) at site in Minot, from rating curve extended above 8,100 ft³/s (229 m³/s); no flow at times in some years. Maximum stage at present site, about 23 ft (7.0 m) in April 1904.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage in Minot at least 3 ft (0.9 m) higher than 1904 peak, in 1881, according to Apr. 20, 1904 issue of Minot Daily Optic. This peak probably occurred in 1882.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,350 ft³/s (2.65 m³/s) Apr. 17, gage height, 21.30 ft (6.492 m); minimum, 16 ft³/s (0.45 m³/s) Sept. 18, gage height, 4.32 ft (1.317 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	164	155	165	210	370	3470	5500	686	1120	584	235
2	203	164	155	165	220	370	3620	5430	738	1110	584	235
3	197	161	160	165	220	370	3660	5340	692	1100	582	235
4	188	161	160	160	220	380	3640	5170	646	1100	582	233
5	188	158	160	155	220	400	3760	5080	606	1090	584	233
6	182	158	155	150	220	450	4030	5050	566	1080	580	230
7	182	155	155	150	220	500	4360	4980	558	972	580	228
8	179	152	155	150	230	550	4660	4890	544	860	584	228
9	191	149	150	150	240	600	4900	4810	544	830	589	197
10	194	152	150	155	240	600	5000	4760	538	832	587	134
11	185	155	150	155	240	600	5020	4690	520	828	587	122
12	185	155	155	155	250	650	5070	4610	526	822	587	116
13	179	131	165	155	250	700	5410	4200	506	782	595	113
14	194	158	170	155	250	750	6830	3510	492	732	595	110
15	197	161	175	155	260	800	8120	2860	488	723	591	102
16	191	164	175	155	260	800	8450	2380	494	694	582	66
17	191	158	170	155	260	800	9110	2130	496	670	508	24
18	200	155	170	155	260	800	9260	1990	512	639	344	18
19	208	158	170	150	260	900	9080	1610	574	624	292	40
20	208	161	170	155	260	1000	8870	1200	609	611	268	51
21	194	140	170	175	270	1200	8510	1010	611	598	248	51
22	185	140	170	190	280	1400	8240	935	606	598	241	50
23	182	145	170	200	280	1700	7910	878	617	591	239	62
24	179	145	170	200	300	2000	7580	832	782	587	248	85
25	176	150	170	200	320	2420	7160	798	975	582	248	88
26	173	150	170	200	360	2800	6710	771	1040	576	276	88
27	173	150	170	200	360	2940	6320	765	1080	576	250	85
28	167	150	170	200	360	3030	6040	756	1100	576	239	73
29	167	150	170	200	370	3070	5810	723	1100	580	237	47
30	167	150	170	200	---	3180	5660	677	1110	582	237	41
31	167	---	170	200	---	3300	---	692	---	584	237	---
TOTAL	5780	4600	5095	5275	7690	39430	186260	89027	20356	23649	13485	3620
MFAN	186	153	164	170	265	1272	6209	2872	679	763	435	121
MAX	208	164	175	200	370	3300	9260	5500	1110	1120	595	235
MIN	167	131	150	150	210	370	3470	677	488	576	237	18
AC-FT	11460	9120	10110	10460	15250	78210	369400	176600	40380	46910	26750	7190
CAL YR 1975	TOTAL	269185	MEAN	737	MAX	5660	MIN	20	AC-FT	533900		
WTR YR 1976	TOTAL	404267	MEAN	1105	MAX	9260	MIN	18	AC-FT	801900		

RED RIVER OF THE NORTH BASIN

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05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND

LOCATION.--Lat 48°09'35", long 100°43'45", in NW¼SW¼ sec.17, T.154 N., R.78 W., McHenry County, Hydrologic Unit 09010003, on left bank 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to June 1933 (gauge heights only), April 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,464.87 ft (446.492 m) above mean sea level. February to June 1933, at site 4 mi (6 km) upstream at datum 1.65 ft (0.503 m) higher. April 1, 1937 to Mar. 3, 1938, nonrecording gage at present site, at datum 1.97 ft (0.600 m) higher.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by reservoirs on Souris and Des Lacs Rivers, the largest of which is Lake Darling (station 05115500), 128 mi (206 km) upstream, combined capacity about 248,000 acre-ft (306 hm³). Some small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--39 years, 219 ft³/s (6.202 m³/s), 158,700 acre-ft/yr (196 hm³/yr); median of yearly mean discharges, 120 ft³/s (3.40 m³/s), 86,900 acre-ft/yr (110 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft³/s (280 m³/s) Apr. 19, 1976, gage height, 17.84 ft (5.438 m); minimum recorded, 0.3 ft³/s (0.008 m³/s) Aug. 11-19, 1937, Oct. 10-21, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,900 ft³/s (280 m³/s) Apr. 19, gage height, 17.84 ft (5.438 m); minimum discharge, 25 ft³/s (0.71 m³/s) Sept. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	175	150	170	210	560	3000	6680	735	972	628	252
2	200	175	150	170	210	520	3100	6510	700	982	631	250
3	198	177	150	170	210	480	3180	6300	714	985	631	248
4	195	182	150	165	210	450	3260	6090	750	988	631	248
5	185	182	155	165	210	420	3350	5940	766	990	631	248
6	180	190	155	165	210	400	3450	5790	756	990	628	248
7	180	193	155	160	210	400	3540	5580	737	988	628	246
8	180	193	155	160	200	450	3600	5460	695	983	626	246
9	182	193	155	160	200	500	3690	5350	663	970	623	246
10	188	193	155	160	210	550	3960	5200	644	934	620	244
11	193	198	155	160	230	550	4950	5080	610	879	620	242
12	203	180	155	160	240	600	5380	4980	623	847	625	224
13	208	177	155	160	250	600	5580	4920	628	834	639	150
14	210	193	155	160	250	600	5640	4800	610	828	641	150
15	210	190	160	165	250	650	5910	4580	596	810	639	147
16	217	193	160	165	260	650	6500	4160	578	780	642	136
17	233	188	160	165	260	700	7500	3660	566	750	646	133
18	233	190	160	165	270	750	8800	3260	551	730	641	113
19	222	195	165	165	270	900	9650	2750	550	711	639	103
20	210	195	165	165	270	1300	9700	2390	550	695	566	66
21	205	177	165	165	270	1600	9600	2070	575	676	436	38
22	205	127	165	165	270	1750	9400	1780	610	662	345	28
23	210	116	165	165	270	1900	9200	1500	647	647	310	32
24	203	113	170	170	290	2100	9000	1300	673	639	293	51
25	195	110	170	175	330	2200	8800	1250	679	636	275	55
26	193	115	170	180	380	2300	8500	1110	716	633	248	68
27	190	125	170	190	450	2400	8200	977	806	630	280	93
28	188	135	170	200	550	2500	7720	903	882	628	284	98
29	185	145	170	205	600	2850	7320	844	932	625	286	100
30	180	150	170	205	---	2900	6930	810	959	622	280	103
31	177	---	170	205	---	2950	---	783	---	626	268	---
TOTAL	6156	5065	4975	5300	8040	37480	188410	112807	20501	24670	15880	4606
MEAN	199	169	160	171	277	1209	6280	3639	683	796	512	154
MAX	233	198	170	205	600	2950	9700	6680	959	990	646	252
MIN	177	110	150	160	200	400	3000	783	550	622	248	28
AC-FT	12210	10050	9870	10510	15950	74340	373700	223800	40660	48930	31500	9140
CAL YR 1975 TOTAL	297221		MEAN	814	MAX	5480	MIN 24	AC-FT	589500			
WTR YR 1976 TOTAL	433890		MEAN	1185	MAX	9700	MIN 28	AC-FT	860600			

RED RIVER OF THE NORTH BASIN

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-51, 1952 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1973 to current year.

WATER TEMPERATURES: October 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,070 micromhos, Feb. 27, 1974; minimum, 435 micromhos, May 3, 1976.

WATER TEMPERATURES: Maximum, 28.0°C July 19, 1974; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,110 micromhos, Nov. 19, 20; minimum, 435 micromhos, May 3.

WATER TEMPERATURES: Maximum, 24.0°C July 10, 13 and Aug. 23 - 25; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)
OCT 14...	1800	210	910	7.9	6.5	25	250	2	55	28
NOV 19...	1315	196	1110	8.1	2.5	23	300	28	61	36
DEC 17...	1330	160	900	7.7	.0	25	310	40	67	35
JAN 23...	1345	170	940	7.5	.0	20	320	43	69	36
FEB 17...	1750	260	970	7.6	.0	25	320	47	69	36
MAR 16...	1725	E 600	1000	7.8	.0	35	330	52	69	38
APR 16...	1130	E 8500	480	7.9	9.0	50	140	25	32	15
MAY 24...	1840	1300	665	7.7	17.5	24	230	42	49	27
JUN 21...	2000	600	670	7.9	20.5	17	230	28	45	28
JUL 19...	1630	700	600	8.5	22.0	28	220	19	47	25
AUG 16...	1635	640	705	8.5	21.5	40	250	46	53	29
SEP 13...	1850	125	740	8.0	15.5	35	250	20	53	28

DATE	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (P) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT 14...	95	43	2.6	14	306	0	251	6.2	210	18
NOV 19...	120	45	3.0	13	332	0	272	4.2	270	31
DEC 17...	85	36	2.1	12	331	0	271	11	200	18
JAN 23...	84	35	2.0	12	338	0	277	17	210	19
FEB 17...	88	36	2.1	13	334	0	274	13	220	23
MAR 16...	97	38	2.3	13	337	0	276	8.5	240	21
APR 16...	43	38	1.6	8.9	143	0	117	2.9	110	7.5
MAY 24...	48	30	1.4	11	234	0	192	7.5	140	9.2
JUN 21...	57	34	1.6	11	243	0	199	4.9	140	9.6
JUL 19...	49	31	1.4	10	245	0	201	1.2	110	11
AUG 16...	63	34	1.7	11	251	0	206	1.3	150	19
SEP 13...	67	36	1.9	11	278	0	228	4.4	150	16

E - Estimated.

RED RIVER OF THE NORTH BASIN

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05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)
OCT 14...	.2	5.7	600	579	.82	340	.19	.10	.24	.12
NOV 19...	.2	4.7	728	702	.99	385	.37	.18	.24	.16
DEC 17...	.1	4.0	643	586	.87	278	.39	.13	.11	.04
JAN 23...	.2	5.7	629	605	.86	289	.53	.10	.10	.04
FEB 17...	.2	7.0	674	623	.92	473	.44	.08	.13	.07
MAR 16...	.2	7.8	682	654	.93	--	.26	.59	.21	.13
APR 16...	.2	5.6	318	295	.43	--	.37	.02	.20	.08
MAY 24...	.1	7.9	441	409	.60	1550	.14	.14	.26	.13
JUN 21...	.1	3.3	442	415	.60	716	.17	.03	.27	.14
JUL 19...	.2	3.9	391	378	.53	739	.08	.01	.37	.21
AUG 16...	.2	7.9	468	459	.64	809	.35	.04	.59	.40
SEP 13...	.3	13	490	477	.67	165	.28	.34	.49	.27

DATE	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)
OCT 14...	.08	10	4	0	10	100	1	10	460	0
NOV 19...	.15	--	--	--	--	--	--	--	--	--
DEC 17...	.03	--	--	--	--	--	--	--	--	--
JAN 23...	.04	--	--	--	--	--	--	--	--	--
FEB 17...	.02	--	--	--	--	--	--	--	--	--
MAR 16...	.07	--	--	--	--	--	--	--	--	--
APR 16...	.04	10	1	100	0	80	1	0	30	0
MAY 24...	.10	--	--	--	--	--	--	--	--	--
JUN 21...	.09	--	--	--	--	--	--	--	--	--
JUL 19...	.17	--	--	--	--	--	--	--	--	--
AUG 16...	.30	--	--	--	--	--	--	--	--	--
SEP 13...	.23	--	--	--	--	--	--	--	--	--

DATE	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)	CYANIDE (CN) (MG/L)
OCT 14...	.0	1	5	0	0	240	1.0	10	.00
APR 16...	.0	2	6	0	0	210	1.0	0	.00

RED RIVER OF THE NORTH BASIN

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	924	913	1060	1050	999	981	864	861	937	930	875	855
2	933	924	1050	1040	979	972	862	862	940	936	938	878
3	922	911	1050	1040	973	970	864	864	943	939	958	941
4	914	906	1040	1040	968	964	868	865	965	942	955	948
5	911	906	1050	1040	962	959	869	866	968	958	955	948
6	917	904	1060	1050	971	960	867	861	988	961	978	958
7	921	912	1060	1060	979	969	862	862	984	971	995	978
8	927	921	1070	1060	977	974	867	863	970	970	1000	995
9	921	913	1070	1060	972	965	874	868	970	963	1000	999
10	913	905	1070	1060	963	952	875	872	963	950	999	999
11	905	900	1070	1070	960	950	876	873	946	939	1000	999
12	908	898	1070	1070	955	941	875	871	939	929	1010	1000
13	920	906	1070	1070	939	932	876	873	958	935	1010	1010
14	915	909	1070	1070	930	920	880	877	968	958	1010	1010
15	915	902	1080	1080	918	911	886	883	981	968	1010	1000
16	933	903	1090	1080	912	909	890	890	981	977	1000	996
17	958	937	1090	1090	907	894	896	890	977	967	999	996
18	974	959	1110	1100	895	888	908	899	967	967	1000	999
19	985	963	1110	1110	890	880	915	909	967	964	998	991
20	970	964	1110	1110	881	875	924	918	964	960	991	905
21	983	971	1100	1090	876	866	924	924	970	964	902	865
22	993	984	1080	1080	877	868	934	928	984	971	861	718
23	997	991	1080	1070	869	860	940	937	988	984	718	678
24	992	989	1100	1060	861	855	943	937	988	984	673	593
25	1010	993	1100	1080	856	853	939	936	984	971	591	528
26	1010	994	1100	1100	857	851	936	930	971	944	575	530
27	1000	994	1100	1090	861	858	929	926	944	822	580	577
28	1010	1000	1090	1070	863	863	926	923	827	813	578	563
29	1020	1010	1060	1040	864	861	922	919	855	830	596	561
30	1030	1020	1040	1000	862	862	925	919	---	---	655	596
31	1060	1030	---	---	863	863	931	924	---	---	709	652
MONTH	1060	898	1110	1000	999	851	943	861	988	813	1010	528

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	777	711	455	441	683	677	---	---	695	684	760	725
2	847	782	442	438	693	679	---	---	693	688	761	724
3	880	847	441	435	691	684	---	---	693	689	727	710
4	882	870	445	437	682	669	---	---	694	687	715	707
5	876	843	443	440	703	665	---	---	688	681	728	715
6	837	790	445	441	704	697	538	538	684	679	741	729
7	792	740	450	441	716	704	540	535	687	680	742	735
8	742	700	456	446	707	677	544	536	687	681	739	729
9	697	662	459	452	712	680	549	540	686	681	728	726
10	665	632	461	454	731	715	564	549	688	658	732	725
11	635	594	467	459	731	727	568	566	663	652	731	727
12	595	553	470	466	729	725	572	566	679	651	739	726
13	550	530	480	469	725	706	570	559	677	649	743	738
14	527	503	485	479	711	695	572	559	697	669	755	741
15	502	486	496	485	695	679	574	568	707	669	776	757
16	484	472	505	496	688	677	583	568	705	661	783	776
17	474	467	517	504	689	680	602	585	721	705	804	777
18	518	478	533	517	685	676	602	591	723	706	807	797
19	548	522	544	532	683	674	598	593	705	681	805	800
20	548	543	556	545	674	668	615	597	704	660	813	803
21	545	542	569	555	670	666	625	615	752	710	827	813
22	551	546	603	569	---	---	636	622	819	753	835	824
23	550	534	640	605	---	---	652	636	815	796	854	833
24	533	518	665	642	---	---	656	648	821	797	882	855
25	517	503	663	598	---	---	653	647	814	766	930	885
26	502	497	659	653	---	---	657	651	807	748	962	931
27	496	490	677	657	---	---	654	648	817	808	966	953
28	489	478	706	671	---	---	654	645	856	748	953	941
29	477	467	689	678	---	---	668	653	747	735	941	916
30	466	454	687	680	---	---	699	659	736	725	913	904
31	---	---	687	681	---	---	685	652	738	728	---	---
MONTH	882	454	706	435	---	---	699	535	856	649	966	707

RED RIVER OF THE NORTH BASIN

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05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.5	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	11.0	10.5	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12.0	11.0	5.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12.5	11.5	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	12.0	11.5	6.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.0	11.5	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	12.0	11.5	6.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	12.0	11.5	5.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	12.0	9.0	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	9.0	8.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	8.5	7.5	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	8.0	7.5	1.5	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
13	8.0	7.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	7.5	6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	6.0	5.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6.0	5.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6.5	5.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.0	6.5	3.0	2.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
19	7.5	7.0	3.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	8.0	7.0	2.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	8.0	7.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	8.0	7.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0
23	7.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5
24	6.5	5.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.5	1.0
25	5.5	5.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	1.0
26	5.0	4.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	1.0
27	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.0
28	4.0	3.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5
29	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.5
30	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	3.5	3.0
31	4.5	4.0	---	---	0.0	0.0	0.0	0.0	---	---	4.5	3.5
MONTH	12.5	3.0	6.5	0.0	0.5	0.0	0.5	0.0	0.5	0.0	4.5	0.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.5	4.5	12.0	10.5	19.5	18.5	---	---	22.0	20.5	20.5	19.5
2	6.0	5.5	10.5	9.0	20.5	19.0	---	---	21.5	20.5	20.5	19.0
3	6.0	5.5	11.0	8.5	21.5	20.0	---	---	22.0	20.5	19.0	18.5
4	7.0	6.0	12.5	9.5	21.5	20.5	---	---	22.0	21.5	18.5	18.0
5	7.5	6.5	12.0	10.5	22.0	21.0	---	---	21.5	20.5	19.0	18.0
6	8.0	7.5	12.0	10.0	22.0	21.5	23.0	22.5	21.5	20.0	19.5	18.5
7	8.5	7.5	12.5	10.5	22.0	21.0	23.0	22.0	22.0	20.5	19.5	18.5
8	9.0	8.0	14.0	11.5	22.0	21.5	22.5	22.5	22.5	21.0	18.0	16.5
9	10.0	8.5	15.0	12.5	22.5	21.5	23.0	22.0	23.0	21.5	16.0	15.0
10	9.5	9.0	15.0	13.0	23.0	22.0	24.0	22.5	22.5	22.0	15.5	14.5
11	10.0	8.0	15.0	13.5	23.0	22.0	23.5	22.5	22.5	21.5	16.0	14.5
12	10.5	8.5	14.5	14.0	22.0	21.0	23.0	22.0	22.5	22.0	16.0	15.5
13	11.5	9.5	15.0	13.0	21.5	20.0	24.0	22.5	22.5	21.5	16.0	15.5
14	11.0	10.0	15.5	14.0	21.0	19.0	23.5	22.5	22.0	21.0	15.0	14.5
15	10.5	9.5	15.5	14.0	19.0	18.0	23.0	22.0	22.0	20.5	14.5	14.0
16	10.0	8.5	15.5	14.0	19.0	18.0	22.0	21.0	22.0	20.5	15.5	14.5
17	8.5	6.5	15.5	14.5	18.5	18.0	22.0	20.5	23.0	21.5	17.0	15.5
18	6.5	6.0	16.0	15.0	18.0	17.0	22.0	21.0	23.0	22.5	17.5	16.5
19	8.0	5.5	16.5	16.0	18.5	17.5	22.0	21.0	23.0	22.0	17.0	16.5
20	8.0	6.5	17.0	16.0	19.5	18.5	22.5	21.5	23.5	22.5	16.0	15.0
21	7.0	6.5	17.0	16.5	20.5	19.5	22.5	21.5	23.5	23.5	15.5	14.0
22	8.5	6.5	17.5	16.5	---	---	22.0	21.5	23.5	23.0	14.5	13.5
23	8.0	7.5	17.5	17.0	---	---	22.5	21.0	24.0	22.5	13.5	12.0
24	9.5	7.5	17.5	16.5	---	---	23.0	21.5	24.0	23.0	12.5	11.0
25	10.5	8.0	18.5	16.5	---	---	23.5	22.0	24.0	23.0	12.0	11.0
26	10.5	8.5	17.5	17.0	---	---	23.5	22.0	23.5	22.5	11.0	10.5
27	10.5	8.5	17.5	16.5	---	---	23.0	22.0	23.0	21.0	10.5	9.5
28	11.5	9.0	18.0	16.5	---	---	22.5	21.5	21.0	20.5	10.5	9.0
29	12.0	10.0	18.5	17.0	---	---	22.5	21.5	20.5	19.5	10.5	9.5
30	12.0	10.5	19.0	17.5	---	---	22.5	21.5	21.0	20.0	11.5	10.0
31	---	---	19.0	18.0	---	---	21.5	20.5	21.0	20.5	---	---
MONTH	12.0	4.5	19.0	8.5	---	---	24.0	20.5	24.0	19.5	20.5	9.0

RED RIVER OF THE NORTH BASIN

05120200 WINTERING RIVER NEAR BERGEN, ND

LOCATION.--Lat 47°55'50", long 100°40'15", on west line of sec.4, T.151 N., R.78 W., McHenry County, Hydrologic Unit 09010003, on left bank, 6 mi (10 km) southeast of Bergen.

DRAINAGE AREA.--176 mi² (456 km²), of which about 50 mi² (130 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,587.91 ft (483.995 m).

REMARKS.--Records fair. Some regulation by Fish and Wildlife Service dams on Cottonwood and Wintering Lakes; controlled capacity, about 850 acre-ft (1.05 hm³).

AVERAGE DISCHARGE.--20 years, 6.53 ft³/s (0.185 m³/s), 4,730 acre-ft/yr (5.83 hm³/yr); median of yearly mean discharges, 5.9 ft³/s (0.17 m³/s), 4,300 acre-ft/yr (5.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s (25.5 m³/s) Apr. 10, 1969, gage height, 5.90 ft (1.798 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 400 ft³/s (11.3 m³/s) Mar. 23, gage height, about 5.0 ft (1.52 m), backwater from ice; maximum gage height observed, 5.26 ft (1.603 m) Mar. 19; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.05				0	90	22				
2	.20	.05				0	74	20				
3	.14	.05				0	67	18				
4	.05	.03				0	58	15				
5	.05	.03				0	44	13				
6	.03	.03				0	35	11				
7	.01	.03				0	29	8.9				
8	.01	.03				0	24	7.6				
9	.01	.01				0	20	7.0				
10	.03	.01				0	15	5.7				
11	.03	.01				0	11	4.9				
12	.03	.08				0	9.3	4.2				
13	.03	.05				0	7.6	3.3				
14	.08	.01				0	6.2	3.0				
15	.14	.01				0	5.1	2.6				
16	.17	.05				0	5.5	2.3				
17	.51	.20				5.0	28	2.0				
18	.68	.27				20	66	1.6				
19	.73	.20				200	51	1.2				
20	.78	.14				150	48	.88				
21	.68	.11				100	54	.63				
22	.55	.08				250	57	.39				
23	.47	.08				380	52	.20				
24	.39	.05				300	65	.05				
25	.35	.03				285	58	.01				
26	.27	.03				270	49	0				
27	.23	.03				225	36	0				
28	.17	.01				190	29	0				
29	.11	.01				150	27	0				
30	.08	0			---	127	25	0				
31	.05	---			---	107	---	0	---			---
TOTAL	7.33	1.77	0	0	0	2759.0	1145.7	155.46	0	0	0	0
MEAN	.24	.059	0	0	0	89.0	38.2	5.01	0	0	0	0
MAX	.78	.27	0	0	0	380	90	2.2	0	0	0	0
MIN	.01	0	0	0	0	0	5.1	0	0	0	0	0
AC-FT	15	3.5	0	0	0	5470	2270	308	0	0	0	0
CAL YR 1975	TOTAL	8658.54	MEAN 23.7	MAX 584	MIN 0	AC-FT 17170						
WTR YR 1976	TOTAL	4069.26	MEAN 11.1	MAX 380	MIN 0	AC-FT 8070						

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LOCATION.--Lat 48°10'14", long 100°32'20", on line between secs.10 and 11, T.154 N., R.77 W., McHenry County, Hydrologic Unit 09010003, on left bank 30 ft (9 m) upstream from county highway bridge, 4 mi (6 km) upstream from mouth, and 7 mi (11 km) northeast of Karlsruhe.

WATER-DISCHARGE RECORDS

REVISID RECORDS.--WSP 1728: Drainage area.

REMARKS.--Records fair. Some regulation by Fish and Wildlife Service dams on Cottonwood and Wintering Lakes; controlled capacity, about 850 acre-ft (1.05 hm³).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Apr. 7, 1949, by velocity-area studies; maximum gage height, 12.0 ft (3.66 m) Apr. 7, 1949 (channel choked by packed snow); no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 800 ft³/s (23 m³/s) Mar. 26, gage height, 8.80 ft (2.682 m); backwater from ice; minimum daily discharge, 1.0 ft³/s (0.028 m³/s) Sept. 1-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	9.2	5.0	4.8	5.2	6.0	324	93	14	4.6	2.0	1.0
2	7.5	9.2	5.0	4.6	5.2	6.0	275	90	16	4.2	2.0	1.0
3	7.8	9.2	5.0	4.6	5.2	6.0	235	88	16	3.6	1.9	1.0
4	7.8	9.2	5.0	4.4	5.2	5.8	201	83	14	3.3	1.9	1.0
5	7.8	9.2	5.2	4.2	5.2	5.8	191	78	12	3.0	1.8	1.0
6	7.8	9.2	5.2	4.2	5.2	5.8	174	72	12	2.8	1.8	1.0
7	7.8	9.2	5.2	4.0	5.2	5.8	158	67	12	2.6	1.7	1.0
8	7.8	9.6	5.2	4.0	5.2	5.8	147	61	12	2.5	1.7	1.0
9	7.8	9.6	5.4	4.0	5.4	6.0	137	56	11	2.4	1.6	1.0
10	8.4	8.8	5.4	4.2	5.6	6.0	128	48	11	2.3	1.6	1.1
11	8.4	8.4	5.4	4.4	5.6	6.0	118	42	10	2.3	1.5	1.1
12	8.4	8.0	5.4	4.6	5.6	6.0	112	38	15	2.2	1.5	1.1
13	8.4	7.5	5.4	4.6	5.6	6.0	103	37	15	2.1	1.5	1.1
14	11	7.5	5.4	4.6	5.6	6.0	96	33	12	2.1	1.5	1.1
15	16	7.5	5.2	4.6	5.6	6.0	91	31	10	2.0	1.4	1.2
16	16	8.0	5.2	4.6	5.6	6.2	92	28	9.0	1.9	1.4	1.3
17	13	8.0	5.0	4.6	5.6	6.4	111	27	8.0	1.8	1.4	1.3
18	11	7.5	5.0	4.6	5.6	6.6	108	26	7.0	1.8	1.3	1.3
19	9.2	7.0	5.2	4.8	5.6	7.0	103	25	6.5	1.7	1.3	1.3
20	8.4	7.0	5.2	4.8	5.6	10	111	23	6.0	1.7	1.4	1.3
21	8.4	6.5	5.2	4.8	5.6	100	104	22	5.5	1.6	1.4	1.3
22	8.4	6.0	5.2	4.8	5.6	200	105	21	5.0	1.6	1.3	1.4
23	8.4	6.0	5.2	4.8	5.6	250	104	20	4.5	1.5	1.3	1.5
24	8.4	5.5	5.2	4.6	5.6	300	107	20	7.0	1.5	1.2	1.6
25	8.8	5.5	5.2	4.4	5.8	500	110	19	9.0	1.5	1.2	1.6
26	8.8	5.5	5.2	4.2	6.0	650	111	18	8.0	1.4	1.2	1.6
27	8.8	5.3	5.2	4.2	6.0	600	106	18	7.0	1.4	1.2	1.7
28	9.2	5.3	5.2	4.4	6.0	552	104	17	6.2	1.8	1.1	1.8
29	9.2	5.2	5.2	4.6	6.0	524	104	16	5.5	2.2	1.1	1.8
30	9.2	5.2	5.2	4.8	---	452	100	15	5.0	2.1	1.1	1.8
31	9.2	---	5.0	5.0	---	368	---	15	---	2.1	1.1	---
TOTAL	284.6	224.8	161.0	139.8	160.8	4621.2	4070	1247	291.2	69.6	45.4	38.3
MEAN	9.18	7.49	5.19	4.51	5.54	149	136	40.2	9.71	2.25	1.46	1.28
MAX	16	9.6	5.4	5.0	6.0	650	324	93	16	4.6	2.0	1.8
MIN	7.5	5.2	5.0	4.0	5.2	5.8	91	15	4.5	1.4	1.1	1.0
AC-FT	565	446	319	277	319	9170	8070	2470	578	138	90	76
CAL YR 1975	TOTAL	12191.30	MEAN	33.4	MAX	544	MIN	.80	AC-FT	24180		
WTR YR 1976	TOTAL	11353.70	MEAN	31.0	MAX	650	MIN	1.0	AC-FT	22520		

RED RIVER OF THE NORTH BASIN

05122000 SOURIS (MOUSE) RIVER NEAR BANTRY, ND

LOCATION.--Lat 48°30'20", long 100°26'04", in SE¼NW¼SE¼ sec.14, T.158 N., R.76 W., McHenry County, Hydrologic Unit 09010003, on left bank 200 ft (61 m) upstream from Nelson bridge, 8 mi (13 km) east of Bantry, 18 mi (29 km) upstream from Willow Creek, and at mile 228.0 (kilometer 366.9).

DRAINAGE AREA.--12,300 mi² (31,900 km²), approximately, of which about 7,600 mi² (19,700 km²) is probably noncontributing.

PERIOD OF RECORD.--March 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,427.56 ft (435.120 m) above mean sea level. Prior to Mar. 16, 1938, nonrecording gage at same site at datum 0.17 ft (0.052 m) lower.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by reservoirs on Souris, Des Lacs, and Wintering Rivers, total capacity, about 249,000 acre-ft (307 km³). Diversions for irrigation of about 7,600 acres (30.8 km²) at Eaton Dam about 42 mi (68 km) above station and other small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--39 years, 237 ft³/s (6.712 m³/s), 172,000 acre-ft/yr (212 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 101,000 acre-ft/yr (120 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,330 ft³/s (264 m³/s) Apr. 23, 1976, gage height, 14.59 ft (4.447 m); no flow at times each year 1937-40, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,330 ft³/s (264 m³/s) Apr. 23, gage height, 14.59 ft (4.447 m); minimum, 58 ft³/s (1.64 m³/s) Sept. 27, gage height, 2.88 ft (0.878 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	238	170	185	185	350	3400	6740	1950	814	600	291
2	250	235	170	180	190	380	3800	6500	1800	862	600	288
3	245	231	170	180	195	410	4110	6340	1650	896	590	282
4	242	226	170	175	200	420	4020	6220	1500	924	580	272
5	240	221	170	175	200	430	3850	5960	1400	940	576	263
6	236	220	170	175	210	440	3690	5890	1300	954	575	257
7	229	220	170	170	210	450	3540	5820	1300	960	574	253
8	221	220	170	170	210	470	3460	5720	1200	970	578	253
9	221	221	170	170	220	490	3430	5580	1100	980	578	248
10	220	223	170	170	220	520	3360	5440	1070	984	578	244
11	218	228	165	175	220	540	3380	5220	1020	982	576	241
12	219	230	165	175	220	560	3510	5100	998	974	574	240
13	222	231	165	175	220	580	3670	5070	966	954	576	239
14	233	231	165	175	220	600	3900	4980	924	918	576	238
15	248	228	165	175	230	600	4260	4980	882	878	574	229
16	260	229	165	175	240	600	4560	4890	853	846	574	208
17	273	233	165	175	250	600	5280	4800	851	823	576	186
18	280	241	165	175	260	620	6000	4740	805	799	579	170
19	284	249	165	175	270	640	6820	4620	764	773	581	157
20	288	252	165	175	270	680	7880	4320	728	739	584	148
21	290	240	165	175	280	750	8770	4050	700	717	584	139
22	288	230	170	175	290	850	9190	3820	680	700	575	130
23	283	220	175	175	290	1000	9260	3540	670	680	548	117
24	278	200	180	175	300	1200	9190	3330	680	660	497	101
25	277	200	180	170	300	1400	8910	3140	680	640	443	85
26	287	190	180	170	300	1600	8420	2960	690	630	394	71
27	285	180	185	170	310	1700	8000	2750	690	630	355	60
28	271	170	185	170	320	1800	7700	2550	700	620	327	58
29	260	160	185	175	330	1900	7460	2400	718	620	302	60
30	252	160	185	175	---	2200	7150	2240	759	610	293	66
31	245	---	185	180	---	2800	---	2100	---	610	292	---
TOTAL	7905	6557	5325	5410	7160	27580	169970	141810	30028	25087	16209	5594
MEAN	255	219	172	175	247	890	5666	4575	1001	809	523	186
MAX	290	252	185	185	330	2800	9260	6740	1950	984	600	291
MIN	218	160	165	170	185	350	3360	2100	670	610	292	58
AC-FT	15680	13010	10560	10730	14200	54700	337100	281300	59560	49760	32150	11100
CAL YR 1975	TOTAL	317454	MEAN	870	MAX	5640	MIN 10	AC-FT	629700			
WTR YR 1976	TOTAL	448635	MEAN	1226	MAX	9260	MIN 58	AC-FT	889900			

RED RIVER OF THE NORTH BASIN

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05123000 LAKE METIGOSHE NEAR BOTTINEAU, ND

LOCATION.--Lat 48°59'05", long 100°20'52", in SE½SW¼ sec.35, T.164 N., R.75 W., Bottineau County, Hydrologic Unit 09010004, 25 ft (7.6 m) east from northeast corner of bridge over Lake Metigoshe, 11.7 mi (18.8 km) northeast of Bottineau.

DRAINAGE AREA.--59 mi² (153 km²).

PERIOD OF RECORD.--June 1931 to September 1932, September 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,130.00 ft (649.224 m) above mean sea level. 1931-32, non-recording gage on north abutment of bridge at datum 6.32 ft (1.93 m) lower (reduced to elevations above mean sea level). Sept. 4, 1953, to Jan. 19, 1955, nonrecording gage at present datum on east end of south abutment of bridge.

REMARKS.--Outlet of lake is a concrete dam with removable stoplogs; average crest elevation without stoplogs about 2,138.0 ft (651.66 m) above mean sea level. Lake level regulated since 1959 by dam and control works in the outlet of Sharpe Lake located on the principal tributary in Manitoba.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 9.70 ft (2.957 m) May 3, 1975; minimum, 4.28 ft (1.305 m) Sept. 17, 1932, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 9.60 ft (2.926 m) Apr. 20; minimum gage height, 7.65 ft (2.332 m) Sept. 28, 29.

MONTHEND GAGE HEIGHT, IN FEET, AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Oct. 31-----	8.43	Jan. 31-----	8.23	Apr. 30-----	9.33	July 31-----	7.79
Nov. 30-----	8.26	Feb. 29-----	*8.25	May 31-----	8.34	Aug. 31-----	7.80
Dec. 31-----	8.25	Mar. 31-----	8.44	June 30-----	8.20	Sept. 30-----	7.66

* Estimated.

RED RIVER OF THE NORTH BASIN

05123100 OAK CREEK AT LAKE METIGOSHE OUTLET NEAR BOTTINEAU, ND

LOCATION.--Lat 48°57'56", long 100°21'47", in SE&SE¼ sec.3, T.163 N., R.75 W., Bottineau County, Hydrologic Unit 09010004, at outlet of Lake Metigoshe, 10 mi (16 km) northeast of Bottineau.

DRAINAGE AREA.--59 mi² (153 km²).

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder and concrete control with stoplogs. Datum of gage is 2,130.00 ft (649.224 m) above mean sea level. Prior to Jan. 20, 1955, nonrecording gage at same site and datum. Gage is located 1.5 mi (2.4 km) northeast of outlet of lake, and is same as that used for station on Lake Metigoshe.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated since 1959 by dam and control works on the outlet of Sharpe Lake located on the principal tributary in Manitoba.

AVERAGE DISCHARGE.--23 years, 5.03 ft³/s (0.142 m³/s), 3,640 acre-ft/yr (4.49 hm³/yr); median of yearly mean discharges, 2.2 ft³/s (0.062 m³/s), 1,600 acre-ft/yr (2.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 148 ft³/s (4.19 m³/s) May 3, 1975, gage height, 9.70 ft (2.957 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 126 ft³/s (3.57 m³/s) Apr. 20, gage height, 9.60 ft (2.926 m); no flow July 14 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	24	7.0	10	10	9.0	16	93	12	6.0		
2	14	23	6.0	10	10	9.0	17	87	11	5.2		
3	14	23	6.0	11	10	9.0	18	84	12	4.8		
4	12	22	6.0	11	10	8.0	20	80	10	3.6		
5	12	21	5.0	12	9.0	8.0	24	74	11	2.8		
6	11	21	5.0	13	9.0	8.0	28	70	9.8	2.2		
7	12	19	5.0	13	9.0	8.0	50	66	9.3	2.0		
8	14	19	5.0	13	9.0	8.0	71	63	8.8	1.4		
9	16	17	5.5	12	9.0	8.0	98	61	9.8	.95		
10	17	17	5.5	12	9.0	8.0	98	58	9.8	.42		
11	17	18	6.0	12	9.0	8.0	100	55	9.3	.14		
12	17	18	6.0	12	9.0	8.0	102	52	11	.07		
13	18	17	6.0	12	9.0	8.0	105	50	11	.07		
14	25	17	6.0	12	9.0	8.0	110	47	10	0		
15	28	16	6.0	11	9.0	8.0	114	45	9.3	0		
16	30	14	6.0	11	9.0	8.0	118	42	9.3	0		
17	30	14	6.0	11	9.0	8.0	122	39	9.3	0		
18	31	14	7.0	11	9.0	8.0	124	37	8.4	0		
19	30	13	8.0	11	9.0	7.5	124	34	7.6	0		
20	29	12	9.0	11	9.0	6.8	125	32	7.2	0		
21	28	11	10	10	9.0	8.0	125	29	7.2	0		
22	28	11	10	10	9.0	8.4	124	28	6.8	0		
23	28	10	10	10	9.0	8.8	122	26	7.2	0		
24	28	9.0	10	10	9.0	9.3	122	23	8.4	0		
25	28	9.0	10	10	9.0	9.8	119	20	8.4	0		
26	27	8.0	10	10	9.0	10	115	18	7.6	0		
27	27	7.0	10	10	9.0	11	112	18	7.2	0		
28	26	7.0	11	10	9.0	12	108	16	6.8	0		
29	26	7.0	10	10	9.0	13	104	15	6.8	0		
30	26	7.0	10	10	---	14	98	14	6.4	0		
31	25	---	10	10	---	15	---	12	---	0		---
TOTAL	688	445.0	233.0	341	265.0	280.6	2733	1388	268.7	29.65	0	0
MEAN	22.2	14.8	7.52	11.0	9.14	9.05	91.1	44.8	8.96	.96	0	0
MAX	31	24	11	13	10	15	125	93	12	6.0	0	0
MIN	11	7.0	5.0	10	9.0	6.8	16	12	6.4	0	0	0
AC-FT	1360	883	462	676	526	557	5420	2750	533	59	0	0
CAL YR 1975	TOTAL	8834.85	MEAN	24.2	MAX	146	MIN	.75	AC-FT	17520		
WTR YR 1976	TOTAL	6671.95	MEAN	18.2	MAX	125	MIN	0	AC-FT	13230		

RED RIVER OF THE NORTH BASIN

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05123400 WILLOW CREEK NEAR WILLOW CITY, ND

LOCATION.--Lat 48°35'20", long 100°26'30", in NE¼NW¼ sec.23, T.159 N., R.76 W., McHenry County, Hydrologic Unit 09010004, on left bank 50 ft (15 m) downstream from bridge on county road, 1.5 mi (2.4 km) upstream from Snake Creek, and 7 mi (11 km) west of Willow City.

DRAINAGE AREA.--1,160 mi² (3,000 km²), approximately, of which about 430 mi² (1,110 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,430 ft (436 m), from topographic map. Prior to Oct. 5, 1956, nonrecording gage at site 50 ft (15 m) upstream at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--20 years, 51.6 ft³/s (1.461 m³/s), 37,380 acre-ft/yr (46.1 hm³/yr); median of yearly mean discharges, 29 ft³/s (0.82 m³/s), 21,000 acre-ft/yr (26 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,900 ft³/s (167 m³/s) Apr. 12, 1969, gage height, 16.76 ft (5.108 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,950 ft³/s (83.5 m³/s) Apr. 4, gage height, 15.94 ft (4.859 m); no flow from July 29 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	40	13	4.5	1.0	7.0	70	682	58	14		
2	23	38	13	4.0	.80	7.0	90	670	53	13		
3	22	38	13	3.5	.70	6.5	200	649	47	12		
4	21	34	13	3.0	.60	6.0	2400	634	43	11		
5	19	34	13	3.0	.50	6.0	2460	618	42	9.9		
6	18	32	12	3.0	.50	5.5	2030	591	40	8.7		
7	16	30	12	3.0	.70	5.5	1690	561	36	7.7		
8	17	29	12	2.5	.90	5.0	1460	534	32	6.9		
9	17	28	12	2.5	1.1	5.0	1360	505	32	6.6		
10	18	26	11	2.5	1.4	5.0	1280	470	31	6.7		
11	16	26	11	2.5	1.6	4.5	1140	428	29	7.1		
12	14	24	11	3.0	1.8	4.0	1060	390	30	5.6		
13	12	26	10	3.0	2.0	3.5	974	354	33	5.2		
14	15	26	10	3.0	2.2	3.0	896	321	34	4.3		
15	17	28	10	3.0	2.4	2.5	836	292	34	3.8		
16	18	30	9.0	3.0	2.6	2.0	828	262	33	3.2		
17	18	30	8.0	3.0	2.8	2.0	804	228	34	2.6		
18	17	28	7.0	3.0	3.0	2.0	787	198	32	1.8		
19	17	26	7.0	3.0	3.2	2.0	786	176	28	1.8		
20	17	24	7.0	2.5	3.4	2.0	798	154	25	1.6		
21	17	22	7.0	2.5	3.7	2.0	826	140	25	1.1		
22	20	20	7.0	2.5	4.0	2.0	852	128	23	1.1		
23	25	18	7.0	2.5	4.5	2.0	834	119	21	.77		
24	34	18	7.0	2.5	5.0	2.0	816	112	22	.72		
25	32	18	6.0	2.0	5.5	2.0	800	105	23	.36		
26	34	16	6.0	1.6	6.0	2.0	782	97	22	.21		
27	38	14	6.0	1.2	6.0	2.0	754	92	19	.06		
28	38	14	6.0	1.2	6.5	2.5	734	85	18	.03		
29	38	13	6.0	1.2	7.0	5.0	716	79	17	0		
30	40	13	5.0	1.2	---	20	703	71	16	0		
31	40	---	5.0	1.2	---	30	---	65	---	0		---
TOTAL	713	763	282.0	80.1	81.40	157.5	29766	9810	932	137.85	0	0
MEAN	23.0	25.4	9.10	2.58	2.81	5.08	992	316	31.1	4.45	0	0
MAX	40	40	13	4.5	7.0	30	2460	682	58	14	0	0
MIN	12	13	5.0	1.2	.50	2.0	70	65	16	0	0	0
AC-FT	1410	1510	559	159	161	312	59040	19460	1850	273	0	0
CAL YR 1975 TOTAL	51483.37			MEAN 141	MAX 2380	MIN 0	AC-FT 102100					
WTR YR 1976 TOTAL	42722.85			MEAN 117	MAX 2460	MIN 0	AC-FT 84740					

RED RIVER OF THE NORTH BASIN

05123510 DEEP RIVER NEAR UPHAM, ND

LOCATION.--Lat 48°35'03", long 100°51'44", in SW¼NW¼ sec.22, T.159 N., R.79 W., McHenry County, Hydrolog.
Unit 09010005, 60 ft (18 m) downstream from county highway bridge, 0.8 mi (1.3 km) downstream from Little
Deep River, and 6.3 mi (10.1 km) west of Upham.

DRAINAGE AREA.--975 mi² (2,525 km²), of which 605 mi² (1,567 km²) is probably noncontributing.

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,430 ft (436 m), from topographic map.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--19 years, 21.8 ft³/s (0.617 m³/s), 15,790 acre-ft/yr (19.5 hm³/yr); median of yearly mean
discharges, 0.9 ft³/s (0.025 m³/s), 650 acre-ft/yr (0.80 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,760 ft³/s (191 m³/s) Apr. 12, 1969, gage height, 18.18 ft
(5.541 m); no flow for part or all of each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1951 reached a stage of about 16 ft (4.88 m), discharge, 2,700 ft³/s
(76.5 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.416 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 3	0300	*5,000 142	*17.58 5.358	Apr. 22	1700	848 24.0	12.59 3.837

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	29	9.0	2.0	2.0	2.5	3000	300	12	6.4	.15	
2	0	30	8.0	1.6	1.8	2.5	3700	263	11	6.2	.10	
3	0	30	8.0	1.2	1.8	2.5	4620	232	11	5.3	.05	
4	0	29	8.0	.90	1.6	2.3	3770	213	9.8	4.6	.05	
5	0	27	8.0	.80	1.6	2.3	2820	188	14	3.8	.05	
6	.02	24	7.5	.60	1.8	2.3	2400	166	12	3.5	.05	
7	.05	22	7.0	.40	2.0	2.3	2000	148	12	2.7	.05	
8	.05	20	7.0	.30	2.3	2.3	1690	132	12	1.9	.02	
9	.10	18	7.0	.30	2.6	2.3	1410	116	13	1.8	.02	
10	.10	17	7.0	.30	2.6	2.3	1160	102	12	1.7	.02	
11	.10	16	6.5	.40	2.5	2.3	942	88	11	1.4	.02	
12	.10	15	6.0	.50	2.5	2.3	800	78	11	1.2	.02	
13	.10	14	5.5	.50	2.5	2.3	680	69	10	1.3	.02	
14	2.0	14	5.0	.50	2.5	2.3	580	62	9.6	1.2	.02	
15	2.2	14	5.0	.50	2.5	2.3	498	56	9.6	1.1	.02	
16	2.0	14	4.8	.50	2.5	2.3	458	50	9.4	.90	.01	
17	2.0	14	4.6	.60	2.5	2.3	466	45	9.4	.80	.01	
18	2.0	13	4.4	.70	2.5	2.5	486	40	8.6	.75	.01	
19	2.0	12	4.1	.80	2.5	2.7	608	37	8.1	.70	.01	
20	2.0	11	3.8	.80	2.5	2.9	710	34	7.4	.65	.01	
21	2.0	10	3.6	.80	2.3	3.0	745	31	7.2	.60	0	
22	2.0	10	3.4	.80	2.3	3.2	830	29	6.9	.60	0	
23	2.0	10	3.2	.80	2.3	3.5	825	24	7.6	.55	0	
24	2.0	10	3.0	.80	2.5	4.5	762	22	9.4	.50	0	
25	2.2	10	2.9	.70	2.7	5.0	680	20	8.8	.45	0	
26	2.4	10	2.8	.60	2.9	100	608	18	8.5	.40	0	
27	2.4	10	2.7	.60	3.0	1000	524	18	9.0	.35	0	
28	2.4	10	2.6	.80	2.9	1300	468	17	8.6	.30	0	
29	2.6	10	2.5	1.0	2.7	1600	411	16	8.3	.30	0	
30	5.0	9.0	2.4	1.3	---	2000	350	15	6.9	.25	0	
31	22	---	2.3	1.6	---	2500	---	14	---	.20	0	---
TOTAL	61.82	482.0	157.6	23.90	68.7	8567.0	39001	2643	294.1	52.40	.71	0
MEAN	1.99	16.1	5.08	.77	2.37	276	1300	85.3	9.80	1.69	.023	0
MAX	22	30	9.0	2.0	3.0	2500	4620	300	14	6.4	.15	0
MIN	0	9.0	2.3	.30	1.6	2.3	350	14	6.9	.20	0	0
AC-FT	123	956	313	47	136	16990	77360	5240	583	104	1.4	0
CAL YR 1975	TOTAL	22332.91	MEAN	61.2	MAX	1740	MIN	0	AC-FT	44300		
WTR YR 1976	TOTAL	51352.23	MEAN	140	MAX	4620	MIN	0	AC-FT	101900		

RED RIVER OF THE NORTH BASIN

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05123600 EGG CREEK NEAR GRANVILLE, ND

LOCATION.--Lat 48°21'18", long 100°49'19", on west line of sec.10, T.156 N., R.79 W., McHenry County, Hydrologic Unit 09010005, on right bank, near right downstream wingwall of bridge, 2 mi (3 km) downstream from Hay Coulee, 3.5 mi (5.6 km) upstream from North Lake, and 6 mi (10 km) northeast of Granville.

DRAINAGE AREA.--289 mi² (749 km²), of which 150 mi² (388 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,478.14 ft (450.537 m) above mean sea level (levels by Bureau of Reclamation).

REMARKS.--Records fair.

AVERAGE DISCHARGE.--20 years, 6.59 ft³/s (0.187 m³/s), 4,770 acre-ft/yr (5.88 hm³/yr); median of yearly mean discharges, 3.4 ft³/s (0.096 m³/s), 2,500 acre-ft/yr (3.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) Apr. 10, 1969, gage height, 7.28 ft (2.219 m); maximum gage height, 8.10 ft (2.469 m) Apr. 9, 1969, from floodmark, backwater from snow; no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.566 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 24	2030	*900 25.5	*6.70 2.042	‡	Unknown	26 0.736	3.62 1.103
Apr. 24	1200	117 3.31	4.92 1.500				

No flow for several months.

‡ Probably occurred June 24

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	1.7	.40		0	220	44	.58	.90		
2	12	9.0	1.4	.40		0	182	37	1.0	.85		
3	11	8.5	1.4	.35		0	155	35	.55	.80		
4	11	8.0	1.4	.35		0	152	34	.32	.75		
5	10	7.5	1.4	.30		0	120	32	.28	.70		
6	9.4	7.2	1.4	.25		0	103	31	.24	.65		
7	8.8	7.1	1.4	.25		0	88	29	.20	.60		
8	8.6	7.1	1.4	.20		0	75	28	.16	.60		
9	9.2	7.1	1.4	.20		0	66	26	.14	.60		
10	8.8	7.4	1.4	.16		0	58	23	.12	.60		
11	8.8	7.6	1.4	.16		0	50	20	.10	.55		
12	8.6	7.5	1.2	.13		0	43	16	.40	.50		
13	8.8	7.0	1.2	.13		0	38	14	.80	.55		
14	11	7.0	1.0	.10		0	33	13	.50	.40		
15	12	7.0	1.0	.10		0	30	12	.35	.26		
16	12	7.5	.90	.10		0	29	11	.25	.30		
17	12	7.5	.80	.10		0	34	10	.25	.14		
18	12	7.5	.80	.10		0	40	8.8	.30	.02		
19	12	7.0	.80	.08		5.0	47	7.7	.25	.02		
20	12	6.5	.70	.08		20	57	6.6	.20	.01		
21	12	6.0	.60	.08		50	86	5.8	.60	0		
22	12	5.0	.60	.08		200	108	5.1	.40	0		
23	13	4.0	.60	.08		500	113	3.8	.40	0		
24	16	3.0	.60	.08		600	116	4.0	10	0		
25	16	2.5	.60	.05		780	110	2.6	6.0	0		
26	15	2.5	.55	.02		690	94	1.8	3.0	0		
27	14	2.5	.55	0		544	77	1.9	2.0	0		
28	13	2.5	.50	0		460	65	1.7	1.4	0		
29	12	2.5	.50	0		332	70	1.1	1.1	0		
30	12	2.0	.50	0	---	308	53	.88	1.0	0		
31	11	---	.45	0	---	260	---	.77	---	0		---
TOTAL	355.0	183.5	30.15	4.33	0	4749.0	2512	467.55	32.89	9.80	0	0
MEAN	11.5	6.12	.97	.14	0	153	83.7	15.1	1.10	.32	0	0
MAX	16	10	1.7	.40	0	780	220	44	10	.90	0	0
MIN	8.6	2.0	.45	0	0	0	29	.77	.10	0	0	0
AC-FT	704	364	60	8.6	0	9420	4980	927	65	19	0	0
CAL YR 1975	TOTAL	8140.34	MEAN	22.3	MAX	776	MIN	0	AC-FT	16150		
WTR YR 1976	TOTAL	8344.22	MEAN	22.8	MAX	780	MIN	0	AC-FT	16550		

RED RIVER OF THE NORTH BASIN

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05123700 CUT BANK CREEK AT NORTH LAKE OUTLET NEAR GRANVILLE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV 06...	1500	9.6	1190	8.2	8.0	390	100	44	68	130
DEC 19...	1500	1.3	1600	7.8	.0	550	150	66	94	180
APR 08...	1540	300	525	8.6	9.0	170	34	26	26	50
JUN 30...	1155	190	850	8.4	10.5	300	74	43	47	75
JUL 11...	1130	8.0	1110	7.8	22.0	420	120	55	69	96
JUL 13...	1620	1.8	1080	9.1	28.0	400	100	54	64	110

DATE	PERCENT SODIUM	SODIUM AN- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINIT- Y AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
NOV 06...	41	2.9	16	351	0	288	3.5	310	44
DEC 19...	40	3.3	25	487	0	399	12	470	59
APR 08...	37	1.7	8.0	168	0	138	.7	120	13
JUN 30...	34	1.9	12	276	0	226	1.8	220	22
JUL 11...	32	2.0	16	365	0	299	9.3	290	30
JUL 13...	37	2.4	14	250	54	295	.5	320	29

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
NOV 06...	.1	15	830	812	1.13	21.5	200	120	60
DEC 19...	.1	14	1230	1160	1.67	4.32	320	230	410
APR 08...	.1	11	345	337	.47	280	0	120	10
JUN 30...	.1	9.6	569	566	.77	--	80	40	10
JUL 11...	.1	22	780	762	1.06	16.8	0	400	240
JUL 13...	.1	24	799	795	1.09	3.88	80	100	0

RED RIVER OF THE NORTH BASIN

05123750 CUT BANK CREEK AT UPHAM, ND

LOCATION.--Lat 48°34'29", long 100°44'39", in SE¼SE¼SW¼ sec.21, T.159 N., R.78 W., McHenry County, Hydrologic Unit 09010005, on left bank 50 ft (15 m) downstream from county highway bridge 0.5 mi (0.8 km) southwest of Upham.

DRAINAGE AREA.--722 mi² (1,870 km²), of which about 450 mi² (1,166 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,422 ft (433 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 820 ft³/s (23.2 m³/s), Apr. 1, 1976, gage height, 7.24 ft (2.206 m), from high water mark; no flow for several months.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 820 ft³/s (23.2 m³/s), Apr. 1, gage height, 7.24 ft (2.206 m), from high water mark; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	10	2.5	.70	.80	1.2	400	142	23	4.8		
2	5.3	11	2.5	.65	.80	1.1	800	142	23	4.3		
3	5.0	11	2.0	.60	.80	1.1	731	139	25	3.8		
4	4.8	11	2.0	.60	.75	1.0	639	133	21	3.5		
5	4.3	9.0	2.0	.60	.75	1.0	549	122	30	3.2		
6	4.8	9.0	2.0	.60	.75	1.0	491	115	31	3.0		
7	4.0	10	2.0	.55	.75	1.0	450	112	30	3.0		
8	3.8	10	1.8	.50	.75	1.0	410	106	31	2.9		
9	3.8	10	1.8	.50	.80	1.0	368	102	26	2.8		
10	4.3	10	1.8	.50	.90	1.0	336	96	24	2.7		
11	4.0	10	1.8	.50	.90	1.0	306	92	20	2.7		
12	3.8	10	1.8	.50	.90	1.0	276	86	20	2.7		
13	4.3	9.0	1.8	.50	.90	1.0	252	86	19	2.4		
14	6.1	9.0	1.8	.50	.90	1.0	230	84	17	2.3		
15	8.9	9.0	1.8	.50	.90	1.0	214	82	14	2.2		
16	8.9	10	1.6	.50	.90	1.0	203	78	12	2.2		
17	9.7	10	1.4	.50	.90	1.0	199	73	10	2.1		
18	10	10	1.2	.50	.90	1.0	196	67	9.0	2.0		
19	10	10	1.1	.50	.90	1.0	189	62	7.7	1.8		
20	11	9.0	1.0	.55	.90	1.0	189	60	6.8	1.7		
21	11	8.0	.90	.55	.90	1.0	180	56	6.5	1.6		
22	12	7.0	.85	.55	.90	1.0	175	55	5.6	1.4		
23	11	6.0	.80	.55	.90	1.1	169	50	5.3	1.2		
24	11	5.0	.75	.55	.90	1.1	162	45	6.2	1.1		
25	10	4.5	.75	.55	.95	1.1	152	43	5.9	.90		
26	10	4.0	.75	.55	1.0	2.0	146	40	5.6	.70		
27	10	3.5	.75	.55	1.1	5.0	142	40	5.6	.50		
28	10	3.5	.75	.60	1.2	15	142	38	5.3	.30		
29	10	3.0	.75	.65	1.2	30	144	34	5.3	.10		
30	10	3.0	.70	.70	---	50	144	30	5.0	0		
31	10	---	.70	.75	---	70	---	26	---	0		---
TOTAL	237.4	244.5	44.15	17.40	25.90	197.7	8984	2437	455.8	63.90	0	0
MEAN	7.66	8.15	1.42	.56	.89	6.38	299	78.6	15.2	2.06	0	0
MAX	12	11	2.5	.75	1.2	70	800	142	31	4.8	0	0
MIN	3.8	3.0	.70	.50	.75	1.0	142	26	5.0	0	0	0
AC-FT	471	485	88	35	51	392	17820	4830	904	127	0	0
CAL YR 1975 TOTAL	12777.47			MEAN 35.0	MAX 478	MIN 0	AC-FT 25340					
WTR YR 1976 TOTAL	12707.75			MEAN 34.7	MAX 800	MIN 0	AC-FT 25210					

RED RIVER OF THE NORTH BASIN

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05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND

LOCATION.--Lat 48°36'14", long 100°47'41", in SW¼SW¼SW¼ sec.7, T.159 N., R.78 W., McHenry County, Hydrologic Unit 09010005, at bridge 0.5 mi (0.8 km) below Cut Bank Creek and about 3.5 mi (5.6 km) northwest of Upham at bridge on county highway.

DRAINAGE AREA.--1,722 mi² (4,460 km²), of which about 1,070 mi² (2,770 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURE: October 1974 to current year.

REMARKS.--Discharge computed from records at stations 05123510 Deep River near Upham and 05123750 Cut Bank Creek at Upham. No flow Aug. 21 to Sept. 31.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Mar. 22, 1976; minimum daily, 278 micromhos, Apr. 1, 1976.

WATER TEMPERATURE: Maximum daily, 28.0°C July 6, 1975; minimum daily 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Mar. 22; minimum daily, 278 micromhos Apr. 1.

WATER TEMPERATURE: Maximum daily, 25.5°C Aug. 3; minimum daily 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)
OCT 03...	1645	5.0	1180	8.3	12.0	45	400	55	66	58
NOV 01...	1300	32	1060	8.5	4.0	30	420	110	69	61
DEC 19...	1240	5.5	1610	7.5	.5	40	620	130	100	89
JAN 08...	1400	.55	2110	7.3	.5	65	750	170	120	110
FEB 05...	1700	2.4	2120	--	1.0	300	790	150	120	120
MAR 16...	1515	3.3	1700	7.3	.5	100	710	200	120	100
APR 08...	1745	2400	375	7.9	11.0	45	190	30	31	27
30...	1010	550	735	8.1	11.5	45	300	60	50	42
JUN 09...	1920	38	1010	8.1	21.5	48	420	83	69	60
JUL 12...	2015	4.0	1080	8.5	23.5	45	470	95	79	67
AUG 05...	1945	.05	1140	8.8	21.0	90	480	90	75	72

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT 03...	110	36	2.4	24	425	0	349	3.4	260	42
NOV 01...	71	26	1.5	16	358	10	310	1.9	190	51
DEC 19...	150	34	2.6	24	598	0	490	30	340	110
JAN 08...	190	34	3.0	27	711	0	583	57	480	110
FEB 05...	180	32	2.8	27	789	--	647	--	380	120
MAR 16...	100	23	1.6	20	628	0	515	50	270	130
APR 08...	46	33	1.5	11	194	0	159	3.9	110	14
30...	46	24	1.2	13	290	0	238	3.7	130	26
JUN 09...	74	27	1.6	14	410	0	336	5.2	190	34
JUL 12...	78	26	1.6	15	443	9	378	2.3	200	42
AUG 05...	86	27	1.7	18	425	27	394	1.2	200	51

RED RIVER OF THE NORTH BASIN

05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)
OCT 03...	.2	8.8	794	779	1.08	10.7	.01	.23	20	4
NOV 01...	.2	2.6	685	647	.93	59.2	.01	.00	--	--
DEC 19...	.2	18	1150	1130	1.56	17.1	.12	.14	--	--
JAN 08...	.2	30	1470	1420	2.00	2.18	.10	1.2	--	--
FEB 05...	.2	34	1510	1370	2.05	9.78	.21	1.5	--	--
MAR 16...	.2	22	1150	1080	1.56	10.2	.89	.05	--	--
APR 08...	.1	11	381	346	.52	2470	.00	.06	0	1
30...	.1	4.7	485	455	.66	720	.13	.02	--	--
JUN 09...	.1	11	707	655	.96	72.5	.03	.18	--	--
JUL 12...	.2	15	774	724	1.05	8.36	.01	.22	--	--
AUG 05...	.2	17	821	758	1.12	.11	.54	.29	--	--

DATE	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 IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
OCT 03...	100	0	110	0	10	.0	1	50	0	20
NOV 01...	--	--	90	--	--	--	--	--	--	--
DEC 19...	--	--	160	--	--	--	--	--	--	--
JAN 08...	--	--	180	--	--	--	--	--	--	--
FEB 05...	--	--	220	--	--	--	--	--	--	--
MAR 16...	--	--	100	--	--	--	--	--	--	--
APR 08...	0	0	50	0	0	0	1	60	0	0
30...	--	--	80	--	--	--	--	--	--	--
JUN 09...	--	--	160	--	--	--	--	--	--	--
JUL 12...	--	--	130	--	--	--	--	--	--	--
AUG 05...	--	--	150	--	--	--	--	--	--	--

DATE	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)	CYANIDE (CN) (MG/L)
OCT 03...	.0	1	2	0	0	260	1.4	20	.00
APR 08...	.0	2	2	0	0	130	1.3	0	.00

RED RIVER OF THE NORTH BASIN

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05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	1080	1200	---	1970	1900	278	764	1050	1020	1120	
2	1290	1040	1320	---	2060	2070	314	780	1070	943	1100	
3	1300	1080	1320	1940	2020	2000	288	787	1040	1020	1140	
4	1320	1080	1540	---	2000	2040	299	796	1070	940	1120	
5	1320	1140	1320	1920	2040	1960	310	809	1050	1040	1110	
6	1320	1150	1310	1960	2000	2010	321	815	1000	1040	1120	
7	1320	1120	1340	1930	2020	2010	348	829	1030	1050	1130	
8	1320	1130	1480	1980	2040	2080	367	855	1050	1020	1120	
9	1200	1120	1480	1960	2060	1970	395	868	1050	1050	1100	
10	1200	1120	1470	1950	2020	1970	413	875	1030	1050	1100	
11	1200	1140	1480	1980	1970	---	440	874	1030	1060	1100	
12	1280	1120	---	1970	1960	2000	455	908	1060	1060	1110	
13	1280	1120	1670	1950	2030	2010	472	917	1050	1060	1100	
14	1250	1140	---	1950	2000	1850	488	938	1040	1070	1100	
15	1240	1130	1580	1970	2020	2000	515	939	1040	1080	1100	
16	1230	1100	1630	2000	2060	1900	553	962	1030	1080	1090	
17	1210	1160	1710	1940	2050	2050	562	968	1030	1080	1090	
18	1220	1160	1680	1980	2030	2050	585	971	1050	1090	1080	
19	1230	1190	1590	1870	2040	1970	600	983	1020	1060	1090	
20	1260	1180	1630	1960	2060	1900	580	976	1060	1050	1070	
21	1270	1200	1750	1980	2050	2000	590	976	1080	1060	---	
22	1260	1160	1710	1960	2040	2100	630	974	1090	1090	---	
23	1270	1180	1800	1990	2050	2050	670	1020	1090	1100	---	
24	1270	1230	1750	1950	2080	1830	699	1040	1080	1100	---	
25	1270	1280	1870	1940	2060	1600	690	1030	1080	1080	---	
26	1220	1280	1880	1980	1770	1330	710	1000	1070	1100	---	
27	1240	1280	1880	2000	2060	1250	725	1040	1080	1120	---	
28	1240	---	1800	2040	2030	395	732	1040	1080	1110	---	
29	1220	1180	1890	2020	1980	288	734	1040	1060	1120	---	
30	1240	1240	1950	1980	---	418	752	1060	1080	1120	---	
31	1260	---	---	2000	---	320	---	1070	---	1120	---	
MONTH	1260	1160	1610	1970	2020	1710	517	932	1050	1060	---	

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	4.0	-0.5	---	0.0	1.0	1.5	10.5	20.5	23.0	21.0	
2	9.0	5.0	-0.5	---	1.0	1.0	1.0	9.0	20.0	23.0	20.0	
3	10.5	5.5	0.0	-0.5	1.0	0.0	1.0	8.0	23.0	22.5	25.5	
4	11.0	5.0	0.0	---	0.0	1.0	4.0	9.0	21.5	23.5	22.5	
5	11.0	7.5	0.0	0.0	0.5	0.0	5.0	10.0	23.0	21.5	22.5	
6	11.0	7.0	0.0	0.0	0.0	1.0	6.5	10.0	22.0	24.0	23.0	
7	11.5	6.5	0.0	0.0	1.0	1.5	8.0	10.5	21.5	24.5	20.0	
8	11.0	4.5	0.5	0.0	1.0	1.0	9.5	11.5	21.0	24.0	21.0	
9	10.0	4.0	0.5	0.0	1.0	1.0	10.0	12.0	20.0	25.0	21.0	
10	7.0	3.0	0.0	0.0	1.0	1.0	10.0	14.0	21.0	25.0	24.5	
11	7.0	1.5	-0.5	1.0	0.5	---	9.0	14.0	22.5	20.0	24.0	
12	7.0	0.0	---	0.0	1.0	1.5	8.5	14.0	22.0	24.0	24.0	
13	7.5	1.0	-0.5	0.0	1.0	2.0	10.5	12.5	20.0	24.0	21.0	
14	4.0	1.5	---	1.0	1.0	0.5	12.0	14.0	18.0	24.0	24.0	
15	4.5	2.5	-0.5	0.5	2.0	1.0	10.5	14.0	16.0	20.5	20.0	
16	4.0	2.0	-0.5	1.0	1.0	0.0	10.0	14.0	17.5	23.0	22.5	
17	5.0	2.0	0.0	0.0	1.5	2.0	7.0	14.0	16.5	19.5	21.0	
18	6.0	1.0	-0.5	1.0	1.0	2.0	6.0	14.5	15.0	22.0	21.5	
19	7.0	1.0	0.0	0.0	1.0	2.0	4.5	16.0	16.5	24.0	22.5	
20	8.0	1.0	0.0	1.0	1.0	1.0	6.5	16.0	19.0	24.0	24.0	
21	7.0	0.0	1.0	1.0	1.0	2.0	7.0	17.0	21.5	24.0	---	
22	7.0	0.5	-0.5	0.5	1.0	2.0	7.5	17.0	22.0	23.5	---	
23	5.0	0.0	-0.5	0.5	1.5	2.0	8.0	17.0	19.5	24.5	---	
24	5.0	-0.5	-0.5	0.0	1.0	2.0	8.0	17.0	18.5	21.0	---	
25	3.5	-0.5	-0.5	0.5	1.0	2.0	10.0	17.0	20.0	23.0	---	
26	4.0	-0.5	-0.5	1.0	1.0	0.5	10.0	16.5	17.0	21.0	---	
27	4.0	-0.5	-0.5	0.5	1.0	0.5	11.5	15.0	19.0	23.5	---	
28	2.5	---	-0.5	1.0	1.5	0.5	10.5	16.0	18.5	22.0	---	
29	2.5	-0.5	0.0	1.0	1.0	0.5	11.0	18.5	19.0	20.5	---	
30	3.0	-0.5	-0.5	1.0	---	0.5	11.0	20.0	20.0	19.5	---	
31	3.5	---	---	1.0	---	0.5	---	20.5	---	19.0	---	
MONTH	6.5	2.0	0.0	0.5	1.0	1.0	8.0	14.0	19.5	22.5	---	

RED RIVER OF THE NORTH BASIN

05123900 BOUNDARY CREEK NEAR LANDA, ND

LOCATION.--Lat 48°48'46", long 100°51'46", at east line sec.35, T.162 N., R.79 W., Bottineau County, Hydrologic Unit 09010003, on right bank 80 ft (24 m) downstream from bridge on county road, 5 mi (8 km) upstream from mouth and 6 mi (10 km) southeast of Landa.

DRAINAGE AREA.--230 mi² (596 km²), of which about 60 mi² (160 km²) is probably noncontributing.

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

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,420.03 ft (432.825 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--19 years, 14.2 ft³/s (0.402 m³/s), 10,290 acre-ft/yr (12.7 hm³/yr); median of yearly mean discharges, 5.7 ft³/s (0.16 m³/s), 4,100 acre-ft/yr (5.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft³/s (101 m³/s) Apr. 9, 1969, gage height, 12.70 ft (3.871 m); maximum gage height, 12.90 ft (3.932 m) Apr. 1, 1976, backwater from ice and snow; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.416 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	TIME	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 1	--	*2,300 65.1	*12.90 3.932	Apr. 20	1400	348 9.86	8.55 2.606
Apr. 3	2330	2,280 64.6	12.01 3.661				

No flow for several months.

a Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	21	2.5	.45	.05	.09	2000	49	5.0	.58		
2	.66	19	2.2	.40	.05	.08	1700	47	4.2	.41		
3	1.2	18	2.0	.35	.05	.07	1480	44	3.9	.23		
4	3.8	17	2.0	.30	.04	.06	1710	44	3.2	.12		
5	7.0	17	1.9	.25	.04	.05	1370	41	2.7	.04		
6	5.5	17	1.9	.20	.04	.05	1140	36	2.6	0		
7	4.6	18	1.8	.15	.04	.05	769	35	2.6	0		
8	4.9	19	1.8	.15	.04	.05	808	32	2.5	0		
9	5.5	18	1.7	.12	.05	.05	793	29	2.4	0		
10	5.5	16	1.7	.12	.05	.05	583	26	2.0	0		
11	5.5	14	1.6	.12	.05	.05	448	23	2.0	0		
12	4.6	12	1.5	.12	.05	.05	388	20	1.9	0		
13	4.9	10	1.4	.10	.05	.05	340	19	1.9	0		
14	7.8	10	1.3	.10	.05	.05	290	17	1.8	0		
15	7.0	10	1.2	.10	.05	.05	226	16	1.6	0		
16	7.8	10	1.1	.10	.05	.05	190	15	1.5	0		
17	19	10	1.0	.10	.05	.05	189	14	1.4	0		
18	14	10	.90	.10	.05	.10	203	13	1.2	0		
19	9.0	9.0	.90	.10	.05	.20	159	12	1.0	0		
20	9.8	9.0	.90	.10	.05	.20	268	12	.95	0		
21	17	8.0	.80	.10	.05	.20	226	10	.78	0		
22	24	7.0	.70	.10	.05	.20	173	9.0	.90	0		
23	26	6.0	.70	.10	.05	.30	137	7.8	1.2	0		
24	28	5.0	.70	.10	.05	.40	113	7.0	1.4	0		
25	39	5.0	.60	.10	.06	.50	98	6.5	1.4	0		
26	43	5.0	.60	.08	.06	.60	79	6.4	1.2	0		
27	43	4.5	.60	.06	.08	1.0	71	6.5	1.0	0		
28	37	4.0	.60	.06	.10	5.0	63	6.4	1.0	0		
29	34	3.5	.60	.06	.10	50	58	6.4	.82	0		
30	28	3.0	.50	.06	.06	700	53	6.0	.64	0		
31	24	---	.50	.06	---	1300	---	5.6	---	0		---
TOTAL	471.62	335.0	38.20	4.41	1.55	2059.65	16125	621.6	56.69	1.38	0	0
MEAN	15.2	11.2	1.23	.14	.053	66.4	538	20.1	1.89	.045	0	0
MAX	43	21	2.5	.45	.10	1300	2000	44	5.0	.58	0	0
MIN	.56	3.0	.50	.06	.04	.05	53	5.6	.64	0	0	0
AC-FT	935	664	76	8.7	3.1	4090	31980	1230	112	2.7	0	0
CAL YR 1975 TOTAL	15846.74			MEAN 43.4	MAX 1880	MIN 0	AC-FT 31430					
WTR YR 1976 TOTAL	19715.10			MEAN 53.9	MAX 2000	MIN 0	AC-FT 39100					

RED RIVER OF THE NORTH BASIN

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05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND
(International gaging station)

LOCATION.--Lat 48°59'47", long 100°57'29", in SW¼SE¼ sec.30, T.164 N., R.79 W., Bottineau County, Hydrologic Unit 09010003, on left bank 1,200 ft (370 m) upstream from second crossing of international boundary, 1 mi (2 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 about 10,300 mi² (26,700 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1929, April 1930 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1338: 1932. WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,402.52 ft (427.488 m) above mean sea level. Prior to Mar. 28, 1938, nonrecording gage at site 6.3 mi (10.1 km) upstream at datum 2.52 ft (0.768 m) higher.

REMARKS.--Records good. Flow regulated by dams on Souris River and tributaries, combined capacity, about 321,000 acre-ft (3,960 hm³). Diversion at Eaton Dam for irrigation of about 7,600 acres (30.8 km²) and other small diversions for irrigation and municipal supply above station.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--46 years (1930-76), 264 ft³/s (7.476 m³/s), 191,300 acre-ft/yr (236 hm³/yr); median of yearly mean discharges, 142 ft³/s (4.02 m³/s), 103,000 acre-ft/yr (127 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) Apr. 26, 1976, gage height, 19.16 ft (5.840 m); maximum daily reverse flow, 35 ft³/s (0.99 m³/s) Apr. 8, 1943, caused by backwater from downstream tributary inflow; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,600 ft³/s (357 m³/s) Apr. 26, gage height, 19.16 ft (5.840 m); minimum, 61 ft³/s (1.73 m³/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289	698	203	198	190	190	1900	9990	3500	1080	570	485
2	390	694	203	195	190	190	2600	9410	3390	1060	580	490
3	396	690	203	195	190	190	3500	9570	3290	1030	585	426
4	402	686	203	195	190	190	4800	8880	3190	1010	570	408
5	384	682	203	195	190	190	6200	8300	3110	986	560	396
6	402	575	203	195	190	190	7500	7980	2990	956	565	354
7	378	630	203	190	190	190	8600	7700	2870	918	560	300
8	390	630	203	190	190	190	9400	7400	2770	898	555	250
9	384	625	203	190	190	190	9800	6970	2700	882	550	262
10	402	620	198	190	190	190	10000	6710	2640	854	545	278
11	432	467	194	190	190	190	10200	6600	2560	826	535	272
12	414	429	198	190	190	190	9500	6100	2510	830	525	236
13	408	442	198	190	190	190	9200	5820	2440	838	525	226
14	390	467	203	190	190	190	8900	5770	2330	794	530	267
15	420	222	203	190	190	190	8600	5550	2240	750	540	289
16	426	222	198	190	190	190	8400	5450	2170	738	550	256
17	388	222	198	190	190	190	8300	5390	2140	734	535	226
18	474	217	194	190	190	270	8600	5240	2030	734	510	169
19	480	207	198	190	190	400	8900	5010	1960	722	505	148
20	540	212	203	190	190	400	9230	4900	1910	710	510	131
21	682	212	203	190	190	400	9540	4810	1840	714	500	69
22	484	212	198	190	190	500	9820	4680	1770	710	505	71
23	174	207	198	190	190	700	10500	4550	1670	682	520	85
24	358	207	198	190	190	700	11200	4430	1490	674	520	87
25	658	203	203	190	190	750	12000	4320	1360	642	500	89
26	670	203	198	190	190	800	12400	4210	1260	610	500	80
27	678	203	203	190	190	900	12200	4040	1180	595	474	106
28	686	203	203	190	190	900	12000	3950	1130	545	426	132
29	690	198	203	190	190	1000	11300	3870	1130	550	480	128
30	690	203	203	190	---	1200	10400	3760	1100	550	485	122
31	702	---	198	190	---	1500	---	3620	---	570	485	---
TOTAL	14661	10788	6220	5923	5510	13650	265490	184980	66670	24192	16300	6838
MEAN	473	360	201	191	190	440	8850	5967	2222	780	526	228
MAX	702	698	203	198	190	1500	12400	9990	3500	1080	585	490
MIN	174	129	194	190	190	190	1900	3620	1100	545	426	69
AC-FT	29080	21400	12340	11750	10930	27070	526600	366900	132200	47980	32330	13560
CAL YR 1975	TOTAL	424243	MEAN	1162	MAX	6600	MIN	16	AC-FT	841500		
WTR YR 1976	TOTAL	621222	MEAN	1697	MAX	12400	MIN	69	AC-FT	1232000		

RED RIVER OF THE NORTH BASIN

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued
(National Water-Quality Accounting Network Station)
(Radiochemical Station)
(Pesticide Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-64, 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1956 to September 1964, October 1966 to September 1968, October 1973 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, October 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1956-64, 1966-68, 1973 to current year): Maximum observed, 4,750 micromhos Feb. 21, 1961; minimum observed, 232 micromhos Apr. 18, 1957.

WATER TEMPERATURES (1959-64, 1966-68, 1973 to current year): Maximum recorded, 28.5°C July 4, 1975, minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,410 micromhos Dec. 22 and 23; minimum, 320 micromhos Apr. 7.

WATER TEMPERATURES: Maximum, 27.0°C July 10 and 27; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	IMMEDIATE COLIFORM PER 100 ML
OCT											
01...	1115	E200	930	8.3	8.5	--	20	9.6	85	62	2800
15...	1400	409	910	8.2	3.5	45	25	11.6	93	16	740
29...	1130	E500	925	8.4	2.0	--	1	12.2	92	55	8415
NOV											
12...	1035	90	950	8.4	.0	50	20	12.8	92	58	81500
26...	1200	E150	1110	8.5	.5	--	5	17.5	128	50	825
DEC											
23...	1200	208	1410	7.5	.0	25	7	4.8	34	75	45
JAN											
09...	1345	E210	1360	7.4	.0	--	5	3.5	25	38	220
22...	1400	187	1140	7.4	.0	30	6	3.4	24	40	863
FEB											
04...	1030	E190	1140	7.4	.0	--	8	3.6	26	37	142
18...	1430	196	1060	7.4	.0	25	7	3.4	24	32	828
MAR											
03...	1330	E220	1080	7.3	.0	--	10	3.5	25	34	82380
17...	1200	192	990	7.4	.0	35	16	2.5	18	40	828
31...	1240	1500	465	7.6	.5	--	34	6.5	47	53	8380
APR											
15...	1330	E10000	440	8.9	9.0	45	9	13.0	118	44	823
29...	1030	11500	640	7.9	10.5	--	7	9.9	93	28	50
MAY											
26...	1245	4410	585	8.0	16.5	37	5	8.0	86	40	8300
JUN											
10...	1300	2700	590	8.2	22.5	--	--	7.8	94	54	827
23...	1245	E1700	690	8.5	21.0	29	6	7.8	8	48	820
JUL											
07...	2050	1000	695	8.8	25.5	--	5	8.4	106	40	81000
22...	1300	709	615	8.7	22.5	35	20	8.1	98	41	8500
AUG											
03...	1545	E550	630	9.0	24.0	--	7	11.0	136	37	--
18...	1050	517	690	8.7	21.0	34	20	6.6	78	74	81000
31...	1745	E550	710	8.8	21.5	--	15	13.3	65	51	8118
SEP											
15...	1715	293	790	8.9	17.0	38	80	10.7	116	37	8200

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

E - Estimated.

RED RIVER OF THE NORTH BASIN
05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT 01...	<20	283	---	---	---	---	---	---	---	---	---
15...	112	137	290	0	56	36	93	40	2.4	13	362
29...	B40	B60	---	---	---	---	---	---	---	---	---
NOV 12...	405	305	320	10	63	39	96	38	2.3	14	345
26...	E1	B10	---	---	---	---	---	---	---	---	---
DEC 23...	B1	E2	470	43	92	58	140	38	2.8	17	519
JAN 09...	300	B245	---	---	---	---	---	---	---	---	---
22...	E1	B17	400	37	83	46	100	34	2.2	16	438
FEB 04...	B1	B9	---	---	---	---	---	---	---	---	---
18...	B1	49	350	32	74	40	88	35	2.0	7.5	387
MAR 03...	B2	B45	---	---	---	---	---	---	---	---	---
17...	E1	E1	320	35	69	36	94	38	2.3	12	348
31...	E2	B40	---	---	---	---	---	---	---	---	---
APR 15...	E2	B7	150	15	33	16	32	30	1.1	10	144
29...	E2	B6	---	---	---	---	---	---	---	---	---
MAY 26...	E1	B6	210	23	47	23	44	30	1.3	9.8	231
JUN 10...	B10	30	---	---	---	---	---	---	---	---	---
23...	B6	55	240	2	---	27	56	32	1.6	9.8	290
JUL 07...	B3	B4	---	---	---	---	---	---	---	---	---
22...	B4	B2	210	0	45	24	55	35	1.6	11	251
AUG 03...	B4	B14	---	---	---	---	---	---	---	---	---
18...	B15	40	250	9	51	30	62	34	1.7	11	285
31...	B26	B25	---	---	---	---	---	---	---	---	---
SEP 15...	B200	280	280	5	55	35	88	39	2.3	16	325

DATE	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL FILTERABLE RESIDUE (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)
OCT 01...	---	---	---	---	---	---	---	611	---	---	.83
15...	0	297	3.7	170	20	.2	7.0	602	610	574	.82
29...	---	---	---	---	---	---	---	608	---	---	.83
NOV 12...	15	308	2.4	210	22	.2	2.9	655	---	632	.89
26...	---	---	---	---	---	---	---	763	---	---	1.04
DEC 23...	0	426	26	290	38	.3	9.8	946	---	903	1.29
JAN 09...	---	---	---	---	---	---	---	929	---	---	1.26
22...	0	359	28	250	27	.2	9.3	772	---	750	1.05
FEB 04...	---	---	---	---	---	---	---	760	---	---	1.03
18...	0	317	25	210	23	.2	8.8	681	---	645	.93
MAR 03...	---	---	---	---	---	---	---	701	---	---	.95
17...	0	285	22	210	22	.2	10	670	---	628	.91
31...	---	---	---	---	---	---	---	304	---	---	.41
APR 15...	9	133	.3	81	8.6	.2	4.4	287	360	266	.39
29...	---	---	---	---	---	---	---	422	---	---	.57
MAY 26...	0	189	3.7	120	8.4	.1	4.8	399	---	372	.54
JUN 10...	---	---	---	---	---	---	---	441	---	---	.60
23...	---	238	1.5	---	9.5	.1	4.1	455	---	---	.62
JUL 07...	---	---	---	---	---	---	---	490	---	---	.67
22...	6	216	.8	110	9.8	.1	1.8	427	---	387	.58
AUG 03...	---	---	---	---	---	---	---	437	---	---	.59
18...	5	242	.9	130	15	.3	2.7	447	---	449	.61
31...	---	---	---	---	---	---	---	473	---	---	.64
SEP 15...	6	277	.7	150	18	.3	8.1	537	---	537	.73

B - Results based on colony count outside the acceptable range (non-ideal colony count).
E - Estimated.

RED RIVER OF THE NORTH BASIN

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)
OCT											
01...	--	--	.01	--	.11	3.9	4.0	4.0	.18	--	--
15...	665	20	.04	.05	.16	2.7	2.9	2.9	.19	.04	.00
29...	--	--	.02	--	.08	2.1	2.2	2.2	.07	--	--
NOV											
12...	159	--	.01	.01	.04	2.5	2.5	2.5	.19	.00	.00
26...	--	--	.02	--	.04	4.0	4.0	4.0	.05	--	--
DEC											
23...	531	--	.30	.30	.37	1.3	1.7	2.0	.21	.17	.16
JAN											
09...	--	--	.32	--	.48	1.2	1.7	2.0	.26	--	--
22...	390	--	.43	.41	.31	2.0	2.3	2.7	.24	.19	.17
FEB											
04...	--	--	.50	--	.23	2.0	2.2	2.7	.24	--	--
18...	360	--	.49	.48	.18	1.7	1.9	2.4	.21	.17	.13
MAR											
03...	--	--	.55	--	.18	1.8	2.0	2.6	.19	--	--
17...	347	--	.56	.56	.35	1.7	2.0	2.6	.22	.15	.12
31...	1230	--	.91	--	.05	2.6	2.6	3.5	.42	--	--
APR											
15...	--	20	.01	.01	.00	2.0	2.0	2.0	.19	.04	.00
29...	13100	--	.00	--	.00	1.3	1.3	1.3	.07	--	--
MAY											
26...	4750	--	.01	.04	.02	1.7	1.7	1.7	.24	.18	.15
JUN											
10...	3220	--	.06	--	.03	1.3	1.3	1.4	.40	--	--
23...	--	--	.03	.03	.08	1.1	1.2	1.2	.34	.30	.28
JUL											
07...	1320	--	.02	--	.05	1.3	1.3	1.3	.27	--	--
22...	817	--	.01	.01	.02	1.3	1.3	1.3	.29	.17	.12
AUG											
03...	--	--	.01	--	.01	.86	.87	.88	.26	--	--
18...	624	--	.17	.15	.05	1.5	1.5	1.7	.27	.19	.11
31...	--	--	.02	--	.00	1.5	1.5	1.5	.19	--	--
SEP											
15...	425	--	.01	.01	.03	3.6	3.6	3.6	.36	.06	.03

DATE	DIS- SOLVED ORTHO PHOS- PHATE (PO4) (MG/L)	DIS- SOLVED ALUM- INIUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (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)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)
OCT											
15...	.00	10	4	1	3	0	10	140	10	9	1
NOV											
12...	.00	--	--	--	--	--	--	--	--	--	--
DEC											
23...	.49	--	--	--	--	--	--	--	--	--	--
JAN											
22...	.52	--	3	1	2	--	--	--	<10	<10	0
FEB											
18...	.40	--	--	--	--	--	--	--	--	--	--
MAR											
17...	.37	--	--	--	--	--	--	--	--	--	--
APR											
15...	.00	0	3	1	2	100	0	70	<10	<9	1
MAY											
26...	.46	--	--	--	--	--	--	--	--	--	--
JUN											
23...	.86	--	--	--	--	--	--	--	--	--	--
JUL											
22...	.37	--	7	0	10	--	--	--	<10	<9	1
AUG											
18...	.34	--	--	--	--	--	--	--	--	--	--
SEP											
15...	.09	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS- PENDE D COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)
OCT											
15...	10	10	0	60	58	2	10	10	0	1900	20
JAN											
22...	0	0	0	<50	<50	0	<10	<9	1	270	30
APR											
15...	10	10	0	<50	<47	3	40	39	1	640	20
JUL											
22...	0	0	0	<50	<50	0	<10	<9	1	1000	30

RED RIVER OF THE NORTH BASIN

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05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE D MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE D MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
OCT 15...	<100	<100	0	40	150	140	10	.0	.0	.0	2
JAN 22...	<100	<100	0	--	420	0	420	.0	.0	.0	--
APR 15...	100	98	2	30	50	50	0	.1	.1	.0	1
JUL 22...	<100	<97	3	--	0	0	0	.0	.0	.0	--

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE D SELE- NIUM (SE) (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)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE D ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)
OCT 01...	--	--	--	--	--	--	--	--	--	--	--
15...	4	3	3	0	0	220	1.8	10	0	10	7.7
JAN 22...	--	0	0	0	--	--	--	20	20	0	--
APR 15...	4	0	0	0	0	180	2.3	60	60	0	<5.3
JUL 07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	0	0	0	--	--	--	10	10	0	--

DATE	SUS- PENDE D GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE D GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 (PC/L)	SUS- PENDE D GROSS BETA AS SR90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (DIRECT FLUORO- METRIC) (PC/L)	DIS- SOLVED URANIUM (U) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CYANIDE (CN) (MG/L)	TOTAL ALDRIN (UG/L)
OCT 01...	--	--	--	--	--	--	--	--	22	--	--
15...	<.9	21	3.0	17	2.8	.07	--	1.9	28	.00	--
29...	--	--	--	--	--	--	--	--	17	--	--
NOV 12...	--	--	--	--	--	--	--	--	1.2	--	--
26...	--	--	--	--	--	--	--	--	22	--	--
DEC 23...	--	--	--	--	--	--	--	--	22	--	--
JAN 22...	--	--	--	--	--	--	--	--	16	--	ND
FEB 04...	--	--	--	--	--	--	--	--	18	--	--
18...	--	--	--	--	--	--	--	--	10	--	--
MAR 17...	--	--	--	--	--	--	--	--	12	--	--
31...	--	--	--	--	--	--	--	--	18	--	--
APR 15...	.6	17	.9	15	.8	.05	1.2	--	11	.01	--
29...	--	--	--	--	--	--	--	--	13	--	--
MAY 26...	--	--	--	--	--	--	--	--	13	--	--
JUN 10...	--	--	--	--	--	--	--	--	50	--	--
23...	--	--	--	--	--	--	--	--	18	--	--
JUL 07...	--	--	--	--	--	--	--	--	15	--	--
22...	--	--	--	--	--	--	--	--	19	--	ND
AUG 03...	--	--	--	--	--	--	--	--	17	--	--
18...	--	--	--	--	--	--	--	--	18	--	--
31...	--	--	--	--	--	--	--	--	15	--	--
SEP 15...	--	--	--	--	--	--	--	--	14	--	--

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

RED RIVER OF THE NORTH BASIN

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL CHLOR- DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)
JAN 22...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	ND	ND	ND	ND	--	ND	ND	--	ND	ND	ND

DATE	TOTAL MALA- THION (UG/L)	TOTAL METH- OXY- CHLOR (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)
JAN 22...	ND	ND	ND	ND	ND	ND	ND
JUL 22...	--	ND	--	--	--	ND	--

DATE	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 15...	--	--	--	30	33	86
NOV 12...	--	--	--	47	11	94
DEC 23...	--	--	--	11	6.2	--
JAN 22...	ND	ND	ND	91	46	69
FEB 18...	--	--	--	20	11	59
MAR 17...	--	--	--	10	5.2	50
APR 15...	--	--	--	16	--	82
APR 29...	--	--	--	3	93	68
MAY 26...	--	--	--	10	119	96
JUN 23...	--	--	--	14	--	93
JUL 22...	ND	ND	ND	48	92	98
AUG 18...	--	--	--	32	45	89
SEP 15...	--	--	--	148	117	99

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

RED RIVER OF THE NORTH BASIN

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05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	935	902	942	902	1210	1130	1360	1350	1140	1130	1090	1060
2	942	922	948	941	1210	1180	1370	1360	1140	1110	1090	1060
3	949	932	950	936	1220	1170	1370	1360	1140	1130	1090	1080
4	945	935	956	939	1260	1210	1380	1340	1150	1130	1090	1070
5	959	942	958	941	1270	1240	1370	1340	1150	1130	1090	1070
6	959	939	960	943	1280	1250	1390	1370	1150	1130	1080	1060
7	966	952	962	949	1270	1260	1390	1380	1150	1100	1090	1060
8	969	956	961	941	1270	1260	1390	1370	1150	1130	1080	1060
9	969	949	963	953	1290	1260	1390	1360	1130	1130	1090	1070
10	952	949	962	955	1320	1290	1360	1340	1130	1120	1090	1070
11	952	949	965	931	1350	1310	1360	1320	1130	1100	1070	1060
12	952	949	964	946	1350	1350	1310	1300	1110	1090	1070	1040
13	956	952	972	958	1360	1350	1310	1290	1110	1090	1070	1050
14	956	916	984	956	1360	1350	1290	1260	1100	1090	1060	1040
15	922	906	989	975	1360	1350	1260	1240	1110	1090	1050	1040
16	929	912	987	987	1380	1360	1250	1220	1100	1080	1040	1010
17	935	912	---	---	1400	1380	1220	1200	1080	1070	1010	976
18	939	919	---	---	1400	1390	1210	1190	1070	1050	975	951
19	935	916	---	---	1390	1380	1200	1180	1060	1040	975	954
20	932	916	---	---	1400	1380	1190	1150	1060	1040	988	974
21	929	916	---	---	1400	1390	1160	1140	1060	1040	991	977
22	935	922	---	---	1410	1400	1150	1120	1060	1050	998	980
23	935	922	---	---	1410	1370	1130	1110	1050	1040	1000	990
24	932	916	---	---	1390	1370	1130	1120	1060	1040	1020	997
25	926	919	---	---	1380	1370	1130	1120	1060	1050	1010	985
26	926	912	1160	1140	1380	1370	1130	1110	1070	1050	1030	1010
27	926	922	1160	1130	1370	1370	1130	1010	1070	1060	1050	1000
28	929	926	1170	1140	1370	1360	1130	1130	1090	1070	1020	976
29	932	922	1140	1110	1380	1360	1140	1120	1090	1070	1020	933
30	934	924	1200	1080	1360	1350	1140	1120	---	---	975	946
31	940	910	---	---	1360	1350	1130	1120	---	---	974	524
MONTH	969	902	---	---	1410	1130	1390	1010	1150	1040	1090	524

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	511	413	603	541	587	581	663	630	625	605	710	694
2	418	373	590	560	590	584	684	634	629	579	701	691
3	384	369	595	560	589	583	708	646	634	623	706	695
4	389	364	619	570	595	587	713	692	642	633	718	707
5	368	345	627	595	596	590	708	695	648	629	736	712
6	353	329	626	622	598	591	710	682	653	630	748	724
7	332	320	630	628	595	584	700	679	650	640	750	726
8	326	321	631	627	585	581	701	677	655	625	760	750
9	352	329	633	626	589	583	686	662	656	647	770	757
10	383	348	630	623	595	588	677	653	662	645	775	756
11	426	383	627	620	601	595	675	661	665	651	788	769
12	450	428	626	621	610	601	667	643	668	656	795	776
13	475	455	627	621	617	608	689	660	671	659	808	794
14	486	475	620	613	621	612	692	661	679	665	807	788
15	504	478	617	608	632	614	667	645	682	664	792	784
16	523	484	612	603	637	623	656	637	686	671	796	782
17	526	516	609	600	637	632	642	629	694	675	797	783
18	557	524	604	598	651	637	639	628	695	685	792	781
19	578	557	605	593	660	646	637	624	707	689	790	782
20	608	580	596	590	667	651	638	625	704	694	791	775
21	635	610	595	585	674	663	637	617	701	691	790	773
22	661	637	592	584	679	667	626	613	698	681	777	763
23	683	660	590	584	677	665	632	619	688	669	767	748
24	692	680	587	579	677	630	627	616	692	673	754	733
25	696	684	584	576	677	670	628	617	685	680	745	729
26	686	667	579	573	682	653	629	618	697	682	764	746
27	666	651	582	570	687	639	632	619	699	679	765	752
28	654	635	584	573	682	656	636	618	733	701	763	750
29	634	612	585	575	679	637	635	624	746	730	772	754
30	614	599	586	578	667	648	634	618	748	724	768	757
31	---	---	588	579	---	---	626	613	740	703	---	---
MONTH	696	320	633	541	687	581	713	613	748	579	808	691

RED RIVER OF THE NORTH BASIN

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	8.5	4.0	2.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
2	11.5	8.5	4.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
3	13.0	10.0	4.5	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12.5	11.0	6.0	4.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.0	10.5	6.5	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.0	10.0	6.5	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	12.0	10.5	5.5	5.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
8	11.5	9.5	4.5	4.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
9	11.0	6.5	4.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
10	7.0	6.0	3.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	7.0	6.5	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	7.5	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	7.5	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6.5	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4.0	2.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	4.5	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6.5	4.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.5	5.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.0	6.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	8.0	6.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	7.5	6.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	7.0	6.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	6.5	5.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	5.5	4.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	5.0	4.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	4.0	3.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	4.0	2.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
28	2.5	1.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
29	2.5	1.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
30	2.5	2.0	1.0	0.5	0.0	0.0	0.0	0.0	---	---	1.5	0.0
31	3.0	2.5	---	---	0.0	0.0	0.0	0.0	---	---	2.0	0.0
MONTH	13.0	1.5	---	---	1.0	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	0.0	11.5	10.5	21.5	20.0	23.5	20.0	23.5	19.5	19.5	16.5
2	0.5	0.0	10.0	9.0	22.0	20.5	23.5	19.5	24.5	19.5	18.0	14.5
3	0.5	0.0	10.0	9.0	22.5	21.0	23.0	20.0	25.0	20.0	17.0	13.5
4	1.0	0.0	11.0	9.5	22.5	21.0	24.0	20.0	24.0	21.0	18.0	14.0
5	1.0	0.5	11.0	10.0	23.5	21.5	26.5	21.5	23.0	18.0	20.5	14.0
6	1.0	0.5	11.0	9.5	23.0	22.5	26.0	23.5	24.0	18.5	21.5	17.0
7	1.5	0.5	11.5	10.0	22.5	21.0	27.0	23.0	24.0	20.0	19.0	15.5
8	2.5	1.0	13.5	11.0	21.0	20.0	25.5	22.5	25.5	20.0	15.0	12.0
9	5.0	2.5	14.0	12.5	23.0	20.0	26.5	22.0	26.5	22.0	15.0	9.5
10	5.0	3.5	15.0	13.5	25.0	21.5	27.0	23.5	25.0	21.5	17.5	11.5
11	7.0	5.0	15.0	13.5	24.0	22.0	24.5	21.5	25.5	21.5	19.0	13.5
12	8.5	7.0	14.5	13.5	23.5	21.5	23.5	19.5	26.5	22.0	19.5	16.0
13	10.0	8.5	15.0	13.0	22.0	20.0	24.0	21.0	24.0	21.5	16.0	13.0
14	10.0	10.0	14.5	14.5	20.0	18.0	24.0	20.5	23.0	19.5	15.5	11.5
15	10.5	9.5	15.0	14.5	18.5	17.0	21.5	18.5	21.5	17.5	17.0	11.5
16	10.0	9.0	16.0	14.5	18.0	17.5	22.5	17.0	21.0	17.0	19.5	15.0
17	9.0	7.5	15.5	15.0	17.5	16.5	25.5	19.5	23.0	19.5	22.5	16.5
18	7.5	6.5	16.0	15.0	19.0	15.5	23.5	20.5	22.0	21.0	20.5	18.0
19	7.5	6.5	17.0	15.5	20.5	17.5	24.0	20.0	25.5	20.0	17.0	13.5
20	7.5	7.0	18.0	16.5	22.0	19.5	26.0	20.0	26.0	22.5	15.0	12.0
21	7.0	7.0	18.0	17.0	23.5	20.5	24.0	21.0	25.0	21.0	15.0	12.0
22	8.0	7.0	18.5	17.0	22.5	20.5	24.0	20.5	24.0	20.5	15.0	12.5
23	8.0	7.5	18.5	17.5	21.5	20.0	25.0	20.0	23.5	18.5	13.0	10.0
24	9.0	8.0	18.5	17.0	20.5	18.5	25.0	21.0	24.0	20.0	13.0	10.5
25	9.5	8.5	18.0	17.0	20.5	17.0	25.0	21.5	22.5	20.5	12.5	9.0
26	10.0	9.0	17.5	16.5	19.5	18.0	26.5	20.5	23.0	19.5	11.5	8.0
27	10.5	9.5	17.5	15.5	19.0	17.0	24.0	20.0	21.0	14.0	10.5	6.5
28	11.5	10.0	19.0	17.0	18.0	16.5	22.5	17.5	16.5	12.0	12.0	7.0
29	11.5	11.0	20.0	18.0	21.5	16.0	21.5	20.0	19.5	14.0	14.5	9.5
30	11.5	11.0	21.0	19.0	24.0	19.0	21.5	18.0	21.5	16.5	15.5	11.5
31	---	---	21.5	20.0	---	---	23.5	18.0	21.5	17.5	---	---
MONTH	11.5	0.0	21.5	9.0	25.0	15.5	27.0	17.0	26.5	12.0	22.5	6.5

RED RIVER OF THE NORTH BASIN

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05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 15, 1975
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

61,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		1,700	3	
...OOCYSTACEAE				
....ANKISTRODESMUS		4,500	7	
LDICTYOSPHAERIUM			0	
DKIRCHNERIELLA		23,000	38	
...SCENEDESMACEAE				
LACTINASTRUM			0	
....CRUCIGENIA		4,000	7	
DSCENEDESMUS		10,000	17	
...VOLVOCALES				
...VOLVOCAEAE				
LPANDORINA			0	
	TOTALS	44,000	72	1.816=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		6,000	10	
...MELOSIRA		500	1	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
LCOCCONEIS			0	
LRHOICOSPHEA			0	
...FRAGILARIACEAE				
LSYNEDRA			0	
...NAVICULACEAE	NAVICULOID			
LFRUSTULIA			0	
...NAVICULA		990	2	
...NITZSCHIAEAE				
...NITZSCHIA		1,500	2	
	TOTALS	9,200	15	1.546=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
LAGMENELLUM			0	
....ANACYSTIS		8,200	13	
	TOTALS	8,200	13	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.145
 CLASS 1.145
 ORDER 1.278
 FAMILY 2.147
 GENERA 2.677

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 12, 1975
1035 HOURS

IDENTIFICATION OF PHYTOPLANKTON

130,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		3,400	3	
....DICTYOSPHAERIUM		2,300	2	
DKIRCHNERIELLA		19,000	15	
....OOCYSTIS		6,300	5	
....SCENEDESMACEAE				
....SCENEDESMUS		2,300	2	
....TETRASTRUM		4,600	4	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	39,000	31	2.168=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTELLA		23,000	18	
....MELOSIRA		2,300	2	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
LCOCCONEIS			0	
LRHOICOSPHEA			0	
..FRAGILARIACEAE				
LASTERIONELLA			0	
..NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
	TOTALS	26,000	20	0.583=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
..OCHROMONADACEAE				
....DINOBRYON		1,700	1	
	TOTALS	1,700	1	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROCOCCALES	COCCOID			
..CHROCOCCACEAE				
DANACYSTIS		54,000	42	
....GOMPHOSPHAERIA		7,400	6	
	TOTALS	62,000	48	0.530=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 15%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.506
 CLASS 1.578
 ORDER 1.643
 FAMILY 1.845
 GENERA 2.609

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 23, 1975
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		380	7	
...OOCYSTACEAE				
....ANKISTRODESMUS		140	3	
....KIRCHNERIELLA		96	2	
....OOCYSTIS		190	4	
...SCENEDESMACEAE				
....CRUCIGENIA		380	7	
....SCENEDESMUS		670	13	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		570	11	
TOTALS		2,400	47	2.553=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCAEAE				
....CYCLOTELLA		96	2	
...PENNALES	PENNAE			
...NITZSCHIAEAE				
....NITZSCHIA		48	1	
TOTALS		140	3	0.918=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		2,400	47	
TOTALS		2,400	47	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDAE				
...CRYPTOMONADACEAE				
....CRYPTOMONAS		96	2	
TOTALS		96	2	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
LPHACUS			0	
....TRACHELOMONAS		48	1	
TOTALS		48	1	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLLAGELLATES			
...PERIDINIALES				
...GLENODINIACEAE				
LGLENODINIUM			0	
...PERIDINIACEAE				
LPERIDINIUM			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.310
 CLASS 1.335
 ORDER 1.732
 FAMILY 2.246
 GENERA 2.566

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 22, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...SCENEDESMACEAE				
LSCENEDESMUS			0	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
DCYCLOTELLA		350	29	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
LCOCCONEIS			0	
...FRAGILARIACEAE				
LFRAGILARIA			0	
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
...NAVICULA		65	5	
...NITZSCHIAEAE				
....NITZSCHIA		22	2	
	TOTALS	430	36	0.884=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DAGMENELLUM		610	51	
....ANACYSTIS		130	11	
	TOTALS	740	62	0.672=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		22	2	
	TOTALS	22	2	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
...GLENODINIACEAE				
LGLENODINIUM			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.065

CLASS 1.065

ORDER 1.327

FAMILY 1.386

GENERA 1.802

RED RIVER OF THE NORTH BASIN

235

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 18, 1976
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,500 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		130	3	
....SCENEDESMACEAE				
....SCENEDESMUS		430	10	
	TOTALS	560	13	0.779=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
....CYCLOTELLA		560	13	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
....ACHNANTHES		43	1	
....COCONEIS		43	1	
....RHOICOSPHEINIA		43	1	
..FRAGILARIACEAE				
..FRAGILARIA		86	2	
..NITZSCHACEAE				
..NITZSCHIA		43	1	
	TOTALS	820	19	1.611=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....ANACYSTIS		300	7	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE				
DOSCILLATORIA		2,800	63	
	TOTALS	3,100	70	0.460=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.190
 CLASS 1.190
 ORDER 1.673
 FAMILY 1.855
 GENERA 1.901

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 17, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

590 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		30	5	
LKIRCHNERIELLA			0	
....SCENEDESMACEAE		59	10	
....SCENEDESMUS			0	
LTETRASTRUM				
	TOTALS	89	15	0.918=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
DCYCLOTELLA		500	85	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
LCOCCONEIS			0	
....NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
....NITZSCHACEAE				
LNITZSCHIA			0	
....SURIRELLACEAE				
LCYMATOPLEURA			0	
	TOTALS	500	85	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
LANACYSTIS			0	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIA				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.610
 CLASS 0.610
 ORDER 0.610
 FAMILY 0.748
 GENERA 0.748

RED RIVER OF THE NORTH BASIN

237

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 15, 1976

1330 HOURS

IDENTIFICATION OF PHYTOPLANKTON

120,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...MICRACTINIACEAE				
...MICRACTINIUM		4,800	4	
...OOCYSTACEAE				
LANKISTRODESMUS			0	
LKIRCHNERIELLA			0	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
...VOLVOCAEAE				
LEUDORINA			0	
...ZYGNEMATALES				
...DESMIDIACEAE	PLACODERM DESMIDS			
LCLOSTERIUM			0	
...CHLOROCOCCALES				
...OOCYSTACEAE				
...GLOEOACTINIUM		9,600	8	
	TOTALS	14,000	12	0.918=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		99,000	84	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
LNAVICULA			0	
...NITZSCHACEAE				
LNANTZSCHIA			0	
...NITZSCHIA		1,600	1	
...SURIPELLACEAE				
LSURIPELLA			0	
	TOTALS	100,000	85	0.118=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
...ANABAENA		2,400	2	
...OSCILLATORIACEAE				
LOSCILLATORIA			0	
	TOTALS	2,400	2	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
LEUGLENA			0	
LPHACUS			0	
LTRACHELOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.678

CLASS 0.678

ORDER 0.892

FAMILY 0.892

GENERA 0.892

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 26, 1976
1245 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIUM		60	1	
...OOCYSTACEAE				
...ANKISTRODESMUS		60	1	
...KIRCHNERIELLA		180	4	
...OOCYSTIS		140	3	
L ...TETRAEDRON			0	
..SCENEDESMACEAE				
D ...CRUCIGENIA		1,000	24	
...SCENEDESMUS		160	4	
L ...TETRASTRUM			0	
...TETRASPORALES				
...PALMELLACEAE				
L ...SPHAEROCYSTIS			0	
TOTALS		1,700	37	1.891=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
D ...CYCLOTELLA		840	20	
...MELOSIRA		60	1	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
L ...ACHNANTHES			0	
...COCCONEIS		80	2	
...FRAGILARIACEAE				
...ASTERIONELLA		420	10	
...FRAGILARIA		120	3	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		60	1	
L ...NITZSCHIA			0	
...HANTZSCHIA		80	2	
...NITZSCHIA				
...SURIPELLACEAE				
L ...SURIPELLA			0	
TOTALS		1,700	39	2.110=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
...OCHROMONADACEAE				
...DINOBRYON		400	9	
TOTALS		400	9	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE		480	11	
...ANACYSTIS				
TOTALS		480	11	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE		40	1	
...CRYPTOMONAS				
TOTALS		40	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.452
 CLASS 1.796
 ORDER 2.223
 FAMILY 2.863
 GENERA 3.366

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 23, 1976
1245 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		620	10	
....KIRCHNERIELLA		290	5	
...OOCYSTIS		190	3	
...SCENEDESMACEAE				
DCRUCIGENIA		1,100	18	
....SCENEDESMUS		570	9	
....TETRASTRUM		380	6	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CARTERIA		140	2	
	TOTALS	3,300	53	2.509=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		480	8	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		48	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		96	2	
...NITZSCHIA				
....NITZSCHIA		96	2	
	TOTALS	720	13	1.426=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
...CHRYSDOMONADALES				
...OCHROMONADACEAE				
....OCHROMONAS		48	1	
	TOTALS	48	1	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		1,800	29	
	TOTALS	1,800	29	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOCHRYSIDACEAE				
....CHROOMONAS		240	4	
...CRYPTOMONODACEAE				
....CRYPTOMONAS		48	1	
	TOTALS	290	5	0.650=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		96	2	
....PHACUS		48	1	
	TOTALS	140	3	0.918=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.634
CLASS 1.737
ORDER 1.975
FAMILY 2.529
GENERA 3.268

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 22, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
...MICRACTINIUM		130	2	
...OOCYSTACEAE				
...ANKISTRODESMUS		650	10	
D ...KIRCHNERIELLA		1,900	28	
...OOCYSTIS		190	3	
...SCENEDESMACEAE				
...SCENEDESMUS		390	6	
...TETRASTRUM		260	4	
TOTALS		3,500	53	1.970=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		580	9	
...MELOSIRA		450	7	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		520	8	
...EUNOTIACEAE				
...EUNOTIA		65	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		260	4	
...NITZSCHACEAE				
...NITZSCHIA		650	10	
TOTALS		2,500	39	2.378=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAACEAE				
....LYNGBYA		320	5	
TOTALS		320	5	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
...CRYPTOMONAS		260	4	
TOTALS		260	4	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.413
CLASS 1.413
ORDER 1.786
FAMILY 2.648
GENERA 3.365

RED RIVER OF THE NORTH BASIN

241

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 18, 1976
1050 HOURS

IDENTIFICATION OF PHYTOPLANKTON

7,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		260	3	
....FRANCEIA		85	1	
....WESTELLA		340	4	
...SCENEDESMACEAE				
....SCENEDESMUS		170	2	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		260	3	
TOTALS		1,100	13	2.200=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		1,400	18	
....MELOSIRA		260	3	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		340	4	
...RHODOSPHENIA		85	1	
...CYMBELLACEAE				
....AMPHORA		170	2	
...GOMPHONEMATACEAE				
....GOMPHONEMA		170	2	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		340	4	
...NITZSCHIAEAE				
....NITZSCHIA		430	6	
TOTALS		3,200	40	2.497=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....AGMENELLUM		850	11	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
....APHANIZOMENON		1,000	13	
...OSCILLATORIACEAE				
....OSCILLATORIA		680	9	
TOTALS		2,600	33	1.566=DIVERSITY
EUGLENOPHYTA	EUGLENDIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDAE				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		770	10	
TOTALS		770	10	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.795
CLASS 1.795
ORDER 2.634
FAMILY 3.381
GENERA 3.682

RED RIVER OF THE NORTH BASIN

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 15, 1976
1715 HOURS

IDENTIFICATION OF PHYTOPLANKTON

82,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...HYDRODICTYACEAE				
...PEDIASTRUM		8,000	10	
...MICRACTINIACEAE				
...GOLINKINIA		890	1	
...MICRACTINIUM		3,600	4	
...DOCYSTACEAE				
...ANKISTRODESMUS		3,600	4	
...KIRCHNERIELLA		5,300	7	
...DOCYSTIS		890	1	
...TETRAEDRON		890	1	
...TREUBARIA		890	1	
...SCENEDESMACEAE				
...CRUCIGENIA		5,300	7	
...SCENEDESMUS		11,000	13	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS		4,500	5	
	TOTALS	45,000	54	3.040=DIVERSITY
CHRYSDOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
D ...CYCLOTELLA		23,000	28	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCONEIS		2,700	3	
...GOMPHONEMACEAE				
...GOMPHONEMA		890	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		1,800	2	
...NITZSCHIAEAE				
...NITZSCHIA		1,800	2	
	TOTALS	30,000	36	1.236=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
...APHANIZOMENON		7,100	9	
	TOTALS	7,100	9	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:PHYL/DIV 1.315
CLASS 1.315
ORDER 1.861
FAMILY 2.938
GENERA 3.424

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 15	30	0.6	0.2	3.2	0.6	120	Polyethylene strip
Feb. 18	37	2.1	.9	1.0	.0	1,200	Polyethylene strip
Aug. 18	35	8.31	5.92	30.5	3.41	78	Polyethylene strip

MISSOURI RIVER MAIN STEM

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06185500 MISSOURI RIVER NEAR CULBERTSON, MT

LOCATION.--Lat 48°07'24", long 104°28'30", in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, Hydrologic Unit 10060005, on right bank at downstream side of bridge on State Highway 16, 3 mi (5 km) southeast of Culbertson, 9.6 mi (15.4 km) downstream from Big Muddy Creek, and at mile 1,620.76 (2,607.80 km).

DRAINAGE AREA.--91,557 mi² (237,133 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1941 to December 1951, April 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,883.4 ft (574.06 m) above mean sea level, datum of 1929 (Corps of Engineers bench mark). July 1 to Nov. 6, 1941, water-stage recorder at site 400 ft (120 m) upstream at datum 0.11 ft (0.034 m) higher. Nov. 7, 1941, to Aug. 17, 1950, water-stage recorder at site 580 ft (177 m) downstream at present datum. Aug. 18, 1950, to Dec. 31, 1951, nonrecording gage on bridge at present datum. Apr. 1, 1958, to Nov. 1, 1967, water-stage recorder at site 500 ft (150 m) downstream at present datum.

REVISIONS.--WSP 1729: Drainage area.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow partly regulated by Fort Peck Lake and many other reservoirs above station. Diversions for irrigation of about 1,030,400 acres (4,170 km²) above station.

AVERAGE DISCHARGE.--26 years (1943-51, 1958-76, after operational level at Fort Peck Lake was reached), 10,730 ft³/s (304 m³/s), 7,774,000 acre-ft/yr (9.59 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft³/s (2,210 m³/s) Mar. 26, 1943, gage height, 14.80 ft (4.511 m), from rating curve extended above 30,000 ft³/s (850 m³/s); maximum gage height, 19.14 ft (5.834 m) Mar. 23, 1960, backwater from ice; minimum daily discharge, 575 ft³/s (16.3 m³/s) Nov. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 32,900 ft³/s (932 m³/s) June 14; maximum gage height observed, 16.98 ft (5.176 m), Mar. 22, backwater from ice; minimum daily discharge, 8,200 ft³/s (232 m³/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13700	14900	10000	15000	17000	17500	21500	15500	19200	17500	14600	14900
2	14200	14900	9800	14000	16500	16000	21300	15300	19100	17100	14300	14900
3	14100	15000	9500	12500	16000	15000	20600	15100	18800	17100	14400	14900
4	14000	15100	9700	11000	14000	13000	19800	14800	25800	16000	14000	14800
5	14000	15200	10500	10500	14000	13000	20900	14300	23000	18600	14200	14800
6	14000	15200	11000	10500	14000	13000	21500	12000	24900	19000	14500	14800
7	14000	15200	11000	10000	15000	14000	21600	11200	26200	20600	14500	14800
8	14000	15400	12000	9400	16000	15500	21000	10700	30000	20700	14100	14700
9	14000	15500	13000	8200	17000	17000	20100	10200	25300	21100	14100	14900
10	14100	15400	13500	9000	18000	17500	19500	10100	24700	19200	13600	15000
11	13800	15300	14000	9800	18500	18000	19100	10200	24700	17400	15300	14800
12	14000	15300	14000	10500	18500	18000	18400	9950	28000	17200	15300	14800
13	14100	15200	14000	11000	18000	17000	18000	9580	30600	17300	15200	14900
14	14400	15100	13500	12000	18000	18000	17500	9760	32900	17000	15100	15000
15	14700	15000	12500	13000	18000	19000	17500	9920	30800	17400	14800	14900
16	14900	15100	11000	14000	18000	21000	17300	13900	28500	17700	15200	14900
17	14900	15100	10500	15000	18000	23000	16900	13400	27200	17300	15300	14300
18	15000	15200	10500	16000	18000	24000	16800	13500	26900	17500	15300	14200
19	15300	15300	11500	16500	18000	25000	16200	13500	27400	17400	15300	14300
20	15300	15100	12500	16500	17500	27000	16400	14400	25000	16900	15100	14800
21	15100	14900	12500	16000	18000	29000	16300	16900	24000	16300	14000	14900
22	15000	14800	12500	16500	18500	30000	16300	19400	20400	16300	13500	14700
23	15000	14800	13000	17000	19000	28000	16200	19700	17500	16000	13300	14700
24	14900	14900	14000	17000	19000	27100	16700	19600	18400	16700	14500	14800
25	14900	14800	15000	17000	19000	24500	16600	19400	17600	15600	14700	14800
26	15000	14800	15500	17000	19000	25600	16100	19400	17800	15800	14600	14600
27	14700	14800	16000	17000	19000	24900	15800	19400	18400	15600	14700	14800
28	14700	14400	16000	18000	18500	23700	15900	19300	18200	16200	14700	14700
29	14700	12400	16000	18500	18000	22500	15500	19100	17600	14900	14600	14900
30	14800	11200	16000	18000	---	22600	15100	19100	17500	14800	14600	14600
31	14800	---	15500	17000	---	22100	---	19300	---	14700	14600	---
TOTAL	450100	445300	396000	433400	506000	641500	542400	457910	706400	532900	452000	442900
MEAN	14520	14840	12770	13980	17450	20690	18080	14770	23550	17190	14580	14760
MAX	15300	15500	16000	18500	19000	30000	21600	19700	32900	21100	15300	15000
MIN	13700	11200	9500	8200	14000	13000	15100	9580	17500	14700	13300	14200
AC-FT	892800	883300	785500	859600	1004000	1272000	1076000	908300	1401000	1057000	896500	878500
CAL YR 1975	TOTAL	6368900	MEAN	17450	MAX	39000	MIN	5200	AC-FT	12630000		
WTR YR 1976	TOTAL	6006810	MEAN	16410	MAX	32900	MIN	8200	AC-FT	11910000		

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1965 to current year.

WATER TEMPERATURES: July 1965 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976 (discontinued).

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months. Flow regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 807 micromhos May 10, 1970; minimum daily, 338 micromhos Mar. 30, 1967.

WATER TEMPERATURES: Maximum daily, 24.5°C July 17, 1966; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,940 mg/L Aug. 15, 1974; minimum daily mean, 30 mg/L Jan. 13, 1975.

SEDIMENT LOADS: Maximum daily, 147,000 tons (133,000 tonnes) June 5, 1975; minimum daily, 421 tons (382 tonnes) Jan. 13, 1975.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 762 micromhos Jan. 7; minimum daily, 445 micromhos Mar. 24.

WATER TEMPERATURES: Maximum daily, 21.0°C July 11; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,680 mg/L Mar. 25, 26; minimum daily mean, 39 mg/L Jan. 11.

SEDIMENT LOADS: Maximum daily, 118,000 tons (107,000 tonnes) June 4; minimum daily, 1,030 tons (934 tonnes) Jan. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AIR TEMPERATURE (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	FECAL COLIFORM (COL PER 100 ML)	FECAL STREPTOCOCCI (COL PER 100 ML)	HARDNESS (CA, MG)
OCT												
21...	1500	15500	655	8.4	10.5	10.0	45	9.5	90	19	34	220
NOV												
26...	1130	14000	650	8.6	-10.0	.5	20	11.0	83	4	8	220
DEC												
31...	1200	15000	670	8.6	-10.0	.0	20	10.4	77	4	5	230
JAN												
27...	1500	16900	660	8.5	6.0	.5	15	11.7	87	8	2	220
FEB												
26...	1300	18900	630	8.3	1.0	.5	50	10.7	80	12	52	210
MAR												
26...	1400	25700	495	8.3	7.0	3.5	350	10.0	81	60	230	150
30...	1330	22600	--	--	--	3.0	--	--	--	--	--	--
APR												
28...	1200	16000	680	9.0	12.5	7.0	40	7.9	70	4	9	230
MAY												
28...	1000	19300	640	8.3	17.5	13.5	45	7.7	79	8	13	220
JUN												
10...	1330	24500	620	8.0	22.0	20.0	180	8.0	94	190	460	220
JUL												
13...	1400	16900	650	8.2	22.0	20.0	70	7.6	90	160	180	210
AUG												
11...	1400	15100	640	8.1	22.5	18.5	55	8.0	91	140	160	230
SEP												
14...	1300	15100	640	7.9	19.5	15.0	25	7.4	78	11	26	230

MISSOURI RIVER MAIN STEM

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06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT 21...	69	57	20	52	1.5	4.1	182	4	156	1.2	180
NOV 26...	65	55	20	51	1.5	3.9	181	4	155	.8	170
DEC 31...	69	61	20	53	1.5	3.9	192	5	166	.8	160
JAN 27...	67	57	20	50	1.5	4.0	192	0	157	1.0	170
FEB 26...	66	53	20	48	1.4	4.1	181	0	148	1.5	160
MAR 26...	35	36	15	41	1.4	4.7	142	0	116	1.1	110
30...	--	--	--	--	--	--	--	--	--	--	--
APR 28...	62	53	23	58	1.7	4.5	201	0	165	.3	180
MAY 28...	70	52	22	46	1.3	4.1	184	0	151	1.5	180
JUN 10...	66	52	21	51	1.5	4.4	183	0	150	2.9	160
JUL 13...	59	51	21	56	1.7	4.4	189	0	155	1.9	180
AUG 11...	79	57	21	47	1.4	4.0	183	0	150	2.3	160
SEP 14...	77	54	22	48	1.4	3.8	181	0	148	3.6	170

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT 21...	8.5	.7	7.1	420	423	.57	17600	.07	.80	.87	.10
NOV 26...	7.7	.6	7.5	406	409	.55	15300	.11	.85	.96	.03
DEC 31...	8.5	.6	7.3	416	414	.57	16800	.12	.31	.43	.04
JAN 27...	7.7	.7	7.3	418	411	.57	19100	.15	.40	.55	.05
FEB 26...	9.0	.6	6.7	403	391	.55	20600	.14	.47	.61	.12
MAR 26...	4.5	.4	5.6	316	287	.43	21900	.22	3.1	3.3	.49
30...	--	--	--	--	--	--	--	--	--	--	--
APR 28...	7.5	.7	6.5	445	432	.61	19200	.07	.33	.40	.09
MAY 28...	8.7	.6	8.0	421	412	.57	21900	.09	.45	.54	.13
JUN 10...	7.3	.6	7.9	369	394	.50	24400	.10	.60	.70	.30
JUL 13...	7.6	.6	7.6	439	421	.60	20000	.16	.78	.94	.13
AUG 11...	7.7	.6	7.9	413	395	.56	16800	.15	.43	.58	.14
SEP 14...	7.8	.6	7.9	418	403	.57	17000	.01	.16	.17	.08

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS-PENDED ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	SUS-PENDED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	SUS-PENDED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS-PENDED COPPER (CU) (UG/L)
DEC 31...	4	2	2	<10	<10	0	10	10	0	20	17
MAR 26...	20	18	2	<10	<9	1	30	30	0	50	46
JUN 10...	6	6	0	0	0	0	10	0	20	20	20
SEP 14...	4	2	2	<10	<9	1	0	0	0	10	9

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)
DEC 31...	3	1800	20	<100	<100	0	40	40	0	.0	.0	.0
MAR 26...	4	30000	20	<100	<97	3	610	600	10	.0	.0	.0
JUN 10...	0	9400	10	9	4	5	180	180	0	<.5	.0	<.5
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 14...	1	2600	0	<100	<92	8	60	60	0	.0	.0	.0

DATE	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDED ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	ATRA- ZINE IN BOTTOM MATERI- AL (UG/ KG DRY SOLIDS)	TOTAL CHLOR- DANE (UG/L)
DEC 31...	1	1	0	30	20	10	6.7	ND	--	ND	--	ND
MAR 26...	2	2	0	140	120	20	--	--	--	--	--	--
JUN 10...	0	0	0	70	60	10	6.3	ND	ND	ND	ND	ND
AUG 11...	--	--	--	--	--	--	--	ND	--	--	--	ND
SEP 14...	1	0	1	30	20	10	5.0	--	--	--	--	--

DATE	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)
DEC 31...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAR 26...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 11...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
SEP 14...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)
DEC 31...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAR 26...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 11...	--	ND	--	ND	--	ND	--	ND	--	ND	--
SEP 14...	--	--	--	--	--	--	--	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.

Bed material ND - Not detected at 0.1 µg/mg level.

MISSOURI RIVER MAIN STEM

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06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)
DEC 31...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
JUN 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 11...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	SIMA- ZINE IN BOTTOM MATERI- AL (UG/ KG DRY SOLIDS)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MA- TERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MA- TERIAL (UG/KG)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM
OCT 21...	--	--	--	--	--	--	--	--	396	16600	--
NOV 26...	--	--	--	--	--	--	--	--	73	2760	--
DEC 31...	--	--	ND	--	ND	--	ND	--	162	6560	--
JAN 27...	--	--	--	--	--	--	--	--	77	3510	--
FEB 26...	--	--	--	--	--	--	--	--	210	10700	--
MAR 30...	--	--	--	--	--	--	--	--	1480	90300	--
APR 28...	--	--	--	--	--	--	--	--	824	35600	--
MAY 29...	--	--	--	--	--	--	--	--	--	--	--
MAY 28...	--	--	--	--	--	--	--	--	364	19000	--
JUN 10...	ND	ND	ND	ND	ND	ND	ND	ND	706	46700	--
JUL 13...	--	--	--	--	--	--	--	--	461	21000	--
AUG 11...	--	--	ND	--	ND	--	ND	--	381	15500	25
SEP 14...	--	--	--	--	--	--	--	--	291	11900	--

DATE	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 .062 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
OCT 21...	--	--	--	--	34	--	--	--	--	--
NOV 26...	--	--	--	--	81	--	--	--	--	--
DEC 31...	--	--	--	--	24	--	--	--	--	--
JAN 27...	--	--	--	--	46	--	--	--	--	--
FEB 26...	--	--	--	--	70	--	--	--	--	--
MAR 30...	--	--	--	--	43	--	--	--	--	--
APR 28...	--	--	--	--	23	--	--	--	--	--
MAY 29...	--	--	--	--	3	27	93	97	100	--
MAY 28...	--	--	--	--	51	19	69	98	100	--
JUN 10...	--	--	--	--	60	--	--	--	--	--
JUL 13...	--	--	--	--	54	--	--	--	--	--
AUG 11...	38	59	82	100	--	--	--	--	--	--
SEP 14...	--	--	--	--	49	--	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	624	628	669	625	619	617	530	695	621	674	631	618
2	627	631	650	605	606	638	557	695	631	665	629	618
3	627	637	630	613	613	652	552	680	629	668	629	619
4	623	641	569	661	641	652	569	683	641	660	627	617
5	628	641	638	656	638	660	600	682	630	710	627	617
6	628	641	642	665	653	661	621	692	629	669	627	616
7	624	649	629	762	650	652	627	692	629	672	629	618
8	625	660	636	669	649	634	641	691	631	649	629	616
9	623	660	629	672	642	621	639	682	630	666	621	618
10	625	639	627	731	632	619	635	679	629	687	621	613
11	620	630	639	683	610	620	631	679	639	670	621	618
12	620	630	653	680	598	623	631	679	641	664	629	617
13	623	627	639	665	621	632	634	678	649	651	632	618
14	619	627	665	668	610	646	640	678	700	651	641	618
15	622	629	662	644	614	641	635	678	662	648	638	619
16	622	633	667	650	610	631	631	679	670	652	638	618
17	625	633	690	652	596	623	638	668	668	620	637	618
18	629	633	629	649	595	620	641	671	661	623	638	615
19	632	633	662	647	592	594	644	671	660	656	634	615
20	634	633	681	642	604	578	647	670	662	652	632	613
21	646	631	677	636	617	522	650	653	662	636	631	618
22	649	630	669	636	617	463	649	656	671	638	632	617
23	645	633	758	639	607	467	643	657	681	647	632	618
24	643	668	641	640	601	445	650	656	675	641	629	618
25	644	633	610	645	591	499	659	656	679	636	623	617
26	651	633	631	651	602	481	660	655	681	632	629	615
27	649	631	627	630	602	459	660	652	688	631	623	618
28	646	631	612	642	602	474	664	652	688	632	631	620
29	642	646	639	651	632	485	665	652	693	629	629	619
30	637	658	571	647	---	495	672	655	680	624	627	619
31	634	---	619	640	---	498	---	658	---	624	621	---
MONTH	632	638	644	655	616	577	631	672	657	651	630	617

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	7.5	0.0	0.0	0.0	0.0	5.5	8.0	15.0	18.0	18.0	18.0
2	11.5	7.5	0.0	0.0	0.0	0.0	5.0	8.0	16.5	18.0	16.5	16.0
3	11.5	8.0	0.0	0.0	0.0	0.0	4.0	8.5	17.0	18.0	17.5	16.5
4	13.0	9.0	0.0	0.0	0.0	0.0	4.0	9.5	17.0	17.5	17.0	15.5
5	12.5	8.5	0.0	0.0	0.0	0.0	6.0	8.5	17.5	19.0	16.0	17.0
6	11.0	8.5	0.0	0.0	0.0	0.0	6.5	8.5	17.0	18.5	16.0	16.0
7	11.5	8.0	0.0	0.0	0.0	0.0	7.0	9.5	17.0	18.5	15.5	17.0
8	10.5	7.0	0.0	0.0	0.0	0.0	9.0	11.5	17.0	19.5	17.0	15.0
9	8.0	6.0	0.0	0.0	0.0	0.0	9.0	11.0	17.5	20.5	19.0	13.0
10	8.0	5.0	0.0	0.0	0.0	0.0	9.5	12.0	17.5	20.5	18.5	13.0
11	7.5	4.5	0.5	0.0	0.0	0.0	8.0	12.5	17.5	21.0	18.0	15.0
12	7.5	3.0	0.0	0.0	0.0	0.0	8.5	12.0	17.5	19.0	18.5	15.5
13	8.5	3.5	0.0	0.0	0.0	0.0	9.5	11.0	16.0	19.5	18.0	16.0
14	8.0	5.5	0.0	0.0	0.0	0.0	9.5	13.0	16.0	18.5	19.0	15.0
15	7.5	5.5	0.0	0.0	0.0	0.0	9.5	11.5	14.0	18.0	19.0	17.0
16	8.5	7.5	0.0	0.0	0.0	0.0	9.5	12.0	16.0	17.5	20.0	15.0
17	8.0	6.5	0.0	0.0	0.0	0.0	7.0	12.0	15.0	18.0	19.0	17.0
18	9.0	6.0	0.0	0.0	0.0	0.0	5.0	12.5	15.0	18.5	20.0	16.5
19	9.5	5.5	0.0	0.0	0.0	0.0	6.0	13.0	16.0	20.0	19.0	15.0
20	10.0	4.0	0.0	0.0	0.0	0.0	5.5	14.0	17.0	19.0	19.0	14.0
21	9.5	3.0	0.0	0.0	0.0	0.0	6.5	14.0	17.0	19.5	18.5	14.0
22	8.5	2.0	0.0	0.0	0.0	0.0	6.5	14.0	16.5	18.5	17.5	14.0
23	8.0	2.0	0.0	0.0	0.0	2.0	7.5	14.0	17.0	19.5	19.0	12.0
24	7.0	0.5	0.0	0.0	0.0	2.5	7.0	13.0	14.5	18.5	18.5	11.0
25	7.0	0.5	0.0	0.0	0.0	4.0	7.0	14.0	15.0	20.5	18.0	13.0
26	7.0	0.5	0.0	0.0	0.0	3.0	7.5	12.5	14.5	18.5	19.0	12.5
27	6.5	0.5	0.0	0.0	0.0	3.0	8.0	13.0	15.0	19.5	15.0	13.0
28	5.5	0.5	0.0	0.0	0.0	3.5	8.0	14.0	14.5	19.0	14.5	11.0
29	6.0	0.0	0.0	0.0	0.0	3.5	8.0	15.0	15.5	18.5	14.0	11.0
30	6.5	0.0	0.0	0.0	---	4.0	8.0	14.0	17.0	18.5	17.0	11.0
31	7.5	---	0.0	0.0	---	4.0	---	15.0	---	17.0	18.0	---
MONTH	9.0	4.5	0.0	0.0	0.0	1.0	7.5	12.0	16.0	19.0	17.5	14.5

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	13700	140	5180	14900	182	7320	10000	630	17000
2	14200	127	4870	14900	347	14000	9800	706	18700
3	14100	141	5370	15000	411	16600	9500	676	17300
4	14000	151	5710	15100	420	17100	9700	631	16500
5	14000	142	5370	15200	658	27000	10500	574	16300
6	14000	134	5070	15200	960	39400	11000	490	14600
7	14000	140	5290	15200	736	30200	11000	400	11900
8	14000	150	5670	15400	405	16800	12000	374	12100
9	14000	162	6120	15500	354	14800	13000	380	13300
10	14100	169	6430	15400	405	16800	13500	397	14500
11	13800	182	6780	15300	405	16700	14000	420	15900
12	14000	165	6240	15300	360	14900	14000	424	16000
13	14100	164	6240	15200	370	15200	14000	411	15500
14	14400	164	6380	15100	423	17200	13500	394	14400
15	14700	136	5400	15000	431	17500	12500	367	12400
16	14900	116	4670	15100	396	16100	11000	327	9710
17	14900	119	4790	15100	380	15500	10500	286	8110
18	15000	129	5220	15200	382	15700	10500	268	7600
19	15300	126	5210	15300	392	16200	11500	265	8230
20	15300	152	6280	15100	392	16000	12500	273	9210
21	15100	244	9950	14900	400	16100	12500	273	9210
22	15000	255	10300	14800	415	16600	12500	259	8740
23	15000	153	6200	14800	365	14600	13000	235	8250
24	14900	114	4590	14900	277	11100	14000	210	7940
25	14900	104	4180	14800	238	9510	15000	201	8140
26	15000	102	4130	14800	237	9470	15500	200	8370
27	14700	105	4170	14800	330	13200	16000	202	8730
28	14700	112	4450	14400	478	18600	16000	190	8210
29	14700	127	5040	12400	529	17700	16000	168	7260
30	14800	127	5070	11200	520	15700	16000	168	7260
31	14800	124	4960	---	---	---	15500	164	6860
TOTAL	450100	---	175330	445300	---	503600	396000	---	358230

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	15000	170	6880	17000	87	3990	17500	73	3450
2	14000	219	8280	16500	83	3700	16000	68	2940
3	12500	283	9550	16000	98	4230	15000	73	2960
4	11000	358	10600	14000	103	3890	13000	78	2740
5	10500	441	12500	14000	96	3630	13000	79	2770
6	10500	534	15100	14000	67	2530	13000	76	2670
7	10000	572	15400	15000	56	2270	14000	68	2570
8	9400	505	12800	16000	73	3150	15500	60	2510
9	8200	323	7150	17000	101	4640	17000	53	2430
10	9000	72	1750	18000	132	6420	17500	52	2460
11	9800	39	1030	18500	151	7540	18000	53	2580
12	10500	53	1500	18500	154	7690	18000	63	3060
13	11000	86	2550	18000	152	7390	17000	81	3720
14	12000	141	4570	18000	145	7050	18000	110	5350
15	13000	192	6740	18000	141	6850	19000	147	7540
16	14000	216	8160	18000	147	7140	21000	187	10600
17	15000	198	8020	18000	153	7440	23000	234	14500
18	16000	220	9500	18000	155	7530	24000	302	19600
19	16500	310	13800	18000	148	7190	25000	401	27100
20	16500	282	12600	17500	145	6850	27000	528	38500
21	16000	218	9420	18000	167	8120	29000	665	52100
22	16500	135	6010	18500	203	10100	30000	849	68800
23	17000	95	4360	19000	218	11200	28000	1120	84700
24	17000	105	4820	19000	218	11200	27100	1540	113000
25	17000	129	5920	19000	211	10800	24500	1680	111000
26	17000	155	7110	19000	193	9900	25600	1680	116000
27	17000	90	4130	19000	177	9080	24900	1640	110000
28	18000	60	2920	18500	156	7790	23700	1600	102000
29	18500	99	4950	18000	104	5050	22500	1550	94200
30	18000	104	5050	---	---	---	22600	1490	90900
31	17000	97	4450	---	---	---	22100	1480	88300
TOTAL	433400	---	227620	506000	---	194360	641500	---	1191050

APRIL					MAY			JUNE		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	21500	1460	84800	15500	475	19900	19200	409	21200	
2	21300	1380	79400	15300	485	20000	19100	385	19900	
3	20600	1280	71200	15100	479	19500	18800	516	26200	
4	19800	1170	62500	14800	446	17800	25800	807	56200	
5	20900	1100	62100	14300	417	16100	23000	682	42400	
6	21500	1010	58600	12000	397	12900	24900	788	53000	
7	21600	1010	58900	11200	363	11000	26200	670	47400	
8	21000	920	52200	10700	316	9130	30000	715	57900	
9	20100	749	40600	10200	301	8290	25300	703	48000	
10	19500	629	33100	10100	315	8590	24700	731	48800	
11	19100	550	28400	10200	344	9470	24700	821	54800	
12	18400	474	23500	9950	380	10200	28000	1220	92200	
13	18000	422	20500	9580	404	10400	30600	1350	112000	
14	17500	411	19400	9760	407	10700	32900	1330	118000	
15	17500	417	19700	9920	400	10700	30800	1040	86500	
16	17300	393	18400	13900	414	15500	28500	800	61600	
17	16900	326	14900	13400	446	16100	27200	722	53000	
18	16800	311	14100	13500	434	15800	26900	621	45100	
19	16200	357	15600	13500	396	14400	27400	560	41400	
20	16400	401	17800	14400	441	17100	25000	455	30700	
21	16300	415	18300	16900	528	24100	24000	765	49600	
22	16300	417	18400	19400	544	28500	20400	650	35800	
23	16200	411	18000	19700	522	27800	17500	578	27300	
24	16700	405	18300	19600	532	28200	18400	648	32200	
25	16600	403	18100	19400	567	29700	17600	755	35900	
26	16100	421	18300	19400	574	30100	17800	618	29700	
27	15800	586	25000	19400	524	27400	18400	621	30900	
28	15900	785	33700	19300	400	20800	18200	858	42200	
29	15500	546	22900	19100	473	24400	17600	1150	54600	
30	15100	471	19200	19100	461	23800	17500	935	44200	
31	---	---	---	19300	438	22800	---	---	---	
TOTAL	542400	---	1005900	457910	---	561180	706400	---	1498700	
JULY					AUGUST			SEPTEMBER		
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)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	
1	17500	510	24100	14600	354	14000	14900	311	12500	
2	17100	405	18700	14300	347	13400	14900	319	12800	
3	17100	503	23200	14400	357	13900	14900	297	11900	
4	16000	838	36200	14000	406	15300	14800	274	10900	
5	18600	1290	64800	14200	400	15300	14800	300	12000	
6	19000	1530	78500	14500	361	14100	14800	387	15500	
7	20600	1630	90700	14500	441	17				

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 21, 1975
1500 HOURS

IDENTIFICATION OF PHYTOPLANKTON

490 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...CHARACIACEAE				
...SCHROEDERIA		17	3	
...OOCYSTACEAE				
...ANKISTRODESMUS		41	8	
...SCENEDESMACEAE				
LACTINASTRUM			0	
	TOTALS	58	11	0.863=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		8	2	
...MELOSIRA		33	7	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...ACHNANTHES		8	2	
...DIATOMACEAE				
...DIATOMA		8	2	
...FRAGILARIACEAE				
...ASTERIONELLA		41	8	
DFRAGILARIA		100	20	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		17	3	
...NITZSCHIAEAE				
DNITZSCHIA		130	27	
	TOTALS	350	71	2.330=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
DOSCILLATORIA		83	17	
	TOTALS	83	17	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.148
 CLASS 1.148
 ORDER 1.523
 FAMILY 2.596
 GENERA 2.909

NOV. 26, 1975
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,100 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
DCYCLOTELLA		1,700	77	
...MELOSIRA		97	5	
..PENNALES	PENNATE			
...DIATOMACEAE				
...DIATOMA		190	9	
...NITZSCHIAEAE				
....NITZSCHIA		190	9	
	TOTALS	2,100	100	1.119=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.684
 FAMILY 0.866
 GENERA 1.119

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 31, 1975
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

80 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNALES	PENNATE		
...CYMBELLACEAE			
...CYMBELLA		8	10
...DIATOMACEAE			
D ...DIATOMA		24	30
...FRAGILARIACEAE			
D ...ASTERIONELLA		40	50
...NITZSCHIA			
...NITZSCHIA			
TOTALS		80	100

1.685=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
FAMILY 1.685
GENERA 1.685

JAN. 27, 1976
1500 HOURS

IDENTIFICATION OF PHYTOPLANKTON

180 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
D ...CYCLOTELLA		53	30
..PENNALES	PENNATE		
...ACHNANTHACEAE			
L ...COCONEIS			0
...FRAGILARIACEAE			
D ...ASTERIONELLA		110	60
...NAVICULACEAE	NAVICULOID		
L ...NAVICULA			0
...NITZSCHIA			
...NITZSCHIA		18	10
...SURIPELLACEAE			
L ...SURIPELLA			0
TOTALS		180	100

1.295=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.881
FAMILY 1.295
GENERA 1.295

MISSOURI RIVER MAIN STEM

253

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 26, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS				
	TOTALS	33	3	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		33	3	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...RHOICOSPHENIA		67	5	
...DIATOMACEAE				
...DIATOMA		130	10	
...FRAGILARIACEAE				
D ...ASTERIONELLA		700	54	
...NAVICULACEAE	NAVICULOID			
L ...NAVICULA			0	
...NITZSCHIAEAE				
...NITZSCHIA				
	TOTALS	130	10	1.555=DIVERSITY
		1,100	82	
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
DOSCILLATORIA				
	TOTALS	200	15	0.000=DIVERSITY
		200	15	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER • 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.785
 CLASS 0.785
 ORDER 0.950
 FAMILY 2.061
 GENERA 2.061

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 26, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
LMELOSIRA			0	
....STEPHANODISCUS		75	12	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
DNAVICULA		230	37	
....NITZSCHIA				
DNITZSCHIA				
	TOTALS	300	50	
		600	99	1.406=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIA				
LLYNGBYA			0	
LOSCILLATORIA			0	
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.544
 FAMILY 1.406
 GENERA 1.406

APR. 28, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..NOCTACEAE				
DANKISTRODESMUS				
	TOTALS	43	21	0.000=DIVERSITY
		43	21	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTILLA		57	29	
LMELOSIRA			0	
..PENNALES	PENNATE			
..DIATOMACEAE				
..DIATOMA		28	14	
..FRAGILARIACEAE				
..ASTERIONELLA		14	7	
..NAVICULACEAE	NAVICULOID			
..GYROSIGMA		14	7	
..NAVICULA		14	7	
..NITZSCHIA				
DNITZSCHIA				
	TOTALS	28	14	2.369=DIVERSITY
		160	78	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.750
 CLASS 0.750
 ORDER 1.493
 FAMILY 2.468
 GENERA 2.611

MISSOURI RIVER MAIN STEM

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06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 28, 1976
1000 HOURS

IDENTIFICATION OF PHYTOPLANKTON

660 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		50	8	
...PENNATES	PENNATE			
...ACMANTHACEAE				
...COCCONEIS		17	3	
...CYMBELLACEAE				
...CYMBELLA		17	3	
...DIATOMACEAE				
D ...DIATOMA		200	31	
...FRAGILARIACEAE				
...ASTERIONELLA		17	3	
D ...FRAGILARIA		250	38	
...SYNEDRA		34	5	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		34	5	
...NITZSCHACEAE				
...NITZSCHIA		34	5	
TOTALS		660	101	2.404=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.391
FAMILY 2.033
GENERA 2.404

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 10, 1976
1330 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1.200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCODCALES				
..OOCYSTACEAE				
...ANKISTRODESMUS		57	5	
...SCENEDESMACEAE				
L ...CRUCIGENIA		85	0	
...SCENEDESMUS			7	
TOTALS		140	12	0.971=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTILLA		57	5	
L ...MELOSIRA			0	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...RHOICOSPHEIA		85	7	
...CYMBELLACEAE				
...AMPHORA		28	2	
...DIATOMACEAE				
L ...DIATOMA			0	
...FRAGILARIACEAE				
L ...ASTERIONELLA			0	
...GOMPHONEMACEAE				
...GOMPHONEMA		28	2	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		85	7	
...NITZSCHACEAE				
...NITZSCHIA		85	7	
TOTALS		370	30	2.449=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
...OCHROMONADACEAE				
...DINOBYRON		28	2	
TOTALS		28	2	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
D ...ANABAENA		710	57	
TOTALS		710	57	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1% MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES* BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.346
 CLASS 1.464
 ORDER 1.647
 FAMILY 2.298
 GENERA 2.298

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 13, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...HYDRODICTYACEAE				
...PEDIASTRUM		160	7	
...OOCYSTACEAE				
...ANKISTRODESMUS		40	2	
...SCENEDESMACEAE				
...ACTINASTRUM		320	13	
	TOTALS	520	22	1.239=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		80	3	
...MELOSIRA		280	12	
..PENNALES	PENNATE			
...ACMANTHACEAE				
...RHOICOSPHEA		20	1	
...FRAGILARIACEAE				
...FRAGILARIA		200	8	
...GOMPHONEMACEAE				
...GOMPHONEMA		20	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		100	4	
...NITZSCHACEAE				
...NITZSCHIA		180	8	
	TOTALS	880	37	2.399=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA				
D		980	41	
	TOTALS	980	41	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.537
 CLASS 1.537
 ORDER 1.898
 FAMILY 2.579
 GENERA 2.695

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 11, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

380 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCUCCALES				
...CHARACIACEAE				
...SCHROEDERIA		29	8	
...VOLVOCALES				
...CHLAMYDOMONADACEAE		29	8	
....CHLAMYDOMONAS				
TOTALS		58	16	1.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...CYMBELLACEAE		15	4	
...FRAGILARIACEAE				
...SYNEDRA		29	8	
...GOMPHONEMATACEAE				
...GOMPHONEMA		15	4	
...NAVICULACEAE	NAVICULOID			
...GYROSIGMA		15	4	
...NAVICULA		29	8	
...NITZSCHIACEAE				
DNITZSCHIA		170	46	
TOTALS		280	74	1.773=DIVERSITY
EUGLENOPHYTA	EUGLENUIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
...EUGLENA		15	4	
...TRACHELOMONAS		29	8	
TOTALS		44	12	0.918=DIVERSITY

NOTE: D = DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.106
 CLASS 1.106
 ORDER 1.259
 FAMILY 2.449
 GENERA 2.661

MISSOURI RIVER MAIN STEM

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06185600 MISSOURI RIVER STAGE GAGE NO. 4 NEAR NOHLY, MT

LOCATION.--Lat 48°02'10", long 104°09'40", in NE¼ sec.1, T.26 N., R.58 E., Richland County, Hydrologic Unit 10060005, on right bank 4.5 mi (7.2 km) northwest of Nohly at mile 1,595.7 (kilometer 2,567.5).

DRAINAGE AREA.--93,000 mi² (241,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) above mean sea level. Prior to Apr. 18, 1962 at datum 60.00 ft (18.288 m) lower.

REMARKS.--Records good. Stage regulated by Fort Peck Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 21.20 ft (6.462 m) Mar. 23, 1960, present datum; minimum daily recorded, 6.87 ft (2.094 m) Apr. 18, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.92	12.25					---	12.60	14.01	13.23	12.43	12.49
2	12.02	12.27					---	12.56	13.97	13.13	12.40	12.51
3	12.09	12.31					---	12.52	13.90	13.06	12.38	12.51
4	12.06	12.32					---	12.49	14.35	12.89	12.42	12.51
5	12.01	12.36					13.81	12.35	14.83	13.36	12.44	12.51
6	12.00	12.40					13.85	11.79	15.37	13.55	12.44	12.50
7	12.00	12.41					13.78	11.36	15.66	13.89	12.42	12.49
8	12.02	---					13.59	11.25	15.62	14.05	12.36	12.49
9	12.03	---					13.40	11.11	15.64	14.12	12.38	12.50
10	12.05	---					13.28	11.08	15.63	13.82	12.19	12.52
11	11.94	---					13.21	11.05	15.62	13.32	12.54	12.51
12	11.95	---					13.13	11.04	16.22	13.19	12.72	12.52
13	12.04	---					13.11	10.83	16.76	13.15	12.67	12.51
14	12.14	---					13.06	10.86	17.12	13.14	12.66	12.51
15	12.21	---					13.05	10.93	16.84	13.18	12.63	12.53
16	12.28	---					12.98	11.16	16.37	13.27	12.64	12.47
17	12.28	---					12.95	11.89	16.09	13.21	12.65	12.46
18	12.31	---					12.86	12.17	16.05	13.22	12.69	12.38
19	12.39	---					12.74	12.20	15.99	13.22	12.69	12.37
20	12.42	---					12.76	12.36	15.57	13.09	12.64	12.49
21	12.38	---					12.82	13.02	15.23	12.98	12.38	12.57
22	12.34	---					12.81	13.67	14.47	12.93	12.15	12.52
23	12.32	---					12.89	13.87	13.65	12.89	12.08	12.50
24	12.28	---					12.89	13.90	13.57	12.72	12.30	12.53
25	12.28	---					12.88	13.94	13.44	12.73	12.48	12.53
26	12.26	---					12.83	13.97	13.44	12.79	12.44	12.53
27	12.23	---					12.71	13.98	13.53	12.75	12.50	12.54
28	12.16	---					12.70	13.96	13.44	12.66	12.48	12.58
29	12.16	---					12.66	13.90	13.28	12.61	12.48	12.60
30	12.23	---					12.54	13.92	13.24	12.54	12.44	12.58
31	12.25	---					---	13.98	---	12.51	12.45	---
MEAN	12.16	---					---	12.44	14.96	13.14	12.47	12.51
MAX	12.42	---					---	13.98	17.12	14.12	12.72	12.60
MIN	11.92	---					---	10.83	13.24	12.51	12.08	12.37

MISSOURI RIVER MAIN STEM

06185650 MISSOURI RIVER STAGE GAGE NO. 5 AT NOHLY, MT

LOCATION.--Lat 48°00'10", long 104°05'30", in SE¼ sec.16, T.26 N., R.59 E., Richland County, Hydrologic Unit 10060005, on downstream side of bridge 0.2 mi (0.3 km) northwest of Nohly at mile 1,587.7 (kilometer 2,554.6).

DRAINAGE AREA.--93,000 mi² (241,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,800.00 ft (548.640 m) above mean sea level.

REMARKS.--Records fair. Stage regulated by Fort Peck Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 77.22 ft (23.537 m) Mar. 15, 1972; minimum daily recorded, 59.12 ft (18.020 m) Nov. 22, 1964.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64.93	65.03			---	---	66.44	65.43	67.41	66.69	65.52	
2	64.99	65.03			---	---	66.42	65.42	67.50	66.55	65.46	
3	65.04	65.05			69.11	---	66.30	65.41	67.50	66.51	65.46	
4	65.01	65.07			69.21	---	66.04	65.38	67.65	66.45	65.46	
5	64.99	65.13			69.21	---	66.17	65.31	68.09	66.87	65.49	
6	65.00	65.15			68.65	---	66.40	64.82	68.58	67.08	65.52	
7	64.97	65.16			68.22	---	66.40	64.44	68.98	67.22	65.50	
8	64.96	---			68.42	---	66.18	64.41	69.20	67.31	65.45	
9	64.94	---			68.85	---	66.00	64.37	69.20	67.30	65.42	
10	64.97	---			69.12	---	65.82	64.33	69.20	67.10	65.26	
11	64.92	---			69.37	---	65.72	64.28	69.20	66.70	65.50	
12	64.86	---			69.38	---	65.72	64.32	69.46	66.50	65.70	
13	64.90	---			69.22	---	65.72	64.25	70.10	66.42	65.70	
14	65.01	---			69.17	---	65.70	64.31	70.60	66.42	65.68	
15	65.03	---			69.14	---	65.70	64.50	70.53	66.40	65.63	
16	65.09	---			69.19	---	65.67	64.70	70.00	66.50	65.61	
17	65.06	---			69.22	---	65.66	65.20	69.65	66.42	65.62	
18	65.10	---			69.28	---	65.62	65.68	69.50	66.38	65.64	
19	65.16	---			69.22	---	65.52	65.90	69.38	66.36	65.63	
20	65.20	---			69.15	---	65.52	65.90	69.00	66.24	65.59	
21	65.16	---			---	---	65.57	66.30	68.68	66.10	65.40	
22	65.13	---			---	---	65.57	66.97	68.04	66.06	65.17	
23	65.11	---			---	---	65.62	67.36	67.26	66.00	65.09	
24	65.05	---			---	---	65.70	67.40	67.20	65.88	65.20	
25	65.05	---			---	---	65.66	67.45	67.35	65.81	65.38	
26	65.04	---			---	---	65.62	67.46	67.42	65.90	65.36	
27	65.00	---			---	---	65.52	67.50	67.46	65.85	65.35	
28	64.96	---			---	---	65.52	67.39	67.21	65.74	65.35	
29	65.04	---			---	---	65.51	67.32	66.96	65.69	65.33	
30	64.95	---			---	---	65.40	67.29	66.80	65.62	---	
31	65.02	---			---	66.55	---	67.30	---	65.58	---	
MEAN	65.02	---		---	---	---	65.81	65.75	68.50	66.38	---	
MAX	65.20	---		---	---	---	66.44	67.50	70.60	67.31	---	
MIN	64.86	---		---	---	---	65.40	64.25	66.80	65.58	---	

YELLOWSTONE RIVER BASIN

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06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT

LOCATION.--Lat 47°40'42", long 104°09'22", in SW¼NE¼SW¼ sec.9, T.22 N., R.59 E., Richland County, Hydrologic Unit 10100004, on left bank at Montana-Dakota Utilities Company powerplant, 0.2 mi (0.3 km) downstream from bridge on State Highway 23, 2.5 mi (4.0 km) south of Sidney, 3.0 mi (4.8 km) downstream from Fox Creek, and 30 mi (48 km) upstream from mouth.

DRAINAGE AREA.--69,103 mi² (178,977 km²). Area at site 4.5 mi (7.2 km) upstream, 68,812 mi² (178,223 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1910 to September 1931 (published as "at Intake"), October 1933 to current year. If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as Yellowstone River at Glendive (1898-1910, 1931-34) can be obtained. Monthly discharge only for some periods, published in WSP 1309. Monthly figures of diversions into Lower Yellowstone Canal prior to 1951 published in WSP 1309, 1951-60 published in WSP 1729, 1961-65 published in WSP 1916, 1966-70 published in WSP 2116, and 1971 to current year are published in annual reports.

GAGE.--Water-stage recorder. Datum of gage is 1,881.3 ft (573.42 m) above mean sea level (levels by Corps of Engineers). Jan. 1, 1911, to Sept. 30, 1931, nonrecording gage at site 32 miles (51 km) upstream at different datum. Apr. 9, 1934, to May 16, 1945, water-stage recorder at two sites within 500 ft (150 m) of highway bridge 0.2 mi (0.3 km) upstream and May 17, 1945, to Apr. 3, 1952, nonrecording gage on same bridge at datum 1.36 ft (0.415 m) higher. Apr. 4, 1952, to Nov. 19, 1967, water-stage recorder at site 4.5 mi (7.2 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter periods, which are poor. Some regulation on tributary streams. Diversion for irrigation of about 1,250,000 acres (5,060 km²) above station. Lower Yellowstone Project Main Canal diverts from left bank in NW¼ sec.36, T.18 N., R.56 E., at Lower Yellowstone diversion dam at Intake about 36.6 mi (58.9 km) upstream for irrigation of about 52,000 acres (210 km²) of which about one-third lies above station.

AVERAGE DISCHARGE.--64 years, 13,170 ft³/s (373.0 m³/s), 9,543,000 acre-ft/yr (11.8 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 159,000 ft³/s (4,500 m³/s) June 2, 1921, gage height, 12.6 ft (3.84 m), site and datum then in use; maximum gage height observed, 21.85 ft (6.660 m) Mar. 22, 1947, site and datum then in use, backwater from ice; minimum discharge, 470 ft³/s (13.3 m³/s) May 17, 1961, gage height, 2.73 ft (0.832 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 49,900 ft³/s (1,413 m³/s) June 14, gage height, 13.28 ft (4.048 m); minimum daily, 3,700 ft³/s (105 m³/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9130	10300	8000	10000	12000	11000	10300	14900	38800	28800	11600	6460
2	9190	10200	7200	9000	12500	10500	10300	14300	39800	28300	11200	6310
3	9190	10100	7200	7000	12000	9000	10200	14100	39300	31600	11000	6160
4	9250	9130	8000	6000	11000	8000	10300	14900	36800	33700	11400	6040
5	9190	10300	9000	5000	9000	7000	10300	16600	35200	35900	14500	6040
6	9130	10600	10500	4500	7500	6600	10600	17700	37400	32900	16600	6010
7	9010	10500	12000	4300	6500	7000	10600	19500	41800	30800	14500	5920
8	8890	10100	11000	4200	6000	9000	10300	21100	44300	28800	12800	5890
9	9010	9250	10500	4000	6000	10000	8200	22100	44900	28600	12400	5950
10	9310	9250	10500	3700	7000	11500	7570	21900	46000	29600	11800	6340
11	9130	10100	11000	4000	9000	11500	9070	21200	44800	29400	11200	6700
12	9310	10600	11000	5000	11000	11000	10400	22100	45700	26900	10400	6970
13	9430	10600	10000	6000	13000	10500	11800	23600	46400	26200	9930	7150
14	9720	10300	9000	7000	14500	10000	12100	25100	48600	25500	9430	7210
15	9660	10200	8500	10000	14500	10000	12400	27000	47500	24200	8980	7360
16	9720	10200	7500	11000	14000	10500	12600	25800	45500	23400	8650	7570
17	9900	10400	7000	12000	13500	11000	13500	27100	45400	22100	8440	7840
18	9950	10400	6500	12000	13000	11000	13600	31600	40000	20600	8170	7960
19	9950	9950	7000	13000	12500	11500	13400	31400	36800	18600	7870	7840
20	9840	10100	7500	14000	11500	12000	13800	29500	38000	17300	7570	7720
21	9780	10400	8000	15000	11000	12500	13400	31000	37100	16700	7300	7660
22	9840	10600	8500	14000	10500	13000	12800	35400	34800	17600	7000	7870
23	9950	9800	9000	13000	10500	14000	12300	37000	35200	17700	6700	8140
24	10800	9600	10000	12000	10500	14000	12500	37200	40000	16500	6700	8290
25	10900	9200	11000	11000	10500	14000	12100	38600	43300	15700	6850	8410
26	11300	9000	11500	11000	10500	11000	12000	39200	43700	15000	6550	8440
27	11200	8600	12000	11000	11000	10800	11800	37700	40300	13700	6370	8230
28	11000	8400	13000	10800	11000	10700	11900	37100	36100	13100	6310	8500
29	10300	8200	12500	10500	11000	10700	12700	36100	33200	12600	6400	9220
30	10100	7600	12000	11000	---	10500	14200	34400	30800	12200	6460	9310
31	10300	---	11000	11500	---	10500	---	35600	---	11900	6430	---
TOTAL	303380	293980	297400	282500	312500	330300	347040	840800	1217500	705900	291510	219510
MEAN	9786	9799	9594	9113	10780	10650	11570	27120	40580	22770	9404	7317
MAX	11300	10600	13000	15000	14500	14000	14200	39200	48600	35900	16600	9310
MIN	8890	7600	6500	3700	6000	6600	7570	14100	30800	11900	6310	5890
AC-FT	601800	583100	589900	560300	619800	655100	688400	1668000	2415000	1400000	578200	435400
CAL YR 1975 TOTAL	6612370			18120	MAX 76300	MIN 3000	AC-FT 13120000					
WTR YR 1976 TOTAL	5442320			14870	MAX 48600	MIN 3700	AC-FT 10790000					

† Diversions, in acre-feet, by Lower Yellowstone Canal, furnished by Bureau of Reclamation.

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1951 to current year.

WATER TEMPERATURES: January 1951 to current year.

SUSPENDED SEDIMENT DISCHARGE: July 1972 to current year.

INSTRUMENTATION.--Temperature recorder April to November 1974, May to September 1975.

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months. Many reservoirs and diversions for irrigation upstream from station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,780 micromhos Jan. 14, 1951; minimum daily, 193 micromhos Aug. 15, 1964.

WATER TEMPERATURES: Maximum daily, 29.0°C July 23, 1960; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 26,800 mg/L May 8, 1975; minimum daily mean, 8 mg/L Jan. 9, 1973.

SEDIMENT LOADS: Maximum daily, 3,030,000 tons (2,750,000 tonnes) May 8, 1975; minimum daily, 130 tons (118 tonnes) Jan. 9, 1975.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 949 micromhos May 3; minimum daily, 303 micromhos July 7, 14.

WATER TEMPERATURES: Maximum daily, 24.0°C July 10, 25; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,930 mg/L June 8; minimum daily mean, 15 mg/L Jan. 11.

SEDIMENT LOADS: Maximum daily, 350,000 tons (318,000 tonnes) June 8; minimum daily, 162 tons (147 tonnes) Jan. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AIR TEMPERATURE (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)
OCT											
08...	1500	9010	720	8.7	5.0	11.5	4	9.6	95	9	--
28...	1600	11100	750	8.5	7.0	5.5	50	11.3	96	13	1.3
NOV											
12...	1230	10600	700	8.4	4.5	3.0	15	11.5	93	8	--
25...	1500	8600	700	8.7	-14.0	.5	4	11.8	88	4	.8
DEC											
11...	1430	11500	735	8.4	-18.0	1.5	8	10.6	82	9	--
30...	1430	12600	760	8.6	7.0	.5	9	10.4	78	38	.1
JAN											
14...	1200	6500	930	8.2	-15.0	.0	8	11.6	86	6	--
28...	1200	10800	755	8.3	3.0	.5	7	11.0	82	6	1.4
FEB											
10...	1100	8800	850	8.1	-4.0	.5	15	11.4	85	13	--
25...	1400	11000	780	8.3	12.0	.5	45	11.1	83	18	.1
MAR											
10...	0930	9600	940	8.2	.0	1.0	35	11.4	86	14	--
25...	1330	13200	850	8.5	4.5	3.0	190	8.9	72	37	2.1
APR											
14...	1300	12100	835	8.6	7.0	13.5	40	9.1	94	9	--
27...	1400	12100	850	9.0	10.0	11.0	90	8.3	81	21	--
MAY											
13...	1100	23600	622	8.4	12.0	13.0	110	9.2	94	34	--
27...	1500	37600	370	8.0	20.5	17.0	250	8.5	94	--	.4
JUN											
09...	1430	44400	380	8.2	26.5	22.0	--	7.6	93	--	--
29...	1400	33300	425	8.2	23.0	17.0	400	8.2	91	--	.3
JUL											
14...	1000	25500	330	8.2	26.0	22.5	95	7.2	81	--	--
27...	1200	13800	400	8.3	23.5	23.5	35	6.8	86	15	1.4
AUG											
10...	1400	11900	540	8.0	25.0	22.5	190	7.0	86	--	--
31...	1200	6440	575	8.2	17.5	20.0	10	7.9	93	--	--
SEP											
13...	1430	7150	640	8.1	19.5	18.0	8	8.4	94	--	--
30...	1230	9300	610	8.3	22.0	15.0	7	10.0	106	--	2.0

YELLOWSTONE RIVER BASIN

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	FECAL STREP- TOCOC KF AGAR (COL. PER 100 ML)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
OCT										
08...	28	27	30	--	--	--	--	--	--	--
28...	--	96	66	230	73	57	22	66	1.9	3.9
NOV										
12...	22	8	14	--	--	--	--	--	--	--
25...	20	15	<1	240	72	59	22	63	1.8	3.5
DEC										
11...	6	2	2	--	--	--	--	--	--	--
30...	12	16	12	270	82	69	24	68	1.8	3.4
JAN										
14...	28	4	14	--	--	--	--	--	--	--
28...	22	6	9	240	80	60	22	62	1.7	3.6
FEB										
10...	22	4	160	--	--	--	--	--	--	--
25...	15	<1	25	240	85	58	23	72	2.0	3.6
MAR										
10...	28	8	43	--	--	--	--	--	--	--
25...	330	7	80	260	96	63	26	80	2.1	3.9
APR										
14...	8	4	10	--	--	--	--	--	--	--
27...	16	12	12	280	100	66	27	80	2.1	3.9
MAY										
13...	210	120	--	--	--	--	--	--	--	--
27...	1760	340	240	140	38	36	11	25	.9	2.1
JUN										
09...	--	510	460	--	--	--	--	--	--	--
29...	540	280	360	150	55	38	13	31	1.1	2.3
JUL										
14...	73	66	87	--	--	--	--	--	--	--
27...	80	24	33	130	31	34	12	32	1.2	2.6
AUG										
10...	190	140	190	--	--	--	--	--	--	--
31...	37	8	40	200	52	49	18	51	1.6	3.5
SEP										
13...	20	6	42	--	--	--	--	--	--	--
30...	84	93	64	210	50	48	21	49	1.5	3.7

DATE	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT										
08...	--	--	149	--	--	--	--	--	454	--
28...	195	0	160	1.0	190	13	.4	9.2	476	458
NOV										
12...	--	--	144	--	--	--	--	--	456	--
25...	198	2	166	.6	200	10	.4	9.5	468	467
DEC										
11...	--	--	150	--	--	--	--	--	466	--
30...	220	5	189	.9	210	11	.4	10	506	509
JAN										
14...	--	--	200	--	--	--	--	--	650	--
28...	196	0	161	1.6	190	11	.4	10	476	456
FEB										
10...	--	--	168	--	--	--	--	--	524	--
25...	189	0	155	1.5	220	14	.4	9.1	523	493
MAR										
10...	--	--	185	--	--	--	--	--	642	--
25...	201	2	168	1.0	230	18	.4	8.7	574	531
APR										
14...	--	--	162	--	--	--	--	--	548	--
27...	208	3	176	.3	240	17	.4	9.5	575	550
MAY										
13...	--	--	153	--	--	--	--	--	398	--
27...	118	0	97	1.9	83	6.2	.1	12	227	234
JUN										
09...	--	--	83	--	--	--	--	--	--	--
29...	114	0	94	1.2	140	5.6	.2	11	274	297
JUL										
14...	--	--	77	--	--	--	--	--	208	--
27...	126	0	103	1.0	97	6.1	.4	9.3	251	256
AUG										
10...	--	--	109	--	--	--	--	--	347	--
31...	176	0	144	1.8	140	8.4	.4	8.3	358	366
SEP										
13...	--	--	120	--	--	--	--	--	407	--
30...	191	0	157	1.5	130	6.6	.4	8.0	352	361

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	SUS- PENDE SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)
OCT										
08...	.62	11000	60	.02	.55	.57	.59	.03	--	--
28...	.65	14300	160	.21	1.0	1.1	1.3	.10	--	--
NOV										
12...	.62	13100	29	.08	.34	.38	.46	.04	--	--
25...	.64	10900	2	.19	.68	.71	.90	.01	--	--
DEC										
11...	.63	14500	15	.59	.49	.51	1.1	.02	--	--
30...	.69	17200	26	.41	.24	.26	.67	.02	450	--
JAN										
14...	.88	11400	21	.47	.34	.42	.89	.06	--	--
28...	.65	13900	10	.51	.50	.56	1.1	.01	--	--
FEB										
10...	.71	12500	24	.41	.89	.98	1.4	.06	--	--
25...	.71	15500	144	.39	.47	.51	.90	.10	--	--
MAR										
10...	.87	16600	70	.49	.53	.61	1.1	.09	--	--
25...	.78	20500	823	.41	1.8	1.8	2.2	.70	13000	10
APR										
14...	.75	17900	128	.01	.63	.63	.64	.28	--	--
27...	.78	18800	250	.30	.76	.76	1.1	.16	--	--
MAY										
13...	.54	25400	450	.47	1.3	1.3	1.8	.33	--	--
27...	.31	23000	675	.19	1.2	1.2	1.4	.34	--	--
JUN										
09...	--	--	7	.19	1.6	1.6	1.8	.73	--	--
29...	.37	24600	122	.20	.68	.70	.90	.42	11000	--
JUL										
14...	.28	14300	254	.09	.40	.48	.57	.23	--	--
27...	.34	9350	67	.00	.62	.62	.62	.12	--	--
AUG										
10...	.47	11100	399	.34	.68	.68	1.0	.23	--	--
31...	.49	6230	27	.00	.24	.24	.24	.06	--	--
SEP										
13...	.55	7860	30	.03	.23	.23	.26	.03	--	--
30...	.48	8840	29	.00	.49	.49	.49	.04	400	10

DATE	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)
OCT										
08...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	150	--	--	--	--	--
NOV										
12...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	150	--	--	--	--	--
DEC										
11...	--	--	--	--	--	--	--	--	--	--
30...	4	--	10	--	140	<10	--	30	--	20
JAN										
14...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	120	--	--	--	--	--
FEB										
10...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	140	--	--	--	--	--
MAR										
10...	--	--	--	--	--	--	--	--	--	--
25...	17	2	10	0	100	<10	1	40	0	40
APR										
14...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	150	--	--	--	--	--
MAY										
13...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	60	--	--	--	--	--
JUN										
09...	--	--	--	--	--	--	--	--	--	--
29...	18	--	0	--	70	0	--	20	--	50
JUL										
14...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	100	--	--	--	--	--
AUG										
10...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	150	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
30...	6	6	--	0	140	<10	0	0	0	<10

YELLOWSTONE RIVER BASIN

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)
OCT										
08...	--	--	--	--	--	--	--	--	--	--
28...	--	--	40	--	--	--	--	--	--	--
NOV										
12...	--	--	--	--	--	--	--	--	--	--
25...	--	--	0	--	--	--	--	--	--	--
DEC										
11...	--	--	--	--	--	--	--	--	--	--
30...	--	670	20	<100	--	30	--	20	--	.0
JAN										
14...	--	--	--	--	--	--	--	--	--	--
28...	--	--	30	--	--	--	--	--	--	--
FEB										
10...	--	--	--	--	--	--	--	--	--	--
25...	--	--	30	--	--	--	--	--	--	--
MAR										
10...	--	--	--	--	--	--	--	--	--	--
25...	2	24000	0	<100	3	60	40	600	10	.0
APR										
14...	--	--	--	--	--	--	--	--	--	--
27...	--	--	30	--	--	--	--	--	--	--
MAY										
13...	--	--	--	--	--	--	--	--	--	--
27...	--	--	50	--	--	--	--	--	--	--
JUN										
09...	--	--	--	--	--	--	--	--	--	--
29...	--	21000	30	31	--	20	--	410	--	<.5
JUL										
14...	--	--	--	--	--	--	--	--	--	--
27...	--	--	20	--	--	--	--	--	--	--
AUG										
10...	--	--	--	--	--	--	--	--	--	--
31...	--	--	10	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
30...	1	630	10	<100	2	40	40	30	0	.0

DATE	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT									
08...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
NOV									
12...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
11...	--	--	--	--	--	--	--	--	--
30...	--	--	--	<50	--	2	--	--	40
JAN									
14...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
FEB									
10...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
MAR									
10...	--	--	--	--	--	--	--	--	--
25...	.0	2	2	<50	2	2	2	.8	90
APR									
14...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
MAY									
13...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUN									
09...	--	--	--	--	--	--	--	--	--
29...	--	2	--	49	--	0	--	--	90
JUL									
14...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
AUG									
10...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	--	--	--
30...	.0	2	0	<50	3	1	1	2.3	30

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDED ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	TOTAL ATRA- ZINE (UG/L)	TOTAL CHLOR- DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)
OCT									
08...	--	4.7	--	--	--	--	--	--	--
28...	--	4.6	--	--	--	--	--	--	--
NOV									
12...	--	2.3	--	--	--	--	--	--	--
25...	--	3.9	--	--	--	--	--	--	--
DEC									
11...	--	11	--	--	--	--	--	--	--
30...	--	--	9.2	.2	ND	ND	ND	ND	ND
JAN									
14...	--	3.9	--	--	--	--	--	--	--
28...	--	2.0	--	--	--	--	--	--	--
FEB									
10...	--	6.7	--	--	--	--	--	--	--
25...	--	12	--	--	--	--	--	--	--
MAR									
10...	--	4.9	--	--	--	--	--	--	--
25...	10	11	--	.5	ND	ND	ND	ND	ND
APR									
14...	--	5.6	--	--	--	--	--	--	--
27...	--	4.6	--	--	--	--	--	--	--
MAY									
13...	--	10	--	--	--	--	--	--	--
27...	--	9.9	--	--	--	--	--	--	--
JUN									
09...	--	12	--	--	--	--	--	--	--
29...	--	--	5.8	7.8	ND	ND	ND	ND	ND
JUL									
14...	--	7.2	--	--	--	--	--	--	--
27...	--	10	--	--	--	--	--	--	--
AUG									
10...	--	15	--	--	ND	ND	ND	ND	ND
31...	--	7.8	--	--	--	--	--	--	--
SEP									
13...	--	24	--	--	--	--	--	--	--
30...	0	--	4.2	--	--	--	--	--	--

DATE	TOTAL DDT (UG/L)	TOTAL D1- AZINON (UG/L)	TOTAL D1- ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA- THION (UG/L)
OCT									
08...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
NOV									
12...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
11...	--	--	--	--	--	--	--	--	--
30...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN									
14...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
FEB									
10...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
MAR									
10...	--	--	--	--	--	--	--	--	--
25...	ND	ND	ND	ND	ND	ND	ND	ND	ND
APR									
14...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
MAY									
13...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUN									
09...	--	--	--	--	--	--	--	--	--
29...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL									
14...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
AUG									
10...	ND	ND	ND	ND	ND	ND	ND	ND	ND
31...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

YELLOWSTONE RIVER BASIN

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06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL METH- OXY- CHLOR (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)	SIMA- ZINE TOTAL (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUS- PENDE SEDI- MENT (MG/L)
OCT											
28...	--	--	--	--	--	--	--	--	--	--	151
NOV											
12...	--	--	--	--	--	--	--	--	--	--	72
DEC											
30...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	--
JAN											
14...	--	--	--	--	--	--	--	--	--	--	51
28...	--	--	--	--	--	--	--	--	--	--	27
FEB											
10...	--	--	--	--	--	--	--	--	--	--	178
MAR											
25...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	2000
APR											
14...	--	--	--	--	--	--	--	--	--	--	362
27...	--	--	--	--	--	--	--	--	--	--	509
MAY											
13...	--	--	--	--	--	--	--	--	--	--	1110
27...	--	--	--	--	--	--	--	--	--	--	1070
JUN											
09...	--	--	--	--	--	--	--	--	--	--	2450
29...	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	1060
JUL											
14...	--	--	--	--	--	--	--	--	--	--	302
27...	--	--	--	--	--	--	--	--	--	--	307
AUG											
10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	412
31...	--	--	--	--	--	--	--	--	--	--	49
SEP											
13...	--	--	--	--	--	--	--	--	--	--	45
30...	--	--	--	--	--	--	--	--	--	--	--

DATE	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	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	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .004 MM
OCT										
28...	4530	--	--	--	--	--	--	--	78	--
NOV										
12...	2060	--	--	--	--	--	--	--	42	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
JAN										
14...	895	--	--	--	--	--	--	--	57	--
28...	787	--	--	--	--	--	--	--	49	--
FEB										
10...	4230	--	--	--	--	--	--	--	25	--
MAR										
25...	71300	--	--	--	--	--	--	--	78	--
APR										
14...	11800	--	--	--	--	--	--	--	39	--
27...	16600	--	--	--	--	--	--	--	48	--
MAY										
13...	70700	--	--	--	--	--	--	--	60	--
27...	109000	34	49	76	88	99	99	100	--	7
JUN										
09...	294000	28	40	92	97	100	--	--	--	--
29...	95300	55	80	93	99	100	--	--	--	--
JUL										
14...	20800	47	69	86	97	100	--	--	--	--
27...	11400	--	--	--	--	--	--	--	38	--
AUG										
10...	13200	62	81	91	97	100	--	--	--	--
31...	852	--	--	--	--	--	--	--	74	--
SEP										
13...	869	--	--	--	--	--	--	--	69	--
30...	--	--	--	--	--	--	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM	BED MAT. FALL DIAM. % FINER THAN 64.0 MM
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
12...	0	13	99	100	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
JAN										
14...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
FEB										
10...	0	0	2	4	7	8	9	18	51	100
MAR										
25...	--	--	--	--	--	--	--	--	--	--
APR										
14...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	--	--	--	--	--	--	--	--	--	--
27...	51	81	95	97	97	98	99	--	--	--
JUN										
09...	--	--	--	--	--	--	--	--	--	--
29...	0	1	3	4	4	5	6	21	33	100
JUL										
14...	--	--	--	--	--	--	--	--	--	--
27...	0	11	96	100	--	--	--	--	--	--
AUG										
10...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
30...	1	14	97	100	--	--	--	--	--	--

YELLOWSTONE RIVER BASIN

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06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	684	699	758	722	764	760	891	831	400	410	420	582
2	681	701	767	719	748	769	894	852	363	417	428	579
3	687	705	772	731	731	791	893	949	362	418	438	585
4	689	709	776	738	718	810	893	939	360	413	446	584
5	689	710	784	758	707	831	893	902	381	408	442	590
6	702	674	799	772	704	858	889	852	389	318	440	597
7	691	706	810	790	708	889	882	802	400	303	458	602
8	689	713	791	817	727	911	878	758	429	321	443	609
9	691	715	741	839	749	931	872	698	372	335	443	610
10	702	720	721	858	767	919	891	661	359	319	525	612
11	715	710	712	877	797	903	903	641	361	388	528	610
12	731	685	727	895	816	885	849	649	358	366	519	607
13	737	710	710	902	800	865	838	639	340	330	528	607
14	725	729	718	930	772	840	828	610	327	335	529	612
15	739	736	737	940	740	818	809	582	355	328	521	609
16	750	715	752	908	719	829	787	542	391	330	518	599
17	750	719	770	874	676	840	782	532	389	333	525	600
18	750	700	808	841	660	840	771	545	394	338	529	599
19	745	701	808	803	662	812	786	519	469	367	532	600
20	739	704	798	770	668	801	800	484	477	380	535	592
21	742	715	771	740	682	860	775	472	469	371	538	584
22	739	694	---	722	702	881	801	463	491	392	541	581
23	735	702	829	709	727	872	858	406	477	378	549	585
24	739	698	843	695	754	861	860	384	432	370	557	592
25	760	684	830	699	768	840	851	375	382	386	559	584
26	776	707	835	709	765	868	832	378	368	386	559	571
27	770	724	818	708	759	870	839	378	409	400	565	570
28	773	734	798	713	760	880	848	372	428	407	569	574
29	758	748	779	724	770	887	829	380	430	399	569	569
30	762	741	772	739	---	889	800	382	410	402	568	560
31	770	---	768	748	---	885	---	391	---	410	577	---
MONTH	729	710	777	787	735	855	844	593	399	370	513	592

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	5.0	0.0	0.0	1.0	1.0	9.0	9.0	18.5	19.0	22.0	20.0
2	12.5	7.0	0.0	0.0	1.0	1.0	9.0	9.0	20.0	20.0	22.0	20.0
3	13.5	7.0	0.0	0.0	0.5	0.0	5.0	9.0	20.0	19.5	22.0	18.0
4	14.0	8.0	0.0	0.0	0.0	0.0	7.0	11.0	20.0	20.0	22.0	19.0
5	13.0	8.0	0.0	0.0	0.0	0.0	8.0	11.0	20.0	22.0	22.0	19.5
6	13.0	8.0	0.0	0.0	0.0	0.0	9.0	12.0	21.0	23.0	20.0	20.0
7	14.0	7.5	0.0	0.0	0.0	0.5	9.0	12.0	21.0	23.0	21.0	19.0
8	12.5	7.0	0.0	0.0	0.0	1.0	10.0	14.0	21.0	23.0	21.5	17.0
9	10.0	5.5	0.0	0.0	1.0	1.5	12.0	16.0	21.0	23.5	22.0	16.0
10	8.5	4.0	0.0	0.0	1.0	1.5	12.0	16.0	21.5	24.0	21.0	15.0
11	8.0	3.5	0.0	0.0	1.0	1.5	11.0	17.0	22.0	23.0	21.0	16.5
12	8.5	2.5	0.0	0.0	1.0	1.0	12.0	15.0	20.0	23.0	22.0	18.0
13	9.0	1.5	0.0	0.0	1.0	1.0	14.0	15.0	19.0	23.0	22.0	16.0
14	7.5	2.0	0.0	0.0	1.0	1.0	14.0	15.0	18.0	23.0	22.0	16.0
15	7.0	3.0	0.0	0.0	1.0	1.0	15.0	15.0	15.0	22.0	21.5	17.0
16	8.0	3.5	0.0	0.0	1.0	1.0	13.0	16.0	15.5	20.5	22.0	17.0
17	8.0	4.5	0.0	0.0	1.0	1.5	9.0	16.0	15.0	21.5	23.0	19.0
18	9.0	4.5	0.0	0.0	1.0	1.5	8.0	17.0	13.5	23.0	22.0	20.0
19	9.0	4.0	0.0	0.0	1.0	1.5	9.0	17.5	15.0	22.5	22.0	19.0
20	9.5	2.5	0.0	0.5	1.0	1.5	9.0	17.5	17.5	23.0	22.0	16.0
21	10.0	1.5	0.0	0.5	1.0	1.5	10.0	17.5	18.0	23.0	22.0	16.0
22	10.0	1.0	---	0.5	1.0	1.5	10.0	17.5	18.0	23.0	22.0	16.0
23	8.0	0.0	0.0	0.5	1.0	1.5	10.0	18.0	19.0	23.0	22.0	15.0
24	7.0	0.0	0.0	0.5	1.0	1.5	9.0	18.0	17.0	23.5	22.0	15.0
25	6.0	0.0	0.5	0.0	1.0	2.0	9.0	17.5	16.5	24.0	21.0	15.0
26	7.0	0.0	0.5	0.0	1.5	3.5	9.0	16.0	15.0	23.0	21.0	15.0
27	6.0	0.0	0.5	0.0	1.5	5.0	9.5	14.0	15.0	23.0	19.0	13.0
28	5.0	0.0	0.5	0.5	1.5	7.5	9.0	17.0	16.0	21.0	19.0	12.0
29	5.0	0.0	0.5	1.0	1.0	7.5	8.5	17.0	16.5	21.5	18.5	13.0
30	5.0	0.0	0.5	0.5	---	8.0	8.5	17.0	18.0	21.0	19.0	15.0
31	5.5	---	0.5	0.5	---	8.0	---	18.0	---	21.0	19.0	---
MONTH	9.0	3.5	0.0	0.0	1.0	2.0	10.0	15.0	18.0	22.0	21.5	17.0

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	9130	56	1380	10300	129	3590	8000	139	3000
2	9190	54	1340	10200	116	3190	7200	148	2880
3	9190	49	1220	10100	109	2970	7200	160	3110
4	9250	44	1100	9130	87	2140	8000	159	3430
5	9190	41	1020	10300	133	3700	9000	144	3500
6	9130	45	1110	10600	149	4260	10500	124	3520
7	9010	51	1240	10500	119	3370	12000	103	3340
8	8890	50	1200	10100	99	2700	11000	101	3000
9	9010	45	1090	9250	96	2400	10500	110	3120
10	9310	43	1080	9250	99	2470	10500	127	3600
11	9130	109	2690	10100	105	2860	11000	143	4250
12	9310	118	2970	10600	78	2230	11000	156	4630
13	9430	141	3590	10600	92	2630	10000	161	4350
14	9720	178	4670	10300	100	2780	9000	150	3650
15	9660	224	5840	10200	56	1540	8500	129	2960
16	9720	277	7270	10200	42	1160	7500	111	2250
17	9900	246	6580	10400	64	1800	7000	101	1910
18	9950	110	2960	10400	78	2190	6500	108	1900
19	9950	50	1340	9950	74	1990	7000	122	2310
20	9840	64	1700	10100	72	1960	7500	115	2330
21	9780	91	2400	10400	86	2410	8000	99	2140
22	9840	94	2500	10600	78	2230	8500	78	1790
23	9950	79	2120	9800	29	767	9000	55	1340
24	10800	151	4400	9600	23	596	10000	36	972
25	10900	407	12000	9200	76	1890	11000	29	861
26	11300	433	13200	9000	130	3160	11500	33	1020
27	11200	317	9590	8600	159	3690	12000	42	1360
28	11000	238	7070	8400	159	3610	13000	54	1900
29	10300	165	4590	8200	147	3250	12500	73	2460
30	10100	146	3980	7600	137	2810	12000	226	7320
31	10300	151	4200	---	---	---	11000	288	8550
TOTAL	303380	---	117440	293980	---	76343	297400	---	92753

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	10000	210	5670	12000	80	2590	11000	214	6360
2	9000	154	3740	12500	106	3580	10500	203	5760
3	7000	125	2360	12000	122	3950	9000	182	4420
4	6000	107	1730	11000	121	3590	8000	144	3110
5	5000	89	1200	9000	110	2670	7000	110	2080
6	4500	71	863	7500	94	1900	6600	99	1760
7	4300	55	639	6500	75	1320	7000	105	1980
8	4200	40	454	6000	53	859	9000	120	2920
9	4000	28	302	6000	39	632	10000	138	3730
10	3700	19	190	7000	175	3310	11500	158	4910
11	4000	15	162	9000	285	6930	11500	182	5650
12	5000	17	229	11000	334	9920	11000	207	6150
13	6000	29	470	13000	372	13100	10500	233	6610
14	7000	51	964	14500	406	15900	10000	265	7150
15	10000	67	1810	14500	442	17300	10000	300	8100
16	11000	74	2200	14000	507	19200	10500	343	9720
17	12000	76	2460	13500	493	18000	11000	393	11700
18	12000	75	2430	13000	432	15200	11000	458	13600
19	13000	74	2600	12500	354	11900	11500	610	18900
20	14000	71	2680	11500	287	8910	12000	1010	32700
21	15000	68	2750	11000	235	6980	12500	1000	33800
22	14000	64	2420	10500	189	5360	13000	1070	37600
23	13000	59	2070	10500	171	4850	14000	1750	66100
24	12000	53	1720	10500	170	4820	14000	1770	66900
25	11000	48	1430	10500	177	5020	14000	1900	71800
26	11000	46	1370	10500	192	5440	11000	1260	37400
27	11000	40	1190	11000	208	6180	10800	575	16800
28	10800	27	787	11000	217	6440	10700	402	11600
29	10500	38	1080	11000	218	6470	10700	330	9530
30	11000	40	1190	---	---	---	10500	295	8360
31	11500	56	1740	---	---	---	10500	299	8480
TOTAL	282500	---	50900	312500	---	212321	330300	---	525680

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SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	10300	320	8900	14900	569	22900	38800	1000	105000
2	10300	322	8950	14300	620	23900	39800	975	105000
3	10200	280	7710	14100	567	21600	39300	865	91800
4	10300	220	6120	14900	585	23500	36800	820	81500
5	10300	179	4980	16600	747	33500	35200	1010	96000
6	10600	170	4870	17700	928	44300	37400	1040	105000
7	10600	182	5210	19500	1120	59000	41800	1650	186000
8	10300	202	5620	21100	1410	80300	44300	2930	350000
9	8200	225	4980	22100	1300	77600	44900	2180	264000
10	7570	249	5090	21900	995	58800	46000	1470	183000
11	9070	284	6950	21200	838	48000	44800	1140	138000
12	10400	345	9690	22100	850	50700	45700	1080	133000
13	11800	384	12200	23600	1070	68200	46400	990	124000
14	12100	366	12000	25100	1140	77300	48600	1440	189000
15	12400	379	12700	27000	1250	91100	47500	2270	291000
16	12600	481	16400	25800	1100	76600	45500	1800	221000
17	13500	615	22400	27100	950	69500	45400	1670	205000
18	13600	735	27000	31600	1390	119000	40000	1500	162000
19	13400	787	28500	31400	1300	110000	36800	1410	140000
20	13800	712	26500	29500	930	74100	38000	1180	121000
21	13400	670	24200	31000	860	72000	37100	1060	106000
22	12800	615	21300	35400	1170	112000	34800	1380	130000
23	12300	506	16800	37000	1360	136000	35200	1240	118000
24	12500	489	16500	37200	1140	115000	40000	1210	131000
25	12100	596	19500	38600	1070	112000	43300	1160	136000
26	12000	591	19100	39200	1190	126000	43700	1050	124000
27	11800	441	14100	37700	1090	111000	40300	1070	116000
28	11900	359	11500	37100	865	86600	36100	1090	106000
29	12700	348	11900	36100	800	78000	33200	1060	95000
30	14200	409	15700	34400	745	69200	30800	900	74800
31	---	---	---	35600	828	79600	---	---	---
TOTAL	347040	---	407370	840800	---	2327300	1217500	---	4428100

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	28800	626	48700	11600	163	5110	6460	61	1060			
2	28300	530	40500	11200	183	5530	6310	69	1180			
3	31600	915	78100	11000	182	5410	6160	74	1230			
4	33700	872	79300	11400	195	6000	6040	69	1130			
5	35900	1010	97900	14500	604	23600	6040	56	913			
6	32900	679	60300	16600	981	44000	6010	44	714			
7	30800	474	39400	14500	913	35700	5920	34	543			
8	28800	520	40400	12800	748	25900	5890	30	477			
9	28600	512	39500	12400	531	17800	5950	31	498			
10	29600	1050	83900	11800	416	13300	6340	33	565			
11	29400	1860	148000	11200	440	13300	6700	35	633			
12	26900	890	64600	10400	476	13400	6970	38	715			
13	26200	542	38300	9930	478	12800	7150	40	772			
14	25500	401	27600	9430	485	12300	7210	41	798			
15	24200	400	26100	8980	518	12600	7360	41	815			
16	23400	415	26200	8650	511	11900	7570	44	899			
17	22100	325	19400	8440	436	9940	7840	49	1040			
18	20600	340	18900	8170	336	7410	7960	53	1140			
19	18600	383	19200	7870	225	4780	7840	54	1140			
20	17300	397	18500	7570	156	3190	7720	51	1060			
21	16700	418	18800	7300	128	2520	7660	45	931			
22	17600	501	23800	7000	119	2250	7870	41	871			
23	17700	485	23200	6700	116	2100	8140	41	901			
24	16500	324	14400	6700	117	2120	8290	53	1190			
25	15700	225	9540	6850	113	2090	8410	80	1820			
26	15000	225	9110	6550	105	1860	8440	99	2260			
27	13700	116	4290	6370	95	1630	8230	106	2360			
28	13100	209	7390	6310	84	1430	8500	106	2430			
29	12600	261	8880	6400	69	1190	9220	105	2610			
30	12200	219	7210	6460	52	907	9310	106	2660			
31	11900	168	5400	6430	53	920	---	---	---			
TOTAL	705900	---	1146820	291510	---	302987	219510	---	35355			
YEAR	5442320		9723369									

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 28, 1975
1600 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,800 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		200	3	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS				
	TOTALS	<u>400</u> 600	<u>6</u> 9	0.918=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		790	12	
...PENNIALES	PENNATE			
...ACHNANTHACEAE				
....ACHNANTHES		200	3	
...COCCONEIS		200	3	
...CYMBELLACEAE				
D ...CYMBELLA		990	15	
...DIATOMACEAE				
...DIATOMA		200	3	
...NAVICULACEAE	NAVICULOID			
...FRUSTULIA		200	3	
D ...NAVICULA		990	15	
...NITZSCHIAEAE				
DNITZSCHIA		<u>2,600</u> 6,200	<u>38</u> 92	2.395=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.431
 CLASS 0.431
 ORDER 1.017
 FAMILY 2.522
 GENERA 2.696

YELLOWSTONE RIVER BASIN

273

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 25, 1975
1500 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1.700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...SCENEDESMACEAE				
L ...SCENEDESMUS			0	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS				
	TOTALS	65	4	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		200	12	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
D ...ACHNANTHES		260	15	
...COCCONEIS		130	8	
...CYMBELLACEAE				
...CYMBELLA		65	4	
...DIATOMACEAE				
L ...DIATOMA			0	
...GOMPHONEMACEAE				
...GOMPHONEMA		130	8	
...NAVICULACEAE	NAVICULOID			
D ...NAVICULA		390	23	
...NITZSCHIAEAE				
D ...NITZSCHIA				
	TOTALS	1,600	93	2.594=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDAE				
...CRYPTOMONODACEAE				
...CRYPTOMONAS				
	TOTALS	65	4	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.468
 CLASS 0.468
 ORDER 0.970
 FAMILY 2.651
 GENERA 2.863

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 30, 1975
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

320 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
...SCENEDESMACEAE			
LSCENEDESMUS			0
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
...CYCLOTELLA		38	12
..PENNALES	PENNATE		
...ACHNANTHACEAE			
...ACHNANTHES		10	3
LCOCCONEIS			0
...RHOICOSPHENIA		10	3
...CYMBELLACEAE			
...CYMBELLA		10	3
...DIATOMACEAE			
...DIATOMA		10	3
...FRAGILARIACEAE			
...SYNEDRA		29	9
...GOMPHONEMATACEAE			
...GOMPHONEMA		29	9
...NAVICULACEAE	NAVICULOID		
DNAVICULA		120	39
...NITZSCHACEAE			
DNITZSCHIA			
TOTALS		320	99

2.586=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.533
 FAMILY 2.525
 GENERA 2.586

YELLOWSTONE RIVER BASIN

275

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 28, 1976

1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

260 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
L ...CHLAMYDOMONAS			0	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE		7	3	
...CYCLOTELLA				
..PENNALES	PENNATE			
...ACHNANTHACEAE		14	5	
...ACHNANTHES		14	5	
...COCCONEIS				
...CYMBELLACEAE				
D ...CYMBELLA		48	18	
...DIATOMACEAE				
...DIATOMA		34	13	
...FRAGILARIACEAE				
...SYNEURA		7	3	
...GOMPHONEMACEAE		27	11	
...GOMPHONEMA				
...MERIDIONACEAE		7	3	
...MERIDION				
...NAVICULACEAE	NAVICULOID			
D ...NAVICULA		68	26	
...NITZSCHIACEAE				
...NITZSCHIA		14	5	
...SURIACEAE				
...CYMATOPLEURA		7	3	
...SURIELLA		7	3	
	TOTALS	250	98	3.088=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
...EUGLENA				
	TOTALS	7	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 15%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.176
 CLASS 0.176
 ORDER 0.350
 FAMILY 3.025
 GENERA 3.183

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 25, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,900 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS				
	TOTALS	210	11	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		150	8	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
....COCCONEIS		51	3	
...CYMBELLACEAE				
....CYMBELLA		260	13	
...DIATOMACEAE				
....DIATOMA		150	8	
...FRAGILARIACEAE				
L ...SYNEDRA			0	
...GOMPHONEMACEAE				
....GOMPHONEIS		51	3	
...GOMPHONEMA		150	8	
...NAVICULACEAE	NAVICULOID			
....CALONEIS		51	3	
D ...NAVICULA		770	39	
...NITZSCHACEAE				
....NITZSCHIA		51	3	
...SURIRELLACEAE				
....SURIRELLA		51	3	
	TOTALS	1,700	91	2.603=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
....OSCILLATORIA			0	
L ...OSCILLATORIA				
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
....EUGLENACEAE				
LTRACHELOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.485

CLASS 0.485

ORDER 0.871

FAMILY 2.587

GENERA 2.814

YELLOWSTONE RIVER BASIN

277

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 25, 1976
1330 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
...SCENEDESMACEAE			
L ...SCENEDESMUS			0
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCAEAE			
...CYCLOTELLA		64	3
...MELOSIRA		130	5
..PENNALES	PENNATE		
...ACHNANTHACEAE			
...ACHNANTHES		64	3
...COCONEIS		64	3
...CYMBELLACEAE			
...CYMBELLA		190	8
...DIATOMACEAE			
...DIATOMA		320	13
...FRAGILARIACEAE			
...SYNEDRA		320	13
...GOMPHONEMATACEAE			
...GOMPHONEMA		320	13
...NAVICULACEAE	NAVICULOID		
L ...CALONEIS			0
L ...GYROSIGMA			0
D ...NAVICULA		710	29
...NITZSCHACEAE			
...NITZSCHIA		260	11
...SURIPELLACEAE			
L ...CYMATOPLEURA			0
L ...SURIPELLA			0
TOTALS		2,400	101

2.942=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.398
 FAMILY 2.817
 GENERA 2.942

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 27, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...NOCTYSTACEAE				
....ANKISTRODESMUS		220	4	
....SCENEDESMACEAE				
LCRUCIGENIA				
	TOTALS	220	4	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAF	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
DCYCLOTELLA		2,600	43	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		220	4	
...CYMBELLACEAE				
...CYMBELLA		430	7	
...FRAGILARIACEAE				
...SYNEDRA		220	4	
...GOMPHONEMACEAE				
...GOMPHONEMA		430	7	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		1,300	21	
...NITZSCHIAEAE				
...NITZSCHIA		430	7	
...SURIPELLACEAE				
....SURIPELLA				
	TOTALS	5,800	97	2.365=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.222
 CLASS 0.222
 ORDER 1.178
 FAMILY 2.503
 GENERA 2.503

MAY 27, 1976
1500 HOURS

IDENTIFICATION OF PHYTOPLANKTON

250 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...CYMBELLACEAE				
...CYMBELLA		27	11	
...GOMPHONEMACEAE				
...GOMPHONEMA		27	11	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		140	56	
...NITZSCHIAEAE				
...NITZSCHIA		27	11	
...SURIPELLACEAE				
....SURIPELLA		27	11	
	TOTALS	250	100	1.880=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 FAMILY 1.880
 GENERA 1.880

YELLOWSTONE RIVER BASIN

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06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 27, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

48,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCUCCALES				
...COELASTRACEAE				
...COELASTRUM		3,600	7	
...OOCYSTACEAE				
...ANKISTRODESMUS		680	1	
...SCENEDESMACEAE				
...SGENEDESMUS		900	2	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	5,400	10	1.387=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		4,300	9	
DMELOSIRA		33,000	68	
..PENNALES	PENNATE			
...ACMNANTHACEAE				
LRHOICOSPHEA			0	
...FRAGILARIACEAE				
LSYNEDRA			0	
...NAVICULACEAE	NAVICULOID			
LCALONEIS			0	
...NITZSCHIAEAE				
...NITZSCHIA		5,400	11	
	TOTALS	43,000	88	1.087=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.506
 CLASS 0.506
 ORDER 1.046
 FAMILY 1.230
 GENERA 1.627

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 30, 1976
1230 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3,200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
..ANKISTRODESMUS		110	3	
..SCENEDESMACEAE				
..SCENEDESMUS		440	14	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
..CHLAMYDOMUNAS		190	6	
..PHACOTACEAE				
..PHACOTUS		27	1	
	TOTALS	760	24	1.534=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINOIDISCEAE				
D ..CYCLOTELLA		920	29	
..MELOSIRA		82	3	
..PENNATES	PENNATE			
..ACMANTHACEAE				
L ..RHOICOSPHEA			0	
..CYMBELLACEAE				
..CYMBELLA		140	4	
..DIATOMACEAE				
..DIATOMA		54	2	
..FRAGILARIACEAE				
..SYNEDRA		110	3	
..GOMPHONEMATACEAE				
..GOMPHONEMA		110	3	
..NAVICULACEAE	NAVICULOID			
L ..CALONEIS			0	
L ..GYROSIGMA			0	
..NAVICULA		82	3	
..NITZSCHACEAE				
D ..NITZSCHIA		900	28	
	TOTALS	2,400	75	2.158=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIA				
L ..OSCILLATORIA			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
..PERIDINIACEAE				
..PERIDINIUM		.27	1	
	TOTALS	27	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THAN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.862
 CLASS 0.862
 ORDER 1.806
 FAMILY 2.723
 GENERA 2.851

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 28	34	14.0	12.0	21.0	.400	87	Polyethylene strip

YELLOWSTONE RIVER BASIN

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06329590 YELLOWSTONE RIVER STAGE GAGE NO. 1 NEAR FAIRVIEW, MT

LOCATION.--Lat 47°48'34", long 104°02'36", on east line sec.29, T.24 N., R.60 E., Richland County, Hydrologic Unit 10100004, on left bank 3 mi (4.8 km) south of Fairview at mile 15.2 (kilometer 24.5).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) above mean sea level. Prior to Feb. 19, 1962 at datum 60.00 ft (18.288 m) lower.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 23.78 ft (7.248 m) Mar. 21, 1960, present datum; minimum daily recorded, 9.10 ft (2.774 m) May 16-17, Aug. 12-13, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	12.47					---	13.76	18.39	17.34	12.56	11.18
2	---	12.43					---	13.68	18.59	---	12.43	11.08
3	---	12.41					---	13.51	18.49	---	12.31	10.98
4	---	12.07					---	13.64	18.19	---	12.32	10.90
5	---	12.31					12.22	14.02	17.85	---	13.00	10.87
6	---	12.57					12.28	14.47	18.09	---	14.34	10.80
7	---	12.51					12.27	14.84	18.71	---	14.14	10.71
8	---	12.45					12.18	15.38	19.21	---	13.66	10.68
9	---	12.05					11.41	15.64	19.25	---	13.46	10.70
10	---	11.93					11.12	15.68	19.47	---	13.35	---
11	---	12.22					11.44	15.49	19.42	---	13.12	---
12	---	12.44					12.10	15.74	19.49	---	12.89	---
13	---	12.44					12.54	16.06	19.54	---	12.58	---
14	12.26	---					12.72	16.32	19.78	16.47	12.36	---
15	12.26	---					12.80	16.82	19.75	16.22	12.37	11.15
16	12.24	---					12.91	16.66	19.34	16.05	12.12	11.26
17	12.35	---					13.29	16.62	19.30	15.85	12.01	11.36
18	12.39	---					13.48	17.52	18.79	15.50	11.94	11.43
19	12.38	---					13.48	17.53	18.41	15.05	11.76	11.40
20	12.30	---					13.57	17.12	18.62	14.73	11.64	11.31
21	12.27	---					13.49	17.18	18.58	14.52	11.53	11.29
22	12.27	---					13.25	17.83	18.35	14.62	11.45	11.33
23	12.41	---					13.14	18.21	17.91	14.73	11.30	11.49
24	12.61	---					13.17	18.21	18.29	14.42	11.25	11.64
25	12.68	---					13.00	18.31	18.87	14.14	11.37	11.71
26	12.79	---					12.88	18.53	19.07	13.76	11.23	11.71
27	12.82	---					12.79	18.30	18.86	13.40	11.10	11.59
28	12.71	---					12.81	18.20	18.13	13.17	11.15	11.51
29	12.57	---					12.94	18.11	17.89	13.01	11.27	11.81
30	12.43	---					13.44	17.79	17.61	12.85	11.19	11.85
31	12.47	---					---	17.88	---	12.74	11.18	---
MEAN	---	---					---	16.42	18.74	---	12.21	---
MAX	---	---					---	18.53	19.78	---	14.34	---
MIN	---	---					---	13.51	17.61	---	11.10	---

YELLOWSTONE RIVER BASIN

06329597 CHARBONNEAU CREEK NEAR CHARBONNEAU, ND

LOCATION.--Lat 47°51'10", long 103°47'40", in SW¼ sec.31, T.151 N., R.102 W., McKenzie County, Hydrologic Unit 10100004, Little Missouri National Grassland on right bank, 45 ft (14 m) downstream from county highway bridge, 1.5 mi (2.4 km) west of Charbonneau.

DRAINAGE AREA.--149 mi² (386 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--10 years, 15.7 ft³/s (0.444 m³/s) 11,370 acre-ft/yr (14.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/s (142 m³/s) Mar. 17, 1976, gage height, 11.02 ft (3.359 m), backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 25	--	4,000 113	Backwater from ice	Mar. 17	--	*5,000 142	*11.02 3.359
Mar. 10	--	320 9.06	Backwater from ice	June 23	0500	262 7.42	4.66 1.420

Minimum discharge, 0.01 ft³/s (0.001 m³/s) Aug. 24, Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.67	.80	2.0	2.8	80	3.8	1.6	2.6	.86	.14	.08
2	.60	.66	.80	1.5	2.5	70	3.0	1.1	1.0	.72	.14	.08
3	.50	.58	.90	1.5	2.1	40	2.8	.90	.86	.81	.12	.07
4	.44	.65	1.1	1.0	1.1	20	2.1	.84	.79	.86	.10	.06
5	.39	.72	1.3	1.0	.90	5.0	1.7	.77	.93	.89	.08	.07
6	.48	.74	1.0	1.0	.90	2.5	1.5	1.1	.82	.81	.06	.06
7	.63	.91	1.0	1.0	1.0	2.3	1.2	1.0	.90	.78	.07	.02
8	.47	.90	1.0	1.0	2.0	2.0	1.3	.93	.90	.69	.08	.01
9	.45	1.0	1.5	.90	17	74	1.2	.93	.97	.69	.15	.02
10	.46	1.0	2.0	.90	58	200	1.0	.93	.85	.67	.16	.04
11	.47	.90	1.5	.90	45	210	.93	1.1	.69	.71	.16	.04
12	.39	.80	1.0	1.0	44	180	.93	11	.70	.75	.19	.04
13	.87	.80	1.0	1.0	40	72	.95	29	.75	.73	.20	.04
14	4.2	.90	.90	.90	24	60	1.0	22	.79	.73	.20	.05
15	4.8	1.5	.90	.90	46	26	.90	13	.88	.69	.20	.07
16	4.8	3.0	.80	.90	104	61	1.5	8.8	1.0	.65	.16	.07
17	3.2	4.0	.80	1.0	143	1200	4.6	6.6	1.2	.62	.13	.10
18	2.8	2.5	.70	1.0	94	2400	5.5	4.8	1.5	.58	.11	.09
19	2.6	1.5	.70	1.0	68	612	7.3	3.0	1.5	.52	.08	.10
20	1.5	1.0	.80	1.5	64	216	6.1	2.3	1.3	.50	.04	.12
21	.92	.89	.80	2.0	51	90	4.8	1.7	1.4	.51	.02	.16
22	.77	.86	.80	3.0	56	51	3.8	1.1	1.3	.57	.03	.16
23	.87	.84	.90	3.0	190	61	4.6	.93	147	.50	.02	.15
24	.72	.83	.90	2.0	720	49	7.0	.86	69	.42	.01	.16
25	.76	.85	.90	1.0	2700	35	7.7	.72	29	.35	.02	.16
26	.77	.80	1.0	1.0	2300	26	6.5	.79	17	.32	.08	.19
27	.69	.80	1.0	1.0	500	17	4.6	.93	8.8	.28	.16	.20
28	.50	.80	2.0	2.0	250	12	3.6	.86	6.6	.20	.11	.22
29	.38	.80	3.0	2.5	160	7.7	3.3	.72	2.1	.18	.10	.20
30	.56	.80	3.0	3.0	---	6.2	2.5	1.5	1.5	.16	.09	.16
31	.70	---	2.5	3.0	---	5.0	---	5.6	---	.16	.08	---
TOTAL	38.29	33.00	37.30	45.40	7687.30	5892.7	97.71	127.41	304.63	17.91	3.29	2.99
MEAN	1.24	1.10	1.20	1.46	265	190	3.26	4.11	10.2	.58	.11	.10
MAX	4.8	4.0	3.0	3.0	2700	2400	7.7	29	147	.89	.20	.22
MIN	.38	.58	.70	.90	.90	2.0	.90	.72	.69	.16	.01	.01
AC-FT	76	65	74	90	15250	11690	194	253	604	36	6.5	5.9
CAL YR 1975 TOTAL	6036.44			MEAN 16.5	MAX 523	MIN .05	AC-FT 11970					
WFR YR 1976 TOTAL	14287.93			MEAN 39.0	MAX 2700	MIN .01	AC-FT 28340					

YELLOWSTONE RIVER BASIN

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06329597 CHARBONNEAU CREEK NEAR CHARBONNEAU, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT										
02...	1320	.63	2660	8.6	14.0	160	0	23	25	560
NOV										
07...	1155	.87	2700	8.6	6.0	190	0	34	26	570
DEC										
05...	0955	1.3	3220	8.3	1.0	230	0	32	36	720
JAN										
07...	1355	1.1	3550	8.1	.0	270	0	47	37	770
FEB										
03...	1035	1.2	3100	8.3	.0	260	0	44	36	700
24...	1540	349	315	8.2	.0	85	0	18	9.7	40
MAR										
05...	1015	4.9	940	8.3	.0	160	0	33	19	140
22...	1425	36	420	8.1	3.0	110	15	25	12	45
MAY										
06...	1630	1.1	2250	8.6	15.0	290	0	59	35	480
JUN										
04...	1505	.77	2520	8.2	25.0	230	0	40	32	540
JUL										
02...	0955	.65	1300	8.4	18.5	120	0	24	15	270
AUG										
06...	1510	E.06	2300	8.8	24.0	190	0	32	27	550
SEP										
03...	1030	.07	2550	8.6	14.5	190	0	30	28	610

E - Estimated.

YELLOWSTONE RIVER BASIN

06329597 CHARBONNEAU CREEK NEAR CHARBONNEAU, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINIT- AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT									
02...	88	19	8.0	808	7	674	3.3	700	5.3
NOV									
07...	86	18	7.6	855	11	720	3.5	720	5.9
DEC									
05...	87	21	7.6	1060	6	880	8.6	890	6.2
JAN									
07...	86	20	9.0	1210	0	993	15	980	7.4
FEB									
03...	85	19	8.2	1070	5	887	8.7	920	6.3
24...	48	1.9	6.7	106	0	87	1.1	77	1.6
MAR									
05...	64	4.8	9.7	258	0	212	2.1	260	2.4
22...	45	1.9	7.4	118	0	97	1.5	92	1.7
MAY									
06...	78	12	7.9	649	6	542	2.7	760	5.4
JUN									
04...	83	15	8.2	702	8	589	7.3	830	5.5
JUL									
02...	82	11	6.8	427	0	350	2.7	370	2.1
AUG									
06...	86	17	7.8	810	26	708	2.2	630	5.6
SEP									
03...	87	19	8.7	843	38	755	3.7	730	6.3

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT									
02...	.5	4.7	1830	1740	2.49	3.11	200	750	80
NOV									
07...	.5	5.7	1890	1810	2.57	4.44	360	310	10
DEC									
05...	.4	7.7	2260	2230	3.07	7.94	0	80	60
JAN									
07...	.9	11	2550	2460	3.47	7.58	40	130	70
FEB									
03...	.7	12	2320	2260	3.16	7.52	200	60	80
24...	.1	11	232	222	.32	219	760	380	70
MAR									
05...	.1	5.3	633	604	.86	8.38	600	350	90
22...	.1	5.0	296	253	.40	28.8	160	190	80
MAY									
06...	.3	6.2	1680	1680	2.29	4.99	0	60	10
JUN									
04...	.4	5.9	1820	1820	2.48	3.79	0	170	10
JUL									
02...	.4	8.6	923	911	1.26	1.62	0	620	10
AUG									
06...	.5	10	1690	1690	2.30	--	190	60	20
SEP									
03...	.6	12	1840	1880	2.50	.35	0	100	40

YELLOWSTONE RIVER BASIN

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06329610 YELLOWSTONE RIVER STAGE GAGE NO. 2 NEAR CARTWRIGHT, ND

LOCATION.--Lat 47°51'50", long 103°58'06", on south line sec.26, T.151 N., R.104 W., McKenzie County, Hydrologic Unit 10100004, on bridge on State Highway 23, 2 mi (3.2 km) west of Cartwright at mile 8.6 (kilometer 13.8).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,800.00 ft (548.640 m) above mean sea level.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 82.70 ft (25.207 m) Mar. 15, 1972;
minimum daily recorded, 58.58 ft (17.855 m) July 26, 1974.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66.24	66.71					---	68.50	72.33	71.06	67.24	65.79
2	66.29	66.71					---	68.32	72.62	70.83	67.08	65.72
3	66.30	66.70					---	68.20	72.54	71.32	67.01	65.64
4	66.31	66.45					---	68.35	72.34	71.68	67.06	65.57
5	66.31	66.48					66.90	68.65	72.03	72.19	67.57	65.51
6	66.30	66.82					66.92	69.15	72.23	71.92	68.71	65.50
7	66.25	66.80					66.92	69.42	72.78	71.40	68.51	65.46
8	66.21	66.75					66.84	69.86	73.43	71.11	68.05	65.40
9	66.20	66.45					66.30	72.26	73.44	70.97	67.83	65.41
10	---	66.30					65.96	---	73.53	71.15	67.76	65.47
11	---	66.60					66.17	---	73.50	71.37	67.54	65.68
12	---	66.80					66.74	---	73.59	70.77	67.27	65.78
13	---	66.80					67.15	70.63	73.64	70.57	67.13	65.87
14	66.49	---					67.30	70.71	73.93	70.46	66.91	65.87
15	66.46	---					67.33	71.13	73.93	70.19	66.75	65.89
16	66.45	---					67.42	71.00	73.51	70.19	66.62	65.97
17	66.51	---					67.72	70.86	73.50	69.79	66.54	66.02
18	66.59	---					67.82	71.53	72.98	69.46	66.44	66.13
19	66.60	---					67.81	71.71	72.45	69.06	---	66.09
20	66.55	---					67.90	71.33	72.49	68.73	66.19	65.98
21	66.48	---					67.89	71.27	72.49	68.54	66.11	65.93
22	66.48	---					67.80	71.89	72.16	68.64	66.00	65.97
23	66.59	---					67.90	72.30	71.99	68.78	65.85	66.09
24	66.75	---					67.89	72.23	72.66	68.54	65.84	66.12
25	66.82	---					67.70	72.35	73.16	68.34	65.97	66.19
26	67.00	---					67.69	72.51	73.21	68.16	65.87	66.21
27	67.10	---					67.57	72.33	72.88	67.86	65.78	66.12
28	66.89	---					67.56	72.13	72.26	67.66	65.78	66.14
29	66.74	---					67.80	72.08	71.83	67.55	65.78	66.40
30	66.67	---					68.17	71.83	71.42	67.45	65.81	66.49
31	66.70	---					---	71.90	---	67.34	65.81	---
MEAN	---	---		---			---	---	72.83	69.78	---	65.88
MAX	---	---		---			---	---	73.93	72.19	---	66.49
MIN	---	---		---			---	---	71.42	67.34	---	65.40

YELLOWSTONE RIVER BASIN

06329620 YELLOWSTONE RIVER STAGE GAGE NO. 3 NEAR BUFORD, ND

LOCATION.--Lat 47°56'16", long 103°57'52", in SW¼ sec.35, T.152 N., R.104 W., McKenzie County, Hydrologic Unit 10100004, on left bank 4 mi (6.4 km) south of Buford at mile 3.3 (kilometer 5.3).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,850.00 ft (563.880 m) above mean sea level. Prior to Apr. 19, 1962, at datum 50.00 ft (15.240 m) lower.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 29.55 ft (9.007 m) Mar. 15, 1972; minimum daily recorded, 6.18 ft (1.884 m) Aug. 24, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.51					---	13.19	17.63	16.41	12.30	10.58
2	---	11.48					---	13.15	17.89	16.22	12.12	10.52
3	---	11.44					---	13.01	17.90	16.59	11.98	10.41
4	---	11.12					---	13.08	17.78	17.03	12.02	10.35
5	---	11.40					11.90	13.24	17.60	17.51	12.70	10.30
6	---	11.63					11.99	---	17.75	17.40	13.95	10.28
7	---	11.62					12.00	---	---	17.00	13.89	10.21
8	---	11.57					11.86	---	---	16.69	13.35	10.18
9	---	11.20					11.29	---	---	16.55	13.09	10.19
10	---	11.20					10.82	---	---	16.63	12.95	10.23
11	---	11.58					10.95	---	---	16.80	12.67	10.48
12	---	---					11.60	---	---	16.26	12.39	10.60
13	---	---					12.01	15.10	---	16.02	12.22	10.72
14	---	---					12.21	15.21	---	15.89	---	10.78
15	11.21	---					12.28	15.65	---	15.68	---	10.80
16	11.17	---					12.35	15.63	---	15.49	---	10.90
17	11.27	---					12.63	15.51	18.91	15.31	---	11.01
18	11.32	---					12.81	16.36	18.35	15.00	---	11.18
19	11.32	---					12.81	16.72	17.78	14.60	11.21	11.18
20	11.29	---					12.92	16.32	17.80	14.23	11.09	11.10
21	11.22	---					12.93	16.31	17.78	13.99	10.92	11.05
22	11.21	---					12.80	17.05	17.44	14.00	10.80	11.08
23	11.32	---					12.67	17.60	17.18	14.21	10.65	11.11
24	11.52	---					12.68	17.60	17.65	13.95	10.68	11.26
25	11.62	---					12.56	17.68	18.29	13.71	10.74	11.34
26	11.73	---					12.43	17.83	18.48	13.53	10.65	11.33
27	11.80	---					12.35	17.69	18.23	13.21	10.53	11.25
28	11.70	---					12.38	17.49	17.60	12.93	10.51	11.21
29	11.51	---					12.58	17.41	17.22	12.75	10.52	11.50
30	11.45	---					12.83	17.14	16.85	12.58	10.59	11.64
31	11.51	---					---	17.19	---	12.45	10.58	---
MEAN	---	---					---	---	---	15.18	---	10.83
MAX	---	---					---	---	---	17.51	---	11.64
MIN	---	---					---	---	---	12.45	---	10.18

MISSOURI RIVER MAIN STEM

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06329640 MISSOURI RIVER STAGE GAGE NO. 5A AT BUFORD, ND

LOCATION.--Lat 47°59'06", long 103°59'05", in SE¼ sec.15, T.152 N., R.104 W., Williams County, Hydrologic Unit 10110101, on left bank 1.5 mi (2.4 km) southwest of Buford at mile 1,580.7 (kilometer 2,543.3).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--April 1960 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,850.00 ft (563.880 m) above mean sea level. Prior to Mar. 8, 1962 at datum 50.00 ft (15.240 m) lower.

REMARKS.--Records poor. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 18.35 ft (5.593 m) July 6, 1975; minimum daily recorded, 2.63 ft (0.802 m) Aug. 15-16, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.68							---	12.99	---	---
2	---	8.63							---	12.66	---	---
3	---	8.62							---	12.85	---	---
4	---	8.59							---	13.20	---	---
5	---	8.45							---	13.70	---	---
6	---	8.90							---	13.81	---	---
7	---	8.95							---	13.48	---	---
8	---	---							---	13.28	---	---
9	---	---							---	---	---	---
10	---	---							---	---	---	---
11	---	---							---	---	---	---
12	---	---							---	---	---	---
13	---	---							---	---	---	---
14	8.36	---							---	12.16	---	---
15	8.40	---							---	11.92	---	8.02
16	8.39	---							---	11.82	---	7.98
17	8.45	---							---	11.68	8.34	7.99
18	8.52	---							---	11.40	8.30	8.05
19	8.55	---							---	11.10	8.21	8.06
20	8.57	---							---	10.70	8.16	8.03
21	8.50	---							---	10.42	7.95	8.07
22	8.46	---							---	10.36	7.85	8.10
23	8.53	---							---	10.54	7.64	8.14
24	8.65	---							---	10.30	7.72	8.20
25	8.73	---							---	10.03	8.08	8.27
26	8.85	---							---	10.06	7.97	8.30
27	8.87	---							---	---	7.79	8.24
28	8.84	---							---	---	7.86	8.25
29	8.70	---							---	---	8.04	8.40
30	8.60	---							13.37	---	8.02	8.52
31	8.60	---							---	---	---	---
MEAN	---	---							---	---	---	---
MAX	---	---							---	---	---	---
MIN	---	---							---	---	---	---

MISSOURI RIVER MAIN STEM

06329650 MISSOURI RIVER STAGE GAGE NO. 6 NEAR BUFORD, ND

LOCATION.--Lat 47°57'18", long 103°54'36", in SE¼ sec.30, T.152 N., R.103 W., Williams County, Hydrologic Unit 10110101, on right bank 5 mi (8 km) southeast of Buford at mile 1,576.0 (kilometer 2,535.8).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft (560.832 m) above mean sea level. Prior to Apr. 17, 1962, at datum 40.00 ft (12.192 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 24.15 ft (7.361 m) June 29, 1975; minimum daily recorded, 8.23 ft (2.509 m) Aug. 15 and 22, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.56	15.96					---	17.06	21.10	20.33	---	15.15
2	15.60	15.90					---	17.10	21.40	20.03	---	15.12
3	15.62	15.85					---	16.96	21.48	20.16	---	15.08
4	15.63	15.77					16.84	16.94	21.42	20.54	---	15.05
5	15.60	15.67					16.86	17.07	21.32	21.07	---	15.00
6	15.59	15.94					17.07	17.18	21.59	21.20	---	14.98
7	15.60	15.99					17.11	17.12	22.18	20.86	---	14.90
8	15.54	15.99					16.86	17.46	22.70	20.67	---	14.89
9	15.50	15.90					16.44	---	22.78	20.52	---	14.91
10	15.51	15.77					15.95	---	22.80	20.48	---	14.95
11	15.57	15.85					15.80	17.68	22.79	20.47	---	15.09
12	15.57	15.98					16.14	17.70	22.81	19.95	---	15.16
13	15.65	16.04					16.36	17.95	23.10	19.55	---	15.21
14	15.73	---					16.55	18.20	23.40	19.40	---	15.24
15	15.73	---					16.60	18.67	23.48	19.36	---	15.26
16	15.80	---					16.70	18.85	22.96	19.25	---	15.27
17	15.87	---					16.84	18.89	---	19.10	---	15.25
18	15.91	---					17.05	19.62	---	18.79	15.72	15.30
19	15.92	---					17.01	20.19	---	18.52	15.69	15.30
20	15.91	---					17.04	19.92	---	18.11	15.56	15.26
21	15.89	---					17.10	19.90	---	17.82	15.38	15.30
22	15.85	---					17.01	20.65	---	17.77	15.14	15.32
23	15.89	---					16.94	21.30	---	17.89	14.95	15.37
24	15.99	---					16.98	21.32	---	---	14.95	15.41
25	16.05	---					16.83	21.30	---	---	15.21	15.46
26	16.15	---					16.71	21.35	---	---	15.19	15.48
27	16.20	---					16.57	21.30	---	---	15.10	15.46
28	16.18	---					16.53	21.05	---	---	15.17	15.44
29	16.05	---					16.56	21.00	21.17	---	15.18	15.56
30	15.95	---					16.74	20.84	20.74	---	15.16	15.69
31	15.78	---					---	20.80	---	---	15.15	---
MEAN	15.79	---		---			---	---	---	---	---	15.23
MAX	16.20	---		---			---	---	---	---	---	15.69
MIN	15.50	---		---			---	---	---	---	---	14.89

MISSOURI RIVER MAIN STEM

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06329660 MISSOURI RIVER STAGE GAGE NO. 7 NEAR TRENTON, ND

LOCATION.--Lat 47°59'21", long 103°47'57", in NE¼ sec.13, T.152 N., R.103 W., McKenzie County, Hydrologic Unit 10110101, on right bank 5 mi (8 km) south of Trenton and at mile 1,566.7 (kilometer 2,520.8).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft (560.832 m) above mean sea level. Prior to Aug. 7, 1962, at site 0.8 mi (1.3 km) upstream. Prior to May 29, 1963, at datum 40.00 ft (12.192 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 21.56 ft (6.572 m) July 10, 1975; minimum daily recorded, 4.34 ft (1.323 m) Aug. 19, 22, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.51	13.71										
2	13.52	13.70							17.55	16.98	13.54	12.38
3	13.58	13.62							17.80	16.71	13.41	12.39
4	13.59	13.56							17.90	16.70	13.30	12.30
5	13.52	13.46							17.81	17.06	13.30	12.28
										17.49	13.50	12.24
6	13.51	13.72								17.69	14.17	12.20
7	13.50	13.76								17.41	14.39	12.16
8	13.49	13.75								17.22	14.16	12.09
9	13.47	13.67								17.11	13.85	12.10
10	13.50	13.50								17.09	13.71	12.15
11	13.52	13.59						14.67		17.10	13.60	12.24
12	13.48	13.69						14.70		16.74	13.60	12.31
13	13.54	13.75						14.81		16.37	13.50	12.35
14	13.70							15.08		16.29	13.41	12.39
15	13.72							15.43		16.12	13.35	12.40
16	13.73							15.71	19.33	15.99	13.21	12.40
17	13.78							15.67	19.10	15.89	13.08	12.35
18	13.81							16.25	18.88	15.67	13.02	12.41
19	13.83							16.82	18.62	15.41	12.97	12.40
20	13.82							16.70	18.59	15.09	12.86	12.38
21	13.80							16.60	18.63	14.80	12.70	12.40
22	13.74							17.09	18.40	14.71	12.50	12.40
23	13.72							17.68	18.02	14.80	12.36	12.41
24	13.81							17.75	17.99	14.72	12.33	12.46
25	13.89							17.75	18.40	14.50	12.49	12.51
26	13.92							17.78	18.65	14.38	12.49	12.54
27	14.00							17.71	18.59	14.25	12.38	12.50
28	13.92							17.50	18.18	14.00	12.38	12.49
29	13.82							17.42	17.75	13.87	12.40	12.57
30	13.72							17.32	17.32	13.74	12.40	12.67
31	13.71							17.29		13.66	12.38	
MEAN	13.68									15.79	13.12	12.36
MAX	14.00									17.69	14.39	12.67
MIN	13.47									13.66	12.33	12.09

MISSOURI RIVER MAIN STEM

06329680 MISSOURI RIVER STAGE GAGE NO. 8 NEAR TRENTON, ND

LOCATION.--Lat 48°03'10", long 103°42'54", in NE¼ sec.30, T.153 N., R.101 W., McKenzie County, Hydrologic Unit 10110101, on right bank 5.5 mi (8.8 km) southeast of Trenton at mile 1,557.2 (kilometer 2,505.5).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,830.00 ft (557.784 m) above mean sea level. Prior to Jan. 4, 1962 at datum 30.00 ft (9.144 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 27.15 ft (8.275 m) July 14, 1975; minimum daily recorded, 4.96 ft (1.512 m) Aug. 20, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.09	19.84				---	20.81	20.13	22.30	---	20.05	19.20
2	20.07	19.83				---	20.80	20.14	22.53	---	20.08	19.18
3	20.08	19.80				---	20.58	20.11	22.63	---	19.92	19.00
4	20.08	19.78				---	20.38	20.09	22.55	---	19.81	19.01
5	19.90	19.66				---	20.34	20.11	22.53	---	20.03	---
6	19.98	19.80				---	20.47	20.17	22.58	---	20.29	---
7	20.00	---				---	20.53	20.16	22.95	---	20.59	---
8	19.96	---				---	20.38	20.32	23.20	---	20.33	---
9	---	---				---	20.12	20.64	---	---	20.18	---
10	19.90	---				---	19.83	20.72	---	---	20.20	---
11	19.90	---				---	19.61	20.58	---	---	20.04	---
12	19.81	---				---	19.70	20.50	---	22.66	20.08	---
13	19.86	---				---	19.92	20.53	---	22.22	20.05	---
14	19.92	---				---	20.12	20.73	---	22.10	20.15	---
15	19.87	---				---	20.08	20.92	---	21.99	20.13	19.13
16	19.88	---				---	20.08	21.07	23.01	21.97	19.98	19.07
17	19.91	---				---	20.09	21.07	22.88	21.88	19.73	19.06
18	19.92	---				---	20.12	21.40	22.79	21.77	19.72	19.08
19	19.91	---				---	20.13	21.80	22.59	21.55	19.65	19.09
20	19.90	---				---	20.12	21.74	22.59	21.34	19.55	19.03
21	19.89	---				---	20.16	21.61	22.66	21.25	19.43	19.07
22	19.88	---				---	20.14	21.86	22.62	21.05	19.35	19.09
23	19.88	---				---	20.13	22.36	22.41	21.06	19.31	19.08
24	19.91	---				---	20.13	22.54	22.25	21.16	19.12	19.11
25	19.95	---				---	20.07	22.53	22.54	20.85	19.25	19.14
26	20.03	---				---	20.26	22.61	22.76	20.79	19.29	19.17
27	20.01	---				---	20.11	22.56	22.72	20.82	19.00	19.12
28	20.03	---				---	20.05	22.44	22.46	20.75	19.15	19.09
29	19.96	---				---	20.09	22.30	22.28	20.53	19.17	19.14
30	19.89	---				---	20.08	22.17	22.26	20.32	19.15	19.19
31	19.86	---				20.79	---	22.11	---	20.15	19.10	---
MEAN	---	---				---	20.18	21.23	---	---	19.74	---
MAX	---	---				---	20.81	22.61	---	---	20.59	---
MIN	---	---				---	19.61	20.09	---	---	19.00	---

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND

LOCATION.--Lat 48°06'40", long 103°43'00", in SE¼ sec.31, T.154 N., R.101 W., McKenzie County, Hydrologic Unit 10110101, on downstream end of right pier of Lewis and Clark Highway bridge 5 mi (8 km) southwest of Williston, 29.3 mi (47.1 km) downstream from Yellowstone River, and at mile 1,552.7 (kilometer 2,498.3).

DRAINAGE AREA.--164,500 mi² (426,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year. Operated as a stage-discharge station October 1897 to July 1965.

GAGE.--Water-stage recorder. Datum of gage is 1,830.20 ft (557.845 m) above mean sea level. See WSP 1917 for history of changes prior to April 1966.

REMARKS.--Records good. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 24.77 ft (7.550 m) July 21, 1975; minimum daily recorded, 7.80 ft (2.377 m) Nov. 2, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.04	18.65	20.69	21.11	20.57	20.95	18.79	18.31	19.90	20.38	18.98	18.08
2	19.00	18.63	20.40	21.09	20.68	20.58	18.71	18.35	20.10	20.21	18.92	17.98
3	19.01	18.62	20.28	20.94	20.77	20.18	18.64	18.33	20.15	20.15	18.89	17.79
4	18.99	18.59	20.23	20.65	20.87	19.90	18.56	18.31	20.10	20.24	18.72	17.83
5	18.81	18.51	20.32	20.24	20.92	19.90	18.49	18.43	20.05	20.25	18.83	17.80
6	18.90	18.60	20.56	19.80	20.90	19.89	18.58	18.39	20.02	20.39	19.00	17.80
7	18.91	18.62	20.79	19.44	20.56	19.89	18.67	18.32	20.31	20.42	19.18	17.62
8	18.78	18.60	21.04	---	20.29	19.89	18.50	18.41	20.50	20.36	19.12	17.59
9	18.55	18.60	21.23	19.27	20.20	20.03	18.35	18.54	20.50	20.21	18.77	17.65
10	18.75	18.50	21.31	19.33	20.17	20.38	18.05	18.64	20.49	20.21	18.73	---
11	18.80	18.55	21.34	19.22	20.30	20.69	17.95	18.65	20.58	20.33	18.62	---
12	18.69	18.54	21.33	19.05	20.54	20.92	18.01	18.55	20.47	20.44	18.64	---
13	18.73	18.60	21.20	19.00	20.75	20.95	18.18	18.64	20.54	19.96	18.75	---
14	18.73	18.59	20.91	19.18	20.89	20.74	18.33	18.76	20.72	19.95	18.88	---
15	18.75	18.53	20.62	19.59	21.08	20.52	18.33	18.85	20.86	19.88	19.08	---
16	18.75	18.49	20.39	19.94	21.19	20.58	18.31	19.00	20.73	19.92	18.71	---
17	18.78	18.48	20.27	20.22	21.33	20.73	18.53	19.02	20.65	19.94	18.48	17.77
18	18.80	18.47	20.27	20.40	21.45	20.91	18.58	19.25	20.60	19.86	18.47	17.74
19	18.77	18.45	20.27	20.54	21.48	21.28	18.56	19.50	20.43	19.75	18.38	17.76
20	18.75	18.42	20.09	20.68	21.41	21.60	18.53	19.51	20.38	19.67	18.27	17.71
21	18.73	18.41	19.92	20.72	21.30	21.80	18.57	19.48	20.41	19.71	18.20	17.74
22	18.72	18.40	20.04	20.77	21.20	22.10	18.51	19.62	20.46	19.48	18.20	17.74
23	18.71	18.43	20.76	20.80	21.07	22.43	18.49	19.89	20.23	19.50	18.21	17.73
24	18.72	18.50	20.47	20.85	21.00	22.62	18.42	20.01	23.12	19.64	17.95	17.73
25	18.74	19.41	20.67	20.80	21.00	22.47	18.39	20.03	20.32	19.29	18.02	17.77
26	18.79	20.73	20.80	20.78	21.05	22.31	18.33	19.98	20.47	19.36	18.07	17.78
27	18.74	20.70	20.87	20.71	21.15	22.55	18.24	19.90	20.47	19.32	17.68	17.78
28	18.80	20.88	20.92	20.64	21.16	20.65	18.15	19.97	20.35	19.11	17.98	17.76
29	18.76	21.12	20.92	20.49	21.11	19.40	18.13	19.98	20.21	19.16	18.00	17.77
30	18.71	20.90	21.00	20.35	---	19.05	18.18	19.85	20.29	18.99	17.95	17.80
31	18.65	---	21.10	20.40	---	18.93	---	19.80	---	19.05	17.94	---
MEAN	18.79	18.95	20.68	---	20.91	20.80	18.40	19.11	20.48	19.84	18.50	---
MAX	19.04	21.12	21.34	---	21.48	22.62	18.79	20.03	23.12	20.44	19.18	---
MIN	18.55	18.40	19.92	---	20.17	18.93	17.95	18.31	19.90	18.99	17.68	---

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-65, 1969-70, 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1950 to June 1965.

WATER TEMPERATURES: May 1951 to June 1965.

REMARKS.--Discharge data computed by adding the discharges of station 06329500 Yellowstone River near Sidney, Mont. to that of station 06185500 Missouri River near Culbertson, Mont.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
OCT 08...	0945	23000	680	8.4	13.5	25	9.2	95	1.8	220	56	54
NOV 12...	0800	16400	710	8.2	5.0	35	10.4	87	3.3	230	61	57
DEC 09...	0900	23000	770	7.9	.5	10	12.6	93	1.1	250	71	59
JAN 13...	1030	15500	790	8.1	.0	8	12.0	88	1.2	280	95	69
FEB 10...	1000	23000	710	8.6	.0	25	11.8	86	1.0	230	64	54
MAR 09...	1200	24500	850	8.3	.0	20	11.6	85	1.1	250	76	61
APR 13...	1100	28800	790	8.6	12.0	58	9.8	97	2.0	240	70	55
MAY 04...	0955	29200	760	8.7	10.0	55	10.0	94	2.1	250	80	59
JUN 02...	0900	58000	495	8.3	20.0	160	8.0	93	2.0	160	44	39
29...	1030	54300	520	8.2	16.5	400	8.4	92	2.4	160	37	37
AUG 03...	1200	25500	590	9.4	23.0	35	8.8	98	--	200	63	50
31...	0930	21100	620	8.6	18.0	50	8.8	99	1.0	220	58	53

DATE	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED PO-TAS-SIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT 08...	20	65	39	1.9	4.3	195	1	1.3	162	180	7.8
NOV 12...	21	60	36	1.7	3.8	205	0	2.1	168	180	12
DEC 09...	24	70	38	1.9	4.1	214	0	4.3	176	200	14
JAN 13...	26	70	35	1.8	4.9	225	0	2.9	185	210	13
FEB 10...	22	60	36	1.7	4.4	198	0	.8	162	190	10
MAR 09...	23	67	37	1.9	4.1	208	0	1.7	171	210	11
APR 13...	10	67	38	1.9	5.1	203	0	.0	167	200	12
MAY 04...	25	81	41	2.2	4.7	207	0	.7	170	230	12
JUN 02...	16	39	34	1.3	3.0	145	0	1.2	119	130	6.4
29...	16	47	39	1.6	3.4	148	0	1.5	121	160	7.5
AUG 03...	19	45	32	1.4	3.9	171	0	.1	140	140	7.8
31...	20	57	36	1.7	4.3	192	0	.8	157	160	11

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 12...	<10	0	10	8	2	<10	<8	2	0	1300	100	99
FEB 10...	<9	1	10	10	0	10	0	18	820	1500	<100	<97
MAR 09...	--	--	--	--	--	--	--	--	--	--	--	--
APR 13...	<8	55	5200	0	0	--	--	--	0	--	<100	<100
AUG 03...	--	--	--	--	--	--	--	--	--	--	--	--
31...	<9	1	0	0	0	20	8	12	30	2800	<100	<98

DATE	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDE D LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE D MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE D MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--
NOV 12...	1	40	0	50	10	50	40	2.4	.0	2.4	3
FEB 10...	3	60	0	90	40	70	30	.2	.0	.2	2
MAR 09...	--	--	--	--	--	--	--	--	--	--	--
APR 13...	0	50	--	60	140	130	10	.4	.3	.1	4
AUG 03...	--	--	--	--	--	--	--	--	--	--	--
31...	2	50	0	60	30	70	40	.1	.0	.1	3

DATE	SUS- PENDE D MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	SUS- PENDE D NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE D SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE D STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--
NOV 12...	3	0	<50	<47	3	1	0	2	550	10	540
FEB 10...	0	2	<50	<47	3	1	0	1	520	0	540
MAR 09...	--	--	--	--	--	--	--	--	--	--	--
APR 13...	2	2	50	48	2	2	1	1	530	0	--
AUG 03...	--	--	--	--	--	--	--	--	--	--	--
31...	0	3	<50	<48	2	1	0	1	480	0	540

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)
OCT 08...	--	--	--	--	11	4.8	6.0	3.1	4.8	2.6	.05
NOV 12...	.7	0	0	10	--	--	--	--	--	--	--
DEC 09...	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	1.0	20	0	80	--	--	--	--	--	--	--
MAR 09...	--	--	--	--	--	--	--	--	--	--	--
APR 13...	1.0	140	120	20	--	--	--	--	--	--	--
MAY 04...	--	--	--	--	--	--	--	--	--	--	--
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	--	--	--	--	--	--	--	--	--	--	--
31...	2.1	40	10	30	--	--	--	--	--	--	--

DATE	DIS- SOLVED URANIUM (DIRECT FLUORO- METRIC) (PC/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	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 08...	3.3	5.4	1.4	221	13700	--	--	--	--	--	--
NOV 12...	--	3.7	2.2	362	16000	23	38	74	87	99	100
DEC 09...	--	5.8	.5	104	6460	--	--	--	--	--	--
JAN 13...	--	17	.4	--	--	--	--	--	--	--	--
FEB 10...	--	17	.8	55	3420	--	--	--	--	--	--
MAR 09...	--	18	.7	64	4230	--	--	--	--	--	--
APR 13...	--	6.8	2.7	289	22500	34	56	83	95	99	100
MAY 04...	--	4.8	--	313	24700	--	--	--	--	--	--
JUN 02...	--	7.0	8.9	817	128000	--	--	--	--	--	--
29...	--	4.1	--	1360	199000	56	73	85	96	100	--
AUG 03...	--	14	1.8	143	9850	--	--	--	--	--	--
31...	--	22	2.5	124	7060	--	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .004 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
NOV 12...	10	49	73	94	99	100
APR 13...	3	24	74	99	100	--
JUN 29...	--	15	25	97	100	--
AUG 31...	--	8	34	92	100	--

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 8, 1975
0945 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OCYSTACEAE				
....ANKISTRODESMUS		240	4	
....SCENEDESMACEAE				
LSCENEDESMUS			0	
	TOTALS	240	4	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		2,800	53	
LMELOSIRA			0	
..PENNALES	PENNATE			
...CYMBELLACEAE				
LCYMBELLA			0	
...DIATOMACEAE				
LDIATOMA			0	
...FRAGILARIACEAE				
....ASTERIONELLA		120	2	
LSYNEDRA			0	
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
...NAVICULA		240	4	
...NITZSCHIA				
DNITZSCHIA		1,900	36	
	TOTALS	5,100	95	1.332=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.262

CLASS 0.262

ORDER 1.209

FAMILY 1.535

GENERA 1.535

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 12, 1975
0800 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,900 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		1,300	71	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		130	7	
...CYMBELLACEAE		130	7	
...CYMBELLA				
...FRAGILARIACEAE				
LASTERIONELLA			0	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		270	14	
...NITZSCHACEAE				
LNITZSCHIA			0	
	TOTALS	1,900	99	1.292=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LANABAENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.863
 FAMILY 1.292
 GENERA 1.292

DEC. 9, 1975
0900 HOURS

IDENTIFICATION OF PHYTOPLANKTON

480 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...SCENEDESMACEAE				
....SCENEDESMUS		41	9	
	TOTALS	41	9	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		330	70	
..PENNALES	PENNATE			
...DIATOMACEAE				
LDIATOMA			0	
...FRAGILARIACEAE				
...ASTERIONELLA		41	9	
...SYNEDRA		41	9	
...GOMPHONEMACEAE				
...GOMPHONEMA		21	4	
...NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
	TOTALS	430	92	1.154=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.426
 CLASS 0.426
 ORDER 1.149
 FAMILY 1.306
 GENERA 1.480

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 13, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...SCENEDESMACEAE				
....SCENEDESMUS		9	9	
....DOCCYSTACEAE		28	27	
DGLOEOACTINIUM				
	TOTALS	38	36	0.811=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
LCYCLOTELLA			0	
..PENNALES	PENNATE			
...CYMBELLACEAE				
...CYMBELLA		5	5	
...DIATOMACEAE				
...DIATOMA		9	9	
...FRAGILARIACEAE				
LASTERIONELLA			0	
...SYNEDRA		5	5	
...GOMPHONEMATACEAE				
LGOMPHONEMA			0	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		9	9	
...NITZSCHIAEAE				
DNITZSCHIA		38	36	
	TOTALS	66	64	1.807=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.946
 CLASS 0.946
 ORDER 0.946
 FAMILY 2.391
 GENERA 2.391

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 10, 1976
1000 HOURS

IDENTIFICATION OF PHYTOPLANKTON

310 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		10	3	
....KIRCHNERIELLA		19	6	
		TOTALS	29	9
				0.918=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		10	3	
...MELOSIRA		19	6	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...ACHNANTHES		10	3	
L ...COCCONEIS			0	
...CYMBELLACEAE				
L ...CYMBELLA			0	
...DIATOMACEAE				
...DIATOMA		19	6	
...FRAGILARIACEAE				
D ...ASTERIONELLA		120	41	
...GOMPHONEMATACEAE				
...GOMPHONEMA		19	6	
...NAVICULACEAE	NAVICULOID			
D ...NAVICULA		48	16	
...NITZSCHIA		29	9	
...SURIPELLACEAE				
L ...CYMATOPLEURA			0	
L ...SURIPELLA			0	
		TOTALS	280	90
				2.428=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.449

CLASS 0.449

ORDER 0.884

FAMILY 2.563

GENERA 2.735

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 8, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

82 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNIALES	PENNATE		
...CYMBELLACEAE		7	8
...CYMBELLA			
...DIATOMACEAE			
D ...DIATOMA		14	17
...FRAGILARIACEAE			
D ...ASTERIONELLA		21	25
...GOMPHONEMACEAE			
D ...GOMPHONEMA		14	17
...NAVICULACEAE	NAVICULOID		
D ...NAVICULA		21	25
...NITZSCHIA			
...NITZSCHIA		7	8
TOTALS		82	100

2.459=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
FAMILY 2.459
GENERA 2.459

APR. 13, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCEAE			
D ...CYCLOTELLA		3,900	91
..PENNIALES	PENNATE		
...ACHNANTHACEAE			
L ...COCCONEIS			0
L ...RHODOSPHENIA			0
...DIATOMACEAE			
L ...DIATOMA			0
...FRAGILARIACEAE			0
L ...FRAGILARIA			0
...NAVICULACEAE	NAVICULOID		
...NAVICULA		270	6
...NITZSCHIA			
L ...NITZSCHIA			0
...SURIRELLACEAE			
...SURIRELLA		130	3
TOTALS		4,300	100

0.535=DIVERSITY

CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
...OSCILLATORIALES	FILAMENTOUS		
...OSCILLATORIA			0
L ...OSCILLATORIA			0
EUGLENOPHYTA	EUGLENOIDS		
..EUGLENOPHYCEAE			
...EUGLENALES			
...EUGLENACEAE			
L ...PHACUS			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.449
FAMILY 0.535
GENERA 0.535

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 4, 1976
0955 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		150	6	
...OOCYSTACEAE				
....ANKISTRODESMUS		74	3	
LCHODATELLA			0	
....TETRAEDRON		37	1	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
..ZYGNEMATALES				
...DESMIDIACEAE	PLACODERM DESMIDS			
....CLOSTERIUM		37	1	
TOTALS		300	11	1.750=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		300	11	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
....ACHNANTHES		110	4	
LRHOICOSPHEA			0	
...CYMBELLACEAE				
....CYMBELLA		180	7	
....RHOPALODIA		37	1	
...DIATOMACEAE				
....DIATOMA		37	1	
...FRAGILARIACEAE				
....FRAGILARIA		110	4	
...SYNEDRA		330	13	
...GOMPHONEMACEAE				
....GOMPHONEMA		300	11	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		480	18	
...NITZSCHACEAE				
....NITZSCHIA		330	13	
...SURIPELLACEAE				
....SURIPELLA		110	4	
TOTALS		2,300	87	3.135=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.508
 CLASS 0.508
 ORDER 1.056
 FAMILY 3.256
 GENERA 3.487

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 2, 1976
0900 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		76	3	
LDICTYOSPHAERIUM			0	
...SCENEDESMACEAE				
....ACTINASTRUM		150	7	
	TOTALS	230	10	0.918=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		76	3	
....MELOSIRA		76	3	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
....ACHNANTHES		38	2	
...COCONEIS		76	3	
....RHOICOSPHEA		38	2	
...CYMBELLACEAE				
....CYMBELLA		150	7	
....EPITHEMIA		38	2	
...DIATOMACEAE				
....DIATOMA		76	3	
...FRAGILARIACEAE				
....ASTERIONELLA		110	5	
....SYNEDRA		38	2	
...GOMPHONEMACEAE				
....GOMPHONEMA		110	5	
...MERIDIONACEAE				
....MERIDION		38	2	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		600	26	
DNITZSCHIA		570	25	
...SURIPELLACEAE				
....SURIPELLA		38	2	
LTABELLARIA			0	
	TOTALS	2,100	92	3.088=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LANABAENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.464

CLASS 0.464

ORDER 0.803

FAMILY 3.062

GENERA 3.339

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 29, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...CHARACIACEAE				
....SCHROEDERIA		54	8	
	TOTALS	54	8	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
L ...MELOSIRA			0	
..PENNATAES	PENNATE			
...ACHNANTHACEAE				
D ...COCCONEIS		110	15	
...RHOICOSPHEMIA		54	8	
...CYMBELLACEAE				
...EPITHEMIA		54	8	
...GOMPHONEMACEAE				
D ...GOMPHONEMA		110	15	
...NAVICULACEAE	NAVICULOID			
D ...NAVICULA		160	23	
...NITZSCHACEAE				
D ...NITZSCHIA		110	15	
...SURIRELLACEAE				
....SURIRELLA		54	8	
	TOTALS	650	92	2.689=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LAPHANIZOMENON			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.391
 CLASS 0.391
 ORDER 0.391
 FAMILY 2.661
 GENERA 2.873

MISSOURI RIVER MAIN STEM

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 3, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

23,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		130	1	
...SCENEDESMACEAE		540	2	
....ACTINASTRUM		540	2	
....SCENEDESMUS				
	TOTALS	1,200	5	1.392=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISACEAE				
....CYCLOTELLA		3,100	14	
DMELOSIRA		17,000	75	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...RHODIOSPHENIA		130	1	
...NITZSCHACEAE				
....NITZSCHIA		1,100	5	
...SURIPELLACEAE				
....SURIPELLA		130	1	
	TOTALS	22,000	96	0.970=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.299
 CLASS 0.299
 ORDER 0.617
 FAMILY 0.698
 GENERA 1.291

MISSOURI RIVER MAIN STEM

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06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 31, 1976
0930 HOURS

IDENTIFICATION OF PHYTOPLANKTON

9,200 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		180	2	
....OOCYSTIS		240	3	
...SCENEDESMACEAE				
....SCENEDESMUS		240	3	
TOTALS		670	8	1.573=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		430	5	
DMELOSIRA		5,000	55	
..PENNALES	PENNATE			
DNITZSCHIAEAE		3,000	33	
DNITZSCHIA				
TOTALS		8,400	93	1.195=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGENALES				
...EUGLENACEAE		61	1	
....EUGLENA				
TOTALS		61	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.435
CLASS 0.435
ORDER 1.299
FAMILY 1.368
GENERA 1.650

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a	Chlorophyll b	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight	(mg/m ²)	(mg/m ²)		
Nov. 12	33	110	94	31	0.0	340	Polyethylene strip

MISSOURI RIVER MAIN STEM

06330110 MISSOURI RIVER STAGE GAGE NO. 9 AT WILLISTON, ND

LOCATION.--Lat 48°08'13", long 103°36'16", in NE¼NE¼ sec.25, T.154 N., R.101 W., Williams County, Hydrologic Unit 10110101, on left bank levee at southeast edge of Williston 0.5 mi (0.8 km) upstream from Little Muddy Creek and at mile 1,546.2 (kilometer 2,487.8).

DRAINAGE AREA.--164,500 mi² (426,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,820.00 ft (554.736 m) above mean sea level. Prior to May 13, 1969, at site 900 ft (270 m) downstream. At datum 20.00 ft (6.096 m) lower prior to Apr. 7, 1962.

REMARKS.--Records good. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 34.22 ft (10.430 m) July 25, 28, 1975; minimum daily recorded, 5.44 ft (1.658 m) Aug. 20, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.81	26.27	26.84	27.40	27.42	27.59	25.80	25.45	26.69	28.51	---	26.54
2	27.71	26.27	26.66	27.39	27.50	27.41	25.76	25.61	26.80	28.30	---	26.20
3	27.66	26.22	26.50	27.35	27.52	27.21	25.77	25.63	26.85	28.34	---	25.82
4	27.46	26.22	26.46	27.21	27.58	27.05	25.76	25.54	26.74	28.34	---	26.07
5	27.15	26.18	26.49	27.00	27.62	27.02	25.70	25.57	26.78	28.08	---	25.92
6	27.40	26.14	26.61	26.80	27.65	26.98	25.78	25.58	26.71	28.18	---	25.97
7	27.35	26.16	26.78	26.64	27.52	26.91	25.80	25.62	26.83	28.48	---	25.53
8	26.81	26.12	26.97	26.54	27.35	27.02	25.77	25.67	27.09	28.49	---	25.56
9	26.35	26.12	27.14	26.62	27.30	27.18	25.70	25.69	27.09	28.30	---	25.76
10	27.14	26.07	27.21	26.69	27.27	27.37	25.50	25.73	27.12	28.38	---	25.78
11	27.10	26.11	27.23	26.69	27.30	27.51	25.52	25.90	27.23	28.70	---	25.79
12	26.72	26.04	27.22	26.63	27.44	27.68	25.51	25.53	27.20	29.01	---	25.70
13	26.86	26.12	27.19	26.56	27.57	27.72	25.55	25.71	27.25	28.19	---	25.67
14	26.48	26.08	27.04	26.59	27.68	27.61	25.52	25.77	27.30	28.30	---	26.05
15	26.66	26.05	26.85	26.79	27.77	27.48	25.65	25.82	27.56	28.19	---	25.95
16	26.60	25.98	26.68	26.98	27.83	27.51	25.59	25.94	27.57	28.48	---	25.79
17	26.77	25.98	26.61	27.16	27.89	27.59	25.55	26.08	27.40	28.60	27.12	25.80
18	26.67	25.96	26.65	27.28	27.98	27.68	25.62	26.11	27.49	28.52	27.21	25.68
19	26.60	25.92	26.67	27.35	28.00	28.11	25.65	26.21	27.47	28.38	26.92	25.71
20	26.41	25.92	26.60	27.42	27.95	28.32	25.65	26.35	27.39	28.48	26.84	25.66
21	26.49	25.93	26.51	27.47	27.88	28.33	25.72	26.32	27.48	28.71	26.80	25.71
22	26.43	25.92	26.56	27.49	27.79	28.43	25.66	26.38	27.85	28.27	27.07	25.70
23	26.37	25.98	26.69	27.54	27.71	28.79	25.71	26.60	27.41	28.26	27.21	25.70
24	26.39	26.24	26.82	27.57	27.70	29.00	25.65	26.70	27.24	---	26.47	25.70
25	26.41	27.00	27.00	27.56	27.70	28.74	25.71	26.72	27.59	---	26.52	25.69
26	26.47	27.18	27.08	27.55	27.71	28.55	25.71	26.62	27.73	---	26.54	25.68
27	26.20	26.96	27.25	27.52	27.70	28.60	25.61	26.70	27.75	---	25.73	---
28	26.52	26.99	27.20	27.50	27.66	28.17	25.58	26.70	27.72	---	26.62	---
29	26.40	27.16	27.20	27.42	27.64	26.71	25.50	26.68	27.87	---	26.37	---
30	26.36	27.01	27.28	27.34	---	26.09	25.48	26.60	28.25	---	26.30	---
31	26.22	---	27.36	27.37	---	25.95	---	26.64	---	---	26.24	---
MEAN	26.77	26.28	26.88	27.14	27.64	27.62	25.65	26.07	27.32	---	---	---
MAX	27.81	27.18	27.36	27.57	28.00	29.00	25.80	26.72	28.25	---	---	---
MIN	26.20	25.92	26.46	26.54	27.27	25.95	25.48	25.45	26.69	---	---	---

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LOCATION.--Lat 48°17'04", long 103°34'21", in NE¼NW¼ sec.5, T.155 N., R.100 W., Williams County, Hydrologic Unit 10110102, on left bank 37 ft (11 m) downstream from centerline of highway, 1 mi (2 km) downstream from Cow Creek, 4 mi (6 km) upstream from Camp Creek, 10 mi (16 km) northeast of Williston, and 13 mi (21 km) upstream from mouth.

PERIOD OF RECORD.--May 1954 to current year.

REMARKS.--Records good. Some small diversions for irrigation. Some regulation by Lake Zahl, Fish and Wildlife Service reservoir 22 mi (35 km) upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,910 ft³/s (196 m³/s) Mar. 27, 1960, gage height, 13.57 ft (4.136 m); minimum, 0.2 ft³/s (0.006 m³/s) Nov. 27, 1960, Feb. 5, 1963, and June 4, 1968; minimum gage height, 2.26 ft (0.689 m) July 26, 1954.

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Mar. 19	0615	*6,230	176	*12.68	3.864	Apr. 15	2215	1,300	36.8	9.55	2.911
Mar. 24	0100	5,940	168	12.56	3.828						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	16	12	12	10	22	336	46	19	16	8.5	7.2
2	11	16	12	11	11	23	269	42	19	15	8.2	7.2
3	11	16	13	10	12	23	216	41	19	14	8.5	7.2
4	11	16	15	9.6	13	20	177	41	17	13	9.2	7.2
5	11	16	15	9.2	12	19	150	36	16	12	8.8	7.2
6	11	16	14	9.2	12	18	129	34	16	12	8.5	7.2
7	10	16	13	8.5	11	17	114	32	19	11	8.2	7.2
8	11	16	13	7.8	12	18	100	32	21	11	8.8	7.2
9	10	15	13	7.5	12	18	90	30	21	11	11	7.2
10	11	15	14	7.5	12	17	82	28	22	11	9.6	7.5
11	11	16	14	7.8	12	18	76	27	25	11	9.2	7.5
12	11	15	13	8.2	13	15	72	31	23	11	8.5	7.5
13	12	15	12	8.2	12	15	63	32	20	11	8.8	7.9
14	19	16	11	7.8	12	15	59	33	19	10	8.5	7.5
15	20	16	11	7.8	13	16	202	34	19	10	8.8	7.9
16	21	17	11	7.5	13	17	575	34	21	10	8.5	7.5
17	22	18	9.1	8.2	13	26	317	32	21	10	8.2	7.5
18	22	19	7.7	9.2	14	800	181	29	18	10	7.9	8.5
19	21	19	9.3	7.2	14	4690	126	27	18	10	8.3	10
20	20	17	11	7.8	14	3560	117	25	17	10	8.0	9.9
21	18	17	11	7.8	14	1560	105	24	16	10	7.1	9.4
22	17	16	11	8.5	14	1820	96	23	14	10	6.8	9.3
23	16	15	10	8.5	15	3890	93	22	20	10	6.7	9.2
24	16	15	10	8.5	17	3890	115	21	21	10	7.3	9.2
25	15	14	11	8.2	20	3490	103	21	21	10	8.0	9.3
26	15	13	11	7.8	25	2870	80	22	24	9.2	8.1	9.8
27	15	13	12	7.5	29	1800	67	22	25	9.2	7.8	9.6
28	15	14	12	7.8	26	1160	59	22	22	8.5	6.9	9.6
29	15	13	13	8.5	23	760	54	22	19	9.2	7.5	9.4
30	15	13	12	9.2	---	540	50	22	18	9.2	7.5	8.7
31	15	---	13	10	---	423	---	21	---	9.2	7.5	---
TOTAL	459	469	369.1	264.3	430	31570	4273	908	590	333.5	255.2	247.8
MEAN	14.8	15.6	11.9	8.53	14.8	1018	142	29.3	19.7	10.8	8.23	8.26
MAX	22	19	15	12	29	4690	575	46	25	16	11	10
MIN	10	13	7.7	7.2	10	15	50	21	14	8.5	6.7	7.2
AC-FT	910	930	732	524	853	62620	8480	1800	1170	661	506	492
CAL YR 1975	TOTAL	18948.5	MEAN	51.9	MAX	1760	MIN	3.5	AC-FT	37580		
WIR YR 1976	TOTAL	40168.9	MEAN	110	MAX	4690	MIN	6.7	AC-FT	79670		

MISSOURI RIVER MAIN STEM

06331650 MISSOURI RIVER STAGE GAGE NO. 11 NEAR WILLISTON, ND

LOCATION.--Lat 48°01'55", long 103°31'23", in SE¼ sec.34, T.153 N., R.100 W., Williams County, Hydrologic Unit 10110101, on left bank 10 mi (16 km) southeast of Williston at mile 1,534.4 (kilometer 2,468.8).

DRAINAGE AREA.--165,000 mi² (427,000 km²), approximately.

PERIOD OF RECORD.--May 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,810.00 ft (551.688 m) above mean sea level. Prior to Apr. 25, 1962, at datum 10.00 ft (3.048 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs and Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 43.93 ft (13.390 m) July 22, 1975; minimum daily recorded, 5.49 ft (1.673 m) Apr. 29, 1960, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37.81	35.64					---	31.85	33.02	37.75	---	35.93
2	37.71	35.71					---	31.91	33.15	37.62	---	35.51
3	37.65	35.49					---	31.98	33.45	37.62	---	35.33
4	37.34	35.51					32.17	31.89	33.27	37.62	---	35.47
5	36.90	35.53					32.19	32.00	33.54	37.47	---	35.40
6	37.10	35.40					32.29	31.89	33.52	37.61	---	35.44
7	37.13	35.22					32.29	31.90	33.72	37.85	---	34.73
8	36.68	35.28					32.27	31.88	34.05	37.87	---	34.88
9	36.56	35.21					32.24	31.83	33.95	37.82	---	35.06
10	36.78	35.28					32.24	31.92	34.12	37.86	---	35.08
11	36.76	35.28					32.31	32.04	34.51	38.18	---	35.07
12	36.54	35.09					32.23	---	34.08	38.31	---	34.89
13	36.64	---					32.09	---	34.31	37.79	---	34.95
14	36.44	---					31.77	31.72	34.90	37.92	---	35.15
15	36.34	---					32.29	31.71	35.04	37.90	---	35.02
16	36.19	---					32.31	31.84	35.24	38.05	---	34.97
17	36.38	---					31.53	32.08	35.45	---	36.55	34.91
18	36.24	---					31.93	31.88	35.68	---	36.70	34.76
19	36.18	---					32.03	31.79	35.88	---	36.45	34.81
20	35.91	---					32.07	32.13	36.02	---	36.34	34.69
21	36.05	---					32.28	32.11	36.26	---	36.37	34.78
22	36.11	---					32.21	32.08	36.80	---	36.51	34.74
23	36.00	---					32.41	32.22	36.41	---	36.55	34.69
24	35.92	---					32.14	32.30	36.30	---	35.96	34.62
25	35.88	---					32.41	32.49	36.60	---	36.12	34.48
26	35.89	---					32.54	31.90	36.69	---	35.97	34.52
27	35.62	---					32.31	32.45	36.77	---	34.74	34.44
28	36.00	---					32.13	32.72	36.96	---	36.03	34.40
29	35.87	---					31.74	32.72	37.23	---	35.85	34.32
30	35.85	---					31.78	32.77	37.53	---	35.80	34.25
31	35.66	---					---	32.96	---	---	35.76	---
MEAN	36.46	---					---	---	35.15	---	---	34.91
MAX	37.81	---					---	---	37.53	---	---	35.93
MIN	35.62	---					---	---	33.02	---	---	34.25

WHITE EARTH RIVER BASIN

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06332000 WHITE EARTH RIVER AT WHITE EARTH, ND

LOCATION.--Lat 48°22'35", long 102°46'00", in SE¼SW¼ sec.36, T.157 N., R.94 W., Mountrail County, Hydrologic Unit 10110101, 35 ft (11 m) upstream from bridge on county highway, 0.2 mi (0.3 km) east of White Earth.

DRAINAGE AREA.--780 mi² (2,020 km²), approximately, of which about 290 mi² (750 km²) is probably noncontributing.

PERIOD OF RECORD.--August 1954 to current year.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,070.00 ft (630.936 m) above mean sea level. Prior to Oct. 25, 1959, nonrecording gages at site 0.2 mi (0.3 km) upstream at datum 1.64 ft (0.500 m) higher.

REMARKS.--Records fair, except those for the period Nov. 4 to Mar. 29, which is poor. Flow regulated by White Earth Reservoir 12 mi (19 km) upstream beginning August 1970, capacity, 1,600 acre-ft (1.97 hm³).

AVERAGE DISCHARGE.--22 years, 28.8 ft³/s (0.816 m³/s), 20,870 acre-ft/yr (25.7 hm³/yr); median of yearly mean discharges, 15 ft³/s (0.42 m³/s), 10,900 acre-ft/yr (13 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,370 ft³/s (67.1 m³/s) Mar. 16, 1972, gage height, 18.19 ft (5.544 m); no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1929 reached a stage of 21.8 ft (6.64 m) former site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,110 ft³/s (59.8 m³/s) Mar. 24, gage height, 18.04 ft (5.499 m), backwater from construction and ice; minimum daily, 1.1 ft³/s (0.031 m³/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	16	8.0	6.5	9.0	14	963	109	15	7.4	1.9	1.7
2	15	15	7.5	6.5	8.5	12	846	100	15	6.8	1.9	1.7
3	14	14	7.5	6.0	8.0	10	672	90	14	6.3	1.9	1.7
4	14	14	7.5	6.0	7.5	10	574	82	13	5.6	1.8	1.6
5	13	14	8.0	5.5	7.0	9.5	521	74	13	5.2	2.0	1.9
6	13	13	8.0	5.5	7.0	9.0	465	57	13	5.1	2.2	1.9
7	12	13	8.0	5.5	7.0	9.0	429	64	13	5.0	2.1	1.8
8	12	12	8.0	5.5	8.0	9.0	394	58	13	4.5	2.0	2.0
9	12	12	9.0	5.0	9.0	9.0	360	54	15	4.2	2.4	2.2
10	11	11	10	5.0	8.5	8.5	332	49	13	4.2	2.7	2.3
11	11	11	10	5.0	8.0	8.5	289	45	12	3.9	2.5	2.2
12	11	10	9.0	5.0	8.0	8.0	253	44	11	3.9	2.2	2.0
13	11	15	8.0	5.0	8.0	8.0	239	41	10	3.7	1.9	2.2
14	15	20	7.0	4.5	8.5	8.0	225	40	9.8	3.4	2.4	2.2
15	16	30	6.0	4.5	9.0	8.0	198	38	9.3	3.1	2.0	2.6
16	18	30	6.0	4.5	9.0	9.0	180	35	8.8	3.1	1.9	7.3
17	18	25	5.0	4.5	9.0	15	237	33	8.4	2.9	1.6	5.4
18	18	25	5.0	5.0	9.0	90	201	22	8.6	2.8	1.4	3.6
19	17	20	5.0	5.0	8.5	450	173	21	7.9	2.8	1.7	3.4
20	17	18	5.0	5.5	8.0	500	181	21	7.5	2.8	2.0	3.5
21	17	16	5.0	5.5	8.0	250	176	21	7.0	2.8	2.0	3.5
22	16	14	5.0	6.0	9.0	450	207	21	7.0	3.4	1.7	3.4
23	16	13	5.0	6.0	10	1100	198	20	8.4	4.0	1.3	3.4
24	16	12	5.0	6.0	20	1630	217	19	12	3.5	1.1	3.2
25	15	10	5.0	5.5	30	1240	195	18	9.1	3.2	1.2	3.4
26	15	9.5	5.5	5.5	30	1510	164	22	8.6	2.9	1.6	3.9
27	15	9.0	6.0	5.0	25	1510	149	21	8.0	2.6	1.7	4.2
28	15	9.0	6.0	5.0	20	1550	136	19	7.9	2.3	1.7	3.9
29	23	9.0	7.0	6.0	15	1520	127	17	8.0	2.2	1.6	3.7
30	20	8.0	7.0	7.0	---	1380	117	17	7.7	2.0	1.6	3.5
31	18	---	7.0	9.0	---	1130	---	16	---	2.0	1.7	---
TOTAL	470	447.5	211.0	172.0	331.5	14474.5	9418	1298	314.0	117.6	57.7	89.3
MEAN	15.2	14.9	6.81	5.55	11.4	467	314	41.9	10.5	3.79	1.86	2.98
MAX	23	30	10	9.0	30	1630	963	109	15	7.4	2.7	7.3
MIN	11	8.0	5.0	4.5	7.0	8.0	117	16	7.0	2.0	1.1	1.6
AC-FT	932	888	419	341	658	28710	18680	2570	623	233	114	177
CAL YR 1975	TOTAL	34901.50	MEAN	95.6	MAX	1810	MIN	9.90	AC-FT	69230		
WTR YR 1976	TOTAL	27401.10	MEAN	74.9	MAX	1630	MIN	1.1	AC-FT	54350		

BEAR DEN CREEK BASIN

06332515 BEAR DEN CREEK NEAR MANDAREE, ND
(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, Hydrologic Unit 10110101, on right bank 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).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,947.58 ft (593.622 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--10 years, 10.2 ft³/s (0.289 m³/s), 7,390 acre-ft/yr (9.11 hm³/yr); median of yearly mean discharges, 8.6 ft³/s (0.24 m³/s) 6,200 acre-ft/yr (7.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,840 ft³/s (80.4 m³/s) Mar. 13, 1972, gage height, 9.02 ft (2.749 m); maximum gage height, 10.03 ft (3.057 m) Apr. 6, 1969; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 10	--	175 4.96	(a)	Mar. 18	--	*1,560 44.2	*7.25 2.210
Feb. 25	--	210 5.95	(a)	Mar. 23	2200	186 5.27	3.92 1.195

Minimum discharge, 0.11 ft³/s (0.003 m³/s) July 24, 25.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.28	.25	.25	1.6	3.8	6.4	.61	.47	.17	.15	.17
2	.25	.28	.25	.20	3.0	1.8	5.9	.57	.22	.17	.23	.15
3	.23	.28	.25	.20	3.5	.90	4.7	.62	.23	.19	.26	.15
4	.23	.28	.30	.15	1.6	.65	3.0	.48	.21	.17	.19	.15
5	.23	.25	.35	.15	1.5	.60	2.8	.46	.19	.17	.25	.15
6	.15	.23	.40	.15	.50	.50	3.2	.43	.21	.19	.23	.15
7	.13	.23	.40	.15	.40	.50	2.8	.46	.21	.35	.25	.17
8	.17	.23	.40	.15	.50	.50	2.0	.43	.23	.50	.25	.21
9	.28	.23	.40	.15	34	.60	1.6	.43	.23	.35	.21	.19
10	.31	.23	.40	.15	90	.65	1.5	.43	.23	.25	.21	.17
11	.31	.23	.35	.15	60	.50	1.5	.40	.23	.20	.21	.17
12	.31	.25	.35	.15	40	.50	1.4	.43	.34	.25	.21	.17
13	1.0	.21	.35	.15	30	.50	1.2	.43	.28	.20	.21	.17
14	3.1	.28	.30	.15	20	.50	.98	.40	.28	.20	.23	.17
15	4.9	.40	.30	.15	25	.60	.83	.46	.28	.15	.21	.19
16	2.6	.43	.25	.15	30	1.0	2.1	.53	.25	.35	.21	.23
17	1.4	.49	.25	.15	40	135	9.8	.49	.25	.14	.21	.19
18	.98	.53	.20	.15	25	619	5.9	.53	.25	.13	.21	.21
19	.75	.53	.20	.20	20	510	3.4	.49	.23	.15	.21	.23
20	.57	.49	.20	.20	20	221	2.6	.49	.23	.13	.23	.23
21	.49	.43	.20	.25	15	81	2.5	.49	.25	.19	.23	.21
22	.53	.37	.20	.25	30	92	3.6	.49	.28	.19	.23	.21
23	.43	.28	.20	.25	70	158	2.8	.43	.28	.13	.17	.19
24	.40	.28	.20	.25	95	86	4.0	.40	.35	.11	.17	.19
25	.37	.28	.20	.25	145	37	3.4	.37	.50	.11	.17	.17
26	.37	.25	.25	.25	80	27	1.8	.34	.40	.15	.19	.19
27	.34	.25	.25	.25	20	12	.80	.34	.34	.17	.17	.19
28	.34	.25	.30	.30	14	12	.52	.34	.32	.17	.17	.21
29	.34	.25	.25	.35	7.0	10	.53	.34	.19	.15	.17	.17
30	.34	.25	.25	.60	---	8.4	.61	.37	.17	.15	.42	.19
31	.31	---	.25	1.5	---	10	---	.37	---	.13	.18	---
TOTAL	22.44	9.25	8.70	7.80	922.60	2032.50	84.17	13.85	8.13	6.06	6.64	5.54
MEAN	.72	.31	.28	.25	31.8	65.6	2.81	.45	.27	.20	.21	.18
MAX	4.9	.53	.40	1.5	145	619	9.8	.62	.50	.50	.42	.23
MIN	.13	.21	.20	.15	.40	.50	.52	.34	.17	.11	.15	.15
AC-FT	45	18	17	15	1830	4030	167	27	16	12	13	11
CAL YR 1975 TOTAL	8081.63			MEAN 22.1	MAX 923	MIN 0	AC-FT 16030					
WTR YR 1976 TOTAL	3127.68			MEAN 8.55	MAX 619	MIN .11	AC-FT 6200					

BEAR DEN CREEK BASIN

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06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: August 1969 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT												
06...	1210	.15	3000	8.4	11.5	9.6	96	889	868	885	240	0
NOV												
10...	1310	.22	2980	8.3	1.5	10.8	84	875	853	820	260	0
DEC												
08...	1220	.38	2900	8.1	.5	9.8	73	835	820	855	260	0
JAN												
12...	1255	.15	2800	7.9	.0	11.8	87	868	842	832	260	0
FEB												
09...	1230	1.7	2500	8.3	.0	11.2	82	827	813	868	270	0
MAR												
08...	1325	.53	1550	8.1	.5	10.8	79	8145	890	8137	180	0
APR												
12...	1310	1.4	2030	8.6	12.5	10.0	100	--	--	--	230	0
MAY												
03...	1220	.59	2120	8.6	9.5	9.4	88	820	813	821	290	0
JUN												
01...	1220	.43	2600	8.4	21.0	7.8	93	895	895	874	220	0
28...	1250	.32	2620	8.3	18.0	7.8	88	837	816	820	180	0
AUG												
02...	1325	.16	3020	9.6	23.5	6.4	80	100	35	235	160	0
30...	1240	.12	2950	8.9	19.5	7.6	87	868	858	847	160	0

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT											
06...	49	28	610	84	17	8.1	775	36	696	5.4	850
NOV											
10...	57	28	600	83	16	7.4	980	0	804	7.9	760
DEC											
08...	58	29	660	84	18	7.0	1050	0	861	13	810
JAN											
12...	58	27	600	83	16	5.7	1040	0	853	21	700
FEB											
09...	54	33	520	80	14	11	749	0	614	6.0	750
MAR											
08...	41	19	290	77	9.4	9.3	517	0	424	6.6	380
APR											
12...	52	25	330	75	9.4	8.8	583	0	478	2.3	490
MAY											
03...	60	35	450	76	11	8.4	635	28	567	2.8	720
JUN											
01...	33	33	590	85	17	8.3	843	15	716	5.6	720
28...	29	25	620	88	20	8.4	748	87	758	7.4	740
AUG											
02...	21	25	720	90	25	9.3	905	69	857	.4	770
30...	20	27	740	90	25	9.2	1020	55	928	2.3	840

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

BEAR DEN CREEK BASIN

06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL FILTRABLE RESIDUE (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NON-FILTRABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT 06...	4.0	.4	8.3	1940	1800	1980	2.64	.79	53	.00	.06
NOV 10...	4.2	.4	11	1910	--	1950	2.60	1.13	--	.02	.02
DEC 08...	24	.4	15	2060	--	2120	2.80	2.11	--	.06	.01
JAN 12...	3.3	.3	16	1990	--	1920	2.71	.81	--	.08	.00
FEB 09...	6.0	.4	12	1810	--	1760	2.46	8.31	--	.24	.09
MAR 08...	6.0	.2	11	1060	--	1010	1.44	1.52	--	.20	.12
APR 12...	6.3	.3	8.8	1240	--	1210	1.69	4.69	--	.00	.10
MAY 03...	9.8	.4	5.2	1630	--	1630	2.22	2.60	--	.02	.05
JUN 01...	5.5	.4	5.2	1970	--	1830	2.68	2.29	--	.03	.05
28...	3.8	.4	6.8	1920	--	1890	2.61	1.66	--	.01	.04
AUG 02...	3.5	.5	5.2	2120	--	2070	2.88	.92	--	.01	.05
30...	4.4	.5	5.7	2250	--	2200	3.06	.73	--	.01	.05

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)
NOV 10...	2	100	10	0	10	920	<100	140	1.1
APR 12...	3	100	<10	20	20	1600	<100	120	.1

DATE	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUSPENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	SUSPENDED GROSS BETA AS CS-137 (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUSPENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)
OCT 06...	--	--	--	<19	2.2	13	2.7	10	2.4	.05
NOV 10...	0	0	2	--	--	--	--	--	--	--
APR 12...	0	<10	20	--	--	--	--	--	--	--

DATE	DIS-SOLVED URANIUM (U) (UG/L)	CYANIDE (CN) (MG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ATRAZINE (UG/L)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)
OCT 06...	4.0	--	--	--	--	--	--	--	--
NOV 10...	--	.00	ND	ND	ND	ND	ND	ND	ND
APR 12...	--	.00	--	--	--	--	--	--	--

Whole water ND - Not detected at 0.01 ug/L level.
 Bed material ND - Not detected at 0.1 ug/mg level.

BEAR DEN CREEK BASIN

313

06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)
OCT 06...	--	--	--	--	--	--	--	--	--
NOV 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND
APR 12...	--	--	--	--	--	--	--	--	--

DATE	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)
OCT 06...	--	--	--	--	--	--	--	--	--
NOV 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND
APR 12...	--	--	--	--	--	--	--	--	--

DATE	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)
OCT 06...	--	--	--	--	--	--	--	--	--	--
NOV 10...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	SUS- PENDEO SEDI- MENT (MG/L)	SUS- PENDEO SEDI- MENT CHARGE (T/DAY)
OCT 06...	--	--	--	--	--	--	--	136	.06
NOV 10...	ND	ND	ND	ND	ND	ND	ND	80	.05
DEC 08...	--	--	--	--	--	--	--	118	.12
JAN 12...	--	--	--	--	--	--	--	132	.05
FEB 09...	--	--	--	--	--	--	--	67	.31
MAR 08...	--	--	--	--	--	--	--	28	.04
APR 12...	--	--	--	--	--	--	--	77	.29
MAY 03...	--	--	--	--	--	--	--	72	.11
JUN 01...	--	--	--	--	--	--	--	41	.05
JUN 28...	--	--	--	--	--	--	--	45	.04
AUG 02...	--	--	--	--	--	--	--	62	.03
AUG 30...	--	--	--	--	--	--	--	55	.02

Whole water ND - Not detected at 0.01 µg/L level.

Bed material ND - Not detected at 0.1 µg/mg level.

SHELL CREEK BASIN

315

06332520 SHELL CREEK NEAR PARSHALL, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV										
03...	1350	7.6	2325	8.3	6.0	320	0	45	50	460
DEC										
01...	1455	3.2	2950	8.2	.5	410	0	63	61	540
JAN										
05...	1540	3.2	2500	7.8	.5	380	0	59	57	520
FEB										
02...	1450	3.3	2600	8.0	.0	350	0	59	49	530
MAR										
05...	1435	.83	2190	8.2	.0	320	0	58	43	390
24...	1130	167	740	8.1	.0	120	0	23	15	89
MAY										
03...	1650	17	1825	8.6	12.0	310	0	47	47	370
JUN										
01...	1610	3.7	2390	8.4	22.0	300	0	48	44	510
28...	1655	5.2	2250	8.3	18.0	290	0	47	42	480
AUG										
02...	1925	.29	2600	8.8	23.5	260	0	28	46	560
SEP										
02...	1555	.66	2650	8.9	19.0	280	0	39	44	580

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARRON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
NOV									
03...	75	11	8.5	777	4	644	6.3	660	11
DEC									
01...	74	12	10	967	0	793	9.8	780	12
JAN									
05...	74	12	10	898	0	737	23	740	12
FEB									
02...	76	12	7.6	905	0	742	14	720	9.2
MAR									
05...	72	9.5	11	727	0	596	7.3	580	8.5
24...	60	3.5	8.2	188	0	154	2.4	160	3.6
MAY									
03...	72	9.1	7.8	664	0	545	2.7	540	7.5
JUN									
01...	78	13	7.1	845	9	708	5.5	680	7.2
28...	78	12	6.4	752	38	680	6.4	670	4.5
AUG									
02...	82	15	6.7	785	35	702	2.2	730	7.4
SEP									
02...	81	15	8.0	834	45	759	1.9	780	10

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
NOV									
03...	.3	8.1	1720	1630	2.34	35.3	360	290	40
DEC									
01...	.3	17	1980	1960	2.69	17.1	80	60	170
JAN									
05...	.6	21	1920	1870	2.61	16.6	200	120	220
FEB									
02...	.4	16	1950	1840	2.65	17.4	800	190	220
MAR									
05...	.2	13	1530	1470	2.08	3.43	920	380	200
24...	.1	6.5	442	406	.60	199	400	190	100
MAY									
03...	.2	8.6	1360	1360	1.85	62.5	280	80	80
JUN									
01...	.4	19	1760	1750	2.39	17.6	800	190	50
28...	.3	23	1660	1680	2.26	23.3	300	250	20
AUG									
02...	.1	19	1840	1820	2.50	1.44	380	250	0
SEP									
02...	.4	23	1910	1940	2.60	3.40	300	150	20

LITTLE MISSOURI RIVER BASIN

06335000 LITTLE BEAVER CREEK NEAR MARMARTH, ND

LOCATION.--Lat 46°16'29", long 103°58'33", in NE¼ sec.7, T.132 N., R.106 W., Bowman County, Hydrologic Unit 10110201, on right bank 150 ft (46 m) downstream from concreted ford, 0.8 mi (1.3 km) downstream from Corral Creek, 3 mi (5 km) southwest of Marmarth, and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--587 mi² (1,520 km²), approximately.

PERIOD OF RECORD.--April 1938 to current year.

REVISED RECORDS (WATER YEARS).--WSP 1279: 1939(M), 1940, 1943-44(M), 1945, 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,733.14 ft (833.061 m) above mean sea level. June 28, 1951 to May 17, 1968, water-stage recorder 300 ft (90 m) upstream at datum 10.00 ft (3.048 m) higher. See WSP 1729 or 1917 for history of changes prior to June 28, 1951.

REMARKS.--Records good.

AVERAGE DISCHARGE.--38 years, 43.4 ft³/s (1.229 m³/s), 31,440 acre-ft/yr (38.8 hm³/yr), median of yearly mean discharges, 30 ft³/s (0.85 m³/s), 21,700 acre-ft/yr (27 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s (360 m³/s) Apr. 6, 1952, gage height, 13.9 ft (4.24 m), from floodmark, site and datum then in use, from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s (39.9 m³/s) June 23, gage height, 14.39 ft (4.386 m); minimum daily, 0.01 ft³/s (0.0003 m³/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.7	2.0	6.0	10	40	22	18	8.4	20	1.0	.08
2	3.3	3.9	2.5	6.0	45	30	21	17	7.0	20	.85	.12
3	3.7	4.3	3.0	5.5	35	30	21	15	8.4	161	.95	.02
4	4.1	4.8	3.5	5.5	10	35	21	15	5.1	31	1.0	.05
5	5.5	5.0	4.0	5.0	15	30	20	14	15	17	.95	.08
6	4.1	5.5	4.0	5.0	10	20	19	13	119	13	2.4	.01
7	4.6	5.8	4.5	5.0	10	20	17	14	36	12	11	.02
8	5.0	5.5	5.0	4.0	10	15	17	12	30	9.7	4.3	.02
9	4.8	5.0	5.0	4.0	10	15	16	10	15	8.8	2.7	.05
10	5.0	4.5	5.5	4.0	15	125	16	9.7	13	8.8	2.0	.08
11	5.5	4.0	5.0	4.0	20	114	16	6.6	12	7.0	1.4	.05
12	5.8	4.0	5.0	4.0	90	84	15	14	14	6.6	1.2	.08
13	5.5	4.0	4.5	4.0	296	55	15	47	16	5.1	1.2	.16
14	5.5	4.0	4.0	4.0	376	58	15	25	230	4.8	1.6	.24
15	5.8	4.5	3.0	4.0	409	58	15	20	306	4.3	.85	.29
16	5.8	5.0	2.0	4.0	235	53	16	18	95	3.9	.76	.12
17	5.8	4.0	1.5	4.0	147	61	47	14	110	3.7	.60	.29
18	6.2	4.0	1.5	4.5	144	95	56	13	81	3.5	.47	.35
19	6.6	4.0	1.5	4.5	123	79	50	14	60	3.5	.41	.35
20	7.0	4.0	2.0	5.0	102	68	57	13	49	19	.35	.29
21	7.3	4.0	2.0	5.0	90	68	45	12	39	31	.29	.35
22	7.7	3.5	2.0	5.0	90	69	36	12	32	20	.29	.29
23	9.7	3.5	2.5	5.0	90	60	24	10	681	8.1	.29	.35
24	9.3	3.0	2.5	5.5	92	55	26	10	145	4.6	.24	.41
25	8.8	3.0	3.0	6.0	104	38	25	11	102	3.7	.20	.47
26	8.1	2.5	3.5	6.5	123	35	21	8.8	84	2.7	.16	.47
27	7.3	2.5	6.5	6.0	109	28	20	12	53	1.2	.16	.47
28	6.9	2.0	7.0	5.0	78	27	18	10	39	1.6	.12	.61
29	6.6	2.0	7.0	4.5	51	25	18	8.9	31	1.4	.08	.68
30	4.6	2.0	7.5	4.5	---	24	18	8.4	25	1.4	.08	.53
31	4.6	---	7.5	4.5	---	23	---	8.1	---	1.2	.08	---
TOTAL	184.0	117.5	120.0	149.5	2939	1573	743	433.5	2460.9	439.6	37.98	7.38
MEAN	5.94	3.92	3.87	4.82	101	50.7	24.8	14.0	82.0	14.2	1.23	.25
MAX	9.7	5.8	7.5	6.5	409	125	57	47	681	161	11	.68
MIN	3.3	2.0	1.5	4.0	10	15	15	6.6	5.1	1.2	.08	.01
AC-FT	365	233	238	297	5830	3120	1470	860	4880	872	75	15
CAL YR 1975	TOTAL	17523.40	MEAN	48.0	MAX	1350	MIN	1.0	AC-FT	34760		
WTR YR 1976	TOTAL	9205.36	MEAN	25.2	MAX	681	MIN	.01	AC-FT	18260		

LITTLE MISSOURI RIVER BASIN

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06335500 LITTLE MISSOURI RIVER AT MARMARTH, ND

LOCATION.--Lat 46°17'44", long 103°55'06", in SW¼ sec.30, T.133 N., R.105 W., Slope County, Hydrologic Unit 10110203, on left bank 90 ft (27 m) downstream from bridge on U.S. Highway 12 in Marmarth and 1.5 mi (2.4 km) downstream from Little Beaver Creek.

DRAINAGE AREA.--4,640 mi² (12,020 km²), approximately.

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS (WATER YEARS).--WSP 896: 1938-39. WSP 1086: 1943-44. WSP 1279: 1943(M), 1945-46, 1948. WSP 1439: 1950 (calendar year figures).

GAGE.--Water-stage recorder. Datum of gage is 2,686.32 ft (818.790 m) above mean sea level. Prior to June 23, 1950, various nonrecording gages on former highway bridge at present site and datum. June 23, 1950, to Sept. 2, 1957, nonrecording gage at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--38 years, 339 ft³/s (9.600 m³/s), 245,600 acre-ft/yr (303 hm³/yr); median of yearly mean discharges, 270 ft³/s (7.65 m³/s), 196,000 acre-ft/yr (240 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s (1,270 m³/s) Mar. 23, 1947, gage height, 21.7 ft (6.61 m); maximum gage height, 23.4 ft (7.13 m) Mar. 31, 1952, backwater from ice; no flow for part of most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, the greatest known flood prior to 1953 occurred in June 1907 (stage unknown). Other major floods occurred in March 1913, May 1929, and March 1920 and reached stages of about 21.5 ft (6.55 m), 20.2 ft (6.16 m), and 19.7 ft (6.00 m), respectively. These stages are not comparable to stages during period of record, owing to construction of levees.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,170 ft³/s (175 m³/s) June 17, gage height, 8.18 ft (2.493 m); minimum, 0.90 ft³/s (0.025 m³/s) Sept. 18, gage height 1.55 ft (0.472 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	27	6.5	85	60	620	70	101	50	884	43	6.5
2	14	27	5.0	75	80	360	68	93	40	536	38	5.0
3	14	27	6.5	60	270	230	68	133	38	854	36	5.0
4	14	25	7.0	55	250	160	70	259	33	398	36	4.6
5	14	25	8.0	45	225	120	70	258	95	350	36	4.1
6	14	28	8.0	30	250	100	68	214	320	403	37	3.3
7	14	30	9.0	25	240	80	63	168	53	303	56	2.5
8	14	28	10	20	280	90	59	126	42	279	50	2.7
9	15	28	10	14	335	140	56	99	35	378	36	4.3
10	16	27	30	11	430	260	54	91	28	442	32	4.4
11	20	31	48	11	550	290	53	84	30	378	28	4.7
12	23	30	25	12	610	220	50	104	265	247	25	4.6
13	23	39	22	13	1130	150	47	129	152	178	26	4.1
14	24	37	16	13	1240	100	48	117	410	160	28	4.2
15	24	53	14	14	1220	160	48	83	1590	136	55	3.7
16	23	33	10	15	990	170	73	72	1740	119	19	3.8
17	23	33	7.0	15	777	240	188	78	5700	103	17	3.4
18	21	31	6.5	15	530	330	220	77	5620	95	18	2.1
19	21	30	6.0	15	390	330	164	72	5700	92	17	2.1
20	21	31	7.0	16	310	310	252	67	5120	224	28	1.7
21	24	40	8.0	18	280	270	247	62	4750	247	31	1.9
22	31	30	9.0	20	270	460	283	58	4120	437	27	1.6
23	40	27	9.5	24	400	660	306	54	4080	176	19	3.7
24	55	20	12	28	550	350	320	54	2460	117	14	4.5
25	51	10	14	26	630	300	283	53	1720	94	14	5.5
26	42	9.0	20	20	760	200	216	60	1460	82	11	7.5
27	31	8.0	25	18	890	160	164	62	1660	72	8.5	15
28	33	9.0	35	20	800	120	132	70	1690	63	7.6	23
29	28	9.0	55	26	720	101	120	61	1530	60	8.3	21
30	27	8.0	60	30	---	86	115	54	1290	53	7.5	19
31	28	---	70	40	---	76	---	53	---	48	7.7	---
TOTAL	757	790.0	579.0	829	15467	7243	3975	3066	51821	8008	816.6	179.5
MEAN	24.4	26.3	18.7	26.7	533	234	133	98.9	1727	258	26.3	5.98
MAX	55	53	70	85	1240	660	320	259	5700	884	56	23
MIN	14	8.0	5.0	11	60	76	47	53	28	48	7.5	1.6
AC-FT	1500	1570	1150	1640	30680	14370	7880	6080	102800	15880	1620	356
CAL YR 1975	TOTAL	212578.57	MEAN 582	MAX 22500	MIN .50	AC-FT 421600						
WTR YR 1976	TOTAL	93531.10	MEAN 256	MAX 5700	MIN 1.6	AC-FT 185500						

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND

LOCATION.--Lat 47°35'25", long 103°15'05", in NW¼SE¼SE¼ sec.35, T.148 N., R.99 W., McKenzie County, Hydrologic Unit 10110205, 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 (21,520 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year.

REVISED RECORDS (WATER YEARS).--WSP 926: 1935. WSP 1270: 1943.

GAGE.--Water-stage recorder and supplemental nonrecording gage. Datum of gage is 1,929.03 ft (587.968 m) above mean sea level. Oct. 2, 1959, to June 17, 1963, water-stage recorder at present site and datum. June 18, 1963, to Nov. 28, 1964, at site 700 ft (210 m) upstream at present datum. See WSP 1729 or 1917 for history of changes prior to Oct. 2, 1959.

REMARKS.--Records fair except those for the winter period, which are poor.

AVERAGE DISCHARGE.--42 years, 601 ft³/s (17.02 m³/s), 435,400 acre-ft/yr (537 hm³/yr); median of yearly mean discharges, 460 ft³/s (13.0 m³/s), 333,000 acre-ft/yr (410 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft³/s (3,120 m³/s) Mar. 25, 1947, gage height, 24.0 ft (7.32 m) from floodmark, site then in use; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,600 ft³/s (215 m³/s) June 24, gage height, 6.00 ft (1.829 m); maximum gage height, 9.39 ft (2.862 m) Mar. 19, backwater from ice; minimum daily discharge, 4.0 ft³/s (0.113 m³/s) Jan. 9-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	46	9.0	10	30	1230	408	316	103	1760	150	24
2	25	46	9.0	9.0	35	830	349	278	66	1700	129	23
3	24	48	9.0	8.0	30	740	316	250	63	1560	113	23
4	21	46	10	7.0	25	600	305	215	58	1370	106	23
5	21	44	15	7.0	20	500	278	191	55	3790	97	23
6	23	41	20	7.0	20	450	288	172	110	2610	93	21
7	23	39	15	6.0	25	400	266	159	570	1700	77	21
8	20	38	15	5.0	40	350	240	138	594	1090	69	23
9	21	38	15	4.0	50	320	266	142	610	749	261	17
10	24	40	16	4.0	40	320	256	205	650	602	210	16
11	25	35	15	4.0	35	300	220	230	476	695	177	15
12	24	35	10	4.0	40	400	225	344	338	1040	106	14
13	29	30	9.0	4.0	110	450	200	758	310	626	83	14
14	79	30	8.0	4.5	490	480	195	530	294	686	74	15
15	215	35	8.0	4.5	740	500	177	344	283	668	90	15
16	220	40	8.0	4.5	1020	570	215	215	360	530	74	44
17	138	40	7.0	5.0	1740	740	530	256	408	448	52	160
18	67	35	6.0	5.5	1890	2340	455	235	1230	378	48	215
19	52	35	6.0	5.5	2000	2830	366	172	1820	333	39	192
20	46	30	7.0	6.0	2100	2660	305	125	2940	310	35	60
21	44	30	7.0	7.0	1740	2340	250	129	4200	283	35	33
22	44	25	8.0	9.0	1470	2040	355	110	5280	250	33	50
23	42	25	8.0	15	1470	1740	360	100	5850	220	42	39
24	39	25	8.0	20	1600	1650	469	90	6820	191	37	33
25	39	20	9.0	15	1740	1250	650	97	5600	182	31	31
26	39	15	10	10	1700	1120	538	305	5480	305	31	33
27	42	15	10	10	1740	1020	448	396	2780	384	25	27
28	42	10	15	15	2000	920	414	205	2000	355	25	25
29	42	10	15	20	1740	704	378	150	1760	261	25	25
30	44	10	10	20	---	586	355	113	1540	205	24	24
31	48	---	10	25	---	469	---	134	---	172	24	---
TOTAL	1589	956	327.0	280.5	25680	30849	10077	7104	52648	25453	2415	1278
MEAN	51.3	31.9	10.5	9.05	886	995	336	229	1755	821	77.9	42.6
MAX	220	48	20	25	2100	2830	650	758	6820	3790	261	215
MIN	20	10	6.0	4.0	20	300	177	90	55	172	24	14
AC-FT	3150	1900	649	556	50940	61190	19990	14090	104400	50490	4790	2530
CAL YR 1975 TOTAL	326370.50			MEAN 894	MAX 16600	MIN 0	AC-FT 647400					
WTR YR 1976 TOTAL	158656.50			MEAN 433	MAX 6820	MIN 4.0	AC-FT 314700					

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued
(National Water-Quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1972 to March 1974 (weekly), April 1974 to current year.
WATER TEMPERATURES: July 1972 to March 1974 (weekly), April 1974 to current year.
SEDIMENT RECORDS: October 1948 to September 1976 (daily).

REMARKS.--Minimum daily temperatures for current year estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,400 micromhos Jan. 7-9, 1975; minimum daily, 465 micromhos, Feb. 26, 1976.
WATER TEMPERATURES: Maximum daily, 30.0°C June 5, 1975; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS (1972 to current year): Maximum daily mean, 41,200 mg/L Apr. 29, 1975; minimum daily mean, 0 mg/L Jan. 12 - Feb. 19, 1975.
SEDIMENT LOADS (1972 to current year): Maximum daily, 1,530,000 tons (1,388,000 tonnes) May 11, 1975; minimum daily, 0 ton (0 tonnes), Jan. 12 - Feb. 19, 1975.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,700 micromhos Dec. 10; minimum daily, 465 micromhos Feb. 26.
WATER TEMPERATURES: Maximum daily, 25.0°C July 5; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 31,300 mg/L June 7; minimum daily 70 mg/L Sept. 6, 30.
SEDIMENT LOADS: Maximum daily, 328,000 tons (298,000 tonnes) June 24; minimum daily 1.5 tons (1.4 tonnes) Jan. 9-13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)
OCT 07...	0930	23	2300	8.5	10.5	30	9.2	92	845	8105	410	58
NOV 11...	1020	40	2200	8.4	.0	95	11.0	81	816	845	320	0
DEC 10...	1145	16	2700	7.9	.0	75	7.4	54	850	840	510	26
JAN 14...	1110	4.4	2150	8.0	.0	4	11.8	87	813	826	570	40
FEB 11...	1250	34	840	8.5	.0	180	12.0	88	821	868	120	0
MAR 10...	1050	322	1180	8.2	.0	29	9.6	70	--	--	240	57
APR 14...	1150	190	1970	8.8	10.5	92	9.6	109	--	--	370	35
MAY 06...	1055	186	1850	8.7	10.0	380	10.2	97	820	8100	360	61
JUN 15...	1400	247	1400	7.8	19.5	15	9.2	107	850	840	190	11
JUL 13...	1115	627	1210	8.1	23.0	2900	7.0	86	865	837	200	0
AUG 16...	1355	77	1600	8.9	23.0	220	8.6	106	8160	8195	320	61
SEP 13...	1425	14	2000	8.7	17.0	30	9.0	99	853	868	380	28

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT 07...	100	40	370	65	7.9	11	402	16	356	2.2	860
NOV 11...	67	38	400	72	9.7	9.6	432	18	384	3.0	780
DEC 10...	110	57	450	65	8.7	12	589	0	483	12	920
JAN 14...	130	60	430	61	7.8	12	648	0	531	10	970
FEB 11...	28	12	140	70	5.6	10	198	0	162	1.0	250
MAR 10...	49	29	160	58	4.5	9.6	225	0	185	2.3	370
APR 14...	77	42	280	62	6.4	10	388	7	330	1.0	670
MAY 06...	73	42	290	63	6.7	9.1	330	14	294	1.1	640
JUN 15...	44	20	240	72	7.5	9.4	221	0	181	5.6	490
JUL 13...	47	20	200	67	6.2	10	516	0	--	6.6	490
AUG 16...	72	34	270	64	6.6	13	309	3	258	.6	610
SEP 13...	80	44	350	66	7.8	14	422	4	353	1.4	740

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

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	DIS- SOLVED FLUOR- IDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT											
07...	9.9	.3	7.4	1620	1610	2.20	101	.01	.62	.63	.06
NOV											
11...	11	.4	5.3	1570	1540	2.14	170	.02	1.0	1.0	.20
DEC											
10...	33	.3	9.8	1920	1880	2.61	82.9	.40	.96	1.4	.08
JAN											
14...	10	.3	12	1930	1940	2.62	22.9	.09	1.2	1.3	.00
FEB											
11...	4.5	.1	5.8	587	549	.80	53.9	.45	2.6	3.1	.22
MAR											
10...	6.7	.3	7.5	794	743	1.08	690	.32	1.4	1.7	.14
APR											
14...	8.4	.3	6.9	1340	1290	1.82	687	.00	1.1	1.1	.15
MAY											
06...	18	.4	7.1	1320	1260	1.80	663	.12	2.0	2.1	.34
JUN											
15...	5.9	.3	8.4	1020	927	1.39	680	1.9	6.8	8.7	5.1
JUL											
13...	9.6	.4	9.2	886	1040	1.20	1500	.59	6.3	6.9	3.1
AUG											
16...	8.8	.4	9.0	1190	1170	1.62	247	.02	1.2	1.2	.25
SEP											
13...	9.4	.4	12	1500	1460	2.04	56.7	.00	.46	.46	.04

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)
NOV									
11...	4	3	1	--	10	10	0	<10	<6
FEB									
11...	8	5	3	--	10	9	1	10	10
APR									
14...	3	2	1	--	<10	<9	1	0	0
JUL									
13...	--	--	--	290	--	--	--	--	--
AUG									
16...	13	12	1	--	<10	<9	1	20	20

DATE	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS- PENDE D COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)
NOV									
11...	4	<50	<49	1	10	2	8	4100	30
FEB									
11...	0	<50	<48	2	60	24	36	9100	360
APR									
14...	--	<50	<50	0	20	0	27	3600	20
JUL									
13...	--	--	--	--	--	--	--	--	--
AUG									
16...	0	<50	<50	0	40	32	8	9200	30

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE D MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE D MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)
NOV 11...	100	96	4	170	150	20	.6	.0	.6
FEB 11...	<100	<87	13	90	0	90	.3	.0	.3
APR 14...	<100	<98	2	160	130	30	.9	.4	.5
JUL 13...	--	--	--	--	--	--	--	--	--
AUG 16...	<100	<95	5	220	210	10	.1	.1	.0

DATE	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE D SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE D ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL CHLOR- DANE (UG/L)
NOV 11...	1	0	2	60	10	50	9.2	ND	ND	ND	ND
FEB 11...	1	0	1	100	60	40	46	ND	--	ND	ND
APR 14...	0	0	0	40	0	40	11	--	--	--	--
MAY 06...	--	--	--	--	--	--	--	ND	ND	ND	ND
AUG 16...	1	0	1	60	50	10	15	ND	--	ND	ND

DATE	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)
NOV 11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 11...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 14...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)
NOV 11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 11...	ND	--	ND	--	ND	--	ND	--	ND	--
APR 14...	--	--	--	--	--	--	--	--	--	--
MAY 06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 16...	ND	--	ND	--	ND	--	ND	--	ND	--

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)
NOV												
11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC												
10...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR												
14...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN												
15...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
16...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MA- TERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MA- TERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MA- TERIAL (UG/KG)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM
NOV												
11...	ND	ND	ND	--	ND	--	ND	--	--	--	--	--
DEC												
10...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	ND	--	ND	--	ND	--	ND	--	--	--	--	--
APR												
14...	--	--	--	--	--	--	--	--	186	95	67	86
MAY												
06...	ND	ND	ND	ND	ND	ND	ND	ND	796	400	86	95
JUN												
15...	--	--	--	--	--	--	--	--	13100	8740	80	93
AUG												
16...	ND	--	ND	--	ND	--	ND	--	356	74	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 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 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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM
NOV											
11...	--	--	--	--	--	--	--	--	--	--	--
DEC											
10...	--	3	12	59	85	93	94	96	98	100	--
FEB											
11...	--	--	--	--	--	--	--	--	--	--	--
APR											
14...	100	1	4	53	93	98	99	100	--	--	--
MAY											
06...	100	--	--	--	--	--	--	--	--	--	--
JUN											
15...	100	--	--	--	--	--	--	--	--	--	--
AUG											
16...	--	1	7	58	77	83	86	90	96	98	100

Whole water ND - Not detected at 0.01 µg/L level.
 Bed material ND - Not detected at 0.1 µg/mg level.

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	2300	---		---	---	1260	1520	1760	760	1390	1950
2	2100	2260	---		---	---	1210	1500	2080	635	---	2050
3	2010	2280	---		---	---	1370	1630	2170	625	1490	2000
4	2060	2270	---		---	---	1410	1020	2210	620	1490	1980
5	2070	2260	---		---	---	1350	1750	2170	705	1440	2030
6	2130	2260	---		---	---	1530	1760	1470	680	1470	2030
7	2240	2130	2420		---	---	1450	1790	1500	700	1580	2050
8	2140	2180	2500		---	---	1550	1610	1460	775	1560	1900
9	2150	2190	2550		---	---	1510	1880	1530	870	1580	1930
10	2150	2150	2700		---	---	1580	1950	1460	915	1360	2000
11	2110	2200	---		---	---	1530	1930	1760	910	1070	2080
12	2110	---	---		---	---	1400	1620	1390	1380	1120	1930
13	1550	2210	---		1220	---	1510	1410	1350	1180	1370	2100
14	1540	2210	---		1100	---	1500	1350	1320	1130	1460	2000
15	1620	2110	---		1120	---	1690	1540	1410	1260	1530	2030
16	1560	2110	---		920	---	790	1610	1620	1070	1590	1950
17	1650	2100	---		780	800	855	1890	2320	1120	1490	1900
18	1670	2060	---		660	650	1440	1780	1620	1130	1570	1440
19	1780	2100	---		755	630	1540	1840	1160	1200	1700	990
20	1830	2270	---		650	620	1690	1600	1220	1260	1730	945
21	---	---	---		520	570	1900	1630	775	1090	1500	1030
22	---	---	---		800	780	1850	1830	630	1400	1730	1100
23	---	---	---		805	830	1780	1600	720	1020	1560	1230
24	---	---	---		690	875	1650	1880	730	1390	1800	1450
25	---	---	---		560	775	1210	1650	750	1070	1530	1930
26	---	---	---		465	965	1660	1690	695	1390	1880	1900
27	---	---	---		---	1020	1680	1580	680	1110	2000	1800
28	---	---	---		---	1010	1910	1460	820	1290	1890	1750
29	---	---	---		---	990	1940	1500	825	1350	2000	1750
30	---	---	---		---	1140	1670	1900	750	1140	1830	1830
31	---	---	---		---	1120	---	2290	---	1290	1820	---
MONTH	---	---	---		---	---	1510	1680	1350	1050	1580	1770

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	9.0	---		---	---	8.0	10.0	17.0	18.0	19.0	16.0
2	10.0	9.0	---		---	---	6.0	9.0	20.0	18.0	---	16.5
3	9.5	8.0	---		---	---	6.0	9.0	22.0	19.0	19.0	15.0
4	12.0	9.5	---		---	---	9.0	12.0	17.0	17.0	22.0	14.5
5	9.5	8.5	---		---	---	12.0	12.0	20.0	25.0	17.0	14.0
6	10.0	7.5	---		---	---	10.0	12.0	18.0	20.0	17.0	16.0
7	11.5	8.0	2.0		---	---	10.0	16.0	19.0	22.0	19.0	16.0
8	9.5	7.5	2.0		---	---	16.0	18.0	20.0	23.0	20.0	10.0
9	9.5	5.0	5.0		---	---	13.0	16.0	24.0	23.0	21.0	8.0
10	9.5	5.0	0.0		---	---	12.0	17.0	23.0	23.0	18.0	10.0
11	9.0	0.0	---		---	---	13.0	16.0	23.0	24.0	20.0	15.0
12	8.5	---	---		---	---	15.0	11.0	23.0	19.0	19.0	16.5
13	8.0	8.0	---		0.0	---	17.0	11.0	18.0	21.0	21.0	12.0
14	5.0	9.0	---		0.5	---	12.0	16.0	17.0	22.0	19.0	12.0
15	7.0	6.5	---		1.0	---	9.5	13.0	17.0	22.0	19.0	16.0
16	6.0	7.0	---		1.0	---	13.0	12.0	14.0	18.0	19.0	17.0
17	10.0	7.0	---		1.5	6.5	10.0	14.0	19.0	21.0	20.0	16.0
18	11.0	8.0	---		4.0	7.0	6.5	11.0	13.0	22.0	20.0	20.0
19	9.0	6.5	---		1.5	5.5	6.5	18.0	17.0	21.0	20.0	14.0
20	9.0	5.0	---		1.0	5.5	13.0	17.0	21.0	21.0	22.0	12.0
21	---	---	---		1.0	7.0	12.0	17.0	17.0	22.0	18.0	15.0
22	---	---	---		1.5	6.0	10.0	17.0	19.0	20.0	18.0	12.0
23	---	---	---		1.5	6.0	9.5	13.0	18.0	19.0	20.0	9.0
24	---	---	---		1.0	5.0	6.5	17.0	16.0	22.0	20.0	9.5
25	---	---	---		1.5	6.0	12.0	14.0	17.0	24.0	19.0	11.0
26	---	---	---		1.0	6.0	12.0	12.0	17.0	18.0	19.0	12.0
27	---	---	---		---	5.5	9.0	17.0	17.0	21.0	14.0	10.0
28	---	---	---		---	6.0	9.5	12.0	18.0	18.0	12.0	15.0
29	---	---	---		---	11.5	13.0	17.0	18.0	20.0	15.0	12.0
30	---	---	---		---	9.0	9.0	17.0	17.0	19.0	22.0	15.0
31	---	---	---		---	9.0	---	18.0	---	18.0	15.0	---
MONTH	---	---	---		---	---	10.5	14.0	18.5	20.5	19.0	13.5

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	27	1050	77	46	369	46	9.0	175	4.3
2	25	446	30	46	369	46	9.0	175	4.3
3	24	341	22	48	291	38	9.0	175	4.3
4	21	290	16	46	291	36	10	185	5.0
5	21	345	20	44	210	25	15	220	8.9
6	23	244	15	41	218	24	20	260	14
7	23	116	7.2	39	265	28	15	901	36
8	20	258	14	38	277	28	15	838	34
9	21	219	12	38	226	23	15	434	18
10	24	179	12	40	238	26	16	330	14
11	25	166	11	35	293	28	15	220	8.9
12	24	158	10	35	291	27	10	185	5.0
13	29	11900	932	30	159	13	9.0	175	4.3
14	79	12600	2690	30	168	14	8.0	165	3.6
15	215	14500	8420	35	193	18	8.0	165	3.6
16	220	11900	7070	40	197	21	8.0	165	3.6
17	138	9800	3650	40	204	22	7.0	155	2.9
18	67	9500	1720	35	175	17	6.0	145	2.3
19	52	7950	1120	35	130	12	6.0	145	2.3
20	46	8050	1000	30	108	8.7	7.0	155	2.9
21	44	8520	1010	30	340	28	7.0	155	2.9
22	44	9160	1090	25	301	20	8.0	165	3.6
23	42	12200	1380	25	301	20	8.0	165	3.6
24	39	1120	118	25	300	20	8.0	165	3.6
25	39	582	61	20	260	14	9.0	175	4.3
26	39	582	61	15	220	8.9	10	185	5.0
27	42	1550	176	15	220	8.9	10	185	5.0
28	42	553	63	10	185	5.0	15	220	8.9
29	42	407	46	10	185	5.0	15	220	8.9
30	44	514	61	10	185	5.0	10	185	5.0
31	48	509	66	---	---	---	10	185	5.0
TOTAL	1589	---	30980.2	956	---	635.5	327.0	---	238.0

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	10	185	5.0	30	340	28	1230	1150	3820
2	9.0	175	4.3	35	370	35	830	760	1700
3	8.0	165	3.6	30	340	28	740	650	1300
4	7.0	155	2.9	25	300	20	600	550	891
5	7.0	155	2.9	20	260	14	500	450	607
6	7.0	155	2.9	20	260	14	450	400	486
7	6.0	145	2.3	25	310	21	400	350	378
8	5.0	135	1.8	40	420	45	350	300	283
9	4.0	135	1.5	50	485	65	320	275	238
10	4.0	135	1.5	40	420	45	320	193	167
11	4.0	135	1.5	35	353	33	300	250	202
12	4.0	135	1.5	40	420	45	400	350	378
13	4.0	135	1.5	110	1810	538	450	400	486
14	4.5	142	1.7	490	1500	1980	480	425	551
15	4.5	135	1.6	740	1460	2920	500	450	607
16	4.5	135	1.6	1020	640	1760	570	525	808
17	5.0	135	1.8	1740	616	2890	740	2630	5250
18	5.5	145	2.2	1890	815	4160	2340	2870	18100
19	5.5	145	2.2	2000	529	2860	2830	1720	13100
20	6.0	145	2.3	2100	524	2970	2660	1630	11700
21	7.0	155	2.9	1740	485	2280	2340	2860	18100
22	9.0	175	4.3	1470	475	1890	2040	4850	26700
23	15	220	8.9	1470	509	2020	1740	6000	28200
24	20	260	14	1600	834	3600	1650	6270	27900
25	15	220	8.9	1740	946	4440	1250	7770	26200
26	10	185	5.0	1700	1430	6560	1120	3710	11200
27	10	185	5.0	1740	1650	7750	1020	2150	5920
28	15	220	8.9	2000	1770	9560	920	2470	6140
29	20	260	14	1740	1450	6810	704	1620	3080
30	20	260	14	---	---	---	586	1090	1720
31	25	300	20	---	---	---	469	1270	1610
TOTAL	280.5	---	152.5	25680	---	65381	30849	---	217822

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	408	887	977	316	1440	1230	103	4060	1130
2	349	607	572	278	1450	1090	66	1130	201
3	316	484	413	250	2180	1470	63	618	105
4	305	860	708	215	1300	755	58	500	78
5	278	489	367	191	1000	516	55	2680	398
6	288	2300	1790	172	826	384	110	27000	8020
7	266	2520	1810	159	596	256	570	31300	48200
8	240	2520	1630	138	388	145	594	22500	36100
9	266	5620	4040	142	355	136	610	13000	21400
10	256	4720	3260	205	756	418	650	16200	28400
11	220	3850	2290	230	3670	2280	476	10900	14000
12	225	1930	1170	344	10800	10000	338	15800	14400
13	200	1280	691	758	7380	15100	310	11800	9880
14	195	278	146	530	17700	25300	294	9190	7300
15	177	205	98	344	7960	7390	283	11300	8630
16	215	9960	5780	215	8030	4660	360	7100	6900
17	530	23800	34100	256	7530	5200	408	5590	6160
18	455	22400	27500	235	2860	1810	1230	27100	90000
19	366	11700	11600	172	1910	887	1820	18300	89900
20	305	7500	6180	125	1060	358	2940	28500	226000
21	250	6370	4300	129	11800	4110	4200	19800	225000
22	355	10300	9870	110	9380	2790	5280	10300	147000
23	360	5720	5560	100	7770	2100	5850	7200	114000
24	469	4540	5750	90	2730	663	6820	17800	328000
25	650	11300	19800	97	2310	605	5600	10600	160000
26	538	10900	15800	305	13100	10800	5480	8000	118000
27	448	6590	7970	396	15100	16100	2780	6100	45800
28	414	3460	3870	205	8600	4760	2000	6700	36200
29	378	3290	3360	150	4260	1730	1760	4650	22100
30	355	1650	1580	113	4150	1270	1540	3220	13400
31	---	---	---	134	4630	1680	---	---	---
TOTAL	10077	---	182982	7104	---	125993	52648	---	1826702

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	1760	2900	13800	150	2420	980	24	200	13
2	1700	2100	9640	129	1970	686	23	210	13
3	1560	2070	8720	113	620	189	23	85	5.3
4	1370	1500	5550	106	286	82	23	100	6.2
5	3790	15500	159000	97	224	59	23	75	4.7
6	2610	10400	73300	93	265	67	21	70	4.0
7	1700	10900	50000	77	375	78	21	165	9.4
8	1090	6350	18700	69	650	121	23	485	30
9	749	4650	9400	261	3070	2160	17	765	35
10	602	2850	4630	210	3120	1770	16	275	12
11	695	2900	5440	177	2970	1420	15	330	13
12	1040	4810	13500	106	2400	687	14	317	12
13	626	6600	11200	83	980	220	14	185	7.0
14	686	4500	8330	74	283	57	15	110	4.5
15	668	2000	3610	90	357	87	15	330	13
16	530	1600	2290	74	365	73	44	470	56
17	448	1730	2090	52	300	42	160	19300	8340
18	378	1480	1510	48	270	35	215	20200	11700
19	333	530	477	39	245	26	192	16000	8290
20	310	295	247	35	155	15	60	9400	1520
21	283	233	178	35	173	16	33	4210	375
22	250	154	104	33	159	14	50	4150	560
23	220	180	107	42	141	16	39	2400	253
24	191	180	93	37	155	15	33	1920	171
25	182	210	103	31	170	14	31	1280	107
26	305	390	321	31	113	9.5	33	570	51
27	384	630	653	25	94	6.3	27	296	22
28	355	930	891	25	152	10	25	323	22
29	261	930	655	25	129	8.7	25	133	9.0
30	205	1130	625	24	126	8.2	24	70	4.5
31	172	1430	664	24	114	7.4	---	---	---
TOTAL	25453	---	405828	2415	---	8979.1	1278	---	31662.6
YEAR	158656.5		2897356						

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 7, 1975
0930 HOURS

IDENTIFICATION OF PHYTOPLANKTON

7,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		1,200	16	
DDICTYOSPHAERIUM		3,100	41	
	TOTALS	4,200	57	0.852=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID	120	2	
...TROPIDONEIS		820	11	
...NITZSCHIA				
	TOTALS	940	13	0.544=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA		2,100	29	
	TOTALS	2,100	29	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES		120	2	
...PERIDINIACEAE				
...PERIDINIUM				
	TOTALS	120	2	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.451

CLASS 1.451

ORDER 1.451

FAMILY 1.520

GENERA 2.007

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 11, 1975
1020 HOURS

IDENTIFICATION OF PHYTOPLANKTON

20,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...ODCYSTACEAE				
DANKISTRODESMUS		12,000	59	
....DICTYOSPHAERIUM		1,100	6	
....SELENASTRUM		280	1	
TOTALS		13,000	66	0.566=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		280	1	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
....CALONEIS		280	1	
....NITZSCHIA				
DNITZSCHIA		4,500	23	
TOTALS		5,100	25	0.614=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
....LYNGBYA		1,700	8	
TOTALS		1,700	8	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.197
CLASS 1.197
ORDER 1.276
FAMILY 1.353
GENERA 1.727

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 10, 1975
1145 HOURS

IDENTIFICATION OF PHYTOPLANKTON

220 CELLS/ML

__ORGANISM__NAME__	__COMMON__NAME__	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		15	7	
		TOTALS	15	7
				0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		46	21	
..PENNALES	PENNATE			
...NITZSCHIA		110	50	
D ...NITZSCHIA		TOTALS	150	71
				0.881=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...RIVULARIACEAE		46	21	
D ...RAPHIIDIOPSIS		TOTALS	46	21
				0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:PHYL/DIV 1.095
CLASS 1.095
ORDER 1.724
FAMILY 1.724
GENERA 1.724JAN. 14, 1976
1110 HOURS

IDENTIFICATION OF PHYTOPLANKTON

26 CELLS/ML

__ORGANISM__NAME__	__COMMON__NAME__	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
L ...ANKISTRODESMUS			0	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
L ...CYCLOTELLA			0	
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
L ...AMPHIPRORA			0	
D ...CALONEIS		4	17	
D ...DIPLONEIS		4	17	
D ...NAVICULA		4	17	
...NITZSCHIA				
D ...NITZSCHIA		13	50	
...SURIRELLACEAE				
L ...SURIRELLA			0	
		TOTALS	26	101
				1.792=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

FAMILY 1.000
GENERA 1.792

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 11, 1976
1250 HOURS

IDENTIFICATION OF PHYTOPLANKTON

230 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		58	25	
DMELOSIRA		86	37	
..PENNALES	PENNALE			
...NITZSCHACEAE				
DNITZSCHIA		58	25	
	TOTALS	200	87	1.557=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA		29	12	
	TOTALS	29	12	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.544
CLASS 0.544
ORDER 1.299
FAMILY 1.299
GENERA 1.906

MAR. 10, 1976
1050 HOURS

IDENTIFICATION OF PHYTOPLANKTON

230 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		25	11	
..PENNALES	PENNALE			
...CYMBELLACEAE				
....EPITHEMIA		25	11	
LRHOPALODIA			0	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		130	56	
...NITZSCHACEAE				
DNITZSCHIA		51	22	
	TOTALS	230	100	1.658=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.503
FAMILY 1.658
GENERA 1.658

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 14, 1976
1150 HOURS

IDENTIFICATION OF PHYTOPLANKTON

8,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		130	2	
		TOTALS	130	2
				0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		1,600	19	
..PENNALES	PENNATE			
...CYMBELLACEAE				
LAMPHORA			0	
LRHOPALODIA			0	
..FRAGILARIACEAE				
DASTERIONELLA		2,400	29	
..NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
..NAVICULA		400	5	
..NITZSCHIA				
DNITZSCHIA		3,800	46	
		TOTALS	8,200	99
				1.701=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.118
 CLASS 0.118
 ORDER 0.815
 FAMILY 1.791
 GENERA 1.791

MAY 6, 1976
1055 HOURS

IDENTIFICATION OF PHYTOPLANKTON

12,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		2,600	22	
		TOTALS	2,600	22
				0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...FRAGILARIACEAE				
...SYNEDRA		290	2	
..NAVICULACEAE	NAVICULOID			
...NAVICULA		290	2	
..NITZSCHIA				
...NITZSCHIA		580	5	
		TOTALS	1,200	9
				1.500=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		8,100	68	
		TOTALS	8,100	68
				0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.184
 CLASS 1.184
 ORDER 1.184
 FAMILY 1.330
 GENERA 1.330

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 15, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...ZYGEMATALES				
...DESMIDIACEAE	PLACODERM DESMIDS			
....COSMARIUM		470	8	
	TOTALS	470	8	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...CYMBELLACEAE				
....EPITHEMIA		470	8	
...FRAGILARIACEAE				
LASTERIONELLA			0	
...NAVICULACEAE	NAVICULOID			
LAMPHIPRORA			0	
DNAVICULA		940	17	
...NITZSCHACEAE				
DNITZSCHIA		3,800	67	
	TOTALS	5,200	92	1.096=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.414
 CLASS 0.414
 ORDER 0.414
 FAMILY 1.418
 GENERA 1.418

JULY 13, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3,400 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
DNAVICULA		750	22	
...NITZSCHACEAE				
DNITZSCHIA		560	17	
	TOTALS	1,300	39	0.985=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORACEAE				
DLYNGBYA		2,100	61	
	TOTALS	2,100	61	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.964
 CLASS 0.964
 ORDER 0.964
 FAMILY 1.347
 GENERA 1.347

LITTLE MISSOURI RIVER BASIN

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 16, 1976
1355 HOURS

IDENTIFICATION OF PHYTOPLANKTON

25,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		260	1	
....KIRCHNERIELLA		260	1	
....QUADRIGULA		1,000	4	
...SCENEDESMACEAE				
....SCENEDESMUS		2,600	10	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		520	2	
..CHLOROCOCCALES				
...OOCYSTACEAE				
....GLOEDACTINIUM		2,600	10	
	TOTALS	7,200	28	2.077=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		7,500	30	
DMELOSIRA		4,600	18	
..PENNALES	PENNATE			
...NITZSCHACEAE				
....NITZSCHIA		770	3	
	TOTALS	13,000	51	1.230=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...RIVULARIACEAE				
DRAPHIDIOPSIS		5,200	20	
	TOTALS	5,200	20	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.480
 CLASS 1.480
 ORDER 2.008
 FAMILY 2.164
 GENERA 2.701

LITTLE MISSOURI RIVER BASIN

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06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 13, 1976
1425 HOURS

IDENTIFICATION OF PHYTOPLANKTON

240,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..ODCYSTACEAE				
....ANKISTRODESMUS		3,200	1	
LCHODATELLA			0	
....ODCYSTIS		1,300	1	
....SCENEDESMACEAE				
LACTINASTRUM			0	
LCRUCIGENIA			0	
....SCENEDESMUS		1,600	1	
TOTALS		7,500	3	2.017=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
LCYCLOTELLA			0	
....MELOSIRA		2,100	1	
..PENNALES	PENNATE			
..NITZSCHIA				
LNITZSCHIA			0	
TOTALS		3,200	1	1.189=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
LAGMENELLUM			0	
DANACYSTIS		230,000	95	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIA		2,100	1	
....OSCILLATORIA				
TOTALS		230,000	96	0.075=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
..PERIDINIACEAE				
LPERIDINIUM			0	
TOTALS		530	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.320
 CLASS 0.320
 ORDER 0.402
 FAMILY 0.431
 GENERA 0.469

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a	Chlorophyll b	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight	(mg/m ²)	(mg/m ²)		
Nov. 11	31	0.0	0.0	0.0	0.0	0.0	Polyethylene strip

MISSOURI RIVER MAIN STEM

06338000 LAKE SAKAKAWEA NEAR RIVERDALE, ND

LOCATION.--Lat 47°30'10", long 101°25'50", in S½ sec.31, T.147 N., R.84 W., Mercer County, Hydrologic Unit 10110101, in control structure of Garrison Dam, 2.5 mi (4.0 km) west of Riverdale and 14 mi (23 km) upstream from Knife River at mile 1,389.9 (kilometer 2,236.3).

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

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1966, published as Garrison Reservoir near Riverdale.

REVISED RECORDS.--WSP 1559: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Reservoir is formed by earth-fill dam; storage began in November 1953. Maximum capacity, 24,200,000 acre-ft (29.8 km³) below elevation 1,854.0 ft (565.10 m), top of 29-ft (8.84 m) gates. Normal maximum, 22,700,000 acre-ft (28.0 km³) below elevation 1,850.0 ft (563.88 m), of which about 4,300,000 acre-ft (5.30 km³) is designated for flood control. Elevation of crest of spillway, 1,825.0 ft (556.26 m), surmounted by radial gates. Inactive storage, 5,000,000 acre-ft (6.16 km³) below elevation 1,775.0 ft (541.02 m). Dead storage, zero at elevation 1,672.0 ft (509.63 m). Snake Creek arm of the reservoir has connecting gate to main reservoir, with sill at elevation, 1,810 ft (551.69 m). Figures herein represent total contents.

COOPERATION.--Elevation and contents furnished by Corps of Engineers from capacity table dated July 1971. Elevations are those observed; contents are adjusted for wind effect.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 24,368,000 acre-ft (30.0 km³) July 25, 1975, elevation, 1,854.6 ft (557.28 m); minimum since first reaching spillway level, 12,527,000 acre-ft (15.4 km³) March 17, 1963, elevation, 1,816.4 ft (553.64 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,159,000 acre-ft (27.3 km³) July 19, elevation, 1,848.7 ft (563.48 m); minimum, 19,188,000 acre-ft (23.7 km³) Feb. 16, elevation, 1,840.1 ft (560.86 m).

MONTHEND ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	1848.2	21,992,000	--
Oct. 31-----	1846.2	21,270,000	-722,000
Nov. 30-----	1844.0	20,495,000	-775,000
Dec. 31-----	1842.0	19,796,000	-699,000
CAL YR 1975-----	--	--	-122,000
Jan. 31-----	1840.9	19,443,000	-353,000
Feb. 29-----	1840.4	19,249,000	-194,000
Mar. 31-----	1842.5	20,000,000	+751,000
Apr. 30-----	1842.4	19,928,000	-72,000
May 31-----	1843.2	20,233,000	+305,000
June 30-----	1847.8	21,837,000	+1,604,000
July 31-----	1848.0	21,931,000	+94,000
Aug. 31-----	1846.2	21,324,000	-607,000
Sept. 30-----	1845.1	20,829,000	-495,000
WTR YR 1976-----	--	--	+1,163,000

MISSOURI RIVER MAIN STEM

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06338490 MISSOURI RIVER AT GARRISON DAM, ND

LOCATION.--Lat 47°30'08", long 101°25'50", in S½ sec.31, T.147 N., R.84 W., Mercer County, Hydrologic Unit 10130101, 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 at mile 1,389.9 (kilometer 2,236.3).

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

WATER-DISCHARGE RECORDS

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

GAGE.--Flow meter and gate readings.

REMARKS.--Records good. Many diversions above station. Flow regulated by Lake Sakakawea (station 06338000). Prior to October 1969 records were obtained at a site 9.1 mi (14.6 km) downstream. Discharges at the downstream site were generally about 7 percent greater than those furnished by the Corps of Engineers for the present site.

COOPERATION.--Records furnished by the Corps of Engineers.

AVERAGE DISCHARGE.--7 years, 27,550 ft³/s (780 m³/s), 19,960,000 acre-ft/yr (24.6 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,200 ft³/s (1,850 m³/s) July 25, 1975; minimum daily, 6,000 ft³/s (170 m³/s) Sept. 29, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,100 ft³/s (1,110 m³/s) Apr. 3, 4; minimum daily, 19,300 ft³/s (547 m³/s) Dec. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38100	32300	34600	19700	32800	21500	31400	31300	37900	36700	34000	28200
2	38100	30700	34600	19500	32400	21800	33500	31300	37900	36800	33700	26800
3	37600	32100	34700	19600	32800	22000	39100	31400	38000	36800	33800	28100
4	38200	30500	31100	19700	33800	21800	39100	31400	38000	35000	36600	25400
5	38200	30300	34300	19900	34000	19900	31300	31400	37900	34100	36800	25100
6	38300	32600	34700	20500	34500	19700	31000	30800	38000	36700	33400	24500
7	38100	34100	30900	21900	34700	19700	31100	31200	37800	36800	31200	24600
8	38500	34700	34600	22500	34900	19600	31200	31200	38000	36800	31100	24800
9	38500	34400	34400	23100	30500	20300	31200	31400	38000	36600	31400	25600
10	36100	29100	34200	23000	30800	21900	31200	31300	38000	36700	30900	25300
11	33000	29300	35000	22700	30800	22600	31200	35000	37900	35500	32600	25400
12	32700	29900	36000	23400	30800	23600	31200	38000	37800	36600	32500	25100
13	30900	30400	34900	24200	30700	24400	31200	38000	37700	36500	33100	25100
14	29200	32900	36000	25100	30900	24400	31200	38000	37400	36600	32800	24300
15	29200	34300	35600	25600	30900	24500	31300	37900	37500	36600	31900	25200
16	28800	32900	26900	25900	30900	25500	31200	38000	37500	36600	32500	24800
17	29700	34300	19600	26700	30900	25800	31100	38000	37300	36600	31400	25000
18	29300	34200	19500	26800	30900	26500	31100	38000	37400	36600	30900	24900
19	28700	33200	19800	27700	30900	29100	31300	38000	37400	36600	30300	24800
20	29500	35000	19600	27600	31000	31200	31300	38000	37300	36600	30300	25100
21	28600	34900	19300	29000	31000	31300	31300	38000	37300	36500	28300	27500
22	29300	34200	20100	29000	31000	31200	31500	38000	37300	36600	26900	27300
23	29900	34900	20900	29800	30900	31200	31500	38000	37100	36600	28700	27600
24	29600	34200	21300	30200	31000	31200	30400	38200	36900	36500	28600	27000
25	29100	34900	21600	30600	31000	31200	31300	38000	36900	36500	28700	27000
26	28600	34200	22300	31200	31000	31200	31400	38300	36900	36800	29100	27100
27	28400	32500	22700	31600	31200	31400	31400	38100	36900	36800	29700	27300
28	28800	34400	22900	32000	34600	31300	31400	38000	36800	36800	28700	26600
29	29000	34500	23300	32500	21800	31400	31400	38000	36900	36700	29200	26700
30	31500	34500	24400	32200	---	31300	31300	38000	36700	36700	29600	26700
31	31800	---	25100	32300	---	31400	---	37900	---	36900	29700	---
TOTAL	1005300	990400	864900	805500	913400	809900	955100	1108100	1124400	1131200	968400	778900
MEAN	32430	33010	27900	25980	31500	26130	31840	35750	37480	36490	31240	25960
MAX	38500	35000	36000	32500	34900	31400	39100	38300	38000	36900	36800	28200
MIN	28400	29100	19300	19500	21800	19600	30400	30800	36700	34100	26900	24300
AC-FT	1994000	1964000	1716000	1598000	1812000	1606000	1894000	2198000	2230000	2244000	1921000	1545000
CAL YR 1975	TOTAL	12538900	MEAN	34350	MAX	65200	MIN	12100	AC-FT	24870000		
WTR YR 1976	TOTAL	11455500	MEAN	31300	MAX	39100	MIN	19300	AC-FT	22720000		

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued
(National Water-Quality Accounting Network Station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at National Fish Hatchery's supply line from penstocks 4 and 5, in control structure of Garrison Dam.

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1971 to current year.

WATER TEMPERATURES: October 1971 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Mar. 5-8, 1974; minimum daily, 553 micromhos Dec. 24, 1975.

WATER TEMPERATURES: Maximum daily, 16.0°C Sept. 19, 1975; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 659 micromhos June 28; minimum daily, 553 micromhos Dec. 24.

WATER TEMPERATURES: Maximum daily, 15.5°C Aug. 28; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLIFORM (COL. PER 100 ML)
NOV 05...	1200	37500	600	8.5	11.0	4	1	7.8	76	.7	<1
DEC 03...	1415	38000	625	8.4	5.0	10	2	11.2	83	.6	B1
30...	1445	37000	610	8.2	1.0	1	2	12.4	93	.8	E1
JAN 22...	1200	37000	625	8.5	.5	6	1	13.0	96	.2	<1
FEB 19...	1300	31000	640	8.0	1.0	7	1	12.1	91	.5	<1
MAR 24...	1300	31100	650	8.1	1.0	8	1	12.3	92	.5	<1
APR 28...	1300	31300	650	8.3	4.0	5	1	12.6	102	1.1	<1
MAY 20...	1200	37900	600	8.2	7.0	2	1	12.2	107	1.0	<1
JUN 30...	1030	36800	640	8.2	13.0	2	1	9.2	93	1.3	<1
JUL 28...	1310	36800	640	8.2	13.5	12	2	8.6	86	.4	<1
AUG 31...	1400	36500	650	8.3	16.0	3	5	7.5	81	.6	<1
SEP 28...	1230	28000	650	8.3	15.5	4	2	7.4	96	1.5	<1

DATE	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)
NOV 05...	<2	190	47	47	18	55	38	1.7	3.6	172	2
DEC 03...	1	200	31	49	18	60	39	1.9	4.0	181	10
30...	E1	190	41	47	18	59	40	1.9	3.9	184	0
JAN 22...	<1	200	47	50	18	53	36	1.6	4.0	181	2
FEB 19...	10	210	210	49	21	54	35	1.6	4.0	--	0
MAR 24...	<1	210	58	53	20	55	35	1.6	4.2	191	0
APR 28...	<1	210	61	53	20	55	35	1.6	4.0	187	0
MAY 20...	<1	200	54	49	20	54	36	1.6	3.9	184	0
JUN 30...	<1	240	86	60	21	54	33	1.5	3.7	184	0
JUL 28...	--	220	71	57	20	55	34	1.6	4.1	187	0
AUG 31...	<1	220	65	55	20	57	36	1.7	4.1	189	0
SEP 28...	B3	220	63	52	21	57	36	1.7	4.0	188	0

B - Results based on colony count outside the acceptable range (non-ideal colony count).
E - Estimated.

MISSOURI RIVER MAIN STEM

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06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	ALKA- LITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
NOV 05...	144	.9	150	7.3	--	.4	6.8	404	--	376	.55
DEC 03...	165	1.1	150	8.3	--	.5	7.3	381	--	397	.52
30...	151	1.9	160	8.3	.5	.4	7.3	395	--	396	.54
JAN 22...	152	.9	160	8.2	--	.5	7.2	397	--	393	.54
FEB 19...	--	--	160	7.5	--	.5	7.6	392	--	--	.53
MAR 24...	157	2.4	160	8.3	.7	.5	7.5	423	--	403	.58
APR 28...	153	1.5	160	7.8	--	.5	7.3	414	--	401	.56
MAY 20...	151	1.9	160	7.8	--	.5	7.9	402	--	394	.55
JUN 30...	151	1.9	190	8.3	.5	.5	7.5	422	--	437	.57
JUL 28...	153	1.9	190	8.9	--	.5	7.4	418	--	436	.57
AUG 31...	155	1.5	170	9.8	--	.5	7.0	414	--	417	.56
SEP 28...	154	1.5	180	9.3	.4	.3	18	419	430	436	.57

DATE	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)
NOV 05...	40900	--	.13	.13	.03	.40	.43	.56	.00	.00
DEC 03...	39100	--	.17	.17	.04	.72	.76	.93	.01	.01
30...	39500	--	.19	.19	.00	.20	.20	.39	.00	.00
JAN 22...	39700	--	.28	.25	.03	.37	.40	.68	.00	.00
FEB 19...	32800	--	.25	.22	.01	.20	.21	.46	.00	.00
MAR 24...	35500	--	.15	.12	.00	.20	.20	.35	.02	.02
APR 28...	35000	--	.15	.15	.01	.21	.22	.37	.03	.01
MAY 20...	41100	--	.07	--	.02	.26	.28	.35	.02	.02
JUN 30...	41900	--	.15	--	.06	.44	.50	.65	.03	.02
JUL 28...	41500	--	.17	.17	.00	.22	.22	.39	.01	.00
AUG 31...	40800	--	.16	.15	.00	.26	.26	.42	.01	.00
SEP 28...	31700	1	.27	.24	.00	.30	.30	.57	.02	.00

DATE	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDEO ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ANTI- MONY (SB) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDEO ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDEO BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	SUS- PENDEO BERYL- LIUM (BE) (UG/L)
NOV 05...	--	--	--	--	--	--	2	--	--	--	--
DEC 03...	--	--	--	--	--	--	2	--	--	--	--
30...	90	90	0	--	1	0	1	200	0	200	10
JAN 22...	--	--	--	--	--	--	1	--	--	--	--
FEB 19...	--	--	--	--	--	--	2	--	--	--	--
MAR 24...	--	--	--	--	--	--	2	--	--	--	--
APR 28...	--	--	--	--	--	--	2	--	--	--	--
MAY 20...	--	--	--	--	--	--	1	--	--	--	--
JUN 30...	30	20	10	--	2	2	0	100	0	100	0
JUL 28...	--	--	--	--	--	--	4	--	--	--	--
AUG 31...	--	--	--	--	--	--	2	--	--	--	--
SEP 28...	80	80	0	2	--	0	2	100	0	100	0

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	TOTAL BORON (B) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBAL T (CO) (UG/L)
NOV										
05...	--	--	90	--	--	--	--	--	--	--
DEC										
03...	--	--	270	--	--	0	--	--	--	--
30...	0	140	100	<10	<10	0	--	--	0	0
JAN										
22...	--	--	120	--	--	0	--	--	--	--
FEB										
19...	--	--	110	--	--	1	--	--	--	--
MAR										
24...	--	350	120	--	--	1	--	--	--	1
APR										
28...	--	--	100	--	--	0	--	--	--	--
MAY										
20...	--	--	100	--	--	0	--	--	--	--
JUN										
30...	0	130	110	0	0	0	<10	0	<10	1
JUL										
28...	--	--	120	--	--	1	--	--	--	--
AUG										
31...	--	--	110	--	--	1	--	--	--	--
SEP										
28...	0	150	110	10	<10	0	0	0	10	0

DATE	TOTAL COPPER (CU) (UG/L)	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDED LITHIUM (LI) (UG/L)
DEC										
03...	--	--	--	--	--	--	--	--	--	--
30...	10	8	2	60	10	<100	<100	0	40	0
JUN										
30...	0	0	0	70	10	3	1	2	40	0
JUL										
28...	--	--	--	--	--	--	--	--	--	--
AUG										
31...	--	--	--	--	--	--	--	--	--	--
SEP										
28...	10	8	2	40	0	100	<100	0	50	0

DATE	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
DEC										
03...	--	--	--	--	--	--	--	--	--	--
30...	40	10	10	0	.0	.0	.0	4	1	3
JUN										
30...	40	1	0	2	<.5	.0	<.5	3	0	3
JUL										
28...	--	--	--	--	--	--	--	--	--	--
AUG										
31...	--	--	--	--	--	--	--	--	--	--
SEP										
28...	50	10	10	0	.0	.0	.0	1	0	2

MISSOURI RIVER MAIN STEM

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06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NICKEL (NI) (UG/L)	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)
DEC 03...	--	--	--	--	--	--	--	--
30...	<50	<47	3	1	0	1	0	500
JUN 30...	3	0	4	0	0	0	0	500
JUL 28...	--	--	--	--	--	--	--	--
AUG 31...	--	--	--	--	--	--	--	--
SEP 28...	50	<46	4	1	0	1	0	430

DATE	SUS- PENDE STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANAD- IUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)
DEC 03...	--	--	--	--	--	--	--	--	--
30...	30	470	.8	20	0	20	--	--	--
JUN 30...	0	500	.0	40	40	5	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--
AUG 31...	--	--	--	--	--	--	--	--	--
SEP 28...	0	530	1.5	10	0	10	6.6	<.4	7.0

DATE	SUS- PENDE GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 (PC/L)	SUS- PENDE GROSS BETA AS SR90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (DIRECT FLUORO- METRIC) (PC/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	CYANIDE (CN) (MG/L)
NOV 05...	--	--	--	--	--	7.9	.2	--
DEC 03...	--	--	--	--	--	5.4	.1	--
30...	--	--	--	--	--	5.6	.1	.00
JAN 22...	--	--	--	--	--	3.5	.4	--
FEB 19...	--	--	--	--	--	30	.2	--
MAR 24...	--	--	--	--	--	3.1	.0	.00
APR 28...	--	--	--	--	--	3.8	.1	--
MAY 20...	--	--	--	--	--	2.9	.1	--
JUN 30...	--	--	--	--	--	4.4	.1	.00
JUL 28...	--	--	--	--	--	4.0	.0	--
AUG 31...	--	--	--	--	--	3.5	2.9	--
SEP 28...	.6	5.8	.5	.06	2.7	2.8	--	.01

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	616	---	658	614	607	618	622	637	638	607	618	627
2	618	---	621	613	609	646	633	637	636	611	618	629
3	617	---	619	611	608	650	652	637	639	611	627	631
4	618	---	622	610	610	650	652	637	639	613	618	635
5	618	622	639	612	610	650	652	636	636	611	638	631
6	618	624	657	611	612	655	633	638	640	612	619	630
7	620	621	653	610	609	656	638	636	640	613	620	631
8	622	627	632	611	611	656	633	636	638	611	619	632
9	621	625	641	617	611	650	631	636	642	611	620	629
10	619	623	646	612	617	652	629	636	645	612	620	630
11	618	623	638	611	617	655	628	640	645	613	620	631
12	616	623	649	611	617	655	628	637	644	615	620	632
13	617	622	645	612	612	631	635	636	642	614	620	631
14	619	628	653	610	614	632	628	636	641	614	620	632
15	618	626	650	611	614	632	615	636	644	620	621	631
16	620	630	625	611	614	637	628	638	644	622	620	631
17	619	621	604	619	615	627	623	636	645	614	620	629
18	620	619	605	618	612	632	623	636	644	615	621	631
19	619	620	610	613	615	635	622	635	653	620	624	631
20	619	619	602	613	621	638	622	635	652	617	621	631
21	612	617	593	612	617	635	615	638	651	616	625	632
22	612	618	603	611	617	640	620	637	650	616	625	631
23	618	624	600	611	617	639	618	636	643	615	624	632
24	619	621	553	613	618	650	618	636	652	616	652	631
25	619	622	596	619	640	635	618	637	651	617	622	630
26	619	621	600	617	643	645	615	638	648	616	623	631
27	619	622	600	611	621	635	615	639	647	616	623	629
28	621	621	600	611	610	645	615	638	659	616	625	631
29	621	626	600	613	610	640	615	637	650	617	623	634
30	620	623	619	612	---	652	615	639	650	617	624	631
31	620	---	611	611	---	637	---	639	---	618	623	---
MONTH	618	623	621	613	615	642	626	637	645	615	623	631

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	---	5.5	0.5	0.0	0.5	1.0	3.5	6.5	11.5	11.5	14.0
2	14.5	---	5.5	0.5	0.0	0.5	0.5	3.5	6.5	11.0	11.5	14.0
3	14.5	---	5.0	0.5	0.0	1.0	1.0	3.5	6.5	11.0	12.0	15.0
4	14.0	---	5.0	0.0	0.5	0.5	0.5	3.5	6.5	11.0	13.0	15.0
5	14.0	10.0	4.5	0.0	0.0	1.0	0.5	4.0	8.0	11.0	12.0	14.0
6	14.0	10.0	4.5	0.0	0.5	0.5	1.0	4.0	7.0	10.5	12.0	15.0
7	14.0	10.0	4.5	0.0	0.0	1.0	1.0	4.0	8.0	10.5	12.0	14.0
8	14.0	10.0	4.5	0.0	0.5	0.5	1.0	4.0	7.0	10.5	10.0	15.0
9	14.0	10.0	4.0	0.0	0.0	0.5	1.0	4.0	7.0	10.5	12.0	15.0
10	13.5	10.0	4.0	0.0	0.5	1.0	1.5	4.5	7.0	10.5	13.0	15.0
11	13.5	10.0	4.0	0.0	0.5	0.5	1.0	4.5	8.0	10.5	13.5	15.0
12	13.0	9.0	3.5	0.5	0.5	1.0	1.5	4.0	8.0	10.5	13.5	15.0
13	13.0	9.0	3.5	0.5	0.5	0.5	1.5	4.0	8.0	10.5	13.5	15.0
14	13.0	9.0	3.0	0.5	0.5	1.0	1.5	4.5	10.0	11.5	13.0	14.0
15	12.0	8.5	3.0	0.5	0.5	0.5	2.0	5.0	10.5	11.5	12.0	14.0
16	12.0	8.5	3.0	0.5	0.5	0.5	1.5	5.0	9.5	11.5	12.0	14.0
17	12.0	8.5	2.5	0.5	0.5	0.5	2.0	5.0	10.5	11.5	12.0	14.0
18	12.0	8.0	2.5	0.5	0.5	0.5	1.5	5.0	10.0	11.5	12.0	14.0
19	11.5	8.0	2.5	0.5	0.5	0.5	2.0	5.0	10.0	11.5	13.0	15.0
20	11.5	8.0	1.5	0.5	0.5	0.5	2.0	5.0	10.5	11.5	13.5	14.0
21	11.5	8.0	1.5	0.5	0.5	0.5	2.0	5.5	10.5	11.0	10.5	15.0
22	11.5	8.0	1.5	0.5	0.5	0.5	2.0	5.5	10.0	12.0	10.5	15.0
23	11.5	7.5	1.5	0.0	0.5	0.5	2.0	5.5	10.0	11.5	13.0	14.0
24	11.5	7.5	1.5	0.0	0.5	0.5	2.0	5.5	9.5	12.0	13.0	14.0
25	11.0	7.5	1.0	0.0	0.5	0.5	2.0	5.5	11.5	12.0	13.0	14.0
26	11.0	6.5	1.0	0.0	0.5	0.5	2.0	5.5	11.0	11.5	13.5	15.0
27	11.0	6.5	1.0	0.0	0.5	0.5	2.0	6.5	11.0	12.0	14.5	14.0
28	10.5	6.0	1.0	0.0	0.5	0.5	2.0	7.0	11.5	12.0	15.5	14.0
29	10.5	6.0	1.0	0.0	0.5	0.5	3.0	6.0	12.0	12.0	14.0	14.0
30	10.5	5.5	0.5	0.0	---	0.5	3.0	6.5	12.0	12.0	15.0	14.0
31	10.5	---	0.5	0.0	---	1.0	---	6.0	---	11.5	15.0	---
MONTH	12.5	8.5	3.0	0.0	0.5	0.5	1.5	5.0	9.0	11.5	12.5	14.5

MISSOURI RIVER MAIN STEM

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06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 5, 1975
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		4	100	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
LASTERIONELLA			0	
	TOTALS	4	100	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
LCRYPTOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DEC. 3, 1975
1415 HOURS

IDENTIFICATION OF PHYTOPLANKTON

69 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		25	36	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
DASTERIONELLA		32	45	
	TOTALS	57	81	0.991=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		6	9	
	TOTALS	6	9	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFAGELLATES			
..PERIDINIALES				
...PERIDINIACEAE				
....PERIDINIUM		6	9	
	TOTALS	6	9	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.866
 CLASS 0.866
 ORDER 1.677
 FAMILY 1.677
 GENERA 1.677

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 30, 1975
1445 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
...CENTRALES	CENTRIC		
...COSCINODISCACEAE			
L ...CYCLOTELLA			0
...PENNIALES	PENNATE		
...FRAGILARIACEAE			
D ...ASTERIONELLA		3	100
...NITZSCHIA			0
L ...NITZSCHIA			
	TOTALS	3	100
			0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS		
..CRYPTOPHYCEAE	CRYPTOMONADS		
...CRYPTOMONADALES			
...CRYPTOMONADACEAE			
L ...CRYPTOMONAS			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE

JAN. 22, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

73 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
...CENTRALES	CENTRIC		
...COSCINODISCACEAE			
...CYCLOTELLA		5	7
...PENNIALES	PENNATE		
...FRAGILARIACEAE			
D ...ASTERIONELLA		63	86
	TOTALS	68	93
			0.391=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE		
..DINOPHYCEAE	DINOFLAGELLATES		
...PERIDINIALES			
...GLENODINIACEAE			
...GLENODINIUM		5	7
	TOTALS	5	7
			0.030=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.371
 CLASS 0.371
 ORDER 0.735
 FAMILY 0.735
 GENERA 0.735

MISSOURI RIVER MAIN STEM

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06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 24, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSOPHYTA			
.BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCEAE			
D ...CYCLOTELLA		3	50
..PENNALES	PENNATE		
...FRAGILARIACEAE			
DASTERIONELLA		3	50
TOTALS		6	100

1.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 1.000
FAMILY 1.000
GENERA 1.000

APR. 28, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

990 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSOPHYTA			
.BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCEAE			
D ...CYCLOTELLA		830	84
..PENNALES	PENNATE		
...CYMBELLACEAE			
L ...CYMBELLA			0
...FRAGILARIACEAE			
DASTERIONELLA		160	16
TOTALS		990	100

0.632=DIVERSITY

PYRRHOPHYTA	FIRE ALGAE		
.DINOPHYCEAE	DINOFLLAGELLATES		
..PERIDINIALES			
...PERIDINIACEAE			
LPERIDINIUM			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.632
FAMILY 0.632
GENERA 0.632

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 30, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSTOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE		150	14	
....MELOSIRA				
...PENNALES	PENNATE			
...FRAGILARIACEAE				
D ...ASTERIONELLA		810	76	
...NITZSCHACEAE				
...NITZSCHIA		51	5	
	TOTALS	1,000	95	0.884=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE		51	5	
....EUGLENA				
	TOTALS	51	5	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.276
CLASS 0.276
ORDER 0.857
FAMILY 1.118
GENERA 1.118

JUNE 30, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

47 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA				
.CHLOROPHYCEAE	GREEN ALGAE			
..CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		7	15	
	TOTALS	7	15	0.000=DIVERSITY
CHRYSTOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....CYCLOTELLA		4	8	
...PENNALES	PENNATE			
...DIATOMACEAE				
D ...DIATOMA		18	38	
...NITZSCHACEAE				
D ...NITZSCHIA		11	23	
	TOTALS	33	69	1.352=DIVERSITY
.CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSDOMONADALES				
...OCHROMONADACEAE				
DOCHROMONAS		7	15	
	TOTALS	7	15	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.619
CLASS 1.198
ORDER 1.547
FAMILY 2.134
GENERA 2.134

MISSOURI RIVER MAIN STEM

345

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 28, 1976
1310 HOURS

IDENTIFICATION OF PHYTOPLANKTON

0 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSOPHYTA			
.BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
L ...CYCLOTELLA			0
..PENNALES	PENNATE		
...NITZSCHIACEAE			
LNITZSCHIA			0
EUGLENOPHYTA	EUGLENIDS		
.CRYPTOPHYCEAE	CRYPTOMONADS		
..CRYPTOMONIDALES			
...CRYPTOMONADACEAE			
LCRYPTOMONAS			0

NOTE: L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPEAUG. 31, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

50 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
.CHLOROPHYCEAE			
..CHLOROCOCCALES			
...OOCYSTACEAE			
....ANKISTRODESMUS		6	11
DOOCYSTIS		17	33
	TOTALS	22	44
			0.811=DIVERSITY
CHRYSOPHYTA			
.BACILLARIOPHYCEAE	DIATOMS		
..PENNALES	PENNATE		
...NAVICULACEAE	NAVICULOID		
....NAVICULA		6	11
...NITZSCHIACEAE			
....NITZSCHIA		6	11
	TOTALS	11	22
			1.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS		
.CRYPTOPHYCEAE	CRYPTOMONADS		
..CRYPTOMONIDALES			
...CRYPTOCHRYSIDACEAE			
DCHROOMONAS		11	22
...CRYPTOMONADACEAE			
....CRYPTOMONAS		6	11
	TOTALS	17	33
			0.918=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.530
CLASS 1.530
ORDER 1.530
FAMILY 2.059
GENERA 2.419

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 28, 1976
1230 HOURS

IDENTIFICATION OF PHYTOPLANKTON

110 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....TETRAEDRON		4	4	
		4	4	
	TOTALS	4	4	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
DCYCLOTELLA		26	23	
		26	23	
	TOTALS	26	23	0.000=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSDOMONADALES				
...OCHROMONADACEAE				
DOCHROMONAS		22	19	
		22	19	
	TOTALS	22	19	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOCHRYSIDACEAE				
DCHROOMONAS		60	54	
		60	54	
	TOTALS	60	54	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.187
CLASS 1.607
ORDER 1.607
FAMILY 1.607
GENERA 1.607

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Nov. 5	44	37	30	92	0.0	70	Polyethylene strip
Jan. 22	23	18	13	20	.1	220	Polyethylene strip

MISSOURI RIVER MAIN STEM

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06339000 MISSOURI RIVER BELOW GARRISON DAM, ND

LOCATION.--Lat 47°23'08", long 101°23'36", in NE¼NW¼ sec.16, T.145 N., R.84 W., Mercer County, Hydrologic Unit 10130101, on right bank 4.3 mi (6.9 km) north of Stanton, 5.1 mi (8.2 km) upstream from Knife River, 9.1 mi (14.6 km) downstream from Garrison Dam at mile 1,380.8 (kilometer 2,221.7).

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

PERIOD OF RECORD.--October 1969 to September 1976 (discontinued). Operated as a stage-discharge station April 1948 to September 1969.

GAGE.--Water-stage recorder. Datum of gage is at 1,600.00 ft (487.680 m) above mean sea level.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000). Gage-height record not published April 1948 to September 1969.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 76.89 ft (23.436 m) Feb. 8, 11, 1975; minimum daily recorded, 68.06 ft (20.745 m) Mar. 24, 1970.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.94	72.00	---	70.03	72.44	69.42	71.54	71.44	72.54	72.46	71.93	70.83
2	72.94	71.76	---	69.67	72.35	69.60	71.63	71.41	72.55	72.48	71.86	70.45
3	72.87	72.09	---	70.31	71.71	69.91	72.70	71.46	72.58	72.47	71.88	70.73
4	72.96	71.87	---	70.94	72.24	69.89	72.75	71.46	72.58	72.21	72.32	70.65
5	72.93	71.67	---	71.38	72.55	69.72	71.78	71.44	72.55	72.03	72.35	70.10
6	72.99	72.04	---	71.38	72.55	69.37	71.46	71.35	72.54	72.44	71.85	70.30
7	72.92	72.38	---	73.09	72.62	69.37	71.46	71.42	72.51	72.46	71.48	70.14
8	73.00	72.36	---	74.05	72.50	69.34	71.49	71.43	72.53	72.48	71.45	70.31
9	72.99	72.49	---	74.29	72.05	69.37	71.50	71.45	72.54	72.42	71.47	70.28
10	72.64	71.81	---	74.35	71.75	69.70	71.46	71.45	72.55	72.44	71.42	70.36
11	72.33	71.58	---	73.89	71.70	69.97	71.50	71.99	72.56	72.28	71.65	70.36
12	72.05	71.59	---	74.20	71.65	70.20	71.51	72.36	72.50	72.43	71.64	70.36
13	71.98	---	---	74.08	71.64	70.14	71.49	72.44	72.48	72.39	71.67	70.28
14	71.50	---	---	74.15	71.66	70.42	71.46	72.44	72.44	72.39	71.69	70.14
15	71.50	---	---	74.19	71.62	70.30	71.49	72.43	72.44	72.35	71.62	70.36
16	71.47	---	---	74.26	71.63	70.48	71.47	72.44	72.46	72.38	71.60	70.33
17	71.59	---	---	74.15	71.61	70.58	71.39	72.47	72.41	72.38	71.46	70.29
18	71.54	---	---	74.10	71.62	70.71	71.43	72.47	72.44	72.36	71.31	70.29
19	71.44	---	---	73.57	71.58	71.09	71.48	72.43	72.44	72.33	71.30	70.25
20	71.54	---	---	74.04	71.59	71.52	71.48	72.45	72.43	72.32	71.22	70.23
21	71.43	---	---	74.05	71.61	71.60	71.49	72.45	72.42	72.33	70.88	70.71
22	71.54	---	---	74.14	71.61	71.58	71.48	72.45	72.45	72.32	70.63	70.71
23	71.66	---	---	73.94	71.61	71.55	71.48	72.45	72.43	72.32	70.96	70.74
24	71.65	---	---	73.95	71.60	71.52	71.31	72.47	72.38	72.34	70.84	70.64
25	71.47	---	---	73.88	71.62	71.54	71.47	72.48	72.40	72.31	70.91	70.66
26	71.34	---	---	73.92	71.63	71.50	71.49	72.46	72.40	72.32	70.98	70.64
27	71.40	---	---	73.98	71.61	71.55	71.47	72.52	72.40	72.33	71.03	70.65
28	71.57	---	---	73.22	71.71	71.52	71.47	72.51	72.39	72.32	70.88	70.45
29	71.57	---	---	73.46	70.34	71.53	71.46	72.53	72.40	72.30	71.07	70.54
30	71.67	---	---	74.02	---	71.52	71.44	72.52	72.44	72.31	70.95	70.46
31	72.13	---	70.56	72.56	---	71.54	---	72.53	---	72.34	71.08	---
MEAN	72.05	---	---	73.27	71.81	70.58	71.57	72.12	72.47	72.36	71.40	70.44
MAX	73.00	---	---	74.35	72.62	71.60	72.75	72.53	72.58	72.48	72.35	70.83
MIN	71.34	---	---	69.67	70.34	69.34	71.31	71.35	72.38	72.03	70.63	70.10

MISSOURI RIVER BASIN

06339010 MISSOURI RIVER ABOVE STANTON, ND

LOCATION.--Lat 47°21'54", long 101°21'28", E½ sec.22, T.145 N., R.84 W., Mercer County, Hydrologic Unit 10130101, temperature recorder at gaging station on left bank, 9 mi (14 km) south of Riverdale and at mile 1,378 (kilometer 2,233).

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

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: June 1973 to current year.

INSTRUMENTATION.--Temperature recorder from June 1973.

REMARKS.--No extremes given for water year 1976 due to missing record.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum recorded, 19.5°C Aug. 28, 1976; minimum, 0.0°C on many days during winter months.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.5	16.0	---	---	4.5	4.5	1.0	1.0	---	---	1.5	1.5
2	17.0	16.5	---	---	4.5	4.5	1.0	1.0	---	---	1.5	1.5
3	17.0	17.0	---	---	4.5	4.0	1.0	1.0	---	---	1.5	1.5
4	17.0	17.0	---	---	4.0	4.0	1.0	1.0	---	---	1.5	1.5
5	17.0	16.5	---	---	4.0	3.5	1.0	1.0	---	---	1.5	1.5
6	17.0	16.5	---	---	3.5	3.5	1.0	1.0	---	---	1.5	1.5
7	17.0	16.5	---	---	3.5	3.5	1.0	1.0	---	---	1.5	1.5
8	16.5	16.0	---	---	3.5	3.5	1.0	1.0	---	---	1.5	1.5
9	16.0	15.0	---	---	3.5	3.5	1.0	1.0	---	---	1.5	1.5
10	15.0	15.0	---	---	3.5	3.5	1.0	1.0	---	---	1.5	1.5
11	15.0	15.0	---	---	3.5	3.5	1.0	0.5	---	---	1.5	1.5
12	15.0	15.0	---	---	3.5	3.0	0.5	0.5	---	---	1.5	1.5
13	15.0	15.0	---	---	3.0	2.5	0.5	0.5	---	---	1.5	1.5
14	15.0	14.0	9.0	9.0	2.5	2.0	0.5	0.5	---	---	2.0	1.5
15	14.0	14.0	9.0	9.0	2.0	1.5	0.5	0.5	---	---	2.0	1.5
16	14.0	14.0	9.0	9.0	1.5	1.0	0.5	0.5	---	---	2.0	1.5
17	14.0	14.0	9.5	9.0	1.0	1.0	0.5	0.5	---	---	2.0	2.0
18	14.0	14.0	9.5	9.0	1.0	0.5	0.5	0.5	---	---	2.0	2.0
19	14.0	14.0	8.5	8.0	1.0	0.5	0.5	0.5	---	---	2.0	2.0
20	14.0	14.0	8.0	8.0	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
21	14.0	14.0	8.0	8.0	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
22	14.0	14.0	8.0	7.5	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
23	---	---	7.0	7.0	1.0	1.0	0.5	0.5	1.0	1.0	2.5	2.0
24	---	---	7.0	6.5	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
25	---	---	6.5	6.0	1.0	1.0	0.5	0.5	1.5	1.0	2.0	2.0
26	---	---	6.0	5.5	1.0	1.0	0.5	0.5	1.5	1.5	2.0	2.0
27	---	---	5.5	5.5	1.0	1.0	0.5	0.5	1.5	1.5	2.0	2.0
28	---	---	5.5	5.5	1.0	1.0	0.5	0.5	1.5	1.5	2.5	2.0
29	---	---	5.5	5.0	1.0	1.0	0.5	0.0	1.5	1.5	3.0	2.5
30	---	---	5.0	4.5	1.0	1.0	0.0	0.0	---	---	3.0	2.5
31	---	---	---	---	1.0	1.0	0.0	0.0	---	---	3.0	2.5
MONTH	---	---	---	---	4.5	0.5	1.0	0.0	---	---	3.0	1.5

MISSOURI RIVER BASIN

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06339010 MISSOURI RIVER ABOVE STANTON, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	2.5	---	---	9.0	8.5	16.5	15.5	16.0	15.5	17.5	16.0
2	3.0	2.5	---	---	10.0	8.5	15.5	15.0	15.5	15.0	17.5	16.0
3	2.5	2.5	---	---	9.5	8.5	15.5	14.5	15.5	14.5	18.0	16.5
4	3.0	2.5	---	---	9.0	8.5	15.5	14.5	16.0	15.0	18.5	17.5
5	3.0	2.5	---	---	10.5	8.5	---	---	16.0	15.0	18.0	17.0
6	3.0	3.0	---	---	10.0	9.5	---	---	15.5	14.5	18.0	17.0
7	3.0	3.0	---	---	10.5	9.5	---	---	16.0	14.5	18.0	16.5
8	3.5	3.0	---	---	11.0	10.0	---	---	16.0	15.0	17.5	17.0
9	3.5	3.5	---	---	11.0	10.0	---	---	16.0	15.0	18.5	17.5
10	3.5	3.0	---	---	10.5	10.0	---	---	16.0	14.5	18.0	17.5
11	3.5	3.0	---	---	10.5	10.5	---	---	---	---	18.0	17.0
12	3.5	3.0	---	---	11.0	10.5	---	---	---	---	18.0	17.5
13	3.5	3.0	---	---	12.5	10.5	---	---	---	---	18.0	17.5
14	3.0	2.5	---	---	12.5	12.5	---	---	---	---	18.0	17.0
15	3.0	3.0	---	---	13.5	12.5	---	---	---	---	18.0	16.5
16	3.0	3.0	---	---	13.0	12.0	---	---	---	---	17.0	17.0
17	3.0	3.0	---	---	14.5	12.5	---	---	---	---	18.0	17.0
18	3.0	3.0	---	---	14.0	13.5	---	---	---	---	---	---
19	3.0	3.0	---	---	13.5	13.0	---	---	---	---	---	---
20	3.0	3.0	---	---	---	---	---	---	---	---	---	---
21	3.0	3.0	---	---	---	---	15.5	15.0	---	---	---	---
22	3.0	3.0	---	---	---	---	16.5	15.5	---	---	---	---
23	4.0	3.5	---	---	12.5	12.0	16.5	15.5	---	---	---	---
24	---	---	---	---	13.5	12.5	16.0	15.5	---	---	---	---
25	---	---	---	---	14.5	13.5	16.0	15.5	---	---	---	---
26	---	---	7.5	7.0	14.0	14.0	16.0	15.5	17.0	16.0	---	---
27	---	---	9.0	7.0	14.5	14.0	16.0	15.5	17.0	15.5	---	---
28	---	---	10.0	9.0	16.0	14.5	16.5	15.5	19.5	17.0	---	---
29	---	---	10.0	9.5	17.0	15.5	16.5	15.5	18.5	17.0	---	---
30	---	---	9.5	9.0	16.5	15.5	16.5	16.0	18.0	16.5	---	---
31	---	---	9.5	9.0	---	---	16.5	16.0	18.0	16.5	---	---
MONTH	---	---	---	---	17.0	8.5	---	---	---	---	---	---

KNIFE RIVER BASIN

06339100 KNIFE RIVER AT MANNING, ND

LOCATION.--Lat 47°14'10", long 102°46'10", in SE¼NW¼ sec.6, T.143 N., R.95 W., Dunn County, Hydrologic Unit 10130201, on left bank 50 ft (15 m) downstream from bridge on State Highway 22, 0.4 mi (0.6 km) north of Manning.

DRAINAGE AREA.--205 mi² (531 km²), approximately.

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,156.55 ft (657.316 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--9 years, 25.7 ft³/s (0.728 m³/s) 18,620 acre-ft/yr (22.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,940 ft³/s (83.3 m³/s) June 15, 1970, gage height, 16.20 ft (4.938 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 630 ft³/s (17.8 m³/s) Mar. 19, gage height, 11.53 ft (3.514 m), backwater from ice; minimum, no flow Sept. 7-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.0	1.7	1.6	2.1	40	9.7	8.6	2.8	1.3	.02	.03
2	1.5	1.9	1.7	1.6	2.0	20	8.2	6.1	2.4	1.2	.02	.03
3	1.6	1.9	1.7	1.5	2.0	15	7.4	5.0	1.7	1.2	.02	.02
4	1.5	1.9	1.8	1.5	1.9	10	6.7	4.8	1.4	1.2	.02	.02
5	1.5	1.9	1.8	1.4	1.9	8.0	6.7	3.9	1.9	1.1	.03	.02
6	1.5	1.9	1.8	1.4	1.9	6.0	6.7	3.7	11	1.0	.02	.02
7	1.5	1.9	1.8	1.3	1.9	5.0	6.1	3.5	25	.69	.02	0
8	1.5	1.9	1.8	1.3	2.0	5.0	6.7	3.5	13	.69	.04	0
9	1.5	1.9	1.8	1.3	10	10	5.8	3.5	7.0	.69	.08	0
10	1.5	1.9	1.8	1.3	25	15	5.3	3.5	4.3	.69	.06	0
11	1.6	1.9	1.8	1.3	20	20	4.3	3.1	2.9	.69	.06	0
12	1.6	1.9	1.8	1.3	30	25	3.7	3.1	2.4	.73	.08	0
13	1.5	1.9	1.7	1.3	35	20	3.5	4.1	2.0	1.3	.10	0
14	2.2	1.9	1.7	1.3	40	15	3.3	4.3	1.8	1.5	.37	0
15	2.6	1.9	1.7	1.3	55	10	3.7	4.5	1.8	.73	.22	0
16	2.8	1.9	1.6	1.4	90	10	4.1	7.0	1.7	.55	.10	.01
17	3.0	1.9	1.6	1.4	110	20	17	5.8	1.5	.49	.10	.01
18	2.8	1.9	1.5	1.5	110	220	72	3.7	1.4	.43	.12	.01
19	2.4	1.9	1.6	1.5	70	610	45	3.5	1.3	.40	.28	.01
20	2.4	1.9	1.6	1.5	40	380	30	3.5	1.3	.37	.34	.01
21	2.4	1.9	1.7	1.5	20	170	22	3.5	1.3	.37	.19	.01
22	2.3	1.9	1.7	1.5	15	90	20	3.5	4.7	.22	.16	.01
23	2.2	1.9	1.6	1.6	20	60	18	3.5	19	.19	.16	.01
24	2.2	1.9	1.6	1.6	50	60	23	3.3	6.1	.19	.14	.01
25	2.1	1.9	1.6	1.5	200	55	25	3.3	3.2	.19	.08	.01
26	2.1	1.8	1.6	1.4	230	45	34	3.7	2.8	.12	.06	.04
27	2.0	1.8	1.6	1.4	180	30	24	4.1	2.0	.05	.04	.03
28	2.0	1.8	1.6	1.4	80	23	17	5.0	2.0	.02	.03	.02
29	2.0	1.7	1.6	1.5	50	19	12	4.5	1.9	.02	.03	.01
30	2.0	1.7	1.6	1.7	---	15	9.0	3.9	1.6	.02	.03	.01
31	2.0	---	1.6	1.9	---	12	---	3.2	---	.02	.03	---
TOTAL	61.3	56.4	52.1	45.0	1495.7	2043.0	459.9	130.2	133.2	18.36	3.05	.35
MEAN	1.98	1.88	1.68	1.45	51.6	65.9	15.3	4.20	4.44	.59	.098	.012
MAX	3.0	2.0	1.8	1.9	230	610	72	8.6	25	1.5	.37	.04
MIN	1.5	1.7	1.5	1.3	1.9	5.0	3.3	3.1	1.3	.02	.02	0
AC-FT	122	112	103	89	2970	4050	912	258	264	36	6.0	.7
CAL YR 1975	TOTAL	17614.51	MEAN	48.3	MAX	1790	MIN	.10	AC-FT	34940		
WTR YR 1976	TOTAL	4498.56	MEAN	12.3	MAX	610	MIN	0	AC-FT	8920		

KNIFE RIVER BASIN

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06339300 KNIFE RIVER AT MARSHALL, ND

LOCATION.--Lat 47°08'17", long 102°20'00", NW¼ sec.10, T.142 N., R.92 W., Dunn County, Hydrologic Unit 10130201, on right bank 250 ft (75 m) downstream from bridge on State Highway 8 in Marshall.

DRAINAGE AREA.--722 mi² (1,870 km²).

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

GAGE.--Water-stage recorder.

REMARKS.--Records good.

AVERAGE DISCHARGE.--6 years, 79.2 ft³/s (2.243 m³/s) 57,380 acre-ft/yr (70.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,080 ft³/s (257 m³/s) Mar. 14, 1972, gage height, 19.37 ft (5.904 m); minimum, 0.18 ft³/s (0.005 m³/s) July 19, 20, 1973, gage height, 2.48 ft (0.756 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1943 reached a stage of at least 18.5 ft (5.639 m) prior to dike construction and is believed to be highest stage experienced since 1915.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s (21.2 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 21	--	*1,300 36.8	*10.18 3.103	June 7	1300	782 22.1	7.97 2.429

Minimum discharge, 1.4 ft³/s (0.040 m³/s) Aug. 23, gage height 1.84 ft (0.561 m).

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	8.8	5.0	5.5	10	130	36	24	43	10	2.6	1.9
2	6.8	9.0	5.0	5.5	10	75	32	20	11	9.3	2.5	1.9
3	5.6	9.3	4.5	5.0	12	45	30	18	8.8	8.6	2.5	1.9
4	7.1	9.7	4.5	5.0	30	40	29	16	9.0	7.9	2.4	1.9
5	8.8	9.7	5.0	4.5	25	30	26	15	13	7.5	2.4	2.0
6	8.8	9.7	5.0	4.5	20	25	26	14	53	7.1	2.3	2.0
7	8.6	10	5.5	4.5	15	25	26	13	608	6.2	2.3	2.3
8	7.9	9.7	5.5	4.0	10	25	24	12	201	6.0	2.4	2.5
9	7.9	9.7	6.0	4.0	8.0	30	24	12	72	5.6	1.5	2.3
10	7.3	8.8	6.5	3.5	10	30	23	11	42	6.0	8.4	2.2
11	7.3	7.7	6.5	3.5	30	35	21	11	28	5.6	6.2	2.2
12	7.5	6.2	6.0	3.5	130	40	21	11	23	5.0	5.0	2.5
13	7.9	5.2	5.5	3.5	180	40	20	11	33	4.9	4.0	2.5
14	9.5	6.0	5.0	3.5	200	40	19	11	22	4.5	3.2	2.5
15	9.7	6.6	4.5	3.5	210	45	18	11	17	4.0	2.7	3.3
16	11	7.1	4.5	3.5	210	55	16	10	14	3.9	2.4	8.4
17	12	7.3	4.0	3.5	350	100	19	10	13	3.7	2.3	8.4
18	11	8.2	4.0	5.0	390	150	26	9.7	11	4.0	2.2	17
19	10	7.9	4.0	6.5	330	640	26	9.7	11	5.8	2.0	8.6
20	10	7.7	4.5	7.0	250	840	59	10	10	4.9	2.3	8.8
21	10	7.5	4.5	8.0	180	1180	67	11	8.2	5.8	1.9	18
22	10	7.5	4.5	10	130	812	47	10	8.4	6.0	1.7	9.0
23	8.8	7.5	5.0	10	110	392	38	9.5	10	4.9	1.5	5.6
24	8.6	7.5	5.0	12	130	211	36	9.0	10	4.2	1.5	4.2
25	8.6	7.0	5.5	10	200	155	40	8.8	35	3.7	1.5	3.7
26	8.4	7.0	5.5	8.0	270	135	45	10	43	3.6	1.8	3.7
27	7.9	6.5	6.0	8.0	200	105	44	9.7	36	3.2	1.9	3.2
28	7.9	6.5	6.0	8.0	180	77	43	9.7	23	3.2	1.9	3.1
29	7.9	6.0	6.0	9.0	210	62	38	9.3	16	3.0	1.9	4.0
30	8.2	5.5	6.0	10	---	50	30	9.0	13	2.9	1.9	3.6
31	8.4	---	6.0	10	---	42	---	8.4	---	2.9	1.9	---
TOTAL	266.4	232.8	161.0	192.0	4040.0	5661	949	363.8	1445.4	163.9	116.1	143.2
MEAN	8.59	7.76	5.19	6.19	139	183	31.6	11.7	48.2	5.29	3.75	4.77
MAX	12	10	6.5	12	390	1180	67	24	608	10	24	18
MIN	5.8	5.2	4.0	3.5	8.0	25	16	8.4	8.2	2.9	1.5	1.9
AC-FT	528	462	319	381	8010	11230	1880	722	2870	325	230	284
CAL YR 1975	TOTAL	39968.50	MEAN	110	MAX	3410	MIN	.50	AC-FT	79280		
WTR YR 1976	TOTAL	13734.60	MEAN	37.5	MAX	1180	MIN	1.5	AC-FT	27240		

KNIFE RIVER BASIN

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND

LOCATION.--Lat 47°06'25", long 102°03'05", in SE¼NW¼ sec.23, T.142 N., R.90 W., Mercer County, Hydrologic Unit 10130201, on right bank 60 ft (18 m) upstream from highway bridge 13.5 mi (21.7 km) south of Golden Valley.

DRAINAGE AREA.--82 mi² (212 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,915.17 ft (583.744 m) above mean sea level.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--9 years, 8.79 ft³/s (0.249 m³/s), 6,370 acre-ft/yr (7.85 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s (283 m³/s) May 8, 1970, gage height, 23.55 ft (7.178 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 270 ft³/s (7.65 m³/s) Mar. 19, gage height, 8.38 ft (2.554 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.02	.01	.02	.03	2.0	2.3	1.1	.02			
2	0	.02	.01	.02	.03	1.2	2.0	.80	.02			
3	0	.02	.01	.02	.03	.80	1.9	.75	.02			
4	0	.02	.01	.01	.04	.70	1.7	.50	.02			
5	0	.02	.02	.01	.03	.60	1.3	.29	.25			
6	0	.02	.02	.01	.02	.60	1.1	.23	.65			
7	0	.02	.03	.01	.01	.50	.85	.23	2.0			
8	0	.02	.03	0	.01	.50	.65	.13	3.1			
9	0	.02	.04	0	.40	1.0	.41	.09	1.7			
10	0	.02	.04	0	1.0	.80	.33	.06	.70			
11	0	.02	.04	0	2.0	.60	.26	.03	.60			
12	0	.02	.03	0	4.0	.50	.19	.08	1.8			
13	0	.02	.03	0	8.0	.40	.23	.19	1.6			
14	0	.02	.02	0	10	1.0	.26	.11	1.8			
15	.01	.02	.02	0	13	3.0	.21	.08	1.4			
16	.04	.02	.02	0	18	2.0	.21	.06	.85			
17	.04	.02	.01	0	16	24	1.4	.04	.45			
18	.03	.02	.01	0	12	190	1.7	.04	.19			
19	.02	.02	.01	0	10	230	2.8	.04	.08			
20	.02	.02	.02	0	12	120	2.6	.04	.03			
21	.02	.02	.02	0	13	70	2.5	.04	.02			
22	.02	.02	.02	0	14	24	2.3	.02	.01			
23	.02	.02	.02	0	15	20	2.4	.02	.12			
24	.02	.02	.02	0	16	15	11	.02	.59			
25	.02	.02	.02	0	18	10	25	.02	.29			
26	.02	.01	.02	0	20	5.0	13	.03	.08			
27	.02	.01	.02	0	16	5.0	6.2	.03	.04			
28	.02	.01	.02	.01	9.0	4.0	3.6	.04	.02			
29	.02	.01	.02	.01	5.0	3.0	2.3	.04	.13			
30	.02	.01	.02	.02	---	3.0	1.6	.03	.05			
31	.02	---	.02	.02	---	2.5	---	.04	---			---
TOTAL	.38	.55	.65	.16	232.60	741.70	92.30	5.22	18.63	0	0	0
MEAN	.012	.018	.021	.005	8.02	23.9	3.08	.17	.62	0	0	0
MAX	.04	.02	.04	.02	20	230	25	1.1	3.1	0	0	0
MIN	0	.01	.01	0	.01	.40	.19	.02	.01	0	0	0
AC-FT	.8	1.1	1.3	.3	461	1470	183	10	37	0	0	0
CAL YR 1975	TOTAL	5885.19	MEAN	16.1	MAX	554	MIN	0	AC-FT	11670		
WTR YR 1976	TOTAL	1092.19	MEAN	2.98	MAX	230	MIN	0	AC-FT	2170		

KNIFE RIVER BASIN

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06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 16...	1155	.04	2450	8.1	7.0	270	0	46	38	450
NOV 21...	1200	.02	3400	8.2	2.0	240	0	41	33	690
DEC 16...	1105	.02	3740	7.9	.0	430	0	68	63	710
FEB 16...	1150	19	810	7.4	.0	120	26	23	15	100
MAR 18...	1115	186	990	8.2	1.0	160	47	29	21	140
APR 20...	1525	2.8	1600	8.3	10.0	260	4	50	33	260
MAY 20...	1115	.05	2620	8.7	14.0	350	0	64	46	490
JUN 24...	1600	1.1	1950	8.2	16.5	290	0	51	40	390

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT 16...	77	12	14	738	0	605	9.4	630	9.2
NOV 21...	85	19	13	1720	0	1410	17	340	31
DEC 16...	78	15	9.8	1540	0	1260	28	690	23
FEB 16...	62	4.0	12	113	0	93	7.2	250	4.0
MAR 18...	64	4.8	9.6	136	0	112	1.4	350	2.1
APR 20...	68	7.0	9.0	313	0	257	2.5	580	4.5
MAY 20...	75	11	10	640	0	525	2.0	900	7.1
JUN 24...	73	9.9	19	511	0	419	5.2	740	8.0

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
OCT 16...	.4	5.1	1650	1560	2.25	.18	520	690	440
NOV 21...	.5	9.7	2030	2020	2.76	.11	840	980	1600
DEC 16...	.7	16	2450	2350	3.33	.13	760	1400	880
FEB 16...	.1	3.0	531	470	.72	27.2	880	420	170
MAR 18...	.1	4.2	660	630	.90	332	160	440	140
APR 20...	.1	6.6	1090	1100	1.48	8.24	40	20	20
MAY 20...	.2	1.0	1830	1840	2.49	.25	190	230	10
JUN 24...	.3	5.8	1510	1510	2.05	4.48	260	190	300

KNIFE RIVER BASIN

06339500 KNIFE RIVER NEAR GOLDEN VALLEY, ND

LOCATION.--Lat 47°09'40", long 102°03'39", in SE¼ sec.34, T.143 N., R.90 W., Mercer County, Hydrologic Unit 10130201, on left bank 6 ft (2 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.--May 1903 to November 1906, April 1907 to November 1915, April 1916 to October 1919, and October 1921 to September 1924 (published as "at Broncho" or "near Broncho"), and April 1943 to current year. Monthly discharge only for some periods published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1006: Drainage area. WSP 1279: 1904, 1914-19(M), 1922-24(M), 1944.

GAGE.--Water-stage recorder. Datum of gage is 1,847.13 ft (563.005 m) above mean sea level. See WSP 1729 or 1917 for history of changes prior to May 1, 1946.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--50 years, 96.4 ft³/s (2.730 m³/s), 69,840 acre-ft/yr (86.1 hm³/yr); median of yearly mean discharges, 83 ft³/s (2.35 m³/s), 60,100 acre-ft/yr (74.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s (317 m³/s) May 9, 1970, gage height, 25.84 ft (7.876 m); maximum gage height, 26.7 ft (8.14 m) Mar. 26, 27, 1943, from floodmark; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 27, 1943 reached a stage of 26.7 ft (8.14 m), from floodmark, 11,500 ft³/s (326 m³/s). The 1943 flood was the highest since 1903 according to information from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft³/s (30.9 m³/s) Mar. 22, gage height, 11.16 ft (3.402 m), maximum gage height, 11.74 ft (3.578 m) Mar. 20, backwater from ice; minimum daily discharge, 2.1 ft³/s (0.059 m³/s) Aug. 23 - Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	10	12	14	260	66	51	15	24	3.1	2.1
2	9.5	12	9.6	13	16	165	60	42	92	12	3.1	2.2
3	8.9	12	10	13	18	90	55	36	41	11	3.0	2.2
4	8.9	12	11	12	21	55	53	31	13	10	3.0	2.3
5	8.3	12	12	11	27	40	52	26	25	9.0	3.0	2.4
6	9.5	12	11	11	37	40	50	23	32	8.7	3.2	2.6
7	9.9	12	11	9.9	36	35	50	21	165	8.0	2.8	2.9
8	10	12	11	8.9	56	35	49	20	518	7.6	2.9	3.3
9	9.9	12	11	8.3	65	35	48	19	212	7.2	4.5	3.4
10	10	12	12	8.0	42	40	46	18	107	7.3	41	3.2
11	9.9	12	12	7.7	43	45	44	16	74	7.2	26	3.0
12	9.9	12	12	8.0	164	45	43	18	67	6.8	17	3.1
13	10	11	11	8.6	260	45	43	16	50	6.3	13	3.6
14	12	11	9.9	8.9	360	50	41	16	65	5.9	9.5	8.0
15	13	11	9.0	8.9	470	55	40	15	52	5.6	6.3	26
16	13	11	8.0	8.9	500	60	41	14	43	5.3	4.0	59
17	16	11	6.0	8.9	560	70	44	14	37	5.3	3.0	526
18	16	12	4.7	9.5	580	170	47	13	28	5.6	3.0	120
19	16	12	5.0	10	535	700	57	13	23	5.9	2.8	65
20	15	12	5.8	11	430	950	59	14	19	6.4	2.6	249
21	15	10	6.3	12	339	900	58	13	15	7.9	2.9	65
22	15	12	7.2	12	281	1060	89	14	11	6.2	2.3	44
23	15	11	8.3	13	229	795	98	14	23	7.1	2.1	24
24	14	11	9.5	14	228	457	76	13	25	9.3	2.1	12
25	14	11	9.2	14	270	277	96	13	16	7.5	2.1	6.3
26	13	9.9	9.2	13	339	183	108	14	46	6.0	2.1	5.5
27	13	9.8	9.5	12	351	145	111	15	73	4.6	2.1	3.8
28	12	10	11	11	324	136	90	15	61	3.7	2.1	5.2
29	12	9.9	12	11	323	101	76	16	45	3.5	2.1	5.8
30	12	10	12	13	---	87	64	16	34	3.3	2.1	5.8
31	12	---	12	14	---	75	---	16	---	3.2	2.1	---
TOTAL	373.7	339.6	298.2	336.5	6918	7202	1854	595	2027	227.4	180.9	1266.7
MEAN	12.1	11.3	9.62	10.9	239	232	61.8	19.2	67.6	7.34	5.84	42.2
MAX	16	12	12	14	580	1060	111	51	518	24	41	526
MIN	8.3	9.8	4.7	7.7	14	35	40	13	11	3.2	2.1	2.1
AC-FT	741	674	591	667	13720	14290	3680	1180	4020	451	359	2510
CAL YR 1975	TOTAL	62556.7	MEAN 171	MAX 4640	MIN 1.0	AC-FT 124100						
WTR YR 1976	TOTAL	21619.0	MEAN 59.1	MAX 1060	MIN 2.1	AC-FT 42880						

KNIFE RIVER BASIN

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06339560 BRUSH CREEK NEAR BEULAH, ND

LOCATION.--Lat 47°10'43", long 101°47'05", NW¼SW¼NW¼ sec.25, T.143 N., R.88 W., Mercer County, Hydrologic Unit 10130201, on right bank 60 ft (18 m) upstream from bridge on State Highway 49, 6 mi (10 km) south of Beulah.

DRAINAGE AREA.--22 mi² (57 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,948 ft (593.8 m) from State Highway Department levels.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 70 ft³/s (1.98 m³/s), Mar. 18, 1976, gage height unknown; maximum observed gage height, 6.87 ft (2.094 m), Apr. 17, 1975; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 24	--	Backwater from ice	*5.03 ^a 1.533	Mar. 18		*About 70 1.98	Backwater from ice
Feb. 25	--	About 55 1.56	Backwater from ice				

Minimum discharge, 0.01 ft³/s (0.0003 m³/s) July 22-24, 26, 27, 29, 31, Aug. 7.

a Observed

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.40	.40	.26	.24	15	1.6	.79	.26	.38	.02	.06
2	.20	.40	.40	.26	.20	10	1.4	.70	.20	.29	.02	.06
3	.20	.44	.35	.24	.16	8.0	1.0	.62	.20	.24	.02	.06
4	.20	.44	.35	.24	.10	7.0	1.1	.62	.18	.22	.02	.06
5	.18	.46	.35	.24	.10	3.0	1.2	.62	.62	.18	.02	.06
6	.16	.48	.35	.24	.10	2.2	1.1	.58	.62	.12	.02	.05
7	.16	.46	.35	.24	.16	1.5	1.0	.54	.62	.12	.01	.05
8	.16	.46	.35	.24	.24	.80	.92	.54	.46	.10	.02	.05
9	.20	.44	.35	.24	.40	3.0	.92	.54	.50	.10	.04	.05
10	.20	.40	.30	.24	.50	3.5	.92	.46	.50	.14	.04	.05
11	.20	.40	.30	.24	.75	3.5	1.0	.42	.50	.14	.02	.04
12	.20	.40	.30	.24	1.0	3.0	3.0	.54	1.6	.14	.02	.04
13	.20	.48	.30	.24	1.6	4.0	4.2	.58	.79	.06	.10	.04
14	.40	.60	.30	.24	2.0	6.0	4.2	.54	.92	.06	.12	.04
15	.60	.80	.30	.24	2.5	7.0	4.6	.50	1.3	.05	.12	.04
16	.55	.80	.30	.24	3.4	20	7.0	.46	.92	.05	.10	.06
17	.55	.74	.26	.24	4.6	33	9.2	.42	.79	.04	.10	.06
18	.50	.70	.26	.24	7.2	34	6.0	.35	.74	.04	.10	.08
19	.50	.70	.26	.24	9.5	26	2.0	.29	.66	.04	.09	.10
20	.50	.70	.26	.24	13	11	2.0	.26	.54	.04	.09	.12
21	.50	.66	.26	.24	18	6.5	1.8	.26	.38	.02	.09	.14
22	.48	.66	.26	.24	24	5.4	1.8	.26	.42	.01	.08	.14
23	.48	.66	.26	.24	32	5.3	2.3	.22	1.4	.01	.08	.14
24	.48	.62	.26	.20	43	4.1	5.2	.18	2.2	.01	.08	.16
25	.48	.62	.26	.20	48	3.2	4.1	.16	1.7	.02	.08	.14
26	.44	.62	.26	.20	40	2.8	2.6	.26	2.0	.01	.07	.16
27	.40	.60	.26	.20	32	2.4	1.6	.35	1.5	.01	.07	.16
28	.40	.55	.26	.24	24	2.3	1.2	.35	1.1	.02	.07	.16
29	.40	.50	.26	.24	18	1.9	1.1	.29	.79	.01	.07	.16
30	.40	.46	.26	.24	---	1.6	.85	.29	.62	.02	.07	.16
31	.40	---	.26	.24	---	1.6	---	.29	---	.01	.07	---
TOTAL	10.94	16.65	9.25	7.32	326.75	238.60	76.91	13.28	25.03	2.70	1.92	2.69
MEAN	.35	.56	.30	.24	11.3	7.70	2.56	.43	.83	.087	.062	.090
MAX	.60	.80	.40	.26	48	34	9.2	.79	2.2	.38	.12	.16
MIN	.16	.40	.26	.20	.10	.80	.85	.16	.18	.01	.01	.04
AC-FT	22	33	18	15	648	473	153	26	50	5.4	3.8	5.3
CAL YR 1975	TOTAL 597.79	MEAN 1.64	MAX 35	MIN 0	AC-FT 1190							
WTR YR 1976	TOTAL 732.04	MEAN 2.00	MAX 48	MIN .01	AC-FT 1450							

KNIFE RIVER BASIN

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
OCT												
02...	1300	.21	1900	8.1	11.0	1	9.2	92	--	540	2	91
23...	1310	.48	1750	8.1	6.0	2	10.4	90	1.6	300	0	78
NOV												
26...	1210	.63	1900	7.7	.0	0	7.8	43	1.4	480	0	89
DEC												
23...	1315	.27	2000	7.7	.0	3	8.4	62	.6	500	0	93
JAN												
20...	1040	.24	2000	7.8	.0	4	10.2	75	1.0	530	0	97
FEB												
18...	1200	7.3	475	7.4	.0	15	10.1	74	>8.6	130	0	27
MAR												
25...	1000	2.4	700	7.7	3.0	10	9.9	79	2.4	190	0	39
APR												
27...	1220	1.6	1600	8.2	10.0	4	11.7	111	2.6	430	0	78
MAY												
19...	1030	.29	1600	7.9	16.0	3	7.0	76	1.8	410	0	80
JUN												
23...	1045	1.0	1600	7.9	18.0	1	5.4	61	2.6	340	0	57
JUL												
21...	1020	.04	1700	8.0	17.0	2	7.1	79	1.1	390	0	70
AUG												
30...	1100	.07	1700	8.0	17.0	2	8.0	88	1.6	390	0	69
SEP												
23...	1055	.14	1700	8.2	9.0	1	9.9	92	.7	410	0	73

DATE	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT												
02...	76	260	51	4.9	10	659	0	541	8.4	580	7.2	.2
23...	25	270	65	6.8	12	550	14	474	7.4	400	7.6	.2
NOV												
26...	63	300	57	6.0	11	711	0	583	23	550	7.2	.3
DEC												
23...	65	300	56	5.8	11	757	0	621	24	480	9.7	.3
JAN												
20...	70	320	56	6.0	10	767	0	629	19	590	6.8	.4
FEB												
18...	15	44	41	1.7	7.8	167	0	137	11	100	4.0	.1
MAR												
25...	22	83	48	2.6	7.4	248	0	203	7.9	170	2.5	.1
APR												
27...	57	230	53	4.8	8.9	559	0	459	5.6	450	6.7	.2
MAY												
19...	52	270	58	5.8	8.9	646	0	530	13	500	5.2	.3
JUN												
23...	47	260	62	6.2	8.3	608	0	499	12	430	7.1	.2
JUL												
21...	52	280	60	6.2	8.6	675	0	554	11	450	5.7	.3
AUG												
30...	53	290	61	6.4	9.1	701	0	575	11	440	6.5	.3
SEP												
23...	55	290	60	6.2	9.4	713	0	585	7.2	430	7.2	.3

KNIFE RIVER BASIN

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06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BROMIDE (BR) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)
OCT												
02...	.0	12	1300	1400	1360	1.77	.74	.07	.05	19	19	19
23...	.0	8.4	1240	--	1090	1.69	1.61	.02	.02	1.1	1.1	1.1
NOV												
26...	.0	11	1350	--	1380	1.84	2.30	.09	.14	1.9	1.8	2.0
DEC												
23...	.1	14	1430	--	1350	1.94	1.04	.12	.23	1.1	.87	1.2
JAN												
20...	.0	13	1470	--	1490	2.00	.95	.19	.24	4.4	4.2	4.6
FEB												
18...	.2	6.4	318	--	287	.43	6.27	.48	.23	2.8	2.6	3.3
MAR												
25...	.0	7.8	477	--	455	.65	3.09	.27	.18	1.4	1.2	1.7
APR												
27...	.0	7.3	1130	--	1110	1.54	4.88	.09	.00	.98	.98	1.1
MAY												
19...	.1	7.6	1280	--	1240	1.74	1.00	.07	.08	.83	.75	.90
JUN												
23...	.0	5.0	1160	--	1120	1.58	3.26	.03	.03	.60	.57	.63
JUL												
21...	.0	8.3	1130	--	1210	1.54	.12	.04	.00	.54	.54	.58
AUG												
30...	.0	10	1210	--	1220	1.65	.23	.04	.00	.07	.07	.11
SEP												
23...	.1	11	1170	1200	1230	1.59	.44	.07	.00	.73	.73	.80

DATE	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDEd ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDEd ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDEd BARIUM (BA) (UG/L)
OCT												
02...	84	.04	.01	.03	70	70	0	1	0	1	<100	0
23...	5.0	.04	.01	.03	--	--	--	--	--	--	--	--
NOV												
26...	8.8	.04	.00	.00	--	--	--	--	--	--	--	--
DEC												
23...	5.4	.02	--	--	40	40	0	1	0	1	100	0
JAN												
20...	20	.01	.00	.00	--	--	--	--	--	--	--	--
FEB												
18...	15	.25	.08	.25	--	--	--	--	--	--	--	--
MAR												
25...	7.4	.11	.02	.06	390	370	20	1	1	0	0	0
APR												
27...	4.7	.07	.01	.03	--	--	--	--	--	--	--	--
MAY												
19...	4.0	.08	.02	.06	--	--	--	--	--	--	--	--
JUN												
23...	2.8	.13	--	--	30	20	10	2	0	3	100	0
JUL												
21...	2.6	.05	.04	.12	--	--	--	--	--	--	--	--
AUG												
30...	.49	.05	.01	.03	--	--	--	--	--	--	--	--
SEP												
23...	3.5	.04	.01	.03	50	30	20	1	0	2	0	0

KNIFE RIVER BASIN

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED BARIUM (BA) (UG/L)	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)
OCT 02...	<200	<10	0	<10	360	0	0	1	10	0	10	0
23...	--	--	--	--	350	--	--	--	--	--	--	--
NOV 26...	--	--	--	--	350	--	--	--	--	--	--	--
DEC 23...	100	10	0	10	340	10	10	0	10	10	0	10
JAN 20...	--	--	--	--	320	--	--	--	--	--	--	--
FEB 18...	--	--	--	--	120	--	--	--	--	--	--	--
MAR 25...	0	10	10	0	120	<10	<10	0	0	0	10	<10
APR 27...	--	--	--	--	270	--	--	--	--	--	--	--
MAY 19...	--	--	--	--	400	--	--	--	--	--	--	--
JUN 23...	100	0	0	0	350	0	0	0	10	0	<10	0
JUL 21...	--	--	--	--	370	--	--	--	--	--	--	--
AUG 30...	--	--	--	--	360	--	--	--	--	--	--	--
SEP 23...	0	0	0	0	360	<10	<10	0	10	10	0	<10

DATE	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDED LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)
OCT 02...	0	0	520	50	<100	<94	6	80	0	90	80	10
DEC 23...	10	0	350	40	<100	<100	0	80	0	80	270	20
MAR 25...	<10	0	860	170	<100	<97	3	20	0	20	130	30
JUN 23...	0	0	450	80	3	2	1	70	0	70	110	10
SEP 23...	<10	0	700	60	<100	<100	0	90	10	80	160	0

DATE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	SUS- PENDED NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SIL- NIUM (SE) (UG/L)	SUS- PENDED SIL- NIUM (SE) (UG/L)
OCT 02...	70	.1	.1	.0	2	1	1	<50	<48	2	0	0
DEC 23...	250	.2	.2	.0	1	1	0	<50	<47	3	0	0
MAR 25...	100	.0	.0	.0	1	1	0	<50	<26	24	0	0
JUN 23...	100	<.5	.0	<.5	2	1	1	3	0	3	0	0
SEP 23...	160	.0	.0	.0	0	0	0	<50	<49	1	0	0

KNIFE RIVER BASIN

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06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE GROSS BETA AS CS-137 (PC/L)
OCT 02...	0	2000	0	2200	.4	10	0	10	<15	<.4	21	<.4
DEC 23...	0	2000	0	2100	.1	40	40	0	--	--	--	--
MAR 25...	0	600	0	630	1.2	10	0	20	--	--	--	--
JUN 23...	0	1200	0	1400	.0	10	1	9	--	--	--	--
SEP 23...	0	1400	0	1600	1.2	0	0	0	<14	<.4	10	<.4

DATE	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (U) (UG/L)	DIS- SOLVED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDIMENT (MG/L)	SUS- PENDE SEDIMENT DIS- CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .004 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
OCT 02...	17	<.4	.08	1.1	13	.5	16	.01	--	--	--	--
DEC 23...	--	--	--	--	9.3	.3	18	.02	6	14	20	54
NOV 26...	--	--	--	--	13	.6	18	.03	--	--	--	--
DEC 23...	--	--	--	--	8.1	.2	--	--	--	--	--	--
JAN 20...	--	--	--	--	8.1	.3	--	--	--	--	--	--
FEB 18...	--	--	--	--	23	3.5	24	.47	--	--	--	--
MAR 25...	--	--	--	--	9.9	--	--	--	--	--	--	--
APR 27...	--	--	--	--	13	.4	19	.08	5	16	22	51
MAY 19...	--	--	--	--	11	--	37	.03	--	--	--	--
JUN 23...	--	--	--	--	12	.3	7	.02	--	--	--	--
JUL 21...	--	--	--	--	7.5	.8	8	.00	--	--	--	--
AUG 30...	--	--	--	--	38	.3	--	--	--	--	--	--
SEP 23...	8.8	<.4	.04	--	6.9	.6	12	.00	--	2	4	16

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 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	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM
OCT 23...	71	77	83	90	95	100	--	--
APR 27...	69	74	80	89	94	97	100	--
SEP 23...	26	31	38	50	61	72	77	100

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND

LOCATION.--Lat 47°17'10", long 101°55'31", in SW¼ sec.14, T.144 N., R.89 W., Mercer County, Hydrologic Unit 10130201, on right bank 250 ft (76 m) downstream from Burlington Northern Railway bridge in Zap and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--549 mi² (1,422 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to September 1924, October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,819.39 ft (554.550 m) above mean sea level. Mar. 4 to Sept. 30, 1924, nonrecording gage at site 250 ft (76 m) upstream at different datum. Oct. 1, 1945, to Sept. 30, 1947, nonrecording gage 250 ft (76 m) upstream at datum 1.12 ft (0.341 m) higher.

REMARKS.--Records fair. Flow slightly regulated by Lake Ilo 56 mi (90 km) upstream, capacity, 7,130 acre-ft (8.79 hm³).

AVERAGE DISCHARGE.--31 years, 43.8 ft³/s (1.240 m³/s), 31,730 acre-ft/yr (39.1 hm³/yr); median of yearly mean discharges, 39 ft³/s (1.10 m³/s), 28,300 acre-ft/yr (35 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,130 ft³/s (174 m³/s) Apr. 7, 1952, gage height, 20.03 ft (6.105 m); maximum gage height, 20.70 ft (6.309 m) Mar. 15, 1972; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known occurred in about 1902, from ice jam. Floods of February 1913 and March 1943 reached a stage of about 20 ft (6.10 m) and 19.5 ft (5.94 m), respectively, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,500 ft³/s (42.5 m³/s) Mar. 19, gage height, 15.16 ft (4.621 m), backwater from ice; minimum daily discharge 5.1 ft³/s (0.14 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	10	12	9.0	10	290	66	32	14	14	6.1	10
2	11	11	12	9.0	10	175	58	27	12	11	6.1	8.6
3	10	11	12	9.0	10	130	54	32	11	11	6.1	8.6
4	9.4	11	12	9.0	10	120	53	34	10	11	6.1	8.6
5	9.0	11	12	9.5	10	100	50	26	9.9	9.0	6.4	8.6
6	11	12	10	9.5	10	80	50	25	23	8.6	6.4	8.6
7	9.4	12	11	9.5	10	60	47	23	40	7.4	6.1	8.2
8	8.6	12	11	9.5	10	50	45	22	42	8.2	5.4	9.0
9	9.0	12	11	9.5	10	35	41	21	40	7.8	5.6	8.6
10	9.0	12	11	9.5	10	40	40	19	26	7.8	5.1	8.2
11	9.4	11	11	9.5	10	30	37	19	19	9.4	5.4	8.2
12	9.4	11	11	9.5	10	25	36	22	20	10	6.1	7.8
13	11	12	11	9.5	10	25	34	18	19	9.9	6.1	8.6
14	14	12	10	9.5	10	35	34	19	15	9.4	6.4	8.2
15	14	13	10	10	15	45	32	18	17	9.0	6.4	9.0
16	16	12	10	10	15	40	34	22	17	9.0	5.8	12
17	17	12	10	10	70	150	43	19	18	8.6	5.8	12
18	16	12	10	10	100	780	52	17	15	7.8	5.6	9.4
19	14	11	10	10	100	1200	61	16	12	8.2	5.6	9.4
20	13	11	9.5	10	70	950	62	15	11	8.6	5.8	8.2
21	12	11	9.5	10	45	653	52	14	10	8.6	5.8	9.9
22	12	11	9.5	10	50	390	43	14	10	8.2	6.1	9.4
23	12	11	9.5	10	50	280	45	13	13	8.2	5.8	7.4
24	11	11	9.5	10	220	237	48	13	20	7.8	6.1	6.8
25	11	11	9.5	10	430	186	48	12	26	7.1	7.1	6.4
26	10	11	9.0	10	510	144	49	12	29	7.1	6.4	6.4
27	10	11	9.0	10	530	120	44	12	22	7.1	5.8	7.1
28	10	11	9.0	10	300	106	41	14	17	6.8	5.8	7.1
29	10	11	9.0	10	240	93	40	14	15	5.8	6.1	7.4
30	10	11	9.0	10	---	80	34	13	14	6.1	6.1	6.1
31	10	---	9.0	10	---	71	---	15	---	6.1	9.0	---
TOTAL	350.2	341	318.0	301.0	2885	6720	1373	592	566.9	264.6	188.5	253.8
MEAN	11.3	11.4	10.3	9.71	99.5	217	45.8	19.1	18.9	8.54	6.08	8.46
MAX	17	13	12	10	530	1200	66	34	42	14	9.0	12
MIN	8.6	10	9.0	9.0	10	25	32	12	9.9	5.8	5.1	6.1
AC-FT	695	676	631	597	5720	13330	2720	1170	1120	525	374	503
CAL YR 1975 TOTAL	25048.0		MEAN 68.6	MAX 2450	MIN 2.5	AC-FT 49680						
WFR YR 1976 TOTAL	14154.0		MEAN 38.7	MAX 1200	MIN 5.1	AC-FT 28070						

KNIFE RIVER BASIN

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06340000 SPRING CREEK AT ZAP, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
OCT 25...	1215	11	1600	8.4	4.0	5	11.6	94	1.6	410	0	85
DEC 02...	1530	12	1900	7.8	.0	5	10.8	79	.8	480	3	98
JAN 05...	1315	10	1850	7.6	.0	6	9.2	67	1.5	460	0	98
JAN 27...	1145	10	1800	7.8	.0	8	9.9	72	1.1	330	0	47
FEB 17...	1300	67	1200	7.7	.0	15	11.2	82	8.4	310	44	62
MAR 31...	1200	70	750	8.0	5.5	26	10.8	89	3.6	190	6	38
APR 20...	1115	64	1400	8.3	7.5	16	10.7	94	2.1	390	54	78
MAY 17...	1245	19	1400	8.4	16.0	6	9.7	104	2.1	410	18	81
JUN 21...	1120	10	1550	8.3	21.0	20	7.4	88	3.5	470	100	89
JUL 19...	1210	8.3	1800	8.3	22.0	30	8.0	97	2.4	220	0	41
AUG 24...	1045	6.2	1620	8.4	20.5	15	6.1	72	1.9	430	0	80
SEP 30...	1100	6.1	1700	8.4	11.0	10	9.2	91	1.5	400	0	74

DATE	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	ALKA- LINITY AS CaCO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT 25...	49	230	54	4.9	8.9	498	7	3.3	420	480	7.5
DEC 02...	57	290	56	5.8	9.3	581	0	15	477	590	7.6
JAN 05...	52	260	55	5.3	8.7	594	0	24	487	500	8.5
JAN 27...	52	250	61	6.0	8.2	586	0	15	481	570	6.8
FEB 17...	37	150	50	3.7	13	321	0	10	263	370	6.0
MAR 31...	22	84	48	2.7	8.3	219	0	3.5	180	--	--
APR 20...	48	180	49	4.0	9.3	413	0	3.3	339	420	5.0
MAY 17...	51	210	52	4.5	8.6	481	0	3.1	395	470	6.1
JUN 21...	60	210	49	4.2	10	449	0	3.5	368	500	5.7
JUL 19...	29	120	53	3.5	4.9	391	0	3.1	321	550	6.8
AUG 24...	57	270	57	5.6	11	539	0	3.4	442	580	8.1
SEP 30...	53	270	59	5.9	9.6	495	11	3.3	424	530	7.8

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL FLUOR- IDE (F) (MG/L)	DIS- SOLVED FLUOR- IDE (F) (MG/L)	BROMIDE (BR) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUCE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTIT- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)
OCT 25...	--	.3	.0	8.4	1110	--	1120	1.51	33.0	--	.02
DEC 02...	--	.4	.1	9.8	1330	--	1350	1.81	43.1	--	.25
JAN 05...	.6	.4	.0	14	1310	--	1240	1.78	35.4	--	.43
JAN 27...	--	.4	.0	14	1260	--	1240	1.71	34.0	--	.62
FEB 17...	--	.3	.2	9.4	854	--	806	1.16	154	--	.51
MAR 31...	.2	.1	.0	7.8	626	--	--	.85	118	--	.23
APR 20...	--	.3	.1	7.3	980	--	952	1.33	169	--	.00
MAY 17...	--	.3	.0	6.1	1090	--	1070	1.48	55.9	--	.01
JUN 21...	.2	.4	.1	10	145	--	1110	.20	3.92	--	.02
JUL 19...	--	.4	.0	11	1150	--	956	1.56	25.8	--	.00
AUG 24...	--	.5	.0	9.8	1230	--	1280	1.67	20.6	--	.08
SEP 30...	.5	.5	.0	8.1	1250	490	1210	1.70	20.6	14	.04

DATE	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHOP. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHOP. PHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDEd ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)
OCT 25...	.30	.67	.97	.99	4.4	.07	.00	.00	--	--	--
DEC 02...	.00	.98	.98	1.2	5.4	.00	.00	.00	--	--	--
JAN 05...	.18	1.2	1.4	1.8	8.1	.01	.02	.06	100	100	0
JAN 27...	.09	.77	.86	1.5	6.6	.01	.00	.00	--	--	10
FEB 17...	.04	1.9	1.9	2.4	11	.16	.01	.03	--	--	--
MAR 31...	.15	1.6	1.7	1.9	8.5	.16	.05	.15	1300	1200	60
APR 20...	.04	.94	.98	.98	4.3	.07	.00	.00	--	--	--
MAY 17...	.01	.82	.83	.84	3.7	.07	--	--	--	--	--
JUN 21...	.04	1.2	1.2	1.2	5.4	.12	--	--	440	430	10
JUL 19...	.10	.64	.74	.74	3.3	.06	.00	.00	--	--	--
AUG 24...	.05	1.3	1.3	1.4	6.1	.09	.01	.03	--	--	--
SEP 30...	.00	.85	.85	.89	3.9	.01	.04	.12	390	370	20

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDEd ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDEd BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDEd BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	TOTAL BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
JAN 05...	1	0	1	200	100	100	10	0	10	510	<10
JAN 27...	--	--	0	--	--	0	--	--	--	--	--
FEB 17...	--	--	--	--	--	--	--	--	--	--	--
MAR 31...	1	1	0	0	0	0	0	0	0	170	<10
JUN 21...	3	3	0	200	100	100	0	0	0	500	0
SEP 30...	2	1	1	0	0	--	0	0	0	490	<10

KNIFE RIVER BASIN

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06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDE CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON (FE) (UG/L)
JAN 05...	<10	0	0	0	0	10	8	2	20	420
27...	--	--	--	--	--	--	--	--	110	--
FEB 17...	--	--	--	--	--	--	--	--	--	--
MAR 31...	<9	1	10	0	10	10	6	4	100	2700
JUN 21...	0	0	10	0	10	10	0	10	10	1200
SEP 30...	<10	0	0	0	0	<10	<9	1	10	720

DATE	TOTAL LEAD (PB) (UG/L)	SUS- PENDE LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDE LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)
JAN 05...	<100	<100	0	60	0	60	70	80	10	.1
27...	--	--	--	--	--	70	70	--	--	--
FEB 17...	--	--	--	--	--	--	--	--	--	--
MAR 31...	<100	<94	6	20	0	20	70	140	70	.0
JUN 21...	4	1	3	60	0	60	20	220	200	<.5
SEP 30...	<100	<100	0	80	10	70	60	100	40	.1

DATE	SUS- PENDE MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENIUM (MO) (UG/L)	SUS- PENDE MOLYB- DENIUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENIUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)
JAN 05...	.0	.1	2	0	3	<50	<46	4	0	0
27...	--	--	--	--	1	--	--	--	--	--
FEB 17...	--	--	--	--	--	--	--	--	--	--
MAR 31...	.0	.0	1	0	1	<50	<48	2	0	0
JUN 21...	.0	.6	3	0	3	10	4	6	0	0
SEP 30...	.1	.0	3	2	1	<50	<46	4	0	0

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE- STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE- ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE- GROSS ALPHA AS U-NAT. (UG/L)
OCT 25...	--	--	--	--	--	--	--	--	--	--
DEC 02...	--	--	--	--	--	--	--	--	--	--
JAN 05...	0	1700	0	1700	.7	10	10	0	--	--
27...	0	--	--	--	.8	--	--	0	--	--
FEB 17...	--	--	--	--	--	--	--	--	--	--
MAR 31...	0	500	0	530	.9	10	10	0	--	--
APR 20...	--	--	--	--	--	--	--	--	--	--
MAY 17...	--	--	--	--	--	--	--	--	--	--
JUN 21...	0	1400	0	1400	.0	10	10	0	--	--
JUL 19...	--	--	--	--	--	--	--	--	--	--
AUG 24...	--	--	--	--	--	--	--	--	--	--
SEP 30...	0	1200	0	1500	2.7	10	10	0	<5.9	.7

DATE	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE- GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 (PC/L)	SUS- PENDE- GROSS BETA AS SR90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (DIRECT FLUORU- METRIC) (PC/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE- ORGANIC CARBON (C) (MG/L)	SUS- PENDE- SEDI- MENT (MG/L)	SUS- PENDE- SEDI- MENT DIS- CHARGE (T/DAY)
OCT 25...	--	--	--	--	--	--	10	.5	28	.83
DEC 02...	--	--	--	--	--	--	21	.4	28	.91
JAN 05...	--	--	--	--	--	--	12	.6	--	--
27...	--	--	--	--	--	--	42	1.0	46	1.2
FEB 17...	--	--	--	--	--	--	24	1.5	36	6.5
MAR 31...	--	--	--	--	--	--	12	1.8	68	13
APR 20...	--	--	--	--	--	--	10	--	85	15
MAY 17...	--	--	--	--	--	--	11	--	64	3.3
JUN 21...	--	--	--	--	--	--	13	--	77	2.1
JUL 19...	--	--	--	--	--	--	11	--	66	1.5
AUG 24...	--	--	--	--	--	--	13	1.4	28	.47
SEP 30...	<3.6	1.1	<2.9	.9	.09	2.2	8.9	1.0	39	.64

DATE	BED MAT. FALL DIAM. % FINER THAN .004 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 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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM	BED MAT. FALL DIAM. % FINER THAN 64.0 MM
OCT 25...	34	47	49	53	67	71	72	72	74	87	92	100
APR 20...	17	32	39	50	58	60	64	71	78	95	100	--
JUN 21...	30	47	50	55	66	68	70	77	82	90	100	--
SEP 30...	21	30	31	43	47	48	54	70	83	89	100	--

KNIFE RIVER BASIN

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06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 25, 1975
1215 HOURS

IDENTIFICATION OF PHYTOPLANKTON

30,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
....DOCYSTACEAE				
DANKISTRODESMUS		23,000	78	
....KIRCHNERIELLA		540	2	
....SCENEDESMACEAE				
....SCENEDESMUS		720	2	
TOTALS		24,000	82	0.343=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
....MELOSIRA		360	1	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
...NAVICULA		180	1	
...NITZSCHACEAE				
....NITZSCHIA		360	1	
TOTALS		900	3	1.522=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....AGMENELLUM		720	2	
....ANACYSTIS		3,600	12	
TOTALS		4,300	14	0.650=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.787
CLASS 0.787
ORDER 0.817
FAMILY 0.991
GENERA 1.211

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 2, 1975
1530 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		150	14	
...SCENEDESMACEAE				
....SCENEDESMUS		50	5	
TOTALS		200	19	0.811=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	Diatoms			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		50	5	
..PENNALES	PENNAE			
...ACHNANTHACEAE				
...COCCONEIS		25	2	
...GOMPHONEMACEAE				
....GOMPHONEMA		25	2	
...NAVICULACEAE	NAVICULOID			
....AMPHIPLEURA		50	5	
....NAVICULA		25	2	
...NITZSCHACEAE				
....NITZSCHIA		76	7	
TOTALS		250	23	2.446=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
...CHRYSDOMONADALES				
...SYNURACEAE				
DSYNURA		430	40	
TOTALS		430	40	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS		100	9	
TOTALS		100	9	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		76	7	
TOTALS		76	7	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		25	2	
TOTALS		25	2	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...PERIDINACEAE				
LPERIDINIUM			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.510
 CLASS 2.183
 ORDER 2.351
 FAMILY 2.839
 GENERA 2.903

KNIFE RIVER BASIN

367

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 5, 1976
1315 HOURS

IDENTIFICATION OF PHYTOPLANKTON

160 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCIINODISCACEAE			
D ...CYCLOTELLA		32	20
..PENNALES	PENNATE		
...DIATOMACEAE			
...DIATOMA		11	7
...GOMPHONEMATACEAE			
...GOMPHONEMA		21	13
...NAVICULACEAE	NAVICULOID		
L ...GYROSIGMA			0
...NAVICULA		11	7
...NITZSCHACEAE			
D ...NITZSCHIA		84	53
TOTALS		160	100

1.857=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.722
 FAMILY 1.857
 GENERA 1.857

JAN. 27, 1976
1145 HOURS

IDENTIFICATION OF PHYTOPLANKTON

180 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCIINODISCACEAE			
...CYCLOTELLA		25	14
..PENNALES	PENNATE		
...ACHNANTHACEAE			
L ...ACHNANTHES			0
...DIATOMACEAE			
L ...DIATOMA			0
...GOMPHONEMATACEAE			
...GOMPHONEMA		25	14
...NAVICULACEAE	NAVICULOID		
L ...NAVICULA			0
...NITZSCHACEAE			
D ...NITZSCHIA		130	71
TOTALS		180	99

1.149=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.592
 FAMILY 1.149
 GENERA 1.149

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 17, 1976
1300 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,100 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		78	7	
LQUADRIGULA			0	
....SCENEDESMACEAE				
LSCENEDESMUS			0	
....VOLVOCALES				
....CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
....PHACOTACEAE				
LPHACOTUS			0	
	TOTALS	78	7	0.000=DI VERSI TY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
LCYCLOTELLA			0	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
....ACHNANTHES		26	2	
....COCONEIS		26	2	
LRHOICOSPHENIA			0	
....CYMBELLACEAE				
LAMPHORA			0	
LCYMBELLA			0	
..DIATOMACEAE				
....DIATOMA		52	5	
....FRAGILARIACEAE				
LFRAGILARIA			0	
....SYNEDRA		26	2	
..GOMPHONEMACEAE				
....GOMPHONEMA		26	2	
..NAVICULACEAE	NAVICULOID			
....AMPHIPLEURA		26	2	
LAMPHIPRORA			0	
LCALONEIS			0	
LGYROSTIGMA			0	
DNAVICULA		180	17	
....NEIDIUM		26	2	
LPINNULARIA			0	
..NITZSCHIAEAE				
DNITZSCHIA		570	52	
....SURIRELLACEAE				
LCYMATOPLEURA			0	
....SURIRELLA		52	5	
	TOTALS	1,000	91	2.163=DI VERSI TY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
....OSCILLATORIAEAE				
LOSCILLATORIA			0	
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
....EUGLENACEAE				
LTRACHELOMONAS			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
....PERIDINIACEAE				
LPERIDINIUM			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 15%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.371
 CLASS 0.371
 ORDER 0.371
 FAMILY 2.121
 GENERA 2.380

KNIFE RIVER BASIN

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06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 31, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,500 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
LANKISTRODESMUS			0	
....KIRCHNERIELLA		89	2	
....SCENEDESMACEAE				
LSCENEDESMUS			0	
..TETRASPORALES				
..PALMELLACEAE				
LSPHAEROCYSTIS			0	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
DCHLAMYDOMONAS		2,800	51	
	TOTALS	2,900	53	0.201=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEACEAE				
..CYCLOTELLA		450	8	
..PENNALES	PENNALE			
..ACHNANTHACEAE				
LACHNANTHES			0	
LRHOICOSPHENIA			0	
..DIATOMACEAE				
LDIATOMA			0	
..FRAGILARIACEAE				
..FRAGILARIA		89	2	
LSYNEDRA			0	
..GOMPHONEMATACEAE				
LGOMPHONEMA			0	
..NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
..NAVICULA		180	3	
LPINNULARIA			0	
..NITZSCHACEAE				
LHANTZSCHIA			0	
..NITZSCHIA		270	5	
..SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	980	18	1.790=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIA				
DOSCILLATORIA		1,600	30	
	TOTALS	1,600	30	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LEUGLENA			0	
LTRACHELOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.453
 CLASS 1.453
 ORDER 1.738
 FAMILY 1.882
 GENERA 1.882

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 20, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

4,100 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		1,100	27	
....KIRCHNERIELLA		170	4	
....TETRAEDRON		85	2	
....SCENEDESMACEAE				
....CRUCIGENTIA		340	8	
....SCENEDESMUS		170	4	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		340	8	
TOTALS		2,200	53	2.081=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
....CYCLOTELLA		340	8	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
..COCCONEIS		85	2	
..NAVICULACEAE	NAVICULOID			
....NAVICULA		170	4	
..NITZSCHIAEAE				
....NITZSCHIA		420	10	
TOTALS		1,000	24	1.784=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
..CHROMULINACEAE				
....CHROMULINA		85	2	
....CHRYSOCOCCLUS		250	6	
TOTALS		340	8	0.811=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHRODOCCALES	COCCOID			
....CHRODOCCACEAE				
....ANACYSTIS		340	8	
TOTALS		340	8	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
....EUGLENACEAE				
....EUGLENA		170	4	
....TRACHELOMONAS		85	2	
TOTALS		250	6	0.918=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.554
 CLASS 1.819
 ORDER 2.373
 FAMILY 2.964
 GENERA 3.483

KNIFE RIVER BASIN

371

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 17, 1976
1245 HOURS

IDENTIFICATION OF PHYTOPLANKTON

22,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		4,600	21	
....TREUBARIA		120	1	
....WESTELLA		2,300	11	
...SCENEDESMACEAE				
....ACTINASTRUM		1,300	6	
...SCENEDESMUS		930	4	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CARTERIA		120	1	
	TOTALS	9,400	44	1.878=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		3,500	16	
....MELOSIRA		930	4	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
....SYNEDRA		120	1	
...NAVICULACEAE	NAVICULOID			
....CALONEIS		120	1	
...NAVICULA		230	1	
...NITZSCHIACEAE				
....NITZSCHIA		1,600	7	
	TOTALS	6,500	30	1.763=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		6,000	27	
	TOTALS	6,000	27	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA		120	1	
	TOTALS	120	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:PHYL/DIV 1.595
CLASS 1.595
ORDER 1.903
FAMILY 2.326
GENERA 2.916

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 21, 1976
1120 HOURS

IDENTIFICATION OF PHYTOPLANKTON

39,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...HYDRODICTYACEAE				
....PEDIASTRUM		2,200	6	
....DOCYSTACEAE				
....ANKISTRODESMUS		3,000	8	
DDICTYOSPHAERIUM		6,500	17	
....SELENASTRUM		540	1	
....SCENEDESMACEAE				
....CRUCIGENIA		1,100	3	
....SCENEDESMUS		5,200	13	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		270	1	
TOTALS		19,000	49	2.300=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
....CYCLOTELLA		3,300	8	
....MELOSIRA		2,200	6	
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....NAVICULA		270	1	
....NITZSCHIAEAE				
....NITZSCHIA		1,400	3	
TOTALS		7,100	18	1.676=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS		1,600	4	
..OSCILLATORIALES	FILAMENTOUS			
DOSCILLATORIAEAE				
....OSCILLATORIA		11,000	29	
TOTALS		13,000	33	0.544=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA		270	1	
TOTALS		270	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.533
CLASS 1.533
ORDER 1.907
FAMILY 2.581
GENERA 3.118

KNIFE RIVER BASIN

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06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 19, 1976
1210 HOURS

IDENTIFICATION OF PHYTOPLANKTON

23,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		1,200	5	
LCHODATELLA			0	
DDICTYOSPHAERIUM		5,600	24	
....OOCYSTIS		330	1	
LTETRAEDRON			0	
....SCENEDESMACEAE				
....CRUCIGENIA		990	4	
....SCENEDESMUS		2,800	12	
....TETRASPORALES				
....COCCOMYXACEAE				
....ELAKATOTHRIX		170	1	
....VOLVOCALES				
....CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	11,000	47	2.038=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
....COSCINODISCACEAE		1,700	7	
....CYCLOTELLA		1,100	5	
....MELOSIRA				
..PENNALES	PENNATE			
....ACHNANTHACEAE				
LACHNANTHES			0	
....NAVICULACEAE	NAVICULOID			
....NAVICULA		410	2	
....NITZSCHIA		1,700	7	
....NITZSCHIA				
....SURIPELLACEAE				
LSURIPELLA			0	
	TOTALS	4,900	21	1.940=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSDOMONADALES				
....OCHROMONADACEAE				
LOCHROMONAS			0	
	TOTALS	83	0	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
....CHROOCOCCACEAE				
DANACYSTIS	FILAMENTOUS	4,800	21	
....OSCILLATORIALES				
....OSCILLATORIA		2,100	9	
	TOTALS	6,900	30	0.883=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
....EUGLENACEAE				
....EUGLENA		170	1	
LTRACHELOMONAS			0	
	TOTALS	170	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.551
 CLASS 1.577
 ORDER 2.128
 FAMILY 2.654
 GENERA 3.233

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 24, 1976
1045 HOURS

IDENTIFICATION OF PHYTOPLANKTON

15,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
LANKISTRODESMUS			0	
....TETRAEDRON		560	4	
....SCENEDESMACEAE				
....CRUCIGENIA		280	2	
..ZYGNEMATALES				
..DESMIDIACEAE	PLACODERM DESMIDS			
....STAUSTRUM		210	1	
	TOTALS	1,100	7	1.703=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
..CYCLOTELLA		350	2	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
..COCCONEIS		210	1	
..NITZSCHIAEAE				
....NITZSCHIA		1,300	8	
	TOTALS	1,800	11	1.184=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
DAGMENELLUM		12,000	80	
	TOTALS	12,000	80	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDAE				
..CRYPTOMONADACEAE				
LCRYPTOMONAS			0	
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LEUGLENA			0	
	TOTALS	70	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.930
 CLASS 0.930
 ORDER 1.064
 FAMILY 1.174
 GENERA 1.195

KNIFE RIVER BASIN

375

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 30, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,900 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..HYDRODICTYACEAE				
...PEDIASTRUM		63	3	
...OOCYSTACEAE				
D ...ANKISTRODESMUS		390	20	
...SCENEDESMACEAE				
...CRUCIGENIA		130	6	
...SCENEDESMUS		78	4	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS		170	9	
...PHACOTACEAE				
...PHACOTUS		31	2	
	TOTALS	860	44	2.149=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...CYCLOTELLA		31	2	
..PENNALES	PENNAE			
...ACHNANTHACEAE				
...ACHNANTHES		16	1	
...COCONEIS		16	1	
...NAVICULACEAE	NAVICULOID			
...CALONEIS		16	1	
...NAVICULA		200	10	
L ...NEIDIUM			0	
...NITZSCHACEAE				
D ...NITZSCHIA		580	30	
	TOTALS	860	45	1.366=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
...OSCILLATORIA		190	10	
	TOTALS	190	10	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDAE				
...CRYPTOMONODACEAE				
...CRYPTOMONAS		16	1	
	TOTALS	16	1	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
...TRACHELOMONAS		16	1	
	TOTALS	16	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.463
 CLASS 1.479
 ORDER 1.929
 FAMILY 2.879
 GENERA 3.038

KNIFE RIVER BASIN

06340000 SPRING CREEK AT ZAP, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a	Chlorophyll b	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight	(mg/m ²)	(mg/m ²)		
Oct. 25	26	0.3	0.1	0.9	0.0	260	Polyethylene strip
Jan. 27	22	.3	.2	.7	.1	240	Polyethylene strip
Apr. 20	34	60.3	35.8	11.1	.120	2,200	Polyethylene strip
Sept. 19	28	4.69	1.23	1.24	.000	2,800	Polyethylene strip

KNIFE RIVER BASIN

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06340200 WEST BRANCH OTTER CREEK NEAR BEULAH, ND

LOCATION.--Lat 47°08'05", long 101°39'35", in NW¼NW¼SW¼ sec.12, T.142 N., R.87 W., Oliver County, Hydrologic Unit 10130201, on right bank 10 mi (16 km) southeast of Beulah.

DRAINAGE AREA.--26.5 mi² (68.6 km²).

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair except those for the winter period, which are poor.

AVERAGE DISCHARGE.--11 years, 3.49 ft³/s (0.0988 m³/s), 2,530 acre-ft/yr (3.12 hm³/yr); median of yearly mean discharges, 2.9 ft³/s (0.082 m³/s), 2,100 acre-ft/yr (2.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s (671 m³/s) June 24, 1966, gage height, 17.2 ft (5.243 m), from floodmark, from rating curve extended above 77 ft³/s (2.18 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 19	--	120 36.6	-- --	June 11	2200	*360 10.2	*6.00 1.829

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.01	.01	0	.05	6.0	.69	.50	.12	.47	.02	
2		.01	.01	0	.04	3.0	.56	.38	.12	.36	.02	
3		.02	.01	0	.02	2.0	.50	.36	.12	.30	.02	
4		.02	.02	0	0	1.2	.47	.30	.08	.30	.02	
5		.03	.02	0	0	.70	.38	.28	.14	.30	.02	
6		.04	.02	0	0	.50	.36	.22	.14	.28	.02	
7		.02	.02	0	.10	.40	.33	.20	.14	.22	.02	
8		.02	.02	0	.20	.30	.28	.18	.14	.20	.02	
9		.02	.02	0	.50	.20	.25	.18	.12	.20	.02	
10		.02	.02	0	1.0	.20	.22	.18	.12	.20	.02	
11		.02	.01	0	1.0	.20	.20	.16	62	.20	.02	
12		.02	.01	0	1.0	.20	.22	.28	79	.20	.01	
13		.02	.01	0	.50	.20	.25	.22	11	.18	.01	
14		.02	.01	0	1.0	.30	.20	.16	4.2	.14	.01	
15		.02	.01	0	1.5	.60	.20	.16	3.5	.12	.02	
16		.02	.01	0	2.0	1.0	.22	.16	1.5	.14	.02	
17		.02	.01	0	3.0	7.0	1.3	.14	.69	.12	.02	
18		.02	.01	0	4.0	60	2.2	.16	.44	.10	.02	
19		.02	.01	0	4.0	50	2.9	.14	.22	.04	.02	
20		.02	.01	.01	5.0	20	2.2	.12	.10	.01	.02	
21		.02	.02	.01	6.0	6.4	1.5	.14	.04	.01	.02	
22		.02	.02	0	7.0	5.2	1.2	.14	.01	.02	.01	
23		.02	.03	0	9.0	5.2	1.2	.10	13	.02	0	
24		.02	.02	0	11	5.2	5.2	.08	24	.02	0	
25		.02	.01	0	15	3.5	9.6	.10	20	.02	0	
26		.02	.01	0	12	2.6	4.8	.14	8.8	.02	0	
27		.02	.01	.01	10	1.8	2.6	.16	4.2	.02	0	
28		.02	.01	.02	9.0	1.6	1.4	.14	2.0	.02	0	
29		.02	.01	.03	8.0	1.2	.97	.14	.97	.02	0	
30		.02	0	.04	---	1.1	.69	.14	.56	.02	0	
31		---	0	.05	---	.91	---	.12	---	.01	0	---
TOTAL	0	.61	.41	.17	111.91	188.71	43.09	5.88	237.47	4.28	.40	0
MEAN	0	.020	.013	.006	3.86	6.09	1.44	.19	7.92	.14	.013	0
MAX	0	.04	.03	.05	15	60	9.6	.50	79	.47	.02	0
MIN	0	.01	0	0	0	.20	.20	.08	.01	.01	0	0
AC-FT	0	1.2	.8	.3	222	374	85	12	471	8.5	.8	0
CAL YR 1975	TOTAL	1194.40	MEAN	3.27	MAX	212	MIN	0	AC-FT	2370		
WFR YR 1976	TOTAL	592.93	MEAN	1.62	MAX	79	MIN	0	AC-FT	1180		

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND

LOCATION.--Lat 47°17'06", long 101°37'26", in SE¼ sec.18, T.144 N., R.86 W., Mercer County, Hydrologic Unit 10130201, on right bank at upstream side of highway bridge, 0.5 mi (0.8 km) south of Hazen and 3 mi (5 km) upstream from Antelope Creek.

DRAINAGE AREA.--2,240 mi² (5,800 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to November 1928, March 1929 to September 1933, August 1937 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1146: 1943. WSP 1279: 1930-31, 1932-33(M). WSP 1917: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,712.35 ft (521.924 m) above mean sea level. Prior to Sept. 25, 1947, nonrecording gages at same site and datum.

REMARKS.--Records good except those for the winter period, which are fair. Small diversions above station. Slight regulation by Lake Ilo 81 mi (130 km) upstream, capacity, 7,130 acre-ft (8.79 hm³).

AVERAGE DISCHARGE.--43 years (1929-33, 1937-76), 180 ft³/s (5.098 m³/s), 130,400 acre-ft/yr (161 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 109,000 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft³/s (1,000 m³/s) June 24, 1966, gage height, 27.01 ft (8.233 m); no flow at times in 1933, 1959, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, the floods of 1943 and 1950 were not exceeded during the period 1884 to 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Mar. 19, gage height, 18.00 ft (5.486 m), backwater from ice; minimum, 12 ft³/s (0.34 m³/s) Sept. 6, 7, gage height, 2.25 ft (0.686 m/s).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	40	41	36	38	250	197	127	34	70	20	13
2	37	40	41	36	38	200	176	105	33	59	19	14
3	36	40	41	36	38	200	158	98	45	52	18	14
4	36	40	41	36	36	180	144	92	74	46	18	13
5	35	40	41	36	35	180	136	84	51	43	18	13
6	34	40	40	35	34	160	130	78	49	39	18	13
7	33	40	40	35	34	130	124	71	63	36	18	12
8	34	40	40	34	36	120	118	66	121	34	18	13
9	35	40	40	34	40	110	113	62	518	33	18	13
10	35	40	40	35	46	110	109	57	272	32	17	13
11	35	40	39	35	80	100	104	54	151	32	18	13
12	36	40	39	35	100	100	99	57	202	32	29	13
13	36	40	39	35	120	90	93	60	181	32	29	16
14	40	40	39	35	140	90	91	58	116	30	26	16
15	44	40	38	35	220	106	89	54	109	29	24	16
16	46	40	38	35	300	110	92	51	106	28	22	20
17	46	40	38	35	450	150	116	52	89	26	20	20
18	48	39	37	35	500	780	150	49	80	26	20	481
19	48	39	37	35	480	2400	151	46	70	26	20	186
20	48	40	37	35	400	2300	161	44	62	25	18	89
21	47	42	37	35	300	1930	162	42	57	24	18	230
22	46	42	37	35	250	1340	168	42	53	24	17	96
23	45	42	37	35	250	1220	182	39	59	24	17	63
24	45	42	37	35	380	1020	196	37	68	24	16	48
25	45	42	37	35	530	716	227	36	95	23	16	41
26	44	42	36	35	700	527	217	36	94	24	17	33
27	43	42	36	34	800	383	204	36	89	24	15	27
28	42	42	36	35	500	330	192	36	111	23	14	26
29	41	42	36	36	300	296	171	36	98	22	14	24
30	40	42	36	36	---	246	140	36	83	20	14	24
31	40	---	36	36	---	290	---	34	---	20	14	---
TOTAL	1259	1214	1187	1090	7175	16164	4410	1775	3233	982	580	1613
MEAN	40.6	40.6	38.3	35.2	247	521	147	57.3	108	31.7	18.7	53.8
MAX	48	42	41	36	800	2400	227	127	518	70	29	481
MIN	33	39	36	34	34	90	89	34	33	20	14	12
AC-FT	2500	2420	2350	2160	14230	32060	8750	3520	6410	1950	1150	3200
CAL YR 1975 TOTAL	99901.0			MEAN 274	MAX 6400	MIN 8.0	AC-FT 198200					
WTR YR 1976 TOTAL	40686.0			MEAN 111	MAX 2400	MIN 12	AC-FT 80700					

KNIFE RIVER BASIN

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06340500 KNIFE RIVER AT HAZEN, ND--Continued
(National Stream-Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-51, 1970-71, 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Some chemical data furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,550 micromhos Feb. 10, 1975; minimum daily, 303 micromhos Apr. 23, 1975.
WATER TEMPERATURES: Maximum daily, 28.0°C July 29, 1976; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,070 micromhos Feb. 12, 13; minimum daily, 401 micromhos Mar. 21.
WATER TEMPERATURES: Maximum daily, 28.0°C Jul. 29; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCUCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA, MG) (MG/L)
OCT												
01...	1200	38	1400	8.3	11.0	15	10.0	96	2.7	440	160	--
09...	1050	35	1200	9.0	5.0	--	9.8	--	--	--	--	280
22...	1400	46	1500	8.2	8.5	10	10.8	96	2.2	228	480	--
NOV												
13...	1115	40	1900	9.2	.5	--	12.7	--	--	--	--	299
25...	1330	45	1900	8.4	.0	4	12.4	90	1.4	82	E61	--
DEC												
11...	0945	39	1920	8.7	.0	--	10.9	--	--	--	--	348
30...	1415	36	2000	7.8	.0	6	11.2	82	1.3	230	130	--
JAN												
21...	1200	35	2100	7.9	.0	7	10.2	74	.7	300	310	--
FEB												
18...	1430	E260	925	7.7	.0	60	--	--	>8.8	840	390	--
MAR												
30...	1315	248	725	8.0	6.5	88	11.2	96	4.6	<1	540	--
APR												
21...	1230	161	4500	8.4	7.0	16	11.0	96	1.7	230	120	--
MAY												
18...	1230	50	1600	8.4	18.0	10	9.2	103	2.5	842	65	--
JUN												
22...	1130	55	1550	8.4	21.0	40	8.4	101	4.5	8260	390	--
JUL												
08...	0945	33	1640	8.3	21.0	20	7.2	85	3.0	150	200	--
20...	1110	26	1600	8.2	23.0	20	8.2	100	3.3	380	600	--
AUG												
26...	1015	16	1520	8.4	20.0	20	8.2	95	2.8	460	880	--
SEP												
22...	1200	96	1000	8.3	14.0	750	8.6	88	3.5	2800	1900	--

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	ALKA- LINITY AS CAO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI O2) (MG/L)
OCT												
01...	--	--	--	--	--	--	--	--	--	--	.3	13
09...	51	37	232	64	6.0	8.0	402	337	5.0	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	.3	9.7
NOV												
13...	46	45	308	68	7.7	8.3	414	473	6.4	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	.4	10
DEC												
11...	55	51	334	67	7.8	9.0	476	585	7.0	--	--	--
30...	--	--	--	--	--	--	--	--	--	.9	.4	13
JAN												
21...	--	--	--	--	--	--	--	--	--	--	.5	14
FEB												
18...	--	--	--	--	--	--	--	--	--	--	.2	6.3
MAR												
30...	--	--	--	--	--	--	--	--	--	.2	.2	6.6
APR												
21...	--	--	--	--	--	--	--	--	--	--	.6	6.9
MAY												
18...	--	--	--	--	--	--	--	--	--	--	.3	8.3
JUN												
22...	--	--	--	--	--	--	--	--	--	.4	.4	10
JUL												
08...	--	--	--	--	--	--	--	--	--	--	.4	12
20...	--	--	--	--	--	--	--	--	--	--	.3	8.3
AUG												
26...	--	--	--	--	--	--	--	--	--	--	.4	12
SEP												
22...	--	--	--	--	--	--	--	--	--	.9	.3	6.8

B - Results based on colony count outside the acceptable range (non-ideal colony count).
E - Estimated.

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	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)	SUS- PENDE D SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NI TRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT												
01...	--	970	--	--	26	32	.01	.09	2.0	2.1	2.1	.04
09...	1010	--	1.37	95.4	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	52	.04	.06	1.0	1.1	1.1	.05
NOV												
13...	1170	--	1.59	126	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	5	.08	.09	1.9	2.0	2.1	.02
DEC												
11...	1370	--	1.86	144	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	8	.23	.13	.83	.96	1.2	.03
JAN												
21...	--	--	--	--	--	6	.49	.15	1.2	1.3	1.8	.02
FEB												
18...	--	--	--	--	--	129	.45	.14	2.7	2.8	3.3	.28
MAR												
30...	--	--	--	--	--	146	.30	.17	1.6	1.8	2.1	.24
APR												
21...	--	--	--	--	--	43	.00	.03	1.1	1.1	1.1	.08
MAY												
18...	--	--	--	--	--	53	.01	.01	.87	.88	.89	.08
JUN												
22...	--	--	--	--	--	--	.04	.12	1.2	1.3	1.3	.12
JUL												
08...	--	--	--	--	--	35	.01	.08	.92	1.0	1.0	.07
20...	--	--	--	--	--	33	.03	.00	.92	.92	.95	.08
AUG												
26...	--	--	--	--	--	49	.02	.01	.52	.53	.55	.09
SEP												
22...	--	--	--	--	--	752	.59	.05	.06	.11	.70	.61

DATE	TOTAL ALUM- INIUM (AL) (UG/L)	SUS- PENDE D ALUM- INIUM (AL) (UG/L)	DIS- SOLVED ALUM- INIUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDE D BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	SUS- PENDE D BERYL- LIUM (BE) (UG/L)
OCT										
01...	420	410	10	1	1	0	100	0	<200	--
22...	--	--	--	--	--	--	--	--	--	--
NOV										
25...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	130	130	0	1	0	1	200	0	200	0
JAN										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
18...	--	--	--	--	--	--	--	--	--	--
MAR										
30...	2300	2300	40	2	2	0	0	0	0	0
APR										
21...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	--	--	--	--	--	--	--	--	--	--
JUN										
22...	1200	1200	20	4	2	2	200	0	200	0
JUL										
08...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
26...	--	--	--	--	--	--	--	--	--	--
SEP										
22...	24000	24000	50	13	9	4	400	400	0	0

KNIFE RIVER BASIN

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06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	TOTAL BORON (R) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)
OCT 01...	<10	360	240	10	9	1	10	0	10	10
22...	--	--	300	--	--	--	--	--	--	--
NOV 25...	--	--	330	--	--	--	--	--	--	--
DEC 30...	10	360	360	10	10	0	10	10	0	10
JAN 21...	--	--	350	--	--	--	--	--	--	--
FEB 18...	--	--	190	--	--	--	--	--	--	--
MAR 30...	0	140	120	<10	<9	1	10	10	0	20
APR 21...	--	--	250	--	--	--	--	--	--	--
MAY 18...	--	--	370	--	--	--	--	--	--	--
JUN 22...	0	380	320	1	0	1	10	0	<10	0
JUL 08...	--	--	350	--	--	--	--	--	--	--
20...	--	--	370	--	--	--	--	--	--	--
AUG 26...	--	--	350	--	--	--	--	--	--	--
SEP 22...	0	260	220	10	10	0	50	50	0	50

DATE	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDED LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)
OCT 01...	8	2	160	40	<100	<96	4	30	0	30
DEC 30...	9	1	650	20	<100	<100	0	60	10	50
MAR 30...	14	6	5800	130	<100	<84	16	20	0	20
JUN 22...	0	0	2200	30	7	3	4	40	0	40
SEP 22...	46	4	38000	80	<100	<95	5	50	30	20

DATE	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)
OCT 01...	210	180	30	.0	.0	.0	3	0	4
DEC 30...	170	30	140	.1	.1	.0	3	0	3
MAR 30...	210	170	40	.1	.1	.0	1	0	2
JUN 22...	240	230	9	2.5	1.8	.7	4	0	4
SEP 22...	940	930	10	.1	.0	.1	3	1	2

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NICKEL (NI) (UG/L)	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)
OCT 01...	--	--	15	0	0	0	900	0	910	1.2	70	60
DEC 30...	<50	<47	3	0	0	0	1400	0	1400	.6	30	30
MAR 30...	<50	<44	6	0	0	0	400	0	420	2.7	30	20
JUN 22...	12	6	6	1	1	0	910	0	940	.0	30	20
SEP 22...	50	44	6	1	0	1	440	50	390	2.6	140	140

DATE	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (U) (UG/L)	DIS- SOLVED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)
OCT 01...	10	<11	1.1	14	1.7	11	1.4	.08	3.0	10	.3
DEC 22...	--	--	--	--	--	--	--	--	--	8.1	.4
NOV 25...	--	--	--	--	--	--	--	--	--	15	.5
DEC 30...	0	--	--	--	--	--	--	--	--	9.8	.4
JAN 21...	--	--	--	--	--	--	--	--	--	9.5	1.6
FEB 18...	--	--	--	--	--	--	--	--	--	22	4.8
MAR 30...	10	--	--	--	--	--	--	--	--	14	--
APR 21...	--	--	--	--	--	--	--	--	--	12	12
MAY 18...	--	--	--	--	--	--	--	--	--	11	--
JUN 22...	10	--	--	--	--	--	--	--	--	12	4.8
JUL 08...	--	--	--	--	--	--	--	--	--	14	--
AUG 20...	--	--	--	--	--	--	--	--	--	10	2.9
SEP 26...	--	--	--	--	--	--	--	--	--	13	1.4
SEP 22...	0	--	--	--	--	--	--	--	--	13	7.2

DATE	SUS- PENDE SEDIM- ENT (MG/L)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	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 .062 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	RED MAT. FALL DIAM. % FINER THAN .062 MM	RED MAT. FALL DIAM. % FINER THAN .125 MM
OCT 01...	61	6.3	--	--	--	74	--	--	--
DEC 22...	40	5.0	--	--	--	69	2	2	--
NOV 25...	35	4.3	--	--	--	56	--	--	--
DEC 30...	28	2.7	--	--	--	39	--	--	--
JAN 21...	26	2.5	--	--	--	80	--	--	--
MAR 30...	148	99	--	--	--	--	--	--	--
APR 21...	92	40	--	--	--	82	1	2	--
MAY 18...	73	9.9	--	--	--	84	--	--	--
JUN 22...	85	13	--	--	--	93	0	0	--
JUL 08...	66	5.9	--	--	--	97	--	--	--
AUG 20...	72	5.1	--	--	--	94	--	--	--
SEP 26...	52	2.2	--	--	--	92	--	--	--
SEP 22...	990	257	78	84	100	--	1	2	--

KNIFE RIVER BASIN

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06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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 2.00 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	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
OCT								
01...	--	--	--	--	--	--	--	--
22...	12	62	90	96	98	100	--	--
NOV								
25...	--	--	--	--	--	--	--	--
DEC								
30...	--	--	--	--	--	--	--	--
JAN								
21...	--	--	--	--	--	--	--	--
MAR								
30...	--	--	--	--	--	--	--	--
APR								
21...	3	44	67	78	88	95	98	100
MAY								
18...	--	--	--	--	--	--	--	--
JUN								
22...	11	71	86	91	96	99	100	--
JUL								
08...	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--
AUG								
26...	--	--	--	--	--	--	--	--
SEP								
22...	18	76	85	90	96	99	100	--

THE FOLLOWING CHEMICAL ANALYSES FURNISHED BY THE U.S. ARMY CORPS OF ENGINEERS

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	AIR TEMPER- ATURE (DEG C)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	HARD- NESS (CA, MG)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)
OCT										
09...	1050	35	1200	9.0	.5	5.0	9.8	280	51	37
NOV										
13...	1115	40	1900	9.2	2.5	.5	12.7	299	46	45
DEC										
11...	0945	39	1920	8.7	-8.0	.0	10.9	348	55	51

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUCE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)
OCT										
09...	232	64	6.0	8.0	402	337	5.0	1010	1.37	95.4
NOV										
13...	308	68	7.7	8.3	414	473	6.4	1170	1.59	126
DEC										
11...	334	67	7.8	9.0	476	585	7.0	1370	1.86	144

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1380	1480	1970	1890	1850	598	807	1850	1630	1530	1500	1530
2	1400	1490	1920	1890	1880	662	823	1850	1520	1570	1430	1480
3	1300	1490	1870	1950	1890	715	862	1910	1580	1590	1460	1490
4	1290	1480	1820	1930	1890	735	897	1850	1670	1530	1510	1470
5	1290	1570	1870	1930	1930	785	942	1730	1730	1520	1420	1440
6	1360	1630	1900	1970	1950	790	965	1820	1760	1620	1450	1430
7	1350	1600	1900	1950	1900	829	1010	1790	1730	1510	1540	1510
8	1480	1550	1880	1970	1960	805	---	1840	1690	1580	1490	1490
9	1360	1650	1850	2000	1970	881	---	1830	1620	1590	1480	1450
10	1330	1660	1850	2000	1940	925	1090	1820	1460	1590	1430	1390
11	1320	1660	1920	1930	1930	950	1140	1720	1100	1590	1440	1470
12	1340	1680	1860	1930	2070	955	1140	1660	1060	1580	1440	1390
13	1350	1700	1920	1910	2070	1020	1180	1730	1190	1560	1490	1440
14	1340	1680	2010	1950	1950	1020	1200	1680	1210	1600	1450	1450
15	1400	1680	1910	1950	1660	1020	1220	1720	1310	1580	1420	1420
16	1360	1700	1990	1930	1230	1040	1240	1680	1330	1570	1500	1430
17	1380	1640	1940	1900	1050	980	1210	1700	1330	1560	1470	1430
18	1370	1600	1940	1900	914	780	1270	1700	1440	1560	1470	1600
19	1490	1680	1940	2050	840	510	1420	1620	1500	1450	1520	548
20	1480	1620	1940	1960	830	404	1370	1680	1540	1430	1550	641
21	1530	1750	2020	1940	780	401	1540	1690	1540	1550	1560	830
22	1430	1790	1950	1950	745	612	1520	1650	1570	1470	1520	879
23	1480	1700	1950	1900	763	652	1520	1650	1560	1460	1470	717
24	1530	1680	2060	1970	740	595	1590	1680	1440	1550	1510	688
25	1540	---	2060	1970	642	577	1680	1650	1500	1530	1470	724
26	1570	1720	1950	1970	592	561	1600	1650	1680	1510	1560	764
27	1540	1870	2040	1930	542	603	1920	1650	1640	1550	1570	815
28	1530	1830	2010	1940	495	529	1880	1660	1630	1550	1520	850
29	1550	1850	2020	1970	560	558	1740	1540	1660	1470	1490	864
30	1590	1910	2040	1920	---	703	1940	1610	1650	1440	1490	942
31	1600	---	2060	1980	---	758	---	1650	---	1460	1520	---
MONTH	1430	1670	1950	1950	1360	744	1310	1720	1510	1540	1490	1190

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	4.0	0.0	0.0	0.0	0.0	5.0	11.0	19.0	18.0	26.0	16.0
2	10.0	5.0	0.0	0.0	0.0	0.0	4.5	11.0	19.0	18.5	20.0	17.0
3	10.5	4.5	0.0	0.0	0.0	0.0	4.5	9.5	20.5	18.0	20.0	16.5
4	11.5	5.0	0.0	0.0	0.0	0.0	5.0	9.5	20.0	18.0	25.5	15.0
5	11.0	5.0	0.0	0.0	0.0	0.0	6.0	10.0	22.0	20.5	20.0	17.0
6	9.5	4.0	0.0	0.0	0.0	0.0	6.5	10.0	21.0	21.0	19.5	16.0
7	11.0	4.5	0.0	0.0	0.0	0.0	8.0	11.0	22.0	19.0	22.0	16.0
8	11.5	3.5	0.0	0.0	0.0	0.0	---	12.0	22.5	20.5	23.5	15.0
9	5.5	3.5	0.0	0.0	0.0	0.0	---	14.0	23.0	22.0	21.0	17.0
10	6.0	1.5	0.0	0.0	0.0	0.0	9.5	14.0	22.0	24.0	21.5	19.0
11	8.0	1.5	0.0	0.0	0.0	0.0	9.5	13.5	22.0	21.5	24.0	15.5
12	7.0	0.0	0.0	0.0	0.0	0.0	9.0	13.5	21.0	23.5	23.5	16.0
13	7.0	0.0	0.0	0.0	0.0	0.0	10.5	11.5	19.0	24.0	25.5	17.0
14	6.0	0.5	0.0	0.0	0.0	0.0	10.5	14.0	18.5	23.0	22.0	16.5
15	4.0	2.0	0.0	0.0	0.0	0.0	10.0	14.0	15.5	23.0	21.0	19.0
16	5.5	4.0	0.0	0.0	0.0	0.0	10.0	14.0	19.5	22.0	26.0	18.5
17	6.5	4.0	0.0	0.0	0.0	0.0	6.0	14.0	16.0	22.0	25.5	21.0
18	7.0	3.5	0.0	0.0	0.0	0.0	5.5	14.0	15.0	24.0	26.0	18.0
19	9.5	2.0	0.0	0.0	0.0	0.0	7.0	16.0	20.0	20.0	22.5	15.0
20	8.0	3.0	0.0	0.0	0.0	0.0	7.5	16.0	21.5	20.5	25.5	17.0
21	7.5	0.0	0.0	0.0	0.0	0.5	8.0	15.5	20.5	20.5	22.0	16.0
22	7.0	0.0	0.0	0.0	0.0	1.0	8.0	15.0	19.0	22.0	26.5	15.5
23	6.0	0.0	0.0	0.0	0.0	2.0	8.0	15.0	20.0	23.5	26.0	15.0
24	5.0	0.0	0.0	0.0	0.0	1.5	8.0	15.0	16.0	26.5	26.0	15.0
25	6.0	---	0.0	0.0	0.0	2.5	9.0	16.0	16.0	25.0	20.5	11.5
26	6.5	0.0	0.0	0.0	0.0	3.0	7.5	16.0	16.0	21.0	20.0	11.5
27	4.0	0.0	0.0	0.0	0.0	4.0	8.5	16.0	19.5	22.0	20.0	11.0
28	3.0	0.0	0.0	0.0	0.0	5.0	8.0	15.0	16.5	21.5	16.5	13.0
29	2.5	0.0	0.0	0.0	0.0	4.5	8.5	16.0	17.5	28.0	17.5	15.0
30	2.5	0.0	0.0	0.0	---	4.5	10.0	21.0	18.0	21.0	23.0	16.5
31	4.5	---	0.0	0.0	---	4.0	---	22.0	---	19.5	17.5	---
MONTH	7.0	2.0	0.0	0.0	0.0	1.0	8.0	14.0	19.5	21.5	22.5	16.0

KNIFE RIVER BASIN

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06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 1, 1975
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

43,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		2,900	7	
....CHODATELLA		380	1	
....DICTYOSPHAERIUM		4,800	11	
....SCENEDESMACEAE				
LCRUCIGENIA			0	
....SCENEDESMUS		380	1	
	TOTALS	8,500	20	1.398=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
LCYCLOTELLA			0	
..PENNALES	PENNATE			
...NITZSCHACEAE				
....NITZSCHIA		1,500	4	
	TOTALS	1,700	4	0.503=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....AGMENELLUM		5,800	13	
....ANACYSTIS		3,800	9	
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
DOSCILLATORIA		23,000	54	
	TOTALS	33,000	76	1.152=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
LEUGLENA			0	
	TOTALS	190	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAPTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.979
 CLASS 0.979
 ORDER 1.661
 FAMILY 1.713
 GENERA 2.148

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 22, 1975
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

54,000 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		4,500	8	
LDICTYOSPHAERIUM			0	
...SCENEDESMACEAE				
...CRUCIGENIA		1,300	2	
LSCENEDESMUS			0	
...ZYGNEMATALES				
...DESMIDIACEAE	PLACODERM DESMIDS			
LCOSMARIMUM			0	
TOTALS		5,800	10	0.764=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		1,600	3	
...PENNATES	PENNATE			
...NAVICULACEAE	NAVICULOID			
...NAVICULA		640	1	
...NITZSCHIAEAE				
LNITZSCHIA			0	
TOTALS		2,200	4	0.863=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
DOSCILLATORIA		46,000	85	
TOTALS		46,000	85	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.728
 CLASS 0.728
 ORDER 0.764
 FAMILY 0.845
 GENERA 0.845

KNIFE RIVER BASIN

387

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 25, 1975
1330 HOURS

IDENTIFICATION OF PHYTOPLANKTON

11,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		6,900	62	
....KIRCHNERIELLA		120	1	
	TOTALS	7,000	63	0.124=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
...MELOSIRA		480	4	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...ACHNANTHES		120	1	
...NITZSCHIA				
....NITZSCHIA		480	4	
	TOTALS	1,100	9	1.392=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		3,100	28	
	TOTALS	3,100	28	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.259
 CLASS 1.259
 ORDER 1.354
 FAMILY 1.392
 GENERA 1.470

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 30, 1975
1415 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		510	50	
	TOTALS	510	50	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
....CYCLOTELLA		90	9	
..PENNALES	PENNATE			
..GOMPHONEMACEAE				
LGOMPHONEMA			0	
..NAVICULACEAE	NAVICULOID			
....NAVICULA		30	3	
..NITZSCHIAEAE				
DNITZSCHIA		240	24	
	TOTALS	360	36	1.189=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....ANACYSTIS		120	12	
	TOTALS	120	12	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFAGELLATES			
..PERIDINIALES				
..PERIDINIACEAE				
....PERIDINIUM		30	3	
	TOTALS	30	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.543
 CLASS 1.543
 ORDER 1.829
 FAMILY 1.963
 GENERA 1.963

KNIFE RIVER BASIN

389

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 21, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

410 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		190	47	
...SCENEDESMACEAE		48	12	
....SCENEDESMUS				
	TOTALS	240	59	0.722=DIVERSITY
CHRYSTOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...DIATOMACEAE				
....DIATOMA		24	6	
...GOMPHONEMACEAE				
....GOMPHONEMA		24	6	
...NAVICULACEAE	NAVICULOID			
....GYROSIGMA		24	6	
...NAVICULA		24	6	
...NITZSCHIAEAE				
DNITZSCHIA		72	18	
...SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	170	42	2.128=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.977
 CLASS 0.977
 ORDER 0.977
 FAMILY 2.161
 GENERA 2.278

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 18, 1976
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...DOCYSTACEAE				
....ANKISTRODESMUS		480	7	
....SCENEDESMACEAE				
LSCENEDESMUS			0	
	TOTALS	480	7	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		79	1	
...PENNATES	PENNATE			
....FRAGILARIACEAE				
LSYNEDRA			0	
....GOMPHONEMACEAE				
LGOMPHONEMA			0	
....NAVICULACEAE	NAVICULOID			
....NAVICULA		550	8	
....NITZSCHACEAE				
DNITZSCHIA		1,300	19	
....SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	1,900	28	1.099=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LANABAENA			0	
....OSCILLATORIACEAE				
LLYNGBYA			0	
DOSCILLATORIA		4,400	65	
	TOTALS	4,400	65	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.191
 CLASS 1.191
 ORDER 1.262
 FAMILY 1.502
 GENERA 1.502

KNIFE RIVER BASIN

391

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 30, 1976
1315 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...ODCYSTACEAE				
D ...ANKISTRODESMUS		1,500	55	
...VOLVOCALES				
...CHLAMYDOMONADACEAE		140	5	
...CHLAMYDOMONAS				
	TOTALS	1,600	60	0.426=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		140	5	
..PENNALES	PENNATE			
...CYMBELLACEAE				
...CYMBELLA		69	3	
...FRAGILARIACEAE				
...SYNEDRA		69	3	
...GOMPHONEMATACEAE				
...GOMPHONEMA		69	3	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		350	13	
...NITZSCHACEAE				
...NITZSCHIA		210	8	
...SURIRELLACEAE				
...SURIRELLA		69	3	
	TOTALS	970	38	2.496=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
L ...OSCILLATORIA			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...GLENODINIACEAE		69	3	
...GLENODINIUM				
	TOTALS	69	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.107
 CLASS 1.107
 ORDER 1.583
 FAMILY 2.285
 GENERA 2.285

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 21, 1976
1230 HOURS

IDENTIFICATION OF PHYTOPLANKTON

14,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		710	5	
...OOCYSTACEAE				
DANKISTRODESMUS		4,100	28	
....SELENASTRUM		180	1	
...SCENEDESMACEAE				
....SCENEDESMUS		350	2	
....TETRASTRUM		710	5	
	TOTALS	6,000	41	1.498=DIVERSITY
CHRYSTOPHYTA	DIATOMS			
..BACILLARIOPHYCEAE	CENTRIC			
...CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA		1,100	7	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....NAVICULA		180	1	
...NITZSCHACEAE				
....NITZSCHIA		1,600	11	
	TOTALS	2,800	19	1.248=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
...CHROMULINACEAE				
DCHRYSOCOCCLUS		2,500	17	
	TOTALS	2,500	17	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		3,000	21	
	TOTALS	3,000	21	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGENALES				
...EUGENACEAE				
LEUGLENA			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFAGELLATES			
...GYMNODINIALES				
....GYMNODINIACEAE		180	1	
....GYMNODINIUM				
	TOTALS	180	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.606
 CLASS 1.970
 ORDER 2.156
 FAMILY 2.694
 GENERA 2.835

KNIFE RIVER BASIN

393

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 18, 1976
1230 HOURS

IDENTIFICATION OF PHYTOPLANKTON

65,000 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..DOCYSTACEAE				
DANKISTRODESMUS		14,000	21	
....DICTYOSPHAERIUM		2,400	4	
LKIRCHNERIELLA			0	
....SCENEDESMACEAE				
DACTINASTRUM		11,000	17	
....CRUCIGENIA		590	1	
....SCENEDESMUS		1,200	2	
	TOTALS	29,000	45	1.707=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
....CYCLOTELLA		2,500	4	
LMELOSIRA			0	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
LAMPHIPRORA			0	
LCALONEIS			0	
LNAVICULA			0	
..NITZSCHIAEAE				
....NITZSCHIA		1,300	2	
	TOTALS	4,700	6	1.812=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
..CHROMULINACEAE				
....CHRYSOCOCCLUS		1,300	2	
	TOTALS	1,300	2	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....AGMENELLUM		4,100	6	
DANACYSTIS		15,000	23	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIAEAE				
DOSCILLATORIA		9,600	15	
	TOTALS	29,000	44	1.422=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LEUGLENA		590	0	
....TRACHELOMONAS			1	
	TOTALS	740	1	0.722=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
..GLENODINIACEAE				
LGLENODINIUM			0	
	TOTALS	150	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.453
 CLASS 1.524
 ORDER 2.004
 FAMILY 2.473
 GENERA 3.062

KNIFE RIVER BASIN

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 22, 1976
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

46,000 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...ODCOSTACEAE				
....ANKISTRODESMUS		980	2	
....CHODATELLA		330	1	
....DICTYOSPHAERIUM		3,900	8	
....SELENASTRUM		330	1	
...SCENEDESMACEAE				
....CRUCIGENIA		1,300	3	
....SCENEDESMUS		2,600	6	
	TOTALS	9,400	21	2.107=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COCINODISCACEAE				
DCYCLOTELLA		12,000	26	
....MELOSIRA		3,900	8	
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....AMPHIPRORA		330	1	
....NAVICULA		330	1	
...NITZSCHIA				
....NITZSCHIA		2,300	5	
	TOTALS	19,000	41	1.454=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS				
DA.INSERTA		9,100	20	
....ANACYSTIS		2,000	4	
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
....OSCILLATORIA		5,900	13	
	TOTALS	17,000	37	1.370=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS		650	1	
	TOTALS	650	1	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...GLENODINIACEAE				
....GLENODINIUM		330	1	
	TOTALS	330	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.663
CLASS 1.663
ORDER 2.258
FAMILY 2.507
GENERA 3.028

KNIFE RIVER BASIN

395

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 8, 1976
0945 HOURS

IDENTIFICATION OF PHYTOPLANKTON

14,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...DOCYSTACEAE				
....ANKISTRODESMUS		1,700	12	
....TETRAEDRON		130	1	
...SCENEDESMACEAE				
....ACTINASTRUM		1,600	11	
....CRUCIGENIA		1,100	8	
....SCENEDESMUS		1,100	8	
	TOTALS	5,600	40	2.080=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
....CYCLOTELLA		1,200	8	
..PENNALES	PENNATE			
...NITZSCHIAEAE				
DNITZSCHIA		3,500	25	
	TOTALS	4,700	33	0.822=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		2,100	15	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LANABAENOPSIS			0	
...OSCILLATORIAEAE				
....OSCILLATORIA		1,300	9	
	TOTALS	3,500	24	0.961=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGENALES				
...EUGLENACEAE				
....EUGLENA		130	1	
....TRACHELOMONAS		270	2	
	TOTALS	400	3	0.918=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.700
 CLASS 1.700
 ORDER 2.207
 FAMILY 2.571
 GENERA 3.057

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 20, 1976
1110 HOURS

IDENTIFICATION OF PHYTOPLANKTON

43,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..HYDRODICTYACEAE				
LPEDIASTRUM			0	
..OOCYSTACEAE				
....ANKISTRODESMUS		1,300	3	
....DICTYOSPHAERIUM		4,200	10	
....KIRCHNERIELLA		460	1	
....SCENEDESMACEAE				
....CRUCIGENIA		460	1	
....SCENEDESMUS		3,000	7	
..OOCYSTACEAE				
LGLOEDACTINIUM			0	
	TOTALS	9,400	22	1.857=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
....CYCLOTELLA		2,200	5	
....MELOSIRA		460	1	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
....NAVICULA		690	2	
....NITZSCHIAEAE				
....NITZSCHIA		3,100	7	
	TOTALS	6,400	15	1.654=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....AGMENELLUM		4,100	9	
....ANACYSTIS		4,800	11	
..OSCILLATORIALES	FILAMENTOUS			
..NOSTOCACEAE				
....ANABAENOPSIS		1,100	3	
..OSCILLATORIACEAE				
DOSCILLATORIA		17,000	40	
	TOTALS	27,000	63	1.466=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGENALES				
..EUGLENACEAE				
....EUGLENA		230	1	
	TOTALS	230	1	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..GYMNODINIALES				
..GYMNODINIACEAE				
LGYMNODINIUM			0	
	TOTALS	110	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.369
 CLASS 1.369
 ORDER 2.087
 FAMILY 2.494
 GENERA 2.936

KNIFE RIVER BASIN

397

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 26, 1976
1015 HOURS

IDENTIFICATION OF PHYTOPLANKTON

58,000 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...DOCYSTACEAE				
....ANKISTRODESMUS		3,300	6	
....DICTYOSPHAERIUM		710	1	
LKIRCHNERIELLA			0	
...SCENEDESMACEAE				
....CRUCIGENIA		1,900	3	
....SCENEDESMUS		3,300	6	
	TOTALS	9,400	16	1.938=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
...NITZSCHIAEAE				
DNITZSCHIA		10,000	17	
	TOTALS	10,000	17	0.156=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS		2,400	4	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
LANABAENOPSIS			0	
...OSCILLATORIAEAE				
....LYNGBYA		2,400	4	
DOSCILLATORIA		33,000	57	
	TOTALS	38,000	65	0.669=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
LPHACUS			0	
LTRACHELOMONAS			0	
	TOTALS	470	0	1.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.330
 CLASS 1.330
 ORDER 1.550
 FAMILY 1.739
 GENERA 2.116

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 22, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

18,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
...ANKISTRODESMUS		120	1	
...SCENEDESMACEAE				
...SCENEDESMUS		970	5	
TOTALS		1,100	6	0.503=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
D ...CYCLOTELLA		9,700	54	
...MELOSIRA		1,700	9	
..PENNALES	PENNATE			
...FRAGILARIACEAE				
...ASTERIONELLA		1,800	10	
...FRAGILARIA		970	5	
...SYNEDRA		120	1	
...NITZSCHACEAE				
...NITZSCHIA		610	3	
TOTALS		15,000	82	1.631=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
L ...AGMENELLUM			0	
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIA		1,800	10	
TOTALS		1,800	10	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE		120	1	
...TRACHELOMONAS				
TOTALS		120	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.851
 CLASS 0.851
 ORDER 1.506
 FAMILY 1.666
 GENERA 2.237

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 23	22	0.0	0.0	0.0	0.0	0.0	Polyethylene strip
Jan. 21	23	9.2	4.2	2.4	.0	2,100	Polyethylene strip
Apr. 21	23	8.38	5.07	3.36	.000	980	Polyethylene strip
July 20	28	21.3	20.7	.600	.000	1,000	Polyethylene strip

MISSOURI RIVER MAIN STEM

399

06340700 MISSOURI RIVER NEAR STANTON, ND

LOCATION.--Lat 47°17'14", long 101°20'25", in SW¼ sec.16, T.144 N., R.84 W., McLean County, Hydrologic Unit 10130101, on right bank 3 mi (5 km) southeast of Stanton, 0.1 mi (0.2 km) below Ft. Clark irrigation pumping station, 0.4 mi (0.6 km) above the United Power Association power plant at mile 1,372 (kilometer 2,208).

DRAINAGE AREA.--182,000 mi² (471,400 km²), approximately.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,650.00 ft (502.920 m) above mean sea level (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 50.00 ft (15.240 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 24.56 ft (7.486 m) Feb. 22, 1965; minimum daily recorded, 11.22 ft (3.420 m) Sept. 29, 1974.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.42	16.21	16.68	14.38	17.96	13.83	16.16	16.09	17.26	16.93	16.42	15.32
2	17.45	15.99	16.65	13.65	17.82	14.21	16.19	16.02	17.16	16.95	16.28	14.94
3	17.37	16.35	16.66	13.77	17.56	14.38	17.32	16.05	17.17	16.90	16.31	15.17
4	17.47	16.10	16.45	14.51	17.50	14.47	17.49	16.07	17.17	16.62	16.79	15.13
5	17.41	15.84	16.19	15.34	18.00	14.36	16.66	16.06	17.17	16.44	16.84	14.53
6	17.46	16.19	16.59	16.04	17.96	13.81	16.11	15.95	17.16	16.86	16.30	14.71
7	17.41	16.56	16.28	17.45	18.08	13.82	16.09	16.00	17.14	16.86	15.90	14.45
8	17.47	16.52	16.22	17.84	18.08	13.79	16.08	16.03	17.17	16.90	15.89	14.61
9	17.44	16.68	16.77	18.05	17.60	13.77	16.13	16.07	17.20	16.82	15.90	14.54
10	17.08	16.07	16.54	18.05	16.91	14.09	16.12	16.01	17.23	16.83	15.84	14.69
11	16.78	15.77	16.74	17.29	16.67	14.62	16.09	16.47	17.20	16.71	16.05	14.67
12	16.43	15.72	16.80	17.58	16.52	14.71	16.11	16.98	17.12	16.77	16.09	14.71
13	16.42	15.93	16.70	17.41	16.37	14.62	16.11	17.12	17.09	16.81	16.07	14.55
14	15.85	16.10	16.68	17.59	16.40	14.98	16.07	17.16	17.06	16.81	16.15	14.43
15	15.79	16.67	16.86	17.78	16.32	14.66	16.10	17.15	17.06	16.79	16.07	14.67
16	15.76	16.44	15.19	17.90	16.30	14.90	16.13	17.17	17.06	16.81	16.02	14.65
17	15.84	16.47	14.73	17.84	16.29	15.07	16.03	17.18	17.02	16.84	15.89	14.59
18	15.83	16.65	13.79	17.85	16.30	15.23	16.05	17.20	17.02	16.84	15.75	14.63
19	15.72	16.52	13.90	17.78	16.26	15.77	16.09	17.18	17.02	16.83	15.76	14.64
20	15.81	16.51	13.78	17.89	16.25	16.45	16.09	17.18	17.03	16.83	15.70	14.41
21	15.67	16.69	13.72	17.97	16.26	16.47	16.10	17.20	17.01	16.83	15.36	15.07
22	15.80	16.64	13.69	18.02	16.25	16.37	16.11	17.19	16.99	16.84	15.10	15.10
23	15.92	16.66	14.15	17.72	16.23	16.30	16.12	17.19	16.99	16.83	15.40	15.09
24	15.86	16.71	13.98	17.89	16.22	16.29	15.93	17.19	16.90	16.85	15.33	15.02
25	15.67	16.62	14.06	18.06	16.24	16.26	16.07	17.17	16.90	16.84	15.39	15.01
26	15.50	16.60	14.21	18.28	16.29	16.16	16.09	17.16	16.91	16.85	15.51	15.01
27	15.61	16.50	14.24	18.45	16.28	16.18	16.09	17.25	16.91	16.86	15.48	15.01
28	15.75	16.47	14.22	18.26	16.65	16.15	16.09	17.22	16.88	16.82	15.56	14.78
29	15.74	16.64	14.42	18.28	15.60	16.15	16.07	17.24	16.89	16.82	15.54	14.88
30	15.87	16.51	14.50	18.13	---	16.14	16.05	17.25	16.91	16.81	15.39	14.79
31	16.37	---	14.80	17.80	---	16.14	---	17.25	---	16.87	15.62	---
MEAN	16.39	16.38	15.36	17.25	16.80	15.17	16.20	16.79	17.06	16.82	15.86	14.79
MAX	17.47	16.71	16.86	18.45	18.08	16.47	17.49	17.25	17.26	16.95	16.84	15.32
MIN	15.50	15.72	13.69	13.65	15.60	13.77	15.93	15.95	16.88	16.44	15.10	14.41

MISSOURI RIVER MAIN STEM

06340900 MISSOURI RIVER NEAR HENSLER, ND

LOCATION.--Lat 47°16'45", long 101°11'03", in SW¼ sec.22, T.144 N., R.83 W., McLean County, Hydrologic Unit 10130101, on left bank about 7.5 mi (12.0 km) west of Washburn at mile 1,362 (kilometer 2,191).

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,640.00 ft (499.872 m) above mean sea level (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 40 ft (12.192 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 27.77 ft (8.464 m) Mar. 20, 1965; minimum daily recorded, 15.52 ft (4.730 m) May 10, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.11			---	22.80	17.71	19.86	19.51	---	20.97		
2	21.14			---	22.76	19.09	19.91	19.54	---	20.98		
3	21.07			---	22.47	19.46	20.84	19.69	---	20.96		
4	21.15			19.80	22.80	18.90	21.16	19.71	---	20.72		
5	21.12			22.14	23.42	18.27	20.56	19.73	20.90	20.52		
6	21.18			22.30	23.45	18.27	19.83	19.62	20.87	20.91		
7	21.12			22.28	23.53	17.96	19.77	19.60	20.86	20.96		
8	21.17			22.87	23.27	18.53	19.73	19.67	20.88	20.98		
9	21.16			23.26	22.75	17.68	19.71	19.65	20.89	20.97		
10	20.81			23.40	21.74	18.04	19.71	19.69	20.94	20.97		
11	20.55			22.72	21.30	19.11	19.72	20.03	20.93	20.92		
12	20.37			22.24	21.07	19.00	19.69	20.59	21.01	20.86		
13	20.21			23.02	20.74	---	19.69	20.79	20.91	20.97		
14	19.65			23.07	20.66	---	19.69	20.75	20.89	20.95		
15	19.53			22.94	20.40	---	19.69	20.75	20.86	20.96		
16	19.53			22.98	20.21	---	19.69	20.77	20.88	20.99		
17	19.58			22.82	20.05	---	19.68	20.76	20.87	21.02		
18	19.56			22.19	19.93	19.05	19.67	20.75	20.85	21.02		
19	19.44			22.61	19.96	19.52	19.73	20.79	20.87	21.03		
20	19.51			22.62	19.98	20.18	19.72	20.79	20.90	21.02		
21	19.37			22.02	19.97	20.24	19.72	20.78	20.90	21.01		
22	19.51			22.56	19.95	20.15	19.72	20.78	20.93	---		
23	---			22.94	19.95	20.06	19.72	20.78	20.98	---		
24	---			22.86	19.92	20.03	19.61	---	20.89	---		
25	---			22.92	19.94	19.98	19.50	---	20.88	---		
26	---			22.99	19.99	19.90	19.50	---	20.91	---		
27	---			23.16	19.95	19.91	19.50	---	20.91	---		
28	---			23.07	20.19	19.89	19.50	---	20.90	---		
29	---			23.15	19.76	19.89	19.50	---	20.92	---		
30	---			23.11	---	19.87	19.50	---	20.95	---		
31	---			22.80	---	19.86	---	---	---	---		
MEAN	---			---	21.13	---	19.79	---	---	---		
MAX	---			---	23.53	---	21.16	---	---	---		
MIN	---			---	19.76	---	19.50	---	---	---		

06340900 MISSOURI RIVER NEAR HENSLER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: April 1967 to September 1974, April 1975 to September 1975.

INSTRUMENTATION.--Temperature recorder since April 1967.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 19.5°C Aug. 28, 29, 31, 1976; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 19.5°C Aug. 28, 29, 31; minimum daily, 0.0°C on many days during winter months.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.0	15.5	10.5	10.5	5.5	5.0	0.5	0.5	1.0	1.0	1.0	1.0
2	16.5	16.0	10.5	10.5	5.0	5.0	0.5	0.5	1.0	1.0	1.0	1.0
3	16.5	16.5	10.5	10.0	5.5	5.0	1.0	0.0	1.0	1.0	1.5	1.0
4	16.5	16.5	10.5	10.0	5.5	5.5	1.0	1.0	1.0	1.0	1.5	1.5
5	16.5	15.5	10.5	10.5	5.5	4.5	1.0	1.0	1.0	1.0	2.0	1.5
6	16.0	16.0	10.5	10.5	4.5	4.5	1.0	1.0	1.0	1.0	1.5	1.5
7	16.0	16.0	10.5	10.0	4.5	4.0	1.5	1.0	1.0	1.0	1.5	1.5
8	16.0	16.0	10.0	9.5	4.0	4.0	1.5	1.5	1.0	1.0	1.5	1.5
9	16.0	15.0	9.5	9.5	4.5	4.0	1.5	1.5	1.0	1.0	1.5	1.5
10	15.0	15.0	9.5	9.5	4.5	4.0	1.5	1.0	1.0	1.0	1.5	1.5
11	15.0	15.0	9.5	9.5	4.0	4.0	1.0	1.0	1.0	1.0	1.5	1.5
12	15.0	15.0	9.5	9.0	4.0	3.0	1.0	1.0	1.0	1.0	1.5	1.5
13	15.0	15.0	9.0	8.5	3.0	2.5	1.0	1.0	1.0	1.0	1.5	1.5
14	15.0	14.5	8.5	8.5	2.5	2.0	1.0	1.0	1.0	1.0	1.5	1.5
15	14.5	14.5	8.5	8.5	2.5	2.0	1.0	1.0	1.0	1.0	1.5	1.5
16	14.5	14.5	8.5	8.5	2.5	1.5	1.0	1.0	1.0	1.0	1.5	1.5
17	15.0	14.5	8.5	8.0	2.5	1.5	1.0	0.5	1.0	1.0	1.5	1.5
18	---	---	8.0	8.0	2.5	1.5	0.5	0.5	1.0	1.0	2.0	1.5
19	---	---	8.0	8.0	1.5	1.0	0.5	0.5	1.0	1.0	2.0	2.0
20	---	---	8.0	7.5	1.5	1.5	0.5	0.5	1.0	1.0	2.0	2.0
21	---	---	7.5	7.0	1.5	1.0	---	---	1.0	1.0	2.0	2.0
22	---	---	7.0	7.0	1.0	1.0	---	---	1.0	1.0	2.0	2.0
23	---	---	7.0	7.0	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
24	12.0	12.0	7.0	7.0	1.0	1.0	0.5	0.5	1.0	1.0	2.0	2.0
25	12.0	11.5	7.0	6.5	1.0	1.0	1.0	0.5	1.0	1.0	2.0	2.0
26	11.0	11.0	6.5	6.0	1.0	0.5	1.0	1.0	1.0	1.0	2.0	2.0
27	11.0	11.0	6.5	6.0	0.5	0.5	1.0	1.0	1.0	1.0	2.0	2.0
28	11.0	11.0	6.5	6.5	0.5	0.5	1.0	1.0	1.0	1.0	2.0	2.0
29	11.0	10.5	6.5	6.0	0.5	0.5	1.0	1.0	1.0	1.0	2.0	2.0
30	10.5	10.5	6.0	5.5	0.5	0.5	1.0	1.0	---	---	2.5	2.0
31	10.5	10.5	---	---	0.5	0.5	1.0	1.0	---	---	2.5	2.5
MONTH	16.5	10.5	10.5	5.5	5.5	0.5	1.5	0.0	1.0	1.0	2.5	1.0

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.5	2.5	4.5	4.5	---	---	---	---	17.0	16.0	19.0	18.0
2	2.5	2.5	4.5	4.0	---	---	---	---	17.0	16.0	19.0	17.5
3	2.5	2.5	4.5	4.0	12.5	11.5	---	---	17.0	16.5	18.5	18.0
4	2.5	2.5	5.0	4.5	12.5	11.5	---	---	17.0	16.5	19.5	18.0
5	2.5	2.5	5.5	4.5	12.5	11.0	---	---	17.0	16.5	19.5	18.5
6	2.5	2.5	5.5	4.5	12.5	12.0	---	---	17.0	15.5	19.0	18.0
7	2.5	2.5	5.5	4.5	13.0	12.0	---	---	18.0	16.5	19.0	18.5
8	2.5	2.5	6.0	5.0	13.0	12.5	---	---	18.0	17.0	18.0	18.0
9	2.5	2.5	6.5	5.5	13.0	12.0	---	---	17.0	17.0	18.0	17.5
10	2.5	2.5	6.5	5.5	12.5	11.5	---	---	17.0	16.5	18.0	18.0
11	2.5	2.5	6.5	5.5	12.5	12.0	---	---	17.5	16.5	18.0	17.5
12	3.0	2.5	6.5	5.5	12.5	11.5	---	---	18.0	17.0	17.5	17.0
13	3.0	3.0	6.5	5.0	14.5	12.0	---	---	18.0	17.0	17.0	17.0
14	3.0	3.0	7.0	6.0	14.0	13.5	---	---	17.5	17.0	17.0	17.0
15	3.0	3.0	7.0	6.0	14.5	13.5	---	---	18.0	17.0	17.0	17.0
16	3.0	3.0	7.0	6.0	14.5	13.5	---	---	18.0	17.0	17.0	17.0
17	---	---	7.5	6.5	14.5	13.5	---	---	18.0	17.5	17.0	17.0
18	---	---	7.5	6.0	15.0	14.5	---	---	17.5	17.0	17.0	17.0
19	---	---	7.0	6.0	15.5	14.0	---	---	17.5	17.5	17.0	17.0
20	---	---	7.0	6.5	15.5	14.5	---	---	18.0	17.5	17.0	17.0
21	---	---	7.0	7.0	16.0	15.0	17.0	15.5	---	---	17.0	17.0
22	3.0	3.0	7.5	6.5	16.0	14.5	17.0	16.0	---	---	17.0	17.0
23	3.0	3.0	---	---	14.5	13.5	17.0	16.0	---	---	---	---
24	3.0	3.0	---	---	14.0	13.5	17.0	16.0	---	---	---	---
25	4.0	3.0	---	---	15.5	14.0	17.0	16.0	---	---	---	---
26	4.0	3.5	---	---	15.5	14.5	17.0	16.0	19.0	17.5	---	---
27	4.0	3.5	---	---	15.5	14.5	17.0	16.0	18.0	17.0	---	---
28	4.0	4.0	---	---	16.0	15.0	17.5	15.5	19.5	17.0	---	---
29	4.0	4.0	---	---	17.0	15.5	17.5	16.5	19.5	18.5	---	---
30	4.5	4.0	---	---	17.0	15.5	17.0	16.5	19.0	18.5	---	---
31	---	---	---	---	---	---	17.0	16.0	19.5	18.5	---	---
MONTH	4.5	2.5	---	---	17.0	11.0	---	---	19.5	15.5	---	---

MISSOURI RIVER MAIN STEM

06341000 MISSOURI RIVER AT WASHBURN, ND

LOCATION.--Lat 47°17'20", long 101°02'15", in SE¼SW¼ sec.14, T.144 N., R.82 W., McLean County, Hydrologic Unit 10130101, on left bank near municipal water plant in Washburn at mile 1,355 (kilometer 2,180).

DRAINAGE AREA.--184,000 mi² (476,600 km²), approximately.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,640.00 ft (499.872 m) above mean sea level. Prior to Sept. 30, 1964, at datum 40 ft (12.192 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 22.76 ft (6.937 m) Jan. 11, 1964; minimum daily recorded, 10.62 ft (3.237 m) Mar. 26, 1968.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.29	15.04	15.42	13.59	19.14	12.65	---	15.05	16.02	15.92	15.55	14.47
2	16.33	14.95	15.43	12.61	19.10	---	15.01	15.04	16.03	15.93	15.35	14.17
3	16.28	15.24	15.44	12.88	18.79	---	15.94	15.05	16.06	15.91	15.40	14.32
4	16.32	15.06	15.41	16.78	18.35	---	16.36	15.06	16.09	15.70	15.74	14.35
5	16.32	14.81	14.93	18.07	18.76	---	15.91	15.05	16.10	15.49	15.83	13.87
6	16.34	15.07	15.34	17.94	18.67	---	15.24	14.98	16.08	15.78	15.43	14.03
7	16.32	15.42	15.33	17.78	18.83	---	15.25	14.98	16.07	15.85	15.06	13.84
8	16.37	15.41	14.82	18.36	18.74	---	15.21	15.00	16.07	15.87	15.01	13.92
9	16.36	15.59	15.52	18.72	18.69	---	15.24	15.02	16.09	15.86	15.00	13.77
10	16.04	15.32	15.35	18.93	18.21	---	15.22	15.02	16.14	15.83	14.99	13.96
11	15.82	14.67	15.51	18.61	17.85	---	15.23	15.23	16.13	15.78	15.15	13.91
12	15.41	14.61	15.49	18.69	17.58	---	15.23	15.72	16.11	15.69	15.20	14.00
13	15.48	14.79	15.49	18.70	17.06	---	15.17	15.97	16.02	15.84	15.17	13.77
14	15.02	14.85	15.39	18.79	16.81	---	15.16	16.02	16.02	15.80	15.25	13.69
15	14.80	15.46	15.57	18.99	16.30	---	15.14	16.01	16.00	15.78	15.18	13.90
16	14.80	15.34	14.31	19.09	15.86	---	15.19	16.01	16.02	15.79	15.14	13.96
17	14.80	15.20	14.09	19.12	15.41	---	15.18	16.02	15.99	15.83	15.03	13.82
18	14.83	15.44	13.04	19.24	15.15	---	15.10	16.05	15.96	15.83	14.91	13.87
19	14.75	15.41	12.95	19.08	15.00	---	15.14	16.03	15.98	15.85	14.90	13.94
20	14.81	15.27	12.85	19.64	14.93	---	15.12	16.04	15.98	15.85	14.82	13.75
21	14.66	15.55	12.70	19.28	14.94	---	15.10	16.04	15.97	15.86	14.58	14.17
22	14.74	15.52	12.64	19.52	14.92	---	15.09	16.08	15.96	15.86	14.33	14.26
23	14.84	15.43	13.05	19.33	14.92	---	15.12	16.13	16.01	15.85	14.44	14.24
24	14.78	15.50	12.90	19.30	14.88	---	15.16	16.08	15.93	15.87	14.50	14.20
25	14.70	15.35	13.05	19.21	14.91	---	15.15	16.13	15.88	15.86	14.51	14.15
26	14.35	15.43	13.13	19.19	14.93	---	15.14	16.12	15.91	15.84	14.61	14.18
27	14.68	15.36	13.20	19.33	14.94	---	15.14	16.13	15.91	15.87	14.62	14.19
28	14.71	15.16	13.23	19.40	15.08	---	15.12	16.17	15.89	15.85	14.48	14.02
29	14.60	15.41	13.31	19.47	15.08	---	15.11	16.21	15.89	15.84	14.75	14.00
30	14.72	15.36	13.36	19.39	---	---	15.08	16.02	15.90	15.83	14.42	13.85
31	15.22	---	13.62	19.17	---	---	---	16.01	---	15.84	14.74	---
MEAN	15.34	15.24	14.25	18.33	16.68	---	---	15.69	16.01	15.82	14.97	14.02
MAX	16.37	15.59	15.57	19.64	19.14	---	---	16.21	16.14	15.93	15.83	14.47
MIN	14.35	14.61	12.64	12.61	14.88	---	---	14.98	15.88	15.49	14.33	13.69

TURTLE CREEK BASIN

403

06341400 TURTLE CREEK NEAR TURTLE LAKE, ND

LOCATION.--Lat 47°27'30", long 100°55'15", on north line of sec.19, T.146 N., R.80 W., McLean County, Hydrologic Unit 10130101, on downstream end of twin culverts on State Highway 20, 2.5 mi (4.0 km) downstream from Lake Ordway, and 4 mi (6 km) southwest of Turtle Lake.

DRAINAGE AREA.--310 mi² (803 km²), approximately, of which about 195 mi² (505 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1956 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,805 ft (550 m) (from topographic map).

REMARKS.--Records fair.

AVERAGE DISCHARGE.--20 years, 0.74 ft³/s (0.0210 m³/s), 536 acre-ft/yr (661,000 m³/yr); median of yearly mean discharges, 0.5 ft³/s (0.014 m³/s), 360 acre-ft/yr (440,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 610 ft³/s (17.3 m³/s) June 29, 1975, gage height, 5.43 ft (1.655 m); maximum gage height, 6.2 ft (1.890 m) Mar. 2, 1967 from floodmark, backwater from snow; no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft³/s (0.28 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
†	--	*About 80	2.27	4.98	1.518		
Mar. 24	Unknown	About 40	1.13	Unknown			
				Apr. 24	0400	12	0.34
						3.95	1.204

No flow for several months

† Mar. 18 or 19
a Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.10			0	.50	3.8	3.2	.40	.02		
2	0	.10			0	.40	3.7	3.1	.31	.01		
3	0	.10			0	.30	2.7	2.6	.21	0		
4	0	.08			0	.20	3.4	2.5	.15	0		
5	0	.08			0	.20	3.5	2.5	.10	0		
6	0	.06			0	.10	3.2	2.3	.11	0		
7	0	.05			0	.10	3.2	2.1	.09	0		
8	0	.04			0	.10	2.8	2.0	.08	0		
9	0	.03			0	.10	2.6	2.0	.04	0		
10	0	.03			0	.10	2.6	1.8	.02	0		
11	.10	.02			0	.30	2.3	1.4	.03	0		
12	.10	.02			0	.50	2.2	1.4	.29	0		
13	.10	.02			0	1.0	2.3	1.4	.17	0		
14	.05	.01			0	1.0	2.6	1.4	.19	0		
15	.05	.01			0	2.0	2.6	1.4	.31	0		
16	.05	.01			0	3.0	3.7	1.2	.23	0		
17	.04	.01			0	7.0	7.0	1.2	.21	0		
18	.04	.01			0	40	4.7	1.0	.15	0		
19	.03	.01			0	50	4.2	1.0	.11	0		
20	.03	0			0	15	4.4	.90	.07	0		
21	.02	0			0	10	4.0	.45	.03	0		
22	.01	0			0	4.2	3.8	.80	.02	0		
23	.02	0			0	15	5.3	.57	.05	0		
24	.02	0			.04	21	9.0	.60	.25	0		
25	.01	0			2.0	14	5.1	.55	.15	0		
26	.01	0			4.7	4.9	4.0	.52	.15	0		
27	.01	0			5.0	6.8	3.5	.59	.13	0		
28	.01	0			2.0	4.4	3.4	.59	.10	0		
29	.10	0			1.0	5.5	3.4	.55	.08	0		
30	.20	0			---	3.5	3.2	.52	.05	0		
31	.20	---			---	4.5	---	.46	---	0		---
TOTAL	1.20	.79	0	0	14.74	215.70	112.2	43.10	4.28	.03	0	0
MEAN	.039	.026	0	0	.51	6.96	3.74	1.39	.14	.001	0	0
MAX	.20	.10	0	0	5.0	50	9.0	3.2	.40	.02	0	0
MIN	0	0	0	0	0	.10	2.2	.45	.02	0	0	0
AC-FT	2.4	1.6	0	0	29	428	223	85	8.5	.06	0	0
CAL YR 1975	TOTAL	878.65	MEAN	2.41	MAX	324	MIN	0	AC-FT	1740		
WFR YR 1976	TOTAL	392.04	MEAN	1.07	MAX	50	MIN	0	AC-FT	778		

PAINTED WOODS CREEK BASIN

06341800 PAINTED WOODS CREEK NEAR WILTON, ND

LOCATION.--Lat 47°16'30", long 100°47'30", in SW¼SW¼ sec.23, T.144 N., R.80 W., McLean County, Hydrologic Unit 10130101, 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 (1,110 km²), approximately, of which about 310 mi² (800 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 1,760 ft (536 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--19 years, 7.61 ft³/s (0.216 m³/s), 5,510 acre-ft/yr (6.79 hm³/yr); median of yearly mean discharges, 7.6 ft³/s (0.22 m³/s), 5,500 acre-ft/yr (6.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft³/s (51.0 m³/s) Apr. 9, 1969, gage height, 8.12 ft (2.475 m), backwater from ice; maximum gage height, 8.67 ft (2.643 m) Mar. 15, 1966, backwater from ice; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.850 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 25	2115	33 0.94	4.67 1.423	Apr. 25	0515	129 3.65	5.45 1.661
Mar. 19	2030	*410 11.61	*8.67 2.643	June 13	0600	61 1.73	5.05 1.539
Apr. 18	2200	45 1.274	4.77 1.454				

Minimum discharge, no flow Aug. 17 to Sept. 17.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.30	.48	.14	.13	6.0	17	18	.25	.47	.07	0
2	.17	.24	.45	.11	.13	5.0	15	16	.23	.40	.07	0
3	.18	.21	.42	.10	.13	4.0	14	14	.22	.35	.07	0
4	.18	.20	.42	.10	.13	1.0	12	12	.17	.31	.07	0
5	.15	.21	.46	.09	.12	1.0	12	11	.15	.26	.06	0
6	.13	.22	.43	.10	.13	1.0	11	9.6	.12	.21	.05	0
7	.12	.22	.40	.09	.12	1.0	9.4	8.2	.11	.16	.04	0
8	.12	.24	.40	.09	.14	1.0	8.5	7.5	.11	.20	.03	0
9	.17	.27	.39	.08	.19	1.0	7.9	6.7	.11	.19	.03	0
10	.24	.26	.42	.08	.25	1.0	7.2	6.3	.10	.19	.02	0
11	.24	.25	.38	.08	.25	1.0	6.5	6.2	.11	.22	.03	0
12	.20	.37	.33	.08	.56	1.0	6.0	5.8	.53	.22	.03	0
13	.21	.42	.31	.09	.64	1.0	5.5	5.6	32	.18	.03	0
14	.29	.37	.21	.08	.60	1.0	5.9	5.1	11	.15	.02	0
15	.34	.36	.24	.09	.82	1.0	8.8	5.6	12	.13	.02	0
16	.32	.35	.22	.09	1.2	2.0	12	5.3	8.9	.12	.01	0
17	.32	.31	.13	.09	1.9	25	29	5.3	5.3	.11	0	0
18	.31	.25	.16	.08	.83	182	41	4.9	3.5	.11	0	.03
19	.26	.27	.92	.10	.59	289	44	4.4	2.5	.11	0	.11
20	.24	.31	.50	.09	.43	300	36	4.6	1.6	.11	0	.05
21	.24	.35	.32	.08	.32	120	29	4.0	.68	.11	0	.03
22	.28	.36	.30	.09	.36	121	26	3.2	.40	.10	0	.02
23	.26	.36	.30	.09	2.2	119	30	2.5	.91	.09	0	.02
24	.24	.36	.26	.10	9.4	93	94	1.5	4.0	.09	0	.01
25	.25	.36	.25	.09	19	75	122	1.5	3.0	.08	0	.01
26	.28	.36	.24	.09	31	52	72	1.0	1.4	.07	0	.03
27	.27	.37	.25	.09	26	41	44	1.4	.84	.07	0	.03
28	.26	.42	.25	.08	12	36	32	.88	.59	.09	0	.03
29	.27	.46	.28	.10	8.0	27	26	.62	.40	.07	0	.03
30	.76	.48	.26	.10	---	23	21	.43	.40	.06	0	.03
31	.42	---	.20	.12	---	20	---	.32	---	.07	0	---
TOTAL	7.88	9.51	10.58	2.88	117.57	1557.0	804.7	179.45	91.63	5.10	.65	.43
MEAN	.25	.32	.34	.093	4.05	50.2	26.8	5.79	3.05	.16	.021	.014
MAX	.76	.48	.92	.14	31	300	122	18	32	.47	.07	.11
MIN	.12	.20	.13	.08	.12	1.0	5.5	.32	.10	.06	0	0
AC-FT	16	19	21	5.7	233	3090	1600	355	182	10	1.3	.9
CAL YR 1975 TOTAL	3377.71			MEAN 9.25	MAX 230	MIN 0	AC-FT 6700					
WTR YR 1976 TOTAL	2787.38			MEAN 7.62	MAX 300	MIN 0	AC-FT 5530					

PAINTED WOODS CREEK BASIN

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06341800 PAINTED WOODS CREEK NEAR WILTON, ND--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC 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)	PER- CENT SATUR- ATION	HARD- NESS (CA, MG) (MG/L)
OCT 23...	1340	.28	1780	8.5	8.5	30	1	8.4	--	350
DEC 05...	1230	.45	2700	8.0	1.0	25	2	--	--	520
29...	1100	.28	3000	7.6	1.0	25	5	4.3	32	630
FEB 19...	1500	.51	900	7.1	1.0	75	7	6.5	49	220
MAR 31...	1430	19	600	8.0	8.0	60	10	9.0	81	160
APR 22...	1130	25	1360	8.2	8.0	80	6	--	--	330
MAY 25...	1030	1.7	1680	8.7	12.0	45	10	8.4	83	410
JUN 24...	1145	3.8	1800	8.6	17.5	90	10	7.1	79	360
JUL 21...	1230	.11	1700	9.7	23.0	55	7	11.5	141	240

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINIT AS CACO3 (MG/L)
OCT 23...	0	51	55	350	67	8.1	13	696	2	574
DEC 05...	0	93	71	400	62	7.6	13	925	0	759
29...	0	120	79	490	62	8.5	15	1090	0	894
FEB 19...	0	46	25	140	57	4.1	9.2	384	0	315
MAR 31...	0	30	20	66	46	2.3	9.1	208	0	171
APR 22...	0	53	49	210	57	5.0	11	450	0	369
MAY 25...	0	60	64	260	57	5.6	11	533	13	459
JUN 24...	0	43	62	300	63	6.9	12	480	40	460
JUL 21...	0	20	47	320	73	8.9	12	257	120	411

PAINTED WOODS CREEK BASIN

06341800 PAINTED WOODS CREEK NEAR WILTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CARBON DIOXIDE (CO ₂) (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 SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)
OCT										
23...	3.5	530	15	.1	8.3	1330	1370	1.81	1.01	.01
DEC										
05...	15	620	17	.3	22	1670	1690	2.27	2.03	.01
29...	44	720	19	.2	27	1940	2010	2.64	1.47	.00
FEB										
19...	49	220	7.7	.1	14	690	653	.94	.95	.10
MAR										
31...	3.3	120	3.9	.1	12	393	365	.53	20.2	.11
APR										
22...	4.5	370	13	.3	18	1020	947	1.39	68.9	.00
MAY										
25...	1.8	450	9.2	.1	5.0	1180	1150	1.60	5.42	.15
JUN										
24...	2.3	570	16	.2	7.4	1280	1290	1.74	13.4	.01
JUL										
21...	.2	470	14	.2	.4	1170	1130	1.59	.35	.02

DATE	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)
OCT										
23...	.02	--	--	--	500	--	--	--	4	40
DEC										
05...	.03	--	--	--	780	--	--	--	6	40
29...	.05	0	1	100	640	0	0	1	2	20
FEB										
19...	.10	--	--	--	280	--	--	--	3	230
MAR										
31...	.06	--	--	--	240	--	--	--	3	130
APR										
22...	.08	--	--	--	320	--	--	--	4	170
MAY										
25...	.04	10	4	0	400	1	0	0	2	40
JUN										
24...	.17	--	--	--	390	--	--	--	8	110
JUL										
21...	.10	--	--	--	480	--	--	--	4	60

DATE	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MANG- ANESE (MN) (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)	CYANIDE (CN) (MG/L)
OCT										
23...	0	150	--	--	--	--	--	--	1	--
DEC										
05...	3	190	--	--	--	--	--	--	10	--
29...	2	700	.1	0	2	0	1200	1.1	60	.00
FEB										
19...	4	350	--	--	--	--	--	--	20	--
MAR										
31...	1	120	--	--	--	--	--	--	0	--
APR										
22...	7	30	--	--	--	--	--	--	10	--
MAY										
25...	5	30	.0	0	6	0	690	.0	0	8.0
JUN										
24...	5	10	--	--	--	--	--	--	0	--
JUL										
21...	0	10	--	--	--	--	--	--	0	--

MISSOURI RIVER MAIN STEM

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06342020 MISSOURI RIVER AT PRICE, ND

LOCATION.--Lat 47°04'47", long 100°55'55", in NW¼ sec.34, T.142 N., R.81 W., Oliver County, Hydrologic Unit 10130101, on right bank 0.5 mi (0.8 km) south of Price at mile 1,338 (kilometer 2,153).

DRAINAGE AREA.--185,000 mi² (479,200 km²), approximately.

PERIOD OF RECORD.--November 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,620.00 ft (493.776 m) above mean sea level (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 20 ft (6.096 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 30.12 ft (9.181 m) Jan. 22, 1967; minimum daily recorded, 17.76 ft (5.413 m) Mar. 31, 1968.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.02		---	21.51			22.88	22.85	23.95	23.85	23.57	22.33
2	24.08		23.33	21.54			22.83	22.79	23.96	23.86	23.21	22.07
3	24.06		23.27	21.32			23.28	22.81	23.97	23.87	23.20	22.07
4	24.02		23.26	24.16			23.98	22.85	24.00	23.78	23.41	22.13
5	24.06		22.81	24.73			23.85	22.84	24.03	23.52	23.62	21.81
6	24.07		23.02	25.49			23.10	22.79	23.99	23.57	23.43	21.77
7	24.06		23.21	25.60			22.91	22.75	23.96	23.76	23.01	21.71
8	24.07		22.74	25.82			22.88	22.80	23.94	23.79	22.85	21.70
9	24.14		23.07	26.33			22.87	22.82	23.95	23.79	22.79	21.59
10	23.98		23.25	26.62			22.83	22.83	24.00	23.75	22.78	21.73
11	23.74		23.20	26.36			22.83	22.93	24.02	23.73	22.86	21.61
12	23.30		23.31	26.28			22.87	23.42	24.07	23.60	22.97	21.80
13	23.29		23.37	26.39			22.87	23.74	23.97	23.75	22.95	21.61
14	22.97		23.23	26.44			22.88	23.83	23.95	23.72	23.02	21.55
15	22.61		23.32	26.61			22.84	23.82	23.94	23.72	22.99	21.63
16	22.61		23.26	26.69			22.85	23.81	23.93	23.69	22.92	21.77
17	22.57		22.29	26.72			22.86	23.84	23.94	23.72	22.86	21.63
18	22.67		21.81	26.83			22.77	23.85	23.91	23.72	22.75	21.67
19	22.57		21.20	26.78			22.80	23.83	23.93	23.73	22.70	21.75
20	22.59		21.35	26.81			22.85	23.82	23.94	23.71	22.59	21.61
21	22.55		20.89	26.86			22.84	23.81	23.92	23.70	22.47	21.81
22	22.52		20.65	27.10			22.86	23.81	23.93	23.72	22.21	22.07
23	22.59		20.58	27.12			22.86	23.81	23.98	23.70	22.08	22.09
24	22.60		21.23	27.08			22.85	23.84	23.94	23.70	22.25	22.08
25	22.54		20.89	27.10			22.75	23.88	23.86	23.73	22.25	22.02
26	22.20		20.92	27.03			22.87	23.87	23.87	23.70	22.32	22.05
27	22.51		21.06	27.09			22.86	23.88	23.88	23.76	22.33	22.03
28	22.53		21.12	27.20			22.87	23.89	23.85	23.76	22.29	21.93
29	22.48		21.14	27.22			22.86	23.89	23.82	23.70	22.44	21.86
30	22.58		21.21	27.20			22.85	23.93	23.83	23.68	22.24	21.83
31	22.88		21.28	27.10			---	23.94	---	23.69	22.45	---
MEAN	23.14		---	26.04			22.94	23.47	23.94	23.72	22.77	21.84
MAX	24.14		---	27.22			23.98	23.94	24.07	23.87	23.62	22.33
MIN	22.20		---	21.32			22.75	22.75	23.82	23.52	22.08	21.55

SQUARE BUTTE CREEK BASIN

06342100 SQUARE BUTTE CREEK TRIBUTARY NO. 2 NEAR CENTER, ND

LOCATION.--Lat 47°06'40", long 101°15'05", in NE¼NE¼ sec.24, T.142 N., R.84 W., Oliver County, Hydrologic Unit 10130101, on right bank 60 ft (18 m) upstream from county highway bridge, 2.1 mi (3.4 km) southeast of Center.

DRAINAGE AREA.--13.0 mi² (33.7 km²).

PERIOD OF RECORD.--December 1954 to April 1965 (annual maximum only), May 1965 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Prior to May 1965, crest-stage gage only at site 1,000 ft (300 m) upstream at datum 1.48 ft (0.451 m) higher.

REMARKS.--Records fair. Flow regulated by Soil Conservation Service dam 1.5 mi (2.4 km) upstream since August 1972; capacity, 1,225 acre-ft (1.51 hm³).

AVERAGE DISCHARGE.--11 years, 0.97 ft³/s (0.0275 m³/s), 703 acre-ft/yr (0.867 hm³/yr); median of yearly mean discharges, 0.67 ft³/s (0.019 m³/s), 490 acre-ft/yr (0.60 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s (70.80 m³/s) July 16, 1957, gage height, 7.98 ft (2.432 m), site and datum then in use; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 30 ft³/s (0.85 m³/s) Mar. 17; gage height, 5.00 ft (1.524 m), backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.30	.01		0	0	1.7	.45	.45	.30	.05	.02
2	.20	.30	.01		0	0	1.0	.45	.40	.30	.05	.02
3	.20	.25	.01		0	0	.51	.45	.40	.25	.05	.02
4	.20	.25	.01		0	0	.95	.45	.40	.20	.05	.01
5	.25	.25	.01		0	0	.87	.45	.45	.16	.03	.01
6	.25	.25	.01		0	0	.79	.45	.51	.20	.03	.01
7	.25	.25	.01		0	.05	.72	.45	.45	.25	.02	.01
8	.25	.25	.01		0	.10	.72	.45	.45	.25	.02	.02
9	.35	.25	.01		0	.10	.58	.45	.45	.25	.02	.02
10	.45	.25	.01		0	.05	.51	.45	.45	.20	.03	.03
11	.40	.25	.01		0	.02	.30	.45	.51	.16	.03	.02
12	.40	.25	.01		0	0	.25	.45	2.8	.16	.03	.02
13	.30	.25	.01		0	0	.25	.51	1.0	.13	.03	.02
14	.45	.25	.01		0	.20	1.5	.51	.87	.13	.45	.02
15	.45	.25	.01		0	.10	1.1	.58	7.2	.13	.30	.05
16	.40	.25	.01		.01	.10	1.1	.58	.30	.10	.25	.05
17	.40	.25	0		.02	5.0	5.9	.58	.20	.10	.20	.05
18	.40	.25	0		.05	12	2.8	.51	.16	.10	.16	.05
19	.35	.25	.03		.02	15	1.3	.51	.13	.07	.10	.16
20	.35	.20	.05		.01	12	1.0	.51	.10	.07	.05	.07
21	.35	.20	.08		.05	10	1.1	.51	.05	.05	.03	.07
22	.35	.16	.08		.07	11	1.4	.51	.05	.05	.02	.05
23	.40	.10	.05		1.0	12	2.4	.45	3.6	.05	0	.05
24	.40	.07	.03		3.0	9.0	7.7	.40	5.7	.05	0	.05
25	.40	.05	.03		1.0	8.0	2.9	.40	.87	.05	.01	.05
26	.58	.03	.03		.50	7.0	1.8	.45	.72	.05	.03	.10
27	.51	.02	.03		.10	6.0	1.5	.58	.45	.05	.03	.07
28	.45	.01	.02		.02	4.6	.58	.51	.40	.05	.02	.07
29	.40	.01	.02		.02	3.0	.51	.51	.40	.05	.02	.07
30	.35	.01	.01		---	2.2	.45	.51	.35	.05	.02	.07
31	.35	---	.01		---	1.7	---	.45	---	.05	.03	---
TOTAL	11.04	5.71	.63	0	5.87	119.22	44.19	14.97	30.27	4.06	2.16	1.33
MEAN	.36	.19	.020	0	.20	3.85	1.47	.48	1.01	.13	.070	.044
MAX	.58	.30	.08	0	3.0	15	7.7	.58	7.2	.30	.45	.16
MIN	.20	.01	0	0	0	0	.25	.40	.05	.05	0	.01
AC-FT	22	11	1.2	0	12	236	88	30	60	8.1	4.3	2.6
CAL YR 1975	TOTAL 259.51	MEAN .71	MAX 18	MIN 0	AC-FT 515							
WFR YR 1976	TOTAL 239.45	MEAN .65	MAX 15	MIN 0	AC-FT 475							

SQUARE BUTTE CREEK BASIN

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06342260 SQUARE BUTTE CREEK BELOW CENTER, ND

LOCATION.--Lat 47°03'25", long 101°11'35", in SE¼ sec.4, T.141 N., R.83 W., Oliver County, Hydrologic Unit 10130101, on right bank at southeast corner of farmyard, 6 mi (10 km) southeast of Center.

DRAINAGE AREA.--146 mi² (378 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1965 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair. Flow regulated by Nelson Lake 1.5 mi (2.4 km) upstream beginning Aug. 24, 1967, capacity, 5,000 acre-ft (6.16 hm³). The capacity of Nelson Lake was increased to 10,000 acre-ft (12.3 hm³) in August 1975.

AVERAGE DISCHARGE.--11 years, 11.6 ft³/s (0.329 m³/s), 8,400 acre-ft/yr (10.4 hm³/yr); median of yearly mean discharges, 13 ft³/s (0.37 m³/s), 9,400 acre-ft/yr (12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,700 ft³/s (275 m³/s) June 24, 1966, gage height, 14.35 ft (4.374 m); no flow Feb. 14-26, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25 ft³/s (0.71 m³/s) Mar. 18, gage height, 1.91 ft (0.582 m); minimum daily, 0.42 ft³/s (0.012 m³/s) Oct. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	2.5	1.1	1.1	1.4	1.2	.90	1.5	.99	1.0	1.9	5.3
2	3.9	2.5	1.1	1.1	1.4	1.4	.97	1.7	.87	1.0	2.2	6.0
3	3.7	2.5	1.1	1.1	1.3	1.4	1.0	1.7	.90	1.2	1.9	5.2
4	3.9	2.5	1.1	1.2	1.0	1.4	1.0	1.6	.90	1.0	1.9	5.0
5	4.1	2.5	1.0	1.7	1.0	1.4	.60	1.7	1.2	1.0	2.5	4.8
6	4.2	2.3	.95	1.6	1.0	1.4	.50	1.5	1.2	1.0	2.5	4.2
7	4.3	2.3	.90	1.4	1.0	3.3	.60	1.7	1.0	.90	2.1	4.1
8	4.1	2.3	1.1	1.4	1.2	2.2	.60	2.0	1.0	1.0	2.2	3.7
9	4.3	2.3	1.1	1.4	1.2	1.3	.80	2.1	1.0	1.2	2.2	3.6
10	3.9	2.3	1.1	1.4	1.2	.88	.60	2.1	1.0	1.4	2.1	3.4
11	3.5	2.1	1.1	1.3	1.2	1.3	.60	1.9	1.7	1.4	2.0	3.3
12	3.4	2.1	1.1	1.4	1.2	1.6	.70	1.9	2.1	1.4	2.1	3.0
13	3.4	2.0	1.1	1.4	1.2	2.0	.80	1.8	1.0	1.6	2.1	3.0
14	3.6	2.0	1.1	1.4	1.2	2.0	1.0	1.8	1.7	1.2	1.7	2.3
15	3.5	1.9	1.1	2.0	1.2	1.7	1.0	2.3	2.1	1.0	1.9	2.6
16	4.2	1.9	1.0	1.2	1.2	2.2	1.7	1.9	.80	1.6	1.8	2.5
17	4.4	1.8	1.0	1.3	1.2	5.4	3.0	1.5	.90	1.6	1.8	2.1
18	3.2	1.8	1.0	1.4	1.2	8.8	2.1	1.5	.80	3.4	1.8	2.1
19	1.8	1.7	1.0	1.4	1.0	2.5	2.0	1.5	.80	2.5	1.6	2.0
20	1.3	1.7	1.1	1.6	.90	1.2	2.1	1.8	.60	1.6	1.6	1.6
21	.86	1.6	1.1	1.6	.90	.77	2.1	1.7	4.7	2.4	1.7	1.6
22	.84	1.5	1.1	1.6	1.0	.90	2.1	1.4	4.9	2.2	1.8	1.6
23	.56	1.5	1.1	1.3	1.9	.90	2.9	.81	6.1	2.2	1.8	1.7
24	.47	1.4	1.1	1.2	1.7	.90	5.7	.90	4.3	2.1	1.8	1.6
25	.42	1.4	1.1	1.0	1.2	.90	2.1	.74	4.1	1.7	2.0	1.6
26	.42	1.3	1.1	1.0	1.0	.90	2.0	.92	3.7	1.9	1.6	1.6
27	1.3	1.2	1.1	1.4	.80	.90	1.6	.79	3.7	1.6	1.6	1.9
28	1.9	1.2	1.0	1.4	.80	.90	1.6	.78	3.7	1.8	2.2	1.8
29	2.5	1.2	1.2	1.4	1.0	.90	1.8	.97	3.0	2.3	2.2	1.7
30	2.6	1.1	1.2	1.4	---	.90	1.7	.95	.80	2.6	2.0	1.7
31	2.6	---	1.1	1.4	---	.90	---	1.0	---	2.0	3.2	---
TOTAL	87.27	56.4	33.35	42.5	33.50	54.35	46.17	46.47	61.56	50.80	61.8	87.3
MEAN	2.82	1.88	1.08	1.37	1.16	1.75	1.54	1.50	2.05	1.64	1.99	2.91
MAX	4.4	2.5	1.2	2.0	1.9	8.8	5.7	2.3	6.1	3.4	3.2	6.0
MIN	.42	1.1	.90	1.0	.80	.77	.50	.74	.60	.90	1.6	1.6
AC-FT	173	112	66	84	66	108	92	92	122	101	123	173
CAL YR 1975 TOTAL	3242.93			MEAN 8.88	MAX 418	MIN .42	AC-FT 6430					
WTR YR 1976 TOTAL	661.47			MEAN 1.81	MAX 8.8	MIN .42	AC-FT 1310					

SQUARE BUTTE CREEK BASIN

06342260 SQUARE BUTTE CREEK BELOW CENTER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by the North Dakota State Water Commission. Data included for water year 1974 which was inadvertently omitted from a previous publication.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
APR 01...	1000	.92	980	8.2	8.5	270	0	60	29	140
JUL 20...	1100	1.9	1000	8.0	23.0	280	0	60	32	140

DATE	PERCENT SODIUM	SODIUM AN- ION- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINIT- AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
APR 01...	53	3.7	5.0	461	0	378	4.7	180	11
JUL 20...	51	3.6	4.3	463	10	396	7.7	180	6.0

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
APR 01...	.2	17	660	670	.90	1.64	200	0	220
JUL 20...	.2	21	688	684	.94	3.53	1700	100	80

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV 20...	1000	1.1	1170	8.2	3.0	290	0	64	32	170
DEC 18...	1030	1.1	1000	8.0	1.0	280	0	63	30	140
JAN 22...	1100	1.1	900	7.8	1.5	250	0	60	24	120
FEB 27...	1100	2.1	660	7.7	3.0	180	0	42	18	81
MAR 19...	1000	6.4	760	7.7	4.0	190	0	42	21	98
MAY 10...	1045	1.6	817	8.1	14.5	200	0	44	22	100
MAY 22...	1500	1.9	710	8.1	13.5	180	0	41	19	91
JUN 27...	1430	1.6	970	8.2	26.5	280	0	60	32	140
JUL 23...	1215	1.5	1010	8.1	23.5	260	0	58	28	130
AUG 21...	1000	1.5	1020	8.0	26.5	260	0	58	28	140
SEP 19...	1100	1.0	1020	8.0	13.5	270	0	62	28	140

SQUARE BUTTE CREEK BASIN

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06342260 SQUARE BUTTE CREEK BELOW CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
NOV 20...	56	4.3	4.0	592	0	486	6.0	180	7.1
DEC 18...	52	3.6	4.2	505	0	414	8.1	150	6.2
JAN 22...	51	3.3	5.4	447	0	367	11	140	6.0
FEB 27...	49	2.6	4.8	315	0	258	10	100	4.8
MAR 19...	51	3.1	9.0	292	0	240	9.3	150	6.2
MAY 10...	51	3.1	8.6	339	0	278	4.3	150	5.3
22...	51	2.9	10	279	0	229	3.5	150	5.9
JUN 27...	52	3.6	4.2	500	0	410	5.0	160	7.7
JUL 23...	52	3.5	4.9	490	0	402	6.2	150	5.3
AUG 21...	53	3.8	4.7	500	0	410	8.0	140	5.1
SEP 19...	52	3.7	4.8	500	0	410	8.0	150	5.5

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
NOV 20...	.5	17	757	768	1.03	2.25	390	0	230
DEC 18...	.6	19	648	664	.88	1.92	130	310	360
JAN 22...	.3	18	575	596	.78	1.71	170	390	300
FEB 27...	.3	11	451	420	.61	2.56	1500	0	180
MAR 19...	.1	3.1	473	476	.64	8.17	0	100	60
MAY 10...	.3	3.0	528	502	.72	2.28	430	40	170
22...	.1	3.1	479	460	.65	2.46	340	60	70
JUN 27...	.4	12	638	664	.87	2.76	0	0	40
JUL 23...	.7	11	656	632	.89	2.66	1300	120	160
AUG 21...	.5	13	675	637	.92	2.73	240	0	80
SEP 19...	.6	13	648	652	.88	1.75	310	390	40

BURNT CREEK BASIN

06342450 BURNT CREEK NEAR BISMARCK, ND

LOCATION.--Lat 46°54'54", long 100°48'48", in SW¼NW¼SW¼ sec.29, T.140 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank on upstream side of county highway bridge, 7 mi (11 km) northwest of Bismarck.

DRAINAGE AREA.--108 mi² (280 km²).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair except those for the period of ice effect, which are poor.

AVERAGE DISCHARGE.--9 years, 7.86 ft³/s (0.223 m³/s), 5,690 acre-ft/yr (7.02 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Apr. 8, 1969, gage height, 14.80 ft (4.511 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.566 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
†	--	About 25 0.71	-- --	Apr. 24	2130	40 1.13	4.26 1.298
Mar. 18	--	*About 600 17.0	*11.40 3.475	June 12	0700	137 3.88	6.05 1.844
Apr. 17	2130	40 1.13	4.26 1.298				

No flow for several months.

† Probably occurred Feb. 27
a Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	0	.10	7.0	6.3	4.9	.58	.74		
2			0	0	.05	6.0	6.3	4.3	.50	.58		
3			0	0	.02	5.0	6.2	3.9	.44	.44		
4			.02	0	0	2.0	5.9	3.4	.38	.32		
5			.04	0	0	1.0	5.9	3.1	.35	.26		
6			.02	0	0	1.0	5.6	2.9	.32	.22		
7			.01	0	.30	.90	5.4	2.5	.30	.15		
8			.02	0	1.0	.80	5.2	2.9	.26	.07		
9			.02	0	2.0	1.0	5.0	2.3	.23	.03		
10			.03	0	2.0	2.0	4.7	1.7	.22	0		
11			.02	0	2.0	2.0	4.4	2.5	.26	0		
12			.01	0	2.0	2.0	4.1	2.2	.51	0		
13			0	0	1.0	2.0	3.8	1.8	.28	0		
14			0	0	1.0	2.0	4.0	1.6	.12	0		
15			0	0	2.0	1.7	4.7	2.2	.8.4	0		
16			0	0	3.0	50	7.0	2.1	5.4	0		
17			0	0	4.0	80	25	2.1	4.6	0		
18			0	0	4.0	200	29	2.1	3.2	0		
19			.02	0	5.0	320	16	1.7	3.2	0		
20			.03	0	5.0	100	10	1.5	2.1	0		
21			.04	0	5.0	40	8.8	1.4	1.5	0		
22			.04	0	6.0	20	8.9	1.2	1.2	0		
23			.04	0	6.0	17	9.4	1.1	1.1	0		
24			.03	0	6.0	14	28	.90	1.4	0		
25			.03	0	12	12	30	.90	1.2	0		
26			.02	0	14	12	16	.86	1.7	0		
27			.02	.08	18	12	9.7	.86	2.1	0		
28			.01	.10	18	10	7.2	.82	1.4	0		
29			.01	.20	7.0	7.3	6.0	.78	1.0	0		
30			0	.20	---	7.2	5.5	.74	.86	0		
31		---	0	.20	---	7.0	---	.66	---	0		---
TOTAL	0	0	.47	.78	126.47	960.20	294.0	61.92	135.20	2.81	0	0
MEAN	0	0	.015	.025	4.36	31.0	9.80	2.00	4.51	.091	0	0
MAX	0	0	.04	.20	18	320	30	4.9	.51	.74	0	0
MIN	0	0	0	0	0	.80	3.8	.66	.22	0	0	0
AC-FT	0	0	.9	1.5	251	1900	583	123	268	5.6	0	0
CAL YR 1975	TOTAL	3208.49	MEAN 8.79	MAX 420	MIN 0	AC-FT 6360						
WTR YR 1976	TOTAL	1591.85	MEAN 4.32	MAX 320	MIN 0	AC-FT 3140						

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE&NW&SE& sec.31, T.139 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, 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 (482,800 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to November 1927, April 1928 to current year. See WSP 1729 or 1917 for history of data prior to April 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,618.38 ft (493.282 m) above mean sea level. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1937.

REMARKS.--Records good. Many diversions from tributaries. Flow regulated by Lake Sakakawea 75.4 mi (121.3 km) upstream (station 06338000).

AVERAGE DISCHARGE.--48 years (1928-76), 22,340 ft³/s (632.7 m³/s), 16,190,000 acre-ft/yr (20.0 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 500,000 ft³/s (14,200 m³/s) Apr. 6, 1952, gage height, 27.90 ft (8.504 m). Maximum discharge since construction of Garrison Dam in 1953, 68,900 ft³/s (1,950 m³/s) July 13, 1975, gage height, 14.24 ft (4.340 m). Minimum discharge, about 1,800 ft³/s (51.0 m³/s) Jan. 3, 1940; minimum gage height, 1.35 ft (0.411 m) Sept. 4, 1934, present site and datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 31.6 ft (9.632 m) Mar. 31, 1881 (ice jam), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,000 ft³/s (1,220 m³/s) June 11, gage height, 10.79 ft (3.289 m); maximum gage height, 13.30 ft (4.054 m) Jan. 1, backwater from ice; minimum daily, 21,000 ft³/s (595 m³/s) Dec. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38900	33400	31100	24000	34500	36000	34200	34300	40900	40000	39900	33100
2	39200	33000	36100	23000	34000	26000	34300	34000	41300	40000	37700	31600
3	39400	32400	36600	22000	34000	25000	34500	33900	41000	40100	37100	30300
4	39100	33600	36100	21500	34500	24000	39500	34100	41100	40000	37500	31100
5	39400	32500	34600	21500	35000	24000	41000	34100	41100	38500	39300	30400
6	39300	31900	34300	22000	35500	23500	37000	34100	41300	37900	39500	28500
7	39500	33500	35800	22500	37000	23500	34300	33700	41300	39500	37000	29000
8	39400	35200	33900	23500	38000	23500	33800	33900	41200	38800	35300	25300
9	39800	35500	35000	24000	39000	23500	33800	34100	41100	39900	34900	28500
10	39600	36000	36200	24500	35000	24000	34300	34200	41200	39800	35000	28300
11	37700	33200	36000	25000	34500	24500	33700	34300	41600	39700	35000	28700
12	35900	31100	36000	25000	34000	25500	33900	36000	42500	39100	35900	28700
13	34500	31100	35500	26000	34000	26500	33900	39100	41700	39400	36000	28600
14	34200	31900	36500	26500	34000	27000	34200	39900	41100	39700	36000	27900
15	31900	33100	36000	27500	34000	27000	34500	40100	41200	39600	36300	27400
16	31200	35300	29000	28000	34000	27000	34200	40300	40700	39500	35800	28600
17	30900	34700	23000	28000	34000	28000	33400	40400	40900	39600	35600	28400
18	31200	34900	22000	28500	34000	28500	34100	40400	40600	39700	35100	28100
19	31000	35800	22000	29000	34000	30000	34300	40500	40500	39800	35300	28500
20	30700	35200	21500	30500	34000	34000	34000	40500	40600	39900	34200	28300
21	31000	35600	21000	31000	34000	37000	34300	40500	40500	39700	33800	27900
22	30400	36400	21000	31500	34000	36000	34400	40500	40400	39800	32300	30200
23	30900	36100	21500	32000	34000	35500	34400	40500	40900	39800	30700	30600
24	31300	36100	22000	32500	34000	35500	34800	40500	41000	39700	32000	30700
25	31200	36100	22500	33000	34000	35200	33400	40500	40400	39900	32000	30400
26	30200	35900	23000	33500	34000	35000	34300	40600	40300	39900	32300	30400
27	29700	35900	23500	34000	34000	34400	34800	40700	40300	39900	32700	30500
28	30300	35000	24000	34500	34500	34400	34800	40800	40200	40200	32700	30300
29	30600	35300	24500	35000	35000	34300	34500	40800	40300	39900	32300	29400
30	30500	35900	26000	35500	---	34200	34400	40800	40000	39800	32900	29500
31	31700	---	26000	35000	---	34100	---	40700	---	39900	32300	---
TOTAL	1060600	1031600	902200	870000	1004500	916600	1041000	1178800	1226500	1230000	1084800	882200
MEAN	34210	34390	29100	28060	34640	29570	34700	38030	40880	39680	34990	29410
MAX	39800	36400	36600	35500	39000	37000	41000	40800	42500	40200	39900	33100
MIN	29700	31100	21000	21500	34000	23500	33400	33700	40000	37900	30700	27400
AC-FT	2104000	2046000	1790000	1726000	1992000	1818000	2065000	2338000	2433000	2440000	2152000	1750000
CAL YR 1975 TOTAL	13491400			MEAN 36960		MAX 68800	MIN 19000	AC-FT 26760000				
WTR YR 1976 TOTAL	12428800			MEAN 33960		MAX 42500	MIN 21000	AC-FT 24650000				

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SEDIMENT RECORDS.--June 1946 to current year.

REMARKS.--Sediment records from June 1946 to September 1971 are available from Corps of Engineers, Omaha, Neb.
Sediment concentration data from Oct. 1, 1971 to June 30, 1972 were furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS (July 1972 to current year): Maximum daily mean, 303 mg/L Mar. 21, 1976; minimum daily mean, 25 mg/L Dec. 30, 31, 1973, Jan. 1, 1974.
SEDIMENT DISCHARGE (July 1972 to current year): Maximum daily, 41,400 tons (37,600 tonnes) July 13, 15, 1975; minimum daily, 1,210 tons (1,100 tonnes) Dec. 31, 1973.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 303 mg/L Mar. 21, minimum daily mean, 88 mg/L Sept. 6.
SEDIMENT DISCHARGE: Maximum daily, 32,500 tons (29,500 tonnes) Apr. 5; minimum daily, 6,770 tons (6,140 tonnes) Sept. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	IMMEDIATE COLIFORM PER 100 ML	FECAL COLIFORM (COL. PER 100 ML)
OCT												
07...	1030	E40000	650	8.2	14.0	10	8.8	90	.5	8	B183	<1
21...	1500	E31000	645	8.2	11.5	6	9.6	95	--	12	B48	B3
NOV												
04...	1045	E34000	625	8.5	10.0	6	9.8	92	.5	8	B5	<2
17...	1430	E35000	620	8.3	8.0	5	10.6	94	--	12	B6	B3
DEC												
01...	1430	E31000	590	8.3	1.5	7	12.3	93	.2	6	--	--
29...	1700	E24000	620	8.2	.0	8	12.8	--	--	38	140	B8
JAN												
13...	1420	E26000	610	8.2	.0	3	13.2	96	.7	7	B165	B10
28...	1345	E34000	600	8.1	.0	4	13.4	97	--	12	188	B1
FEB												
09...	1430	E39000	600	8.1	.0	15	13.0	94	.0	9	80	B2
25...	1200	E34000	600	8.2	.5	6	12.8	94	--	8	124	B1
MAR												
23...	1800	E36000	625	8.1	3.0	20	12.3	97	.9	20	473	<1
APR												
06...	1030	E37000	650	8.2	3.5	5	12.2	96	--	11	50	<1
22...	1415	E34000	650	8.1	4.0	7	12.6	101	--	12	B15	<1
MAY												
03...	1430	E34000	650	8.3	5.0	10	12.4	102	--	36	58	1
19...	1530	E40000	625	8.2	9.5	5	11.4	105	--	0	--	--
JUN												
01...	1515	E41000	620	8.3	11.5	--	10.7	103	--	10	B18	B2
15...	1100	E41000	620	8.2	12.0	10	9.8	107	--	46	180	52
28...	1530	E40000	635	8.3	15.5	6	--	--	--	18	B7	B3
JUL												
14...	1515	E40000	630	8.2	16.0	1	9.2	99	--	5	B8	B2
27...	1500	E40000	640	8.2	16.5	8	8.7	105	--	9	E2	B5
AUG												
10...	1440	E35000	640	8.3	17.0	10	8.6	94	--	11	B40	B6
23...	1330	E31000	640	8.2	17.5	7	8.6	95	--	33	B15	B3
SEP												
08...	1400	E28000	645	8.4	15.0	10	8.9	93	--	6	B10	B2
21...	1245	E28000	645	8.5	15.5	10	9.0	94	--	14	B3	B18

E - Estimated.

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

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	HARD- NESS (CA, MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)
OCT												
07...	220	74	58	19	58	36	1.7	4.1	183	0	1.8	150
21...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
04...	210	54	51	19	57	37	1.7	4.2	177	4	.9	152
17...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
01...	200	55	50	19	66	41	2.0	3.9	180	0	1.4	148
29...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	200	56	52	18	55	36	1.7	4.3	181	0	1.8	148
28...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
09...	190	45	46	18	53	37	1.7	4.2	175	0	2.2	144
25...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
23...	200	53	49	19	53	36	1.6	4.4	181	0	2.3	148
APR												
06...	--	--	--	--	--	--	--	--	--	--	--	--
22...	210	56	52	20	55	36	1.6	4.0	191	0	2.4	157
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
19...	200	55	49	20	53	36	1.6	3.9	183	0	1.8	510
JUN												
01...	--	--	--	--	--	--	--	--	--	--	--	--
15...	210	60	53	19	54	35	1.6	4.1	184	0	1.9	151
28...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
14...	220	67	53	22	57	35	1.7	4.0	190	0	1.9	156
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
10...	220	73	55	21	54	34	1.6	4.1	184	0	1.5	151
23...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
08...	230	75	58	21	57	34	1.6	4.1	191	0	1.2	157
21...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	BROMIDE (BR) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)
OCT											
07...	180	7.8	.4	.0	6.5	414	430	425	.56	--	56
21...	--	--	--	--	--	412	--	--	.56	--	--
NOV											
04...	160	9.1	.4	.0	6.8	413	--	399	.56	--	--
17...	--	--	--	--	--	405	--	--	.55	--	--
DEC											
01...	170	8.3	.4	.1	7.2	399	--	414	.54	--	--
29...	--	--	--	--	--	390	--	--	.53	--	--
JAN											
13...	160	8.2	.4	.1	7.3	393	--	395	.53	--	--
28...	--	--	--	--	--	385	--	--	.52	--	--
FEB											
09...	150	8.5	.4	.1	7.4	383	--	374	.52	--	--
25...	--	--	--	--	--	383	--	--	.52	--	--
MAR											
23...	150	8.1	.4	.0	7.3	395	--	381	.54	37900	--
APR											
06...	--	--	--	--	--	410	--	--	.56	41000	--
22...	150	8.1	.6	.0	7.3	414	--	391	.56	38500	--
MAY											
03...	--	--	--	--	--	404	--	--	.55	37000	--
19...	150	7.2	.6	.1	7.6	4050	--	382	.55	--	--
JUN											
01...	--	--	--	--	--	418	--	--	.57	--	--
15...	160	8.2	.5	.0	7.6	404	--	397	.55	--	--
28...	--	--	--	--	--	--	--	--	.59	--	--
JUL											
14...	170	8.8	.5	.1	7.0	422	--	416	.57	--	--
27...	--	--	--	--	--	419	--	--	.57	--	--
AUG											
10...	180	9.3	.5	.0	7.0	436	--	422	.59	--	--
23...	--	--	--	--	--	424	--	--	.58	--	--
SEP											
08...	190	9.5	.5	.1	6.8	427	460	441	.58	--	--
21...	--	--	--	--	--	418	--	--	.57	33300	--

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDE- ALUM- INUM (AL) (UG/L)
OCT											
07...	.13	.18	.08	.26	.39	1.7	.03	.00	.00	290	270
21...	.16	.04	.44	.48	.64	2.8	.04	--	--	--	--
NOV											
04...	.15	.01	.46	.47	.62	2.7	.08	.00	.00	--	--
17...	.13	.00	.26	.26	.39	1.7	.02	--	--	--	--
DEC											
01...	.19	.01	.30	.31	.50	2.2	.00	.00	.00	--	--
29...	.20	.01	.17	.18	.38	1.7	.01	--	--	--	--
JAN											
13...	.21	.02	.56	.58	.79	3.5	.00	.00	.00	100	100
28...	.22	.01	.28	.29	.51	2.3	.01	--	--	--	--
FEB											
09...	.22	.04	.48	.52	.74	3.3	.07	.00	.00	--	--
25...	.21	.02	.12	.14	.35	1.6	.02	--	--	--	--
MAR											
23...	.19	.00	.55	.55	.74	3.3	.07	.01	.03	1700	1700
APR											
06...	.21	.00	.41	.41	.62	2.7	.01	--	--	--	--
22...	.14	.03	.27	.30	.44	1.9	.03	.00	.00	--	--
MAY											
03...	.14	.00	.38	.38	.52	2.3	.02	--	--	--	--
19...	.11	.01	.29	.30	.41	1.8	.04	.01	.03	--	--
JUN											
01...	.10	.01	.44	.45	.55	2.4	.04	--	--	--	--
15...	.15	.01	.24	.25	.40	1.8	.07	--	--	--	--
28...	.12	.05	.23	.28	.40	1.8	.06	--	--	--	--
JUL											
14...	.15	.00	.16	.16	.31	1.4	.03	.00	.00	--	--
27...	.15	.00	.26	.26	.41	1.8	.03	--	--	--	--
AUG											
10...	.18	.00	.37	.37	.55	2.4	.04	.00	.00	--	--
23...	.17	.00	.22	.22	.39	1.7	.02	--	--	--	--
SEP											
08...	.19	.00	.62	.62	.81	3.6	.04	.01	.03	--	--
21...	.17	.00	.35	.35	.52	2.3	.06	--	--	--	--

DATE	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE- ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDE- BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDE- BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
OCT											
07...	20	2	0	2	100	0	100	10	10	0	0
JAN											
13...	0	2	0	2	100	0	100	0	0	0	<10
MAR											
23...	10	9	7	2	0	0	0	0	0	0	<10

DATE	SUS- PENDE- CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE- CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE- COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
OCT											
07...	0	0	10	0	10	20	18	2	10	1000	100
JAN											
13...	<10	0	0	0	0	<10	<9	1	20	120	<100
MAR											
23...	<10	0	10	10	0	20	18	2	20	3100	<100

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LT) (UG/L)	SUS- PENDED LITHIUM (LT) (UG/L)	DIS- SOLVED LITHIUM (LT) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)
NOV 07...	100	0	40	0	40	10	70	60	0.0	0.0	0.0
JAN 13...	<100	0	50	10	40	0	3	3	0.0	0.0	0.1
MAR 23...	<98	2	40	0	50	10	70	60	0.0	0.0	0.0

DATE	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDE MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE STRON- TIUM (SR) (UG/L)
OCT 07...	3	0	3	<50	<47	3	1	0	1	450	0
JAN 13...	1	0	1	<50	<48	2	0	0	0	510	0
MAR 23...	3	0	3	<50	<36	14	1	0	1	440	0

[illegible]

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

DATE	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (DIRECT FLUORO- METRIC) (PC/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDED ORGANIC CARBON (C) (MG/L)	SUS- PENDED SEDI- MENT (MG/L)	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										
07...	.06	3.1	--	8.0	.3	--	--	--	--	--
21...	--	--	5.0	--	--	--	--	--	--	--
NOV										
04...	--	--	--	9.1	1.6	--	--	--	--	--
17...	--	--	3.5	--	--	--	--	--	--	--
DEC										
01...	--	--	--	5.8	.5	--	--	--	--	--
29...	--	--	4.1	--	--	--	--	--	--	--
JAN										
13...	--	--	--	7.9	.1	--	--	--	--	--
28...	--	--	3.2	--	--	--	--	--	--	--
FEB										
09...	--	--	--	3.8	1.0	--	--	--	--	--
25...	--	--	8.8	--	--	--	--	--	--	--
MAR										
23...	--	--	--	5.1	.1	317	32	63	99	100
APR										
06...	--	--	3.0	--	--	218	12	36	98	100
22...	--	--	--	4.2	--	--	--	--	--	--
MAY										
03...	--	--	4.3	--	--	--	--	--	--	--
19...	--	--	--	--	--	173	19	44	99	100
JUN										
01...	--	--	3.9	--	--	--	--	--	--	--
28...	--	--	4.2	--	--	--	--	--	--	--
JUL										
27...	--	--	3.2	--	--	140	26	55	99	100
AUG										
23...	--	--	5.1	--	--	--	--	--	--	--
SEP										
08...	.16	2.9	--	--	--	--	--	--	--	--
21...	--	--	4.8	--	--	107	36	74	100	--

DATE	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 2.00 MM	BED MAT. FALL DIAM. % FINER THAN 4.00 MM	BED MAT. FALL DIAM. % FINER THAN 8.00 MM
OCT								
21...	1	4	65	97	99	99	100	--
MAY								
19...	8	22	82	95	98	99	99	100
JUL								
27...	2	7	85	98	99	100	--	--
SEP								
21...	2	7	70	94	99	100	--	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	38900	169	17800	33400	186	16800	31100	256	21500
2	39200	171	18100	33000	184	16400	36100	283	27600
3	39400	172	18300	32400	181	15800	36600	281	27800
4	39100	170	17900	33600	187	17000	36100	262	25500
5	39400	172	18300	32500	182	16000	34600	254	23700
6	39300	177	18800	31900	178	15300	34300	269	24900
7	39500	173	18500	33500	187	16900	35800	277	26800
8	39400	172	18300	35200	196	18600	33900	267	24400
9	39800	179	19200	35500	203	19500	35000	267	25200
10	39600	194	20700	36000	205	19900	36200	265	25900
11	37700	184	18700	33200	191	17100	36000	265	25800
12	35900	174	16900	31100	195	16400	36000	260	25300
13	34500	167	15600	31100	200	16800	35500	250	24000
14	34200	170	15700	31900	204	17600	36500	240	23700
15	31900	158	13600	33100	211	18900	36000	240	23300
16	31200	154	13000	35300	222	21200	29000	200	15700
17	30900	158	13200	34700	214	20000	23000	170	10600
18	31200	159	13400	34900	215	20300	22000	170	10100
19	31000	153	12800	35800	220	21300	22000	170	10100
20	30700	157	13000	35200	232	22000	21500	160	9290
21	31000	158	13200	35600	234	22500	21000	160	9070
22	30400	155	12700	36400	238	23400	21000	160	9070
23	30900	158	13200	36100	237	23100	21500	160	9290
24	31300	160	13500	36100	252	24600	22000	160	9500
25	31200	159	13400	36100	262	25500	22500	160	9720
26	30200	154	12600	35900	267	25900	23000	170	10600
27	29700	167	13400	35900	272	26400	23500	170	10800
28	30300	170	13900	35000	267	25200	24000	170	11000
29	30600	171	14100	35300	269	25600	24500	170	11200
30	30500	171	14100	35900	272	26400	26000	170	11900
31	31700	177	15100	---	---	---	26000	170	11900
TOTAL	1060600	---	481000	1031600	---	612400	902200	---	545240

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	24000	170	11000	34500	180	16800	36000	200	19400
2	23000	170	10600	34000	180	16500	26000	210	14700
3	22000	160	9500	34000	180	16500	25000	220	14900
4	21500	150	8710	34500	180	16800	24000	234	15200
5	21500	150	8710	35000	180	17000	24000	234	15200
6	22000	150	8910	35500	180	17300	23500	232	14700
7	22500	150	9110	37000	200	20000	23500	232	14700
8	23500	160	10200	38000	200	20500	23500	232	14700
9	24000	160	10400	39000	220	23200	23500	232	14700
10	24500	160	10600	35000	200	18900	24000	234	15200
11	25000	160	10800	34500	200	18600	24500	237	15700
12	25000	160	10800	34000	200	18400	25500	242	16700
13	26000	160	11200	34000	200	18400	26500	247	17700
14	26500	160	11400	34000	200	18400	27000	250	18200
15	27500	170	12600	34000	200	18400	27000	250	18200
16	28000	170	12900	34000	200	18400	27000	250	18200
17	28000	170	12900	34000	200	18400	28000	255	19300
18	28500	170	13100	34000	200	18400	28500	258	19900
19	29000	170	13300	34000	200	18400	30000	266	21500
20	30500	170	14000	34000	200	18400	34000	287	26300
21	31000	180	15100	34000	200	18400	37000	303	30300
22	31500	180	15300	34000	200	18400	36000	298	29000
23	32000	180	15600	34000	200	18400	35500	295	28300
24	32500	180	15800	34000	200	18400	35500	295	28300
25	33000	180	16000	34000	200	18400	35200	289	27500
26	33500	180	16300	34000	200	18400	35000	288	27200
27	34000	180	16500	34000	200	18400	34400	285	26500
28	34500	180	16800	34500	200	18600	34400	285	26500
29	35000	180	17000	35000	200	18900	34300	279	25800
30	35500	180	17300	---	---	---	34200	278	25700
31	35000	180	17000	---	---	---	34100	272	25000
TOTAL	870000	---	399440	1004500	---	534000	916600	---	645200

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	34200	268	24700	34300	237	21900	40900	216	23900
2	34300	263	24400	34000	236	21700	41000	206	22800
3	34500	264	24600	33900	225	20600	41000	196	21700
4	39500	291	31000	34100	226	20800	41000	196	21700
5	41000	294	32500	34100	226	20800	41100	196	21800
6	37000	272	27200	34100	226	20800	41300	198	22100
7	34300	253	23400	33700	209	19000	41300	198	22100
8	33800	245	22400	33900	210	19200	41200	187	20800
9	33800	245	22400	34100	211	19400	41100	186	20600
10	34300	248	23000	34200	211	19500	41200	187	20800
11	33700	245	22300	34300	212	19600	41600	199	22400
12	33900	246	22500	36000	210	20400	42500	204	23400
13	33900	235	21500	39100	227	24000	41700	200	22500
14	34200	232	21400	39900	231	24900	41100	196	21800
15	34500	234	21800	40100	227	24600	41200	197	21900
16	34200	237	21900	40300	228	24800	40700	184	20200
17	33400	233	21000	40400	229	25000	40900	185	20400
18	34100	247	22700	40400	224	24400	40600	188	20600
19	34300	248	23000	40500	224	24500	40500	188	20600
20	34000	246	22600	40500	224	24500	40600	188	20600
21	34300	248	23000	40500	224	24500	40500	178	19500
22	34400	243	22600	40500	224	24500	40400	172	18800
23	34400	249	23100	40500	224	24500	40900	175	19300
24	34800	251	23600	40500	224	24500	41000	181	20000
25	33400	243	21900	40500	224	24500	40400	177	19300
26	34300	253	23400	40600	225	24700	40300	182	19800
27	34800	251	23600	40700	225	24700	40300	182	19800
28	34800	245	23000	40800	226	24900	40200	176	19100
29	34500	244	22700	40800	226	24900	40000	175	18900
30	34400	238	22100	40800	220	24200	40000	170	18400
31	---	---	---	40700	220	24200	---	---	---
TOTAL	1041000	---	705300	1178800	---	710500	1226500	---	625600
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	40000	170	18400	39900	159	17100	33100	108	9650
2	40000	170	18400	37700	148	15100	31600	100	8530
3	40100	170	18400	37100	144	14400	30300	93	7610
4	40000	175	18900	37600	147	14900	31100	97	8150
5	38500	162	16800	39500	157	16700	30400	98	8040
6	37900	143	14600	39600	158	16900	28500	88	6770
7	39500	157	16700	37000	144	14400	29000	91	7130
8	39800	159	17100	35300	135	12900	28300	98	7490
9	39900	159	17100	34900	122	11500	28500	104	8000
10	39800	153	16400	35000	123	11600	28300	102	7790
11	39700	153	16400	35000	118	11200	28700	100	7750
12	39100	160	16900	35900	123	11900	28700	100	7750
13	39400	151	16100	36000	118	11500	28600	94	7260
14	39700	158	16900	36000	123	12000	27900	96	7230
15	39600	158	16900	36300	125	12300	27400	93	6880
16	39500	152	16200	35800	122	11800	28600	99	7640
17	39600	152	16300	35600	116	11100	28400	93	7130
18	39700	137	14700	35100	113	10700	28100	97	7360
19	39800	159	17100	35300	114	10900	28500	99	7620
20	39900	159	17100	34200	108	9970	28300	102	7790
21	39700	158	16900	33800	106	9670	27900	100	7530
22	39800	153	16400	32300	98	8550	30200	113	9210
23	39800	159	17100	30700	90	7460	30600	115	9500
24	39700	158	16900	32000	97	8380	30700	115	9530
25	39900	159	17100	32000	97	8380	30400	114	9360
26	39900	159	17100	32300	98	8550	30400	119	9770
27	39900	159	17100	32700	106	9360	30500	130	10700
28	40200	161	17500	32700	106	9360	30300	129	10600
29	39900	159	17100	32300	104	9070	29400	119	9450
30	39800	159	17100	32900	101	8970	29500	119	9480
31	39900	159	17100	32300	98	8550	---	---	---
TOTAL	1230000	---	524800	1084800	---	355170	882200	---	248700
YEAR	12428800		6387350						

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 7, 1975
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

340 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OCYSTACEAE				
....KIRCHNERIELLA		7	2	
		-----	-----	
	TOTALS	7	2	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		29	9	
....STEPHANODISCUS		14	4	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
....ACHNANTHES		7	2	
...CYMBELLACEAE				
....CYMBELLA		7	2	
...FRAGILARIACEAE				
LASTERIONELLA			0	
...FRAGILARIA		36	11	
...GOMPHONEMATACEAE				
LGOMPHONEMA			0	
...NAVICULACEAE	NAVICULOID			
LGYROSIGMA			0	
...NAVICULA		43	13	
...NITZSCHIACEAE				
....NITZSCHIA		29	9	
		-----	-----	
	TOTALS	160	50	2.562=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSOMONADALES				
...OCHROMONADACEAE				
....OCHROMONAS		21	6	
		-----	-----	
	TOTALS	21	6	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
....OSCILLATORIACEAE				
DLYNGBYA		140	43	
		-----	-----	
	TOTALS	140	43	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.115
 CLASS 1.401
 ORDER 1.806
 FAMILY 2.537
 GENERA 2.654

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 4, 1975
1045 HOURS

IDENTIFICATION OF PHYTOPLANKTON

320 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		23	7	
	TOTALS	23	7	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
DCYCLOTELLA		140	43	
...STEPHANODISCUS		46	14	
..PENNALES	PENNALE			
...FRAGILARIACEAE				
LASTERIONELLA			0	
...NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
...NITZSCHIAEAE				
DNITZSCHIA		69	21	
	TOTALS	250	78	1.435=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		23	7	
	TOTALS	23	7	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...PERIDINIAEAE				
....PERIDINIUM		23	7	
	TOTALS	23	7	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.089
 CLASS 1.089
 ORDER 1.753
 FAMILY 1.753
 GENERA 2.217

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 1, 1975
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

54 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		8	14	
	TOTALS	8	14	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTELLA		39	71	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
LCOCCONEIS			0	
..DIATOMACEAE				
LDIATOMA			0	
..GOMPHONEMACEAE				
LGOMPHONEMA			0	
..NITZSCHIAEAE		8	14	
....NITZSCHIA				
	TOTALS	46	85	0.650=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.592
 CLASS 0.592
 ORDER 1.149
 FAMILY 1.149
 GENERA 1.149

JAN. 13, 1976
1420 HOURS

IDENTIFICATION OF PHYTOPLANKTON

90 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTELLA		18	20	
..PENNALES	PENNATE			
..DIATOMACEAE				
....DIATOMA		5	5	
..FRAGILARIACEAE				
DASTERIONELLA		41	45	
..NAVICULACEAE	NAVICULOID			
DNAVICULA		14	15	
..NITZSCHIAEAE				
....HANTZSCHIA		5	5	
....NITZSCHIA		9	10	
..SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	90	100	2.158=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.722
 FAMILY 2.020
 GENERA 2.158

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 9, 1976
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

280 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
DCYCLOTELLA		250	88	
LSTEPHANODISCUS			0	
..PENNALES	PENNATE			
..ACHNANTHACEAE				
LRHOICOSPHEA			0	
..CYMBELLACEAE				
..CYMBELLA		35	13	
..DIATOMACEAE				
LDIATOMA			0	
..FRAGILARIACEAE				
LASTERIONELLA			0	
..NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
..NITZSCHACEAE				
LNITZSCHIA			0	
	TOTALS	280	101	0.544=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAPHER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.544
 FAMILY 0.544
 GENERA 0.544

MISSOURI RIVER MAIN STEM

425

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 23, 1976
1800 HOURS

IDENTIFICATION OF PHYTOPLANKTON

300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		20	7	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		7	2	
TOTALS		27	9	0.811=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		7	2	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
L ...COCONEIS			0	
...RHODOSPHENIA		7	2	
..DIATOMACEAE				
...DIATOMA		20	7	
...FRAGILARIACEAE				
L ...ASTERIONELLA			0	
...SYNEDRA		14	5	
...NAVICULACEAE	NAVICULOID			
...AMPHIPLEURA		34	11	
L ...GYROSIGMA			0	
...NITZSCHIAEAE				
D ...NITZSCHIA		48	16	
...SURIPELLACEAE				
L ...CYMATOPLEURA			0	
...SURIPELLA		14	5	
TOTALS		140	48	2.487=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
D ...OSCILLATORIA		130	43	
TOTALS		130	43	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.347

CLASS 1.347

ORDER 1.553

FAMILY 2.608

GENERA 2.608

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 22, 1976
1415 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		65	4	
TOTALS		65	4	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
D ...CYCLOTELLA		830	49	
D ...MELOSIRA		590	35	
L ...STEPHANODISCUS			0	
..PENNALES	PENNATE			
...DIATOMACEAE				
L ...DIATOMA			0	
...FRAGILARIACEAE				
...ASTERIONELLA		22	1	
...GOMPHONEMACEAE				
...GOMPHONEMA		22	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		44	3	
...NITZSCHACEAE				
...NITZSCHIA		65	4	
TOTALS		1,600	93	1.523=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
...CHROMULINACEAE				
....CHRYSOCOCCUS		44	3	
TOTALS		44	3	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
...PERIDINIACEAE				
....PERIDINIUM		22	1	
TOTALS		22	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.333
 CLASS 0.503
 ORDER 0.928
 FAMILY 1.094
 GENERA 1.910

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 19, 1976
1530 HOURS

IDENTIFICATION OF PHYTOPLANKTON

930 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		29	3	
	TOTALS	29	3	0.000=DIVERSITY
CHRYSDOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		120	12	
..PENNATES	PENNATE			
...FRAGILARIACEAE				
DASTERIONELLA		530	56	
...NITZSCHICEAE		29	3	
....NITZSCHIA				
	TOTALS	670	71	0.912=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		230	25	
	TOTALS	230	25	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.999
 CLASS 0.999
 ORDER 1.478
 FAMILY 1.654
 GENERA 1.654

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 15, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

330 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...ODCOSTACEAE				
....ANKISTRODESMUS		26	8	
...SCENEDESMACEAE				
....SCENEDESMUS		26	8	
	TOTALS	52	16	1.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCEAE				
....CYCLOTELLA		13	4	
....MELOSIRA		19	6	
...PENNALES	PENNATE			
...CYMBELLACEAE				
....AMPHORA		6	2	
L ...CYMBELLA			0	
...DIATOMACEAE				
...DIATOMA		26	8	
...FRAGILARIACEAE				
....ASTERIONELLA		32	10	
....FRAGILARIA		39	12	
...GOMPHONEMACEAE				
....GOMPHONEMA		19	6	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		26	8	
...NITZSCHACEAE				
D ...NITZSCHIA		71	22	
...SURIPELLACEAE				
....SURIPELLA		13	4	
	TOTALS	270	82	3.048=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...OSCILLATORIALES	FILAMENTOUS			
...RIVULARIACEAE				
....RAPHIIDIOPSIS		13	4	
	TOTALS	13	4	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 15%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.856

CLASS 0.856
 ORDER 1.286
 FAMILY 3.153
 GENERA 3.463

MISSOURI RIVER MAIN STEM

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06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 14, 1976
1515 HOURS

IDENTIFICATION OF PHYTOPLANKTON

490 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...VOLVOCALES				
...PHACOTACEAE				
....PHACOTUS		6	1	
	TOTALS	6	1	0.000=DIVERSITY
CHRYSDOPHYTA	DIATOMS			
..BACILLARIOPHYCEAE	CENTRIC			
...CENTRALES				
...COSCINODISCEAE				
....CYCLOTELLA		50	10	
....MELOSIRA		22	4	
....STEPHANODISCUS		6	1	
..PENNALES	PENNALE			
...ACHNANTHACEAE				
....ACHNANTHES		17	3	
L ...RHOICOSPHEA			0	
...CYMBELLACEAE				
....CYMBELLA		22	4	
...DIATOMACEAE				
....DIATOMA		55	11	
...FRAGILARIACEAE				
D ...FRAGILARIA		130	27	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		55	11	
...NITZSCHACEAE				
D ...NITZSCHIA		120	24	
...SURIRELLACEAE				
....SURIRELLA		6	1	
	TOTALS	480	96	2.788=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
....CRYPTOMONAS		6	1	
	TOTALS	6	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.178
 CLASS 0.178
 ORDER 0.800
 FAMILY 2.714
 GENERA 2.903

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 10, 1976
1440 HOURS

IDENTIFICATION OF PHYTOPLANKTON

250 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHRYSTOPHYTA				
•BACILLARIOPHYCEAE	DIATOMS			
••PENNALES	PENNATE			
•••ACHNANTHACEAE				
••••ACHNANTHES		11	4	
••••COCCONEIS		11	4	
••••RHODOSPHENIA		32	13	
•••DIATOMACEAE				
••••DIATOMA		32	13	
••••NAVICULACEAE	NAVICULOID			
••••NAVICULA		21	9	
••••PINNULARIA		11	4	
•••NITZSCHIA				
D ••••NITZSCHIA		120	48	
	TOTALS	240	95	2.207=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
•EUGLENOPHYCEAE				
••EUGLENALES				
•••EUGLENACEAE				
••••TRACHELOMONAS		11	4	
	TOTALS	11	4	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.258

CLASS 0.258

ORDER 0.258

FAMILY 1.951

GENERA 2.369

MISSOURI RIVER MAIN STEM

431

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 8, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

310 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		8	3	
DDICTYOSPHAERIUM		62	20	
...SCENEDESMACEAE				
...CRUCIGENIA		31	10	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		16	5	
	TOTALS	120	38	1.640=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCAEAE				
...CYCLOTELLA		8	3	
...MELOSIRA		16	5	
...PENNATES	PENNATE			
...ACHNANTHACEAE				
...RHOICOSPHENIA		23	8	
...CYMBELLACEAE				
...CYMBELLA		8	3	
...DIATOMACEAE				
...DIATOMA		8	3	
...FRAGILARIACEAE				
...SYNEDRA		23	8	
...GOMPHONEMACEAE				
...GOMPHONEMA		8	3	
DNITZSCHIAEAE				
....NITZSCHIA		86	28	
	TOTALS	180	61	2.369=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....LEPOTINCLIS		16	5	
	TOTALS	16	5	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.206
CLASS 1.206
ORDER 1.739
FAMILY 3.001
GENERA 3.183

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Feb. 9	28	1.3	1.1	0.1	0.1	2,000	Polyethylene strip

HEART RIVER BASIN

06343500 EDWARD ARTHUR PATTERSON LAKE NEAR DICKINSON, ND

LOCATION.--Lat 46°52'11", long 102°49'37", in NE¼NW¼SW¼ sec.8, T.139 N., R.96 W., Stark County, Hydrologic Unit 10130202, at left edge of spillway, 2 mi (3 km) southwest of Dickinson.

DRAINAGE AREA.--400 mi² (1,040 km²), approximately.

PERIOD OF RECORD.--May 1950 to current year. Prior to October 1958, published as Dickinson Reservoir near Dickinson.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) above mean sea level (levels by Bureau of Reclamation); gage readings have been reduced to elevations above mean sea level. Prior to Jan. 4, 1961, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began May 23, 1950; dam completed Aug. 9, 1950. Total capacity is 24,600 acre-ft (30.3 hm³) at maximum pool, elevation, 2,428.9 ft (740.329 m). Dead storage is 1,000 acre-ft (1.23 hm³) below lowest point of outlet, elevation, 2,404.0 ft (732.739 m). Conservation storage is 5,600 acre-ft (6.90 hm³) between elevation, 2,404.0 ft (732.739 m) and 2,416.5 ft (736.549 m), crest of spillway. Figures given herein represent total contents based on capacity table dated Jan. 1, 1965. The reservoir is for flood control, irrigation and municipal supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 11,180 acre-ft (13.8 hm³) May 9, 1970, elevation, 2,420.81 ft (737.863 m); minimum since initial filling of reservoir, 2,950 acre-ft (3.64 hm³) Mar. 16, 1962, elevation, 2,410.41 ft (734.693 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,040 acre-ft (8.68 hm³) June 7, elevation, 2,416.95 ft (736.686 m); minimum, 4,560 acre-ft (5.62 hm³) Sept. 30, elevation 2,413.44 ft (735.617 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	2,414.18	5,010	--
Oct. 31-----	2,414.22	5,040	+30
Nov. 30-----	2,414.22	5,040	0
Dec. 31-----	2,414.25	5,050	+10
CAL YR 1975-----	--	--	+630
Jan. 31-----	2,414.92	4,840	-210
Feb. 29-----	2,416.68	6,820	+1,980
Mar. 31-----	2,416.61	6,770	-50
Apr. 30-----	2,416.56	6,720	-50
May 31-----	2,415.62	5,990	-730
June 30-----	2,416.62	6,770	+780
July 31-----	2,415.40	5,830	-940
Aug. 31-----	2,414.03	4,910	-920
Sept. 30-----	2,413.44	4,560	-350
WTR YR 1976-----	--	--	-450

HEART RIVER BASIN

433

06344600 GREEN RIVER NEAR NEW HRADEC, ND

LOCATION.--Lat 47°01'40", long 103°03'10", Billings County, Hydrologic Unit 10130202, on left bank below county highway bridge on line between secs.13 and 14, T.141 N., R.98 W., 8 mi (13 km) west of New Hradec.

DRAINAGE AREA.--152 mi² (394 km²), approximately.

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

GAGE.--Water-stage recorder.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--12 years, 18.2 ft³/s (0.515 m³/s), 13,190 acre-ft/yr (16.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,120 ft³/s (117 m³/s) May 9, 1970, gage height, 16.88 ft (5.145 m); maximum gage height, 16.93 ft (5.160 m) July 5, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 26	--	130 3.68	-- --	Mar. 19	1200	*265 7.50	*7.58 2.31

Minimum daily, 0.04 ft³/s (0.001 m³/s) Aug. 16-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	1.6	.82	.92	1.5	30	6.5	3.1	1.6	2.1	.10	.10
2	1.0	1.5	.80	.90	1.5	15	5.9	2.7	1.4	2.0	.10	.18
3	.95	1.5	.80	.85	1.5	10	5.7	2.3	1.2	1.6	.08	.23
4	.95	1.5	.80	.80	1.0	8.0	5.7	2.1	1.3	1.2	.35	.20
5	.90	1.5	.85	.75	.95	5.0	5.7	1.9	4.5	.98	.56	.20
6	.90	1.5	1.0	.70	.90	5.0	5.4	1.7	4.0	.98	.35	.32
7	.90	1.5	1.1	.70	.90	6.0	5.2	1.6	4.0	.73	.20	.32
8	.85	1.6	1.2	.70	1.0	7.0	4.7	2.0	3.5	.73	.23	.38
9	.85	1.5	1.4	.65	1.5	8.0	4.5	2.5	2.5	.64	.26	.18
10	.80	1.5	1.5	.65	2.0	8.0	4.5	2.2	1.5	.78	.23	.08
11	.80	1.5	1.5	.65	2.0	7.5	4.3	1.8	10	.78	.12	.18
12	.75	1.5	1.5	.65	2.5	5.0	4.1	2.5	8.0	3.9	.16	.23
13	1.0	1.4	1.5	.65	5.0	5.5	4.1	3.1	1.5	2.9	.32	.16
14	2.5	1.4	1.5	.65	10	5.5	3.9	3.4	10	1.2	.20	.26
15	2.4	1.4	1.4	.70	30	6.0	3.6	2.9	15	.73	.08	.29
16	2.3	1.4	1.3	.80	45	8.0	4.5	2.1	12	.50	.04	.41
17	2.1	1.4	1.2	1.0	65	25	9.9	1.8	10	.50	.04	.41
18	2.0	1.4	1.2	1.2	55	125	11	1.5	8.0	.29	.04	.50
19	1.8	1.4	1.2	1.3	40	230	9.9	1.5	7.0	.18	.04	.83
20	1.6	1.4	1.2	1.3	35	90	8.4	1.5	6.0	.14	.04	.68
21	1.5	1.4	1.2	1.3	30	45	7.4	1.6	5.0	.16	.06	.53
22	1.5	1.3	1.2	1.4	25	35	6.2	1.7	4.5	.23	.10	.47
23	1.5	1.2	1.2	1.4	35	20	6.5	1.5	4.0	.23	.08	.26
24	1.5	1.2	1.2	1.4	45	18	14	1.4	6.0	.18	.06	.29
25	1.4	1.2	1.2	1.0	90	20	16	1.5	5.9	.20	.06	.26
26	1.4	.98	1.2	.95	115	15	15	2.0	9.9	.14	.06	.26
27	1.5	.94	1.2	.90	95	10	11	2.2	8.0	.12	.08	.32
28	1.6	.88	1.2	.95	55	8.0	6.5	1.7	5.4	.10	.08	.35
29	1.5	.84	1.2	1.0	45	7.0	4.7	1.7	4.3	.18	.10	.29
30	1.4	.82	1.2	1.5	---	6.6	3.7	1.9	3.7	.14	.12	.35
31	1.6	---	1.2	1.5	---	7.0	---	1.9	---	.14	.08	---
TOTAL	42.65	40.16	36.97	29.82	837.25	801.1	208.5	63.3	363.2	24.68	4.42	9.52
MEAN	1.38	1.34	1.19	.96	28.9	25.8	6.95	2.04	12.1	.80	.14	.32
MAX	2.5	1.6	1.5	1.5	115	230	16	3.4	45	3.9	.56	.83
MIN	.75	.82	.80	.65	.90	5.0	3.6	1.4	1.2	.10	.04	.08
AC-FT	85	80	73	59	1660	1590	414	126	720	49	8.8	19
CAL YR 1975	TOTAL	11461.87	MEAN	31.4	MAX	1550	MIN	.03	AC-FT	22730		
WTR YR 1976	TOTAL	2461.57	MEAN	6.73	MAX	230	MIN	.04	AC-FT	4880		

HEART RIVER BASIN

06345500 HEART RIVER NEAR RICHARDTON, ND

LOCATION.--Lat 46°44'46", long 102°18'27", in NE¼ sec.29, T.138 N., R.92 W., Stark County, Hydrologic Unit 10130202, on right bank 5 ft (2 m) upstream from bridge on State Highway 8, 0.5 mi (0.8 km) downstream from Plum Creek, and 9.5 mi (15.3 km) south of Richardton.

DRAINAGE AREA.--1,240 mi² (3,210 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1903 to September 1922, April 1943 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1209: Drainage area. WSP 1239: 1906, 1918(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 2,153.67 ft (656.439 m) above mean sea level. May 18, 1903, to Sept. 30, 1922, nonrecording gage at 3 sites in 1 mi (2 km) reach below present site at different datums. Apr. 14, 1943, to July 7, 1947, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by Edward Arthur Patterson Lake (station 06343500) 59 mi (95 km) upstream.

AVERAGE DISCHARGE.--52 years, 103 ft³/s (2.917 m³/s), 74,620 acre-ft/yr (92.0 hm³/yr); median of yearly mean discharges, 96 ft³/s (2.72 m³/s), 69,600 acre-ft/yr (86 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,400 ft³/s (663 m³/s) Apr. 16, 1950, gage height, 28.05 ft (8.550 m), from high-water mark in gage well; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1938, reached a stage of about 26 ft (7.9 m), from information by local residents, discharge, 16,000 ft³/s (453 m³/s); flood of Mar. 25, 1943, reached a stage of 24.2 ft (7.38 m) from floodmarks, discharge, 11,700 ft³/s (331 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 760 ft³/s (21.5 m³/s) June 12; gage height, 9.03 ft (2.752 m); minimum daily discharge, 0.20 ft³/s (0.006 m³/s) Sept. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	19	13	17	30	186	59	39	12	49	2.0	.40
2	22	19	14	15	45	161	55	38	12	36	1.8	.40
3	16	19	14	12	40	147	53	32	11	26	1.8	.35
4	15	19	16	10	30	129	51	32	10	18	2.0	.30
5	15	20	18	9.5	30	106	51	30	10	15	2.6	.25
6	15	20	19	9.0	25	73	48	27	11	14	2.8	.20
7	14	19	18	8.5	20	65	47	26	80	13	2.2	.20
8	17	20	18	8.5	20	63	44	24	420	11	1.6	.25
9	17	20	17	8.5	30	70	42	23	264	8.2	1.6	.25
10	15	19	18	8.0	120	79	40	21	198	7.1	1.6	.25
11	17	20	18	8.0	139	85	39	21	147	5.6	2.0	.25
12	16	15	18	7.5	213	78	38	22	395	4.1	1.6	.25
13	16	20	17	7.5	280	69	37	24	144	4.1	1.6	.30
14	23	18	16	7.5	255	68	36	24	128	4.1	2.0	.30
15	26	17	14	7.5	253	80	35	27	93	3.0	2.2	.40
16	29	17	14	8.0	266	88	36	26	74	2.8	2.0	3.2
17	27	18	14	8.5	332	150	48	22	58	2.8	1.8	3.9
18	24	18	13	9.0	244	438	67	20	54	3.0	1.8	4.1
19	23	17	13	9.0	169	490	65	19	47	3.4	1.6	6.2
20	21	13	13	10	121	448	57	17	36	3.8	2.0	6.2
21	20	16	14	12	130	388	49	17	29	3.8	2.8	6.0
22	22	16	14	14	132	408	49	17	23	3.8	2.8	6.4
23	23	15	15	18	166	332	51	15	28	4.1	2.6	6.2
24	23	13	15	16	206	240	68	14	47	3.8	2.6	5.8
25	22	14	15	12	206	195	75	15	39	3.2	2.8	6.0
26	21	14	16	10	224	158	66	19	34	2.6	2.8	6.7
27	21	14	16	10	249	143	54	19	47	2.8	2.4	6.9
28	19	15	16	10	213	108	47	18	84	2.0	1.8	6.9
29	19	14	17	10	205	88	45	18	81	2.0	1.8	7.1
30	19	14	17	12	---	74	42	17	60	2.0	1.4	7.6
31	18	---	18	15	---	66	---	12	---	2.2	1.0	---
TOTAL	630	512	488	327.5	4393	5273	1494	695	2676	266.3	63.4	93.55
MEAN	20.3	17.1	15.7	10.6	151	170	49.8	22.4	89.2	8.59	2.05	3.12
MAX	35	20	19	18	332	490	75	39	420	49	2.8	7.6
MIN	14	13	13	7.5	20	63	35	12	10	2.0	1.0	.20
AC-FT	1250	1020	968	650	8710	10460	2960	1380	5310	528	126	186
CAL YR 1975 TOTAL	69238.60			MEAN 190	MAX 7650	MIN 2.0	AC-FT 137300					
WTR YR 1976 TOTAL	16911.75			MEAN 46.2	MAX 490	MIN .20	AC-FT 33540					

HEART RIVER BASIN

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06345500 HEART RIVER NEAR RICHARDTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-50, 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT										
01...	1045	36	2170	8.4	10.0	520	200	85	75	300
31...	1105	18	2030	8.1	4.0	520	160	89	72	280
DEC										
02...	1210	14	2700	8.1	.0	650	200	120	85	320
JAN										
05...	1235	9.4	2700	7.9	.5	680	180	130	86	310
FEB										
02...	1255	39	2170	8.1	.0	540	200	110	64	250
MAR										
08...	1335	63	1280	8.3	.0	300	90	60	36	140
APR										
01...	1120	61	1340	8.3	7.0	320	120	64	39	130
MAY										
03...	1145	36	1900	8.5	10.0	570	240	100	78	230
31...	1040	13	2060	8.4	20.0	520	180	92	71	290
JUL										
01...	1045	51	1520	8.6	20.0	330	37	62	43	220
AUG										
06...	1120	2.9	1900	8.2	20.5	420	64	74	57	300
SEP										
01...	1515	.50	2000	8.6	25.0	450	86	76	63	340

HEART RIVER BASIN

06345500 HEART RIVER NEAR RICHARDTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITAS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT									
01...	55	5.7	8.6	398	0	326	2.5	820	23
31...	54	5.4	6.9	434	0	356	5.5	750	17
DEC									
02...	51	5.5	8.2	547	0	449	7.0	880	21
JAN									
05...	49	5.2	8.2	605	0	496	12	850	19
FEB									
02...	50	4.7	10	414	0	340	5.3	720	14
MAR									
08...	50	3.5	8.0	253	0	208	2.0	400	6.8
APR									
01...	46	3.2	6.7	240	0	197	1.9	400	5.8
MAY									
03...	46	4.2	7.5	400	0	328	2.0	740	13
31...	54	5.5	8.8	415	0	340	2.6	810	14
JUL									
01...	58	5.3	6.7	360	0	295	1.4	500	14
AUG									
06...	60	6.4	10	415	9	355	4.4	680	13
SEP									
01...	62	7.0	11	418	12	363	1.8	810	16

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT									
01...	.2	3.4	1600	1510	2.18	156	200	60	10
31...	.2	5.0	1490	1440	2.03	72.5	400	20	20
DEC									
02...	.4	4.4	1700	1710	2.31	64.3	320	60	80
JAN									
05...	.6	8.9	1790	1710	2.44	45.5	400	120	70
FEB									
02...	.2	5.1	1430	1390	1.95	151	200	20	1100
MAR									
08...	.1	4.4	823	785	1.12	140	800	540	40
APR									
01...	.1	7.1	791	773	1.08	130	80	170	60
MAY									
03...	.4	3.9	1390	1370	1.89	135	0	60	70
31...	.3	6.8	1470	1500	2.00	51.6	40	120	80
JUL									
01...	.4	6.1	1070	1030	1.46	147	300	100	10
AUG									
06...	.2	4.6	1370	1360	1.86	10.7	420	100	80
SEP									
01...	.3	5.0	1510	1540	2.05	2.04	450	40	40

HEART RIVER BASIN

437

06346000 LAKE TSCHIDA NEAR GLEN ULLIN, ND

LOCATION.--Lat 46°35'48", long 101°48'34", in SW¼NE¼ sec.13, T.136 N., R.89 W., Grant County, 10 mi (16 km) upstream from Heart Butte Creek, 14 mi (23 km) north of Elgin.

DRAINAGE AREA.--1,710 mi² (4,430 km²), approximately.

PERIOD OF RECORD.--August 1949 to current year. Prior to October 1957, published as Heart Butte Reservoir near Glen Ullin.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level, levels by Bureau of Reclamation.

REMARKS.--Reservoir is formed by earthfill dam; storage began Sept. 29, 1949; dam completed Dec. 9, 1949. Total capacity is 430,000 acre-ft (530 hm³) at maximum pool, elevation, 2,118.2 ft (645.627 m). Dead storage is 6,750 acre-ft (8.32 hm³) below lowest point of outlet, elevation, 2,030.0 ft (618.744 m). Active conservation storage is 69,030 acre-ft (85.1 hm³) between elevation 2,030.0 ft (618.744 m) and 2,064.5 ft (629.260 m), crest of spillway. Figures given herein represent total contents. Controlled releases are through 4 by 5 ft (1.219 by 1.524 m) slide gate. The spillway is uncontrolled "glory hole" type and discharges through a conduit 14 ft (4.27 m) in diameter. The reservoir is for flood control, irrigation, and incidental water supply.

COOPERATION.--Record of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 174,000 acre-ft (215 hm³) Apr. 9, 1952, elevation, 2,086.23 ft (635.883 m); minimum since first reaching spillway level, 40,840 acre-ft (50.4 hm³) Mar. 6, 1962, elevation, 2,052.5 ft (625.60 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 80,160 acre-ft (98.8 hm³) Mar. 26, elevation, 2,065.77 ft (629.647 m); minimum, 55,540 acre-ft (68.5 hm³) Sept. 30, elevation, 2,058.10 ft (627.309 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	2,060.85	63,870	--
Oct. 31-----	2,060.70	63,400	-470
Nov. 30-----	2,060.81	63,740	+340
Dec. 31-----	2,060.64	63,210	-530
CAL YR 1975-----	--	--	+11,120
Jan. 31-----	2,060.55	62,930	-280
Feb. 29-----	2,063.53	72,520	+9,590
Mar. 31-----	2,065.51	79,250	+6,730
Apr. 30-----	2,065.29	78,490	-760
May 31-----	2,064.63	76,230	-2,260
June 30-----	2,064.57	76,020	-210
July 31-----	2,062.20	68,160	-7,860
Aug. 31-----	2,059.80	60,620	-7,540
Sept. 30-----	2,058.10	55,540	-5,080
WTR YR 1976-----	--	--	-8,330

HEART RIVER BASIN

06348000 HEART RIVER NEAR LARK, ND

LOCATION.--Lat 46°36'37", long 101°22'54", in NW¼NW¼SW¼ sec.9, T.136 N., R.85 W., Grant County, Hydrologic Unit 10130203, on right bank 20 ft (6 m) downstream from county highway bridge, 0.6 mi (1.0 km) downstream from Big Muddy Creek, and 10 mi (16 km) north of Lark.

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

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,802.83 ft (549.503 m) above mean sea level (levels by Corps of Engineers). Prior to Nov. 16, 1948, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by Lake Tschida 45 mi (72 km) upstream (station 06346000).

AVERAGE DISCHARGE.--30 years, 214 ft³/s (6.060 m³/s), 155,000 acre-ft/yr (191 hm³/yr); median of yearly mean discharges, 170 ft³/s (4.81 m³/s), 123,000 acre-ft/yr (150 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft³/s (827 m³/s) Apr. 17, 1950, gage height, 20.70 ft (6.309 m), from rating curve extended above 11,000 ft³/s (312 m³/s) on basis of contracted-opening measurement of peak flow; no flow Jan. 16 to Mar. 4, 1950, Jan. 17-26, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 625 ft³/s (17.7 m³/s) Apr. 26, gage height, 5.30 ft (1.615 m); maximum gage height observed, 6.50 ft (1.981 m) Mar. 20, backwater from ice; minimum discharge, 11 ft³/s (0.31 m³/s) Nov. 12, gage height, 2.14 ft (0.652 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	22	30	32	60	90	236	181	44	110	127	59
2	47	22	29	32	60	90	218	157	42	100	127	56
3	47	22	29	30	60	80	208	149	37	92	124	62
4	46	22	34	30	60	70	198	133	56	63	118	57
5	46	21	35	28	70	60	183	115	68	59	97	69
6	45	21	35	25	80	50	175	107	137	53	96	70
7	45	21	34	25	80	50	160	98	139	47	91	58
8	45	20	33	25	80	50	150	93	141	62	84	70
9	42	20	33	25	90	50	142	82	133	63	82	74
10	42	20	34	25	90	40	131	77	127	69	78	79
11	39	20	33	25	90	40	128	70	126	82	87	83
12	40	18	32	28	100	35	120	65	209	85	79	94
13	44	24	30	28	100	30	112	60	248	95	79	85
14	44	22	29	28	100	30	112	62	181	84	85	95
15	46	22	28	28	120	40	131	57	212	82	86	83
16	44	21	27	28	200	45	130	56	191	76	89	59
17	43	20	27	28	230	50	182	55	138	74	85	59
18	43	20	30	30	220	140	251	50	137	73	88	58
19	45	20	35	30	210	350	204	40	132	74	91	57
20	45	22	35	32	200	500	188	37	120	69	80	53
21	46	34	34	35	180	480	175	37	114	67	70	53
22	43	36	32	36	160	460	166	36	112	58	68	57
23	33	36	32	38	150	480	175	35	139	66	76	59
24	29	35	32	40	140	460	276	35	171	67	65	60
25	37	35	32	38	130	450	515	29	132	66	47	60
26	31	34	32	36	130	400	555	42	101	68	47	68
27	26	34	32	40	140	360	368	58	192	76	42	59
28	24	33	33	50	120	330	267	56	152	263	45	40
29	24	33	33	50	100	300	227	48	134	151	42	36
30	23	31	33	50	---	292	197	43	124	126	47	33
31	23	---	33	60	---	257	---	44	---	124	57	---
TOTAL	1224	761	990	1035	3550	6159	6280	2207	3989	2644	2479	1905
MEAN	39.5	25.4	31.9	33.4	122	199	209	71.2	133	85.3	80.0	63.5
MAX	47	36	35	60	230	500	555	181	248	263	127	85
MIN	23	18	27	25	60	30	112	29	37	47	42	33
AC-FT	2430	1510	1960	2050	7040	12220	12460	4380	7910	5240	4920	3780
CAL YR 1975	TOTAL	135501.0	MEAN	371	MAX	7230	MIN	1.0	AC-FT	268800		
WTR YR 1976	TOTAL	33223.0	MEAN	90.8	MAX	555	MIN	18	AC-FT	65900		

HEART RIVER BASIN

439

06348490 SWEETBRIAR RESERVOIR NEAR JUDSON, ND

LOCATION.--Lat 46°51'55", long 101°15'35", in SE¼SE¼ sec.10, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, on south shore of reservoir 700 ft (210 m) west of spillway and 2.5 mi (4.0 km) northeast of Judson.

DRAINAGE AREA.--152 mi² (394 km²).

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,900.00 ft (579.120 m) above mean sea level; gage readings have been reduced to elevations above mean sea level.

REMARKS.--Reservoir is formed by an earth-fill dam on Interstate 94; storage began April 1964. Capacity at spillway elevation, 1,940.00 ft (591.312 m) is 3,320 acre-ft (4.09 hm³). Controlled releases are through a 12-inch (0.305 m) pipe. The spillway is an uncontrolled drop-inlet type. Figures herein represent total contents based on capacity table dated June 13, 1967. The reservoir is for recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,220 acre-ft (6.46 hm³) Apr. 7, 1969, elevation, 1,944.97 ft (592.827 m); minimum since initial filling of reservoir, 2,500 acre-ft (3.08 hm³) Dec. 8, 1974, elevation, 1,936.93 ft (590.376 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,680 acre-ft (4.54 hm³) Mar. 19, elevation, 1,941.19 ft (591.675 m); minimum, 2,880 acre-ft (3.55 hm³) Sept. 29, 30, elevation, 1,938.38 ft (590.818 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	*1,938.80	2,990	--
Oct. 31-----	*1,938.75	2,980	-10
Nov. 30-----	1,938.75	2,980	0
Dec. 31-----	1,939.02	3,050	+70
CAL YR 1975-----	--	--	+540
Jan. 31-----	1,939.27	3,120	+70
Feb. 29-----	1,939.88	3,290	+170
Mar. 31-----	1,940.13	3,360	+70
Apr. 30-----	1,940.11	3,350	-10
May 31-----	1,939.83	3,270	-80
June 30-----	1,940.07	3,340	+70
July 31-----	1,939.48	3,170	-170
Aug. 31-----	1,938.80	2,990	-180
Sept. 30-----	1,938.38	2,880	-110
WTR YR 1976-----	--	--	-110

* Estimated

HEART RIVER BASIN

06348500 SWEETBRIAR CREEK NEAR JUDSON, ND

LOCATION.--Lat 46°51'06", long 101°15'10", in SW¼ sec.14, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, on right bank 80 ft (24 m) downstream from bridge on county highway, 2 mi (3 km) northeast of Judson, and 16 mi (26 km) upstream from mouth.

DRAINAGE AREA.--157 mi² (407 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 1439: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,886.42 ft (574.981 m) above mean sea level. Prior to July 20, 1955, nonrecording gage 80 ft (24 m) upstream at same datum.

REMARKS.--Records fair. Flow regulated by Sweetbriar Reservoir (station 06348490) 2 mi (3 km) upstream since April 1964.

AVERAGE DISCHARGE.--25 years, 10.6 ft³/s (0.300 m³/s), 7,680 acre-ft/yr (9.47 hm³/yr); median of yearly mean discharges, 8.4 ft³/s (0.24 m³/s), 6,100 acre-ft/yr (7.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s (119 m³/s) Apr. 7, 1969, gage height, 11.28 ft (3.438 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 12.5 ft (3.81 m) Apr. 17, 1950, from floodmarks at present site, discharge, 5,910 ft³/s (167 m³/s) from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 328 ft³/s (9.29 m³/s) Mar. 19, gage height, 4.49 ft (1.369 m); minimum, 0.10 ft³/s (0.003 m³/s) July 23, gage height, 1.04 ft (0.317 m), construction upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	.38	.46	.38	.38	.26	7.0	7.2	.52	3.6	.30	.38
2	.38	.38	.46	.38	.34	.26	7.2	4.3	.46	2.5	2.7	.38
3	.38	.38	.46	.38	.34	.30	6.2	2.2	.46	1.7	.52	.42
4	.38	.38	.46	.38	.34	.30	4.8	2.4	.46	1.3	.86	.38
5	.52	.38	.46	.38	.34	.30	4.6	2.6	.68	.96	.46	.34
6	.46	.38	.42	.38	.34	.30	4.3	2.1	.76	.96	.42	.34
7	.46	.38	.42	.38	.34	.30	3.7	1.3	.52	.86	.34	.30
8	.46	.38	.42	.38	.34	.38	3.2	.96	.52	.52	.38	.34
9	.52	.38	.42	.38	.38	.50	2.8	1.4	.52	.46	.38	.30
10	.52	.38	.42	.38	.38	6.0	4.3	1.1	.46	.60	.38	.34
11	.52	.38	.42	.38	.38	6.0	2.1	.60	.72	.60	.38	.34
12	.52	.38	.42	.38	.42	5.0	1.7	2.5	1.3	.46	.38	.34
13	.46	.38	.42	.38	.38	4.0	1.9	1.2	.68	.68	.42	.38
14	.52	.34	.42	.38	.38	3.5	5.6	.85	1.1	.76	.42	.38
15	.46	.34	.42	.34	.42	3.5	3.2	1.4	1.4	.52	.38	.38
16	.46	.34	.38	.34	.50	3.5	6.1	.68	.86	.60	.38	.42
17	.46	.34	.42	.34	.42	6.0	21	.42	1.7	.52	.38	.42
18	.46	.38	.42	.34	.38	32	11	.38	1.4	.52	.38	.52
19	.42	.38	.42	.34	.34	260	18	.38	1.1	.76	.34	.52
20	.42	.34	.42	.34	.34	194	16	.38	1.1	.60	.30	.46
21	.42	.38	.42	.34	.30	80	11	.42	1.8	.46	.26	.46
22	.52	.38	.38	.34	.30	51	9.5	.38	1.3	.42	.26	.46
23	.46	.42	.38	.34	.38	36	12	.34	2.8	.36	.26	.46
24	.38	.38	.38	.34	.42	29	29	.34	4.6	.60	.26	.46
25	.30	.46	.38	.38	.38	27	77	.34	3.2	.52	.30	.46
26	.34	.46	.38	.38	.34	25	52	.52	10	.52	.30	.46
27	.34	.46	.38	.38	.34	21	29	.86	14	.48	.22	.46
28	.34	.46	.38	.34	.30	16	16	.52	10	2.6	.26	.46
29	.34	.46	.38	.38	.26	14	10	.46	6.6	1.8	.26	.42
30	.34	.46	.38	.38	---	9.2	8.2	.46	4.6	2.9	.30	.38
31	.38	---	.38	.38	---	8.0	---	.46	---	.52	.38	---
TOTAL	13.32	11.72	12.78	11.34	10.50	842.60	388.4	39.45	75.62	30.66	13.56	12.16
MEAN	.43	.39	.41	.37	.36	27.2	12.9	1.27	2.52	.99	.44	.41
MAX	.52	.46	.46	.38	.50	260	77	7.2	14	3.6	2.7	.52
MIN	.30	.34	.38	.34	.26	.26	1.7	.34	.46	.36	.22	.30
AC-FT	26	23	25	22	21	1670	770	78	150	61	27	24
CAL YR 1975	TOTAL	6941.07	MEAN	19.0	MAX	1000	MIN	.20	AC-FT	13770		
WTR YR 1976	TOTAL	1462.11	MEAN	3.99	MAX	260	MIN	.22	AC-FT	2900		

HEART RIVER BASIN

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06348500 SWEETBRIAR CREEK NEAR JUDSON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT 22...	1300	.62	1520	8.2	9.0	300	0	51	42	250
NOV 28...	1500	.45	1780	8.0	1.0	380	0	73	48	280
DEC 23...	1300	.36	1720	8.1	.5	340	0	66	43	250
JAN 27...	0915	.40	1400	7.7	.0	320	0	65	38	250
FEB 20...	0900	.32	900	7.9	1.0	240	0	50	28	170
MAR 30...	1300	9.0	460	8.0	8.0	110	0	20	15	63
MAY 20...	1430	.40	1000	--	20.0	190	0	39	23	170
JUN 21...	1000	2.9	1320	8.4	22.0	220	0	39	30	240
JUL 22...	0830	.48	1000	8.5	22.5	180	0	28	27	220
AUG 26...	1200	.35	1220	8.4	24.0	160	0	24	24	250
SEP 20...	1600	.49	1600	8.3	18.0	240	0	30	40	320

HEART RIVER BASIN

06348500 SWEETBRIAR CREEK NEAR JUDSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT									
22...	64	6.3	5.1	594	0	487	6.0	350	4.8
NOV									
28...	61	6.3	5.1	721	0	591	12	410	5.2
DEC									
23...	61	5.9	4.6	667	0	547	8.5	350	4.1
JAN									
27...	63	6.1	3.8	649	0	532	21	330	3.9
FEB									
20...	60	4.8	5.3	440	0	361	8.9	250	3.7
MAR									
30...	53	2.6	7.4	163	0	134	2.6	100	2.9
MAY									
20...	65	5.3	7.1	409	0	336	--	230	5.6
JUN									
21...	70	7.0	5.3	521	6	437	3.4	320	3.6
JUL									
22...	72	7.1	6.6	456	8	387	2.4	250	4.3
AUG									
26...	76	8.6	7.6	439	31	412	3.2	280	6.7
SEP									
20...	74	9.0	7.2	569	37	528	5.2	390	6.1

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT									
22...	.7	5.7	1040	1010	1.42	1.74	320	120	20
NOV									
28...	.6	7.9	1180	1190	1.61	1.43	240	80	50
DEC									
23...	.9	9.5	1100	1060	1.50	1.07	440	0	170
JAN									
27...	.8	9.1	1060	1020	1.44	1.15	320	0	150
FEB									
20...	.5	4.3	768	733	1.04	.66	1000	120	890
MAR									
30...	.1	4.2	325	297	.44	7.90	80	330	20
MAY									
20...	.4	2.9	688	682	.94	.74	0	480	20
JUN									
21...	.8	6.1	881	911	1.20	6.90	420	40	40
JUL									
22...	.3	5.6	775	778	1.05	1.00	1200	100	10
AUG									
26...	.5	2.5	828	844	1.13	.78	260	150	40
SEP									
20...	.7	3.5	1100	1120	1.50	1.46	640	100	40

HEART RIVER BASIN

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06349000 HEART RIVER NEAR MANDAN, ND

LOCATION.--Lat 46°50'02", long 100°58'27", in NW¼NE¼ sec.25, T.139 N., R.82 W., Morton County, Hydrologic Unit 10130203, 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1924, March 1928 to June 1933, August 1937 to current year. Published as "at Sunny" 1924, 1928-33.

REVISED RECORDS.--WSP 926: 1938. WSP 1209: Drainage area. WSP 1239: 1924, 1928-29, 1948.

GAGE.--Water-stage recorder. Datum of gage is 1,638.70 ft (499.476 m) above mean sea level, and 1,623.03 ft (494.700 m) above Burlington Northern Railway datum. See WSP 1729 to 1917 for history of changes prior to June 30, 1958.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Lake Tschida (station 06346000) 105 mi (169 km) upstream since 1949. Some diversions above station.

AVERAGE DISCHARGE.--43 years (1928-32, 1937-76), 253 ft³/s (7.165 m³/s), 183,300 acre-ft/yr (226 hm³/yr); median of yearly mean discharges, 190 ft³/s (5.38 m³/s), 130,000 acre-ft/yr (170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,500 ft³/s (864 m³/s) Apr. 19, 1950, gage height, 23.64 ft (7.205 m); maximum gage height, 25.75 ft (7.849 m) Apr. 4, 1952, ice jam; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft³/s (36.8 m³/s) Mar. 24, gage height, 8.66 ft (2.640 m), minimum daily, 19 ft³/s (0.538 m³/s) Dec. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	48	24	23	37	130	300	258	66	142	108	54
2	62	48	24	23	38	120	276	238	66	122	97	54
3	61	47	26	23	40	110	261	220	64	108	101	53
4	61	47	26	23	42	100	250	202	58	103	101	53
5	60	46	26	24	45	95	228	185	54	101	94	53
6	58	45	28	24	48	90	210	168	50	74	108	53
7	58	44	28	24	48	85	195	160	68	61	86	52
8	57	42	29	24	48	80	178	152	120	55	84	52
9	58	42	30	24	54	75	165	140	125	50	76	52
10	57	40	31	24	55	75	155	130	125	48	74	52
11	60	40	30	24	56	70	142	118	120	53	74	52
12	57	38	29	24	60	70	138	99	145	54	70	52
13	57	38	28	24	62	75	128	105	222	67	76	51
14	58	37	28	24	70	85	118	101	240	79	74	51
15	58	36	26	25	72	85	110	103	261	82	72	51
16	57	36	25	25	80	90	135	105	240	76	71	50
17	57	35	24	26	410	90	202	94	220	71	71	50
18	58	35	23	26	500	280	200	88	182	66	76	80
19	56	34	22	26	500	560	261	84	150	66	78	70
20	57	33	21	27	430	800	264	76	140	63	76	66
21	58	33	20	28	380	740	230	71	132	61	76	64
22	60	33	20	28	320	800	205	68	115	60	67	62
23	60	32	19	28	280	820	250	64	132	53	61	60
24	62	31	19	30	240	950	264	62	160	49	56	60
25	54	30	20	33	210	1100	336	61	175	46	61	60
26	49	28	20	35	200	690	528	60	180	48	68	64
27	48	26	20	33	180	490	648	61	150	51	58	71
28	53	25	20	30	160	422	474	60	140	52	52	73
29	50	25	21	32	140	398	342	78	182	54	54	71
30	49	25	21	35	---	362	291	79	162	180	54	55
31	49	---	22	37	---	330	---	71	---	132	54	---
TOTAL	1760	1099	750	836	4805	10267	7484	3561	4244	2327	2328	1741
MEAN	56.8	36.6	24.2	27.0	166	331	249	115	141	75.1	75.1	58.0
MAX	62	48	31	37	500	1100	648	258	261	180	108	80
MIN	48	25	19	23	37	70	110	60	50	46	52	50
AC-FT	3490	2180	1490	1660	9530	20360	14840	7060	8420	4620	4620	3450
CAL YR 1975	TOTAL	160084.0	MEAN 439	MAX 8200	MIN	3.0	AC-FT 317500					
WTR YR 1976	TOTAL	41202.0	MEAN 113	MAX 1100	MIN	19	AC-FT 81720					

HEART RIVER BASIN

06349000 HEART RIVER NEAR MANDAN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-50, 1971 to current year.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: July 1972 to current year (weekly).

WATER TEMPERATURES: July 1972 to current year (weekly).

SUSPENDED SEDIMENT DISCHARGE: May 1948 to September 1976 (discontinued).

REMARKS.--Sediment records from May 1948 to September 1971 available from U.S. Corps of Engineers, Omaha, Neb.
Some chemical analyses furnished by North Dakota State Water Commission.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS (1972-76): Maximum daily mean, 3,460 mg/L Apr. 30, 1975; minimum daily mean, 1 mg/L Feb. 6 to Mar. 10, 1972.

SEDIMENT LOADS (1972-76): Maximum daily, 76,600 tons (64,500 tonnes) Apr. 30, 1975; minimum daily, 0.03 ton (0.03 tonne) Feb. 8 to Mar. 9, 1972.

EXTREMES FOR CURRENT YEAR. - -

SEDIMENT CONCENTRATIONS: Maximum daily mean, 390 mg/L Mar. 26; minimum daily mean, 20 mg/L July 7-10.

SEDIMENT LOADS: Maximum daily, 802 tons (728 tonnes) Mar. 25; minimum daily, 2.6 tons (2.4 tonnes) July 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
DATE	TIME			(UNITS)							
OCT 24...	1100	63	--	--	4.0	--	--	--	--	--	--
MAR 26...	1530	365	--	--	--	--	--	--	--	--	--
APR 02...	1000	279	1000	--	6.0	--	--	--	--	--	--
29...	1430	342	--	--	12.5	--	--	--	--	--	--
JUN 29...	1505	182	1200	--	23.0	--	--	--	--	--	--
JUL 23...	1000	54	1300	8.5	20.0	340	59	59	47	190	54
AUG 27...	1015	53	1340	--	17.0	--	--	--	--	--	--
SEP 24...	1020	59	--	--	10.0	--	--	--	--	--	--

[illegible]

HEART RIVER BASIN

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06349000 HEART RIVER NEAR MANDAN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)	SUS- PENDE SEDIMENT (MG/L)	SUS- PENDE SEDIMENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM
OCT 24...	--	--	--	--	--	--	--	--	--	--	--
MAR 26...	--	--	--	--	--	--	384	378	34	50	76
APR 02...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	127	117	61	68	81
JUN 29...	--	--	--	--	--	--	--	--	--	--	--
JUL 23...	946	1.28	137	1700	150	0	--	--	--	--	--
AUG 27...	--	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .125 MM	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 2.00 MM	BED MAT. FALL DIAM. % FINER THAN 4.00 MM
OCT 24...	--	--	--	2	4	65	96	99	100	--
MAR 26...	87	98	100	--	--	--	--	--	--	--
APR 02...	--	--	--	--	--	--	--	--	--	--
29...	90	100	--	2	5	74	95	98	99	100
JUN 29...	--	--	--	4	7	67	98	100	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--
AUG 27...	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	1	2	64	95	99	100	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

[illegible]

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

[illegible]

HEART RIVER BASIN

447

06349000 HEART RIVER NEAR MANDAN, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	61	50	8.2	48	60	7.8	24	76	4.9
2	62	42	7.0	48	60	7.8	24	74	4.8
3	61	34	5.6	47	58	7.4	26	74	5.2
4	61	30	4.9	47	54	6.9	26	72	5.1
5	60	30	4.9	46	50	6.2	26	70	4.9
6	58	30	4.7	45	48	5.8	28	68	5.1
7	58	30	4.7	44	46	5.5	28	66	5.0
8	57	30	4.6	42	50	5.7	29	64	5.0
9	58	30	4.7	42	54	6.1	30	62	5.0
10	57	30	4.6	40	58	6.3	31	60	5.0
11	60	36	5.8	40	62	6.7	30	62	5.0
12	57	34	5.2	38	64	6.6	29	64	5.0
13	57	34	5.2	38	66	6.8	28	66	5.0
14	58	34	5.3	37	68	6.8	28	68	5.1
15	58	34	5.3	36	70	6.8	26	72	5.1
16	57	32	4.9	36	72	7.0	25	76	5.1
17	57	32	4.9	35	74	7.0	24	78	5.1
18	58	30	4.7	35	76	7.2	23	80	5.0
19	56	28	4.2	34	76	7.0	22	76	4.5
20	57	26	4.0	33	78	6.9	21	72	4.1
21	58	24	3.8	33	78	6.9	20	68	3.7
22	60	22	3.6	33	80	7.1	20	64	3.5
23	60	22	3.6	32	80	6.9	19	60	3.1
24	62	22	3.7	31	80	6.7	19	58	3.0
25	54	24	3.5	30	80	6.5	20	60	3.2
26	49	28	3.7	28	78	5.9	20	60	3.2
27	48	34	4.4	26	78	5.5	20	58	3.1
28	53	40	5.7	25	78	5.3	20	58	3.1
29	50	46	6.2	25	76	5.1	21	56	3.2
30	49	52	6.9	25	76	5.1	21	56	3.2
31	49	56	7.4	---	---	---	22	56	3.3
TOTAL	1760	---	155.9	1099	---	195.3	750	---	134.6

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	23	54	3.4	37	48	4.8	130	36	13
2	23	54	3.4	38	50	5.1	120	36	12
3	23	54	3.4	40	50	5.4	110	34	10
4	23	52	3.2	42	50	5.7	100	34	9.2
5	24	52	3.4	45	50	6.1	95	32	8.2
6	24	52	3.4	48	48	6.2	90	32	7.8
7	24	50	3.2	48	48	6.2	85	30	6.9
8	24	50	3.2	48	48	6.2	80	30	6.5
9	24	48	3.1	54	46	6.7	75	28	5.7
10	24	48	3.1	55	46	6.8	75	28	5.7
11	24	46	3.0	56	46	7.0	70	26	4.9
12	24	46	3.0	60	44	7.1	70	26	4.9
13	24	46	3.0	62	44	7.4	75	28	5.7
14	24	44	2.9	70	42	7.9	85	30	6.9
15	25	44	3.0	72	42	8.2	85	30	6.9
16	25	44	3.0	80	40	8.6	90	32	7.8
17	26	44	3.1	410	32	35	90	32	7.8
18	26	44	3.1	500	30	40	280	100	76
19	26	44	3.1	500	30	40	560	200	302
20	27	44	3.2	430	30	35	800	250	540
21	28	44	3.3	380	32	33	740	280	559
22	28	42	3.2	320	32	28	800	270	583
23	28	42	3.2	280	34	26	820	230	509
24	30	42	3.4	240	34	22	950	210	539
25	33	44	3.9	210	34	19	1100	270	802
26	35	44	4.2	200	36	19	690	390	727
27	33	42	3.7	180	36	17	490	300	397
28	30	42	3.4	160	36	16	422	258	294
29	32	42	3.6	140	36	14	398	172	185
30	35	44	4.2	---	---	---	362	126	123
31	37	46	4.6	---	---	---	330	98	87
TOTAL	836	---	103.9	4805	---	449.4	10267	---	5852.9

HEART RIVER BASIN

06349000 HEART RIVER NEAR MANDAN, ND--Continued

SUSPENDED--SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	300	80	65	258	88	61	66	50	8.9
2	276	65	48	238	74	48	66	48	8.6
3	261	54	38	220	63	37	64	46	7.9
4	250	44	30	202	58	32	58	42	6.6
5	228	37	23	185	55	27	54	40	5.8
6	210	32	18	168	54	24	50	38	5.1
7	195	31	16	160	54	23	68	36	6.6
8	178	32	15	152	52	21	120	34	11
9	165	34	15	140	52	20	125	32	11
10	155	35	15	130	50	18	125	30	10
11	142	33	13	118	50	16	120	28	9.1
12	138	34	13	99	50	13	145	130	51
13	128	33	11	105	50	14	222	266	159
14	118	32	10	101	48	13	240	236	153
15	110	33	9.8	103	60	17	261	148	104
16	135	42	15	105	56	16	240	88	57
17	202	84	46	94	52	13	220	45	27
18	200	78	42	88	48	11	182	36	18
19	261	80	56	84	46	10	150	34	14
20	264	84	60	76	44	9.0	140	32	12
21	230	56	35	71	42	8.1	132	30	11
22	205	51	28	68	40	7.3	115	28	8.7
23	250	97	65	64	38	6.6	132	58	21
24	264	133	95	62	36	6.0	160	88	38
25	336	163	148	61	34	5.6	175	48	23
26	528	272	388	60	32	5.2	180	38	18
27	648	380	665	61	30	4.9	150	35	14
28	474	246	315	60	36	5.8	140	42	16
29	342	136	126	78	50	11	182	70	34
30	291	104	82	79	50	11	162	35	15
31	---	---	---	71	50	9.6	---	---	---
TOTAL	7484	---	2505.8	3561	---	524.1	4244	---	884.3

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	142	26	10	108	36	10	54	46	6.7
2	122	25	8.2	97	36	9.4	54	46	6.7
3	108	24	7.0	101	36	9.8	53	46	6.6
4	103	23	6.4	101	36	9.8	53	46	6.6
5	101	22	6.0	94	36	9.1	53	46	6.6
6	74	21	4.2	108	38	11	53	44	6.3
7	61	20	3.3	86	38	8.8	52	44	6.2
8	55	20	3.0	84	40	9.1	52	42	5.9
9	50	20	2.7	76	42	8.6	52	42	5.9
10	48	20	2.6	74	44	8.8	52	40	5.6
11	53	22	3.1	74	46	9.2	52	40	5.6
12	54	22	3.2	70	48	9.1	52	38	5.3
13	67	26	4.7	76	50	10	51	38	5.2
14	79	30	6.4	74	50	10	51	36	5.0
15	82	32	7.1	72	50	9.7	51	36	5.0
16	76	30	6.2	71	50	9.6	50	36	4.9
17	71	30	5.8	71	50	9.6	50	36	4.9
18	66	28	5.0	76	50	10	80	36	7.8
19	66	28	5.0	78	50	11	70	34	6.4
20	63	28	4.8	76	50	10	66	34	6.1
21	61	26	4.3	76	50	10	64	34	5.9
22	60	26	4.2	67	46	8.3	62	32	5.4
23	53	24	3.4	61	42	6.9	60	32	5.2
24	49	24	3.2	56	38	5.7	60	32	5.2
25	46	22	2.7	61	38	6.3	60	48	7.8
26	48	26	3.4	68	40	7.3	64	42	7.3
27	51	30	4.1	58	40	6.3	71	36	6.9
28	52	35	4.9	52	42	5.9	73	32	6.3
29	54	27	3.9	54	44	6.4	71	28	5.4
30	180	102	53	54	46	6.7	55	24	3.6
31	132	38	14	54	46	6.7	---	---	---
TOTAL	2327	---	205.8	2328	---	269.1	1741	---	178.3
YEAR	41202.0		11459.4						

MISSOURI RIVER MAIN STEM

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06349070 MISSOURI RIVER BELOW MANDAN, ND

LOCATION.--Lat 46°44'32", long 100°49'54", at midsection of west half sec.30, T.138 N., R.80 W., Morton County, Hydrologic Unit 10130102, on right bank 1 mi (2 km) south of Fort Lincoln State Park and 6 mi (10 km) south-east of Mandan at mile 1,309 (kilometer 2,106).

DRAINAGE AREA.--189,800 mi² (491,600 km²), approximately.

PERIOD OF RECORD.--September 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft (487.680 m) above mean sea level (Corps of Engineers bench mark).

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 29.71 ft (9.056 m) Mar. 17, 1972; minimum daily recorded, 17.40 ft (5.304 m) Apr. 1, 1968.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.75	24.48	24.76	26.34	27.96	26.32	---	24.25	---	25.13	25.12	23.84
2	25.78	24.42	24.79	25.00	28.01	27.69	24.32	24.18	---	25.15	24.82	23.59
3	25.79	24.32	24.75	24.06	27.99	28.55	24.41	24.16	---	25.16	24.65	23.33
4	25.73	24.53	24.75	23.60	27.76	28.74	25.15	24.20	---	25.12	24.70	23.43
5	25.76	24.35	24.52	23.80	27.53	29.01	25.47	24.19	---	24.90	24.98	23.34
6	25.76	24.20	24.40	24.70	27.76	29.24	24.93	24.15	---	24.78	25.05	22.97
7	25.79	24.45	24.67	25.08	27.79	29.13	24.38	24.09	---	25.00	24.65	23.01
8	25.75	---	24.41	25.08	27.89	28.97	24.25	24.11	---	25.11	24.34	22.87
9	25.77	---	24.38	25.50	27.92	---	24.26	24.12	---	25.12	24.22	22.90
10	25.81	---	24.74	26.06	27.82	---	24.28	24.14	---	25.11	24.19	22.84
11	25.53	---	24.69	26.44	27.50	---	24.21	24.17	---	25.12	24.19	22.93
12	25.23	---	24.83	26.48	27.36	---	24.23	24.51	---	25.03	24.32	22.91
13	24.96	---	24.91	26.36	27.41	---	24.23	24.93	---	25.04	24.34	22.94
14	24.85	---	25.00	26.47	27.37	---	24.23	25.06	---	25.10	24.36	22.79
15	24.49	---	25.48	26.57	27.52	---	24.24	25.13	---	25.08	24.40	22.70
16	24.31	---	25.62	26.73	27.63	---	24.29	25.15	---	25.08	24.32	22.89
17	24.22	---	25.40	26.87	27.71	---	24.33	25.14	---	25.09	24.28	22.90
18	24.24	---	27.35	26.95	27.79	---	24.29	25.17	---	25.10	24.20	22.82
19	24.20	---	---	27.06	27.83	---	24.28	25.19	---	25.13	24.11	22.94
20	24.12	---	28.40	27.06	27.76	---	24.31	25.19	---	25.13	24.03	22.93
21	24.16	---	28.35	27.13	27.58	---	24.29	25.20	---	25.12	23.98	22.86
22	24.08	---	28.08	27.28	27.65	---	24.34	25.21	---	25.12	23.72	---
23	24.14	---	27.78	27.55	27.79	---	24.35	25.20	---	25.11	23.25	---
24	24.21	---	27.82	27.55	27.95	---	24.41	25.20	---	25.09	23.62	23.39
25	24.15	---	27.88	27.59	27.92	---	24.28	25.25	25.19	25.11	23.62	23.32
26	24.03	---	27.90	27.62	26.82	---	24.32	25.32	25.18	25.12	23.68	23.33
27	23.87	---	27.98	27.61	25.44	---	24.38	---	25.17	25.12	23.66	23.39
28	23.99	---	28.10	27.70	24.98	---	24.35	---	25.16	25.18	23.74	23.38
29	24.05	---	28.05	27.80	25.55	---	24.31	---	25.14	25.14	23.64	23.22
30	24.01	---	27.52	27.92	---	---	24.28	---	25.13	25.12	23.79	23.22
31	24.17	---	27.22	28.01	---	---	---	---	---	25.12	23.65	---
MEAN	24.80	---	---	26.45	27.45	---	---	---	---	25.09	24.18	---
MAX	25.81	---	---	28.01	28.01	---	---	---	---	25.18	25.12	---
MIN	23.87	---	---	23.60	24.98	---	---	---	---	24.78	23.25	---

APPLE CREEK BASIN

06349500 APPLE CREEK NEAR MENOKEN, ND

LOCATION.--Lat 46°47'40", long 100°39'25", in NW¼NE¼ sec.9, T.138 N., R.79 W., Burleigh County, Hydrologic Unit 10130103, on left bank 75 ft (23 m) downstream from bridge on county highway, 4 mi (6 km) upstream from Hay Creek, 6.3 mi (10.1 km) west of Menoken, and 6.4 mi (10.3 km) east of Bismarck.

DRAINAGE AREA.--1,680 mi² (4,350 km²), approximately, of which about 500 mi² (1,300 km²) is probably non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to June 1905, October 1945 to current year. Published as "near Bismarck" 1905.

REVISED RECORDS.--WSP 1209: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,638.61 ft (499.448 m) above mean sea level. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1953.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--31 years, 33.9 ft³/s (0.960 m³/s), 24,560 acre-ft/yr (30.3 hm³/yr); median of yearly mean discharges, 19 ft³/s (0.54 m³/s), 13,800 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,750 ft³/s (191 m³/s) Apr. 18, 1950, gage height, 17.07 ft (5.203 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 750 ft³/s (21.2 m³/s) Mar. 21, gage height, 12.7 ft (3.87 m), projected from adjacent gage height record, backwater from ice; minimum daily, 0.04 ft³/s (0.001 m³/s) Aug. 22 to Sept. 18, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.9	1.5	1.5	2.0	11	57	50	4.5	1.0	.12	.04
2	1.5	1.9	1.5	1.5	2.0	12	53	41	4.0	.90	.12	.04
3	1.7	1.8	1.4	1.5	2.0	9.7	48	35	4.0	.80	.10	.04
4	1.6	1.7	1.4	1.5	2.0	8.2	43	30	3.5	.70	.10	.04
5	1.6	1.7	1.5	1.5	1.9	7.6	40	26	3.5	.65	.10	.04
6	1.6	1.8	1.4	1.5	1.9	7.8	38	18	3.0	.60	.10	.04
7	1.5	1.8	1.4	1.5	1.9	9.8	35	8.0	3.0	.55	.10	.04
8	1.6	1.6	1.5	1.5	2.0	12	33	4.5	3.0	.80	.10	.04
9	1.9	1.5	1.5	1.5	2.0	12	31	11	2.6	.60	.10	.04
10	1.9	1.5	1.5	1.5	2.1	10	30	16	2.6	.50	.10	.04
11	1.9	1.6	1.5	1.5	2.3	8.9	27	15	2.4	.45	.08	.04
12	1.8	1.6	1.6	1.5	2.5	8.2	25	14	3.5	.40	.08	.04
13	1.9	1.5	1.6	1.5	3.0	7.9	24	12	3.5	.35	.08	.04
14	2.2	1.5	1.6	1.5	3.3	7.7	24	11	3.0	.30	.08	.04
15	2.0	1.5	1.5	1.7	3.3	7.9	24	13	3.0	.25	.08	.04
16	1.8	1.4	1.5	1.7	4.2	7.3	26	12	3.0	.20	.06	.04
17	1.9	1.3	1.5	1.6	4.8	7.6	33	11	2.5	.18	.06	.04
18	2.0	1.2	1.4	1.6	4.3	20	46	10	2.4	.16	.06	.04
19	2.8	1.1	1.4	1.6	4.5	400	80	9.4	2.2	.14	.06	.08
20	3.7	1.1	1.4	1.5	4.5	550	80	9.0	2.0	.14	.06	.08
21	2.9	1.1	1.5	1.4	4.5	720	66	8.9	2.0	.12	.06	.06
22	2.7	.99	1.5	1.4	4.4	600	61	8.5	2.4	.12	.04	.06
23	2.7	1.1	1.5	1.4	4.7	490	67	8.0	2.2	.12	.04	.06
24	2.6	1.3	1.5	1.4	5.3	346	77	7.5	2.0	.10	.04	.06
25	2.4	1.4	1.6	1.4	6.1	238	111	7.0	1.8	.10	.04	.06
26	2.3	1.4	1.6	1.4	6.5	196	153	7.0	1.6	.10	.04	.06
27	2.4	1.3	1.5	1.4	11	156	144	6.5	1.4	.10	.04	.06
28	2.5	1.4	1.5	1.4	13	122	125	6.0	1.3	.16	.04	.04
29	2.3	1.5	1.5	1.5	12	94	87	5.5	1.2	.14	.04	.04
30	2.1	1.6	1.5	1.5	---	77	63	5.0	1.1	.12	.04	.04
31	1.9	---	1.5	1.6	---	63	---	4.5	---	.12	.04	---
TOTAL	64.9	44.09	46.3	46.5	124.0	4226.6	1751	430.4	78.2	10.97	2.20	1.42
MEAN	2.09	1.47	1.49	1.50	4.28	136	58.4	13.9	2.61	.35	.071	.047
MAX	3.7	1.9	1.6	1.7	13	720	153	50	4.5	1.0	.12	.08
MIN	1.2	.99	1.4	1.4	1.9	7.3	24	4.5	1.1	.10	.04	.04
AC-FT	129	87	92	92	246	8380	3470	854	155	22	4.4	2.8
CAL YR 1975	TOTAL	9811.20	MEAN	26.9	MAX	712	MIN	.05	AC-FT	19460		
WTR YR 1976	TOTAL	6826.58	MEAN	18.7	MAX	720	MIN	.04	AC-FT	13540		

APPLE CREEK BASIN

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06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT 22...	1650	2.7	1550	8.0	9.0	300	0	54	40	260
DEC 29...	1500	1.4	1900	7.9	1.0	340	0	67	42	280
JAN 28...	1200	1.4	1700	7.6	.5	370	0	78	43	280
FEB 25...	1610	6.1	1300	--	2.5	310	0	68	34	240
MAR 26...	1030	200	268	7.7	1.0	79	1	17	8.9	22
MAY 21...	1130	8.9	1100	--	19.0	300	0	58	38	160
JUN 21...	1430	2.8	1400	8.5	25.0	320	0	65	38	220
JUL 23...	1330	.12	1500	8.5	24.0	330	0	60	44	250

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT 22...	65	6.5	7.4	732	0	600	12	240	31
DEC 29...	64	6.6	7.2	799	0	655	16	250	49
JAN 28...	62	6.3	6.2	823	0	675	29	250	60
FEB 25...	62	5.9	5.6	665	0	545	--	200	39
MAR 26...	35	1.1	7.0	95	0	78	3.0	48	3.6
MAY 21...	53	4.0	7.3	469	0	385	--	270	12
JUN 21...	59	5.4	7.4	578	9	489	3.0	290	22
JUL 23...	61	6.0	8.7	671	12	570	3.5	280	27

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 22...	.4	11	1030	1010	1.40	7.52	1000	80	40
DEC 29...	.6	14	1180	1110	1.61	4.72	1000	20	160
JAN 28...	.6	19	1180	1150	1.61	4.46	1000	0	420
FEB 25...	.4	13	987	933	1.34	16.3	1400	170	100
MAR 26...	.1	3.5	176	162	.24	95.0	280	250	100
MAY 21...	.2	12	802	790	1.09	19.3	0	230	60
JUN 21...	.5	15	950	954	1.29	7.18	380	370	60
JUL 23...	.2	17	1040	1040	1.41	.34	1700	150	240

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND

LOCATION.--Lat 46°39'22", long 100°44'18", in SW¼NE¼ sec.26, T.137 N., R.80 W., Morton County, Hydrologic Unit 10130102, on right bank 2 mi (3 km) southeast of abandoned townsite of Schmidt and 13 mi (21 km) southeast of Mandan at mile 1,298 (kilometer 2,088).

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft (487.680 km) above mean sea level.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 22.46 ft (6.845 m) Aug. 19, 1975; minimum daily recorded, 7.92 ft (2.414 m) May 30, 1967.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	17.59	17.45	20.68	21.25	22.84	17.16	17.20	18.33	18.13	18.17	16.89
2	---	17.58	17.49	19.56	21.24	21.62	17.12	17.16	18.33	18.13	17.91	16.69
3	19.01	17.47	17.51	18.67	21.22	21.37	17.15	17.12	18.33	18.15	17.64	16.36
4	18.99	17.62	17.49	18.10	21.05	21.54	17.77	17.14	18.34	18.16	17.67	16.46
5	18.96	17.55	17.27	18.08	20.78	21.72	18.11	17.12	18.40	18.01	17.96	16.47
6	18.99	17.33	17.06	18.70	20.93	21.93	17.82	17.11	18.45	17.78	18.12	16.00
7	19.02	17.49	17.28	19.26	20.99	21.95	17.23	17.05	18.42	17.97	17.81	16.05
8	19.00	17.74	17.20	19.23	21.05	21.84	17.04	17.05	18.38	18.14	17.38	15.94
9	18.94	17.86	17.04	19.50	21.06	21.79	17.03	17.07	18.37	18.17	17.23	16.00
10	18.99	17.96	17.39	19.92	20.98	21.67	17.02	17.08	18.40	18.16	17.21	15.90
11	18.76	17.73	17.38	20.34	20.68	21.55	16.97	17.12	18.47	18.14	17.23	16.01
12	18.45	17.18	17.53	20.40	20.45	21.38	17.01	17.37	18.59	18.07	17.36	15.98
13	18.10	17.04	17.58	20.27	20.43	20.76	17.03	17.88	18.55	18.04	17.44	16.05
14	18.00	17.15	17.83	20.37	20.40	21.68	17.05	18.18	18.46	18.12	17.41	15.85
15	17.65	17.23	18.28	20.42	20.46	22.35	17.09	18.27	18.47	18.12	17.47	15.76
16	17.44	17.63	19.06	20.53	20.58	22.31	17.15	18.28	18.37	18.12	17.45	15.93
17	17.35	17.66	20.63	20.64	20.64	22.27	17.24	18.25	18.37	18.11	17.38	16.01
18	17.40	17.61	21.02	20.70	20.71	22.50	17.24	18.24	18.34	18.11	17.28	15.88
19	17.34	17.73	20.84	20.80	20.75	22.95	17.19	18.26	18.28	18.15	17.16	16.00
20	17.26	17.69	21.37	20.82	20.79	20.44	17.20	18.25	18.26	18.14	17.13	15.99
21	17.29	17.62	21.57	20.82	20.74	18.45	17.22	18.25	18.27	18.09	17.03	15.84
22	17.23	17.75	21.41	20.87	20.73	17.98	17.27	18.25	18.24	18.13	16.80	16.20
23	17.25	17.74	21.12	21.06	20.76	17.73	17.31	18.23	18.29	18.13	16.50	16.40
24	17.30	17.66	21.01	21.10	20.88	17.48	17.36	18.21	18.38	18.10	16.57	16.45
25	17.27	17.66	20.99	21.10	20.95	17.44	17.26	18.22	18.29	18.12	16.66	16.39
26	17.19	17.60	21.06	21.11	21.19	17.36	17.22	18.27	18.20	18.13	16.69	16.36
27	16.92	17.62	21.09	21.08	20.57	17.28	17.29	18.31	18.19	18.12	16.74	16.39
28	17.08	17.48	21.17	21.10	19.05	17.21	17.29	18.34	18.17	18.17	16.82	16.39
29	17.18	17.35	21.25	21.18	20.16	17.16	17.25	18.29	18.15	18.17	16.72	16.19
30	17.15	17.42	21.16	21.25	---	17.15	17.22	18.27	18.13	18.13	16.87	16.16
31	17.23	---	21.03	21.30	---	17.13	---	18.31	---	18.15	16.68	---
MEAN	---	17.56	19.28	20.29	20.74	20.28	17.24	17.81	18.34	18.11	17.24	16.17
MAX	---	17.96	21.57	21.30	21.25	22.95	18.11	18.34	18.59	18.17	18.17	16.89
MIN	---	17.08	17.04	18.08	19.05	17.13	16.97	17.05	18.13	17.78	16.50	15.76

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	CHEM- ICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)
OCT												
07...	1530	E40000	650	8.3	14.5	10	9.0	92	.7	11	8500	86
21...	1100	E31000	655	8.2	11.0	6	9.3	88	--	13	580	40
NOV												
04...	1415	E34000	625	8.3	10.5	7	10.0	94	.6	8	200	45
17...	1230	E35000	620	8.3	8.0	5	10.5	94	--	11	220	822
DEC												
01...	1130	E31000	590	7.9	1.0	7	12.0	87	.2	7	8348	49
29...	1500	E24000	620	8.2	.0	7	13.0	--	--	40	104	810
JAN												
28...	1130	E34000	635	8.3	.0	4	13.2	96	--	8	8324	819
FEB												
09...	1100	E39000	610	8.0	.0	7	13.0	94	.2	8	400	817
25...	1100	E34000	595	8.0	.0	5	12.6	92	--	1	195	81
MAR												
23...	1400	E36000	620	7.9	3.0	28	12.4	97	1.3	30	780	<1
APR												
06...	1245	E37000	650	8.2	4.5	7	12.6	103	--	10	500	56
22...	1045	E34000	650	8.2	3.5	7	12.4	98	--	12	843	92
MAY												
03...	1115	E34000	650	8.2	5.0	9	12.1	100	--	11	270	48
19...	1200	E40000	620	8.3	9.5	7	10.9	100	--	10	860	112
JUN												
01...	1030	E41000	620	8.3	11.5	6	10.6	102	--	10	600	35
15...	1530	E41000	635	8.2	13.0	15	9.7	97	--	48	600	852
28...	1230	E40000	635	8.3	15.0	7	9.3	97	--	14	840	126
JUL												
14...	1115	E40000	620	8.2	17.0	1	8.8	96	--	6	81800	8332
27...	1030	E40000	635	8.2	17.0	9	8.7	106	--	10	2000	120
AUG												
10...	1130	E35000	640	8.3	17.5	9	8.6	95	--	11	3400	650
23...	1045	E31000	640	8.3	17.5	10	8.7	95	--	37	940	145
SEP												
08...	1030	E28000	650	8.4	16.0	10	8.6	93	--	7	490	760
21...	0945	E28000	665	8.5	16.0	10	8.9	95	--	10	10500	840

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	ALKAL- INITY AS CAC03 (MG/L)
OCT												
07...	210	59	50	20	58	37	1.8	4.1	182	0	1.5	149
21...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
04...	200	51	51	18	58	38	1.8	4.2	183	0	1.5	150
17...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
01...	200	54	49	19	65	41	2.0	4.0	179	0	3.6	147
29...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
28...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
09...	190	45	46	18	54	38	1.7	4.3	176	0	2.8	144
25...	--	--	--	--	--	--	--	--	175	--	2.8	144
MAR												
23...	200	52	48	19	53	36	1.6	4.5	179	0	3.6	147
APR												
06...	--	--	--	--	--	--	--	--	--	--	--	--
22...	210	53	52	20	57	36	1.7	4.1	194	0	2.0	159
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
19...	200	52	49	30	53	36	1.6	3.7	186	0	1.5	153
JUN												
01...	--	--	--	--	--	--	--	--	--	--	--	--
15...	210	63	54	19	54	35	1.6	4.1	183	0	1.8	150
28...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
14...	210	59	51	21	57	36	1.7	4.0	189	0	1.9	155
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
10...	230	79	57	21	55	34	1.6	4.1	183	0	1.5	150
23...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
08...	230	75	58	21	57	34	1.6	4.1	191	0	1.2	157
21...	--	--	--	--	--	--	--	--	--	--	--	--

B - Results based on colony count outside the acceptable range (non-ideal colony count).
E - Estimated.

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	DIS- SOLVED FLUOR- IDE (F) (MG/L)	BROMIDE (BR) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)
OCT											
07...	170	9.1	.5	.0	6.4	416	430	409	.57	--	57
21...	--	--	--	--	--	414	--	--	.56	--	--
NOV											
04...	150	8.9	.4	.1	6.8	401	--	388	.55	--	--
17...	--	--	--	--	--	419	--	--	.57	--	--
DEC											
01...	170	8.5	.4	.0	7.2	398	--	411	.54	--	--
29...	--	--	--	--	--	404	--	--	.55	--	--
JAN											
28...	--	--	--	--	--	397	--	--	.54	--	--
FEB											
09...	150	8.5	.5	.2	7.6	395	--	376	.54	--	--
25...	--	--	--	--	--	400	--	--	.54	--	--
MAR											
23...	140	7.9	.3	.1	7.5	389	--	369	.53	37300	--
APR											
06...	--	--	--	--	--	413	--	--	.56	41300	--
22...	150	8.0	.6	.0	7.3	417	--	395	.57	38700	--
MAY											
03...	--	--	--	--	--	419	--	--	.57	38400	--
19...	150	7.4	.6	.2	7.5	406	--	383	.55	--	--
JUN											
01...	--	--	--	--	--	425	--	--	.58	--	--
15...	160	8.4	.5	.0	7.7	412	--	398	.56	--	--
28...	--	--	--	--	--	445	--	--	.61	--	--
JUL											
14...	170	8.8	.5	.0	7.1	420	--	413	.57	--	--
27...	--	--	--	--	--	423	--	--	.58	--	--
AUG											
10...	170	9.3	.5	.1	7.0	431	--	414	.59	--	--
23...	--	--	--	--	--	423	--	--	.58	--	--
SEP											
08...	170	9.5	.5	.1	6.8	428	460	421	.58	.58	--
21...	--	--	--	--	--	427	--	--	.58	32200	--

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDED ALUM- INUM (AL) (UG/L)
OCT											
07...	.13	.04	.18	.22	.35	1.6	.06	.00	.00	600	590
21...	.17	.09	.35	.44	.61	2.7	.03	--	--	--	--
NOV											
04...	.15	.03	.75	.78	.93	4.1	.09	.00	.00	--	--
17...	.13	.00	.31	.31	.44	1.9	.00	--	--	--	--
DEC											
01...	.17	.01	.19	.20	.37	1.6	.00	.01	.03	--	--
29...	.20	.02	.15	.17	.37	1.6	.02	--	--	--	--
JAN											
28...	.23	.02	.67	.69	.92	4.1	.01	--	--	--	--
FEB											
09...	.47	.03	.18	.21	.68	3.0	.02	.00	.00	--	--
25...	.20	.01	.12	.13	.33	1.5	.02	--	--	--	--
MAR											
23...	.22	.02	.79	.81	1.0	4.6	.11	.05	.15	2400	2400
APR											
06...	.17	.02	.37	.39	.56	2.5	.02	--	--	--	--
22...	.11	.03	.29	.32	.43	1.9	.04	.00	.00	--	--
MAY											
03...	.20	.02	.40	.42	.62	2.7	.02	--	--	--	--
19...	.10	.02	.33	.35	.45	2.0	.05	--	.03	--	--
JUN											
01...	.10	.01	.69	.70	.80	3.5	.05	--	--	--	--
15...	.13	.02	.21	.23	.36	1.6	.07	--	--	--	--
28...	.12	.05	.23	.28	.40	1.8	.07	--	--	--	--
JUL											
14...	.15	.00	.24	.24	.39	1.7	.05	.00	.00	--	--
27...	.13	.00	.40	.40	.53	2.3	.04	--	--	--	--
AUG											
10...	.18	.00	.23	.23	.41	1.8	.03	.01	.03	--	--
23...	.22	.00	.29	.29	.51	2.3	.01	--	--	--	--
SEP											
08...	--	.00	.25	.25	.43	1.9	.03	.01	.03	--	--
21...	.16	.00	.42	.42	.58	2.6	.06	--	--	--	--

MISSOURI RIVER MAIN STEM

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06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDED ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDED BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
OCT 07...	10	2	0	2	100	0	200	10	0	10	10
21...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	10	7	6	1	100	100	0	0	0	0	<10

DATE	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
OCT 07...	10	0	10	0	10	20	19	1	0	930	<100
21...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	<9	1	10	10	0	20	18	2	40	4900	<100

DATE	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDED LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)
OCT 07...	<100	0	40	0	40	10	40	30	.0	.0	.0
21...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	<99	1	40	0	40	10	110	100	.1	.0	.1

DATE	TOTAL MOLYB- DENIUM (MO) (UG/L)	SUS- PENDED MOLYB- DENIUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENIUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)	SUS- PENDED NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDED STRON- TIUM (SR) (UG/L)
OCT 07...	2	0	3	50	48	2	1	0	1	480	20
21...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	3	1	2	<50	<25	25	1	0	1	430	0

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDE GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDE GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDE GROSS BETA AS SR90 /Y90 (PC/L)
OCT 07...	460	.8	10	0	10	5.9	3.9	5.9	3.1	4.8	2.5
21...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	450	.8	40	0	40	--	--	--	--	--	--
SEP 08...	--	--	--	--	--	6.3	4.9	6.7	4.2	5.6	3.6
21...	--	--	--	--	--	--	--	--	--	--	--

DATE	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (DIRECT FLUORO- METRIC) (PC/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	SUS- PENDE SED- MENT (MG/L)	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 07...	.06	2.4	--	4.9	.5	--	--	--	--	--
21...	--	--	6.4	--	--	128	81	90	100	--
NOV 04...	--	--	--	10	.1	--	--	--	--	--
17...	--	--	8.4	--	--	203	--	--	--	--
DEC 01...	--	--	--	4.9	--	--	--	--	--	--
29...	--	--	3.8	--	--	--	--	--	--	--
JAN 28...	--	--	7.2	--	--	26	--	--	--	--
FEB 09...	--	--	--	3.9	.3	--	--	--	--	--
25...	--	--	4.3	--	--	--	--	--	--	--
MAR 23...	--	--	--	4.9	1.5	352	35	69	99	100
APR 06...	--	--	3.3	--	--	--	--	--	--	--
22...	--	--	--	3.7	--	--	--	--	--	--
MAY 03...	--	--	3.5	--	--	--	--	--	--	--
JUN 01...	--	--	3.3	--	--	--	--	--	--	--
28...	--	--	6.8	--	--	--	--	--	--	--
JUL 27...	--	--	4.5	--	--	--	--	--	--	--
AUG 23...	--	--	3.7	--	--	--	--	--	--	--
SEP 08...	.16	2.8	--	--	--	--	--	--	--	--
21...	--	--	5.2	--	--	--	--	--	--	--

DATE	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
OCT 21...	2	12	84	100

MISSOURI RIVER MAIN STEM

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06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 7, 1975
1530 HOURS

IDENTIFICATION OF PHYTOPLANKTON

860 CELLS/ML

ORGANISM_NAME	COMMON_NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
LANKISTRODESMUS			0	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS		11	1	
	TOTALS	11	1	0.000=DIVERSITY
CHRYSTOPHYTA	DIATOMS			
..BACILLARIOPHYCEAE	CENTRIC			
..CENTRALES				
...COSCINODISCEAE				
...CYCLOTELLA		54	6	
LMELOSIRA			0	
...STEPHANODISCUS		11	1	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		11	1	
...CYMBELLACEAE				
...CYMBELLA		11	1	
...FRAGILARIACEAE				
...ASTERIONELLA		11	1	
...GOMPHONEMATACEAE				
...GOMPHONEMA		11	1	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		32	4	
...NITZSCHIAEAE				
...NITZSCHIA		43	5	
	TOTALS	180	20	2.654=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSDOMONADALES				
...OCHROMONADACEAE				
...DINOBYRON		43	5	
	TOTALS	43	5	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
...AGMENELLUM		87	10	
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
DOSCILLATORIA		520	60	
	TOTALS	610	70	0.592=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
...CRYPTOMONAS		11	1	
	TOTALS	11	1	0.000=DIVERSITY
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA		11	1	
	TOTALS	11	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.079
 CLASS 1.288
 ORDER 1.901
 FAMILY 2.218
 GENERA 2.266

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 4, 1975
1415 HOURS

IDENTIFICATION OF PHYTOPLANKTON

180 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSDOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINODISCACEAE			
...CYCLOTELLA		12	7
..PENNALES	PENNATE		
...ACHNANTHACEAE			
....ACHNANTHES		12	7
....COCCONEIS		12	7
....RHOICOSPHENIA		12	7
..DIATOMACEAE			
DDIATOMA		36	20
...FRAGILARIACEAE			
....ASTERIONELLA		12	7
...NAVICULACEAE	NAVICULOID		
DNAVICULA		48	27
...NITZSCHACEAE			
....NITZSCHIA		24	13
...SURIPELLACEAE			
....SURIPELLA		12	7
TOTALS		180	102

2.923=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 ORDER 0.353
 FAMILY 2.606
 GENERA 2.923

MISSOURI RIVER MAIN STEM

459

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DEC. 1, 1975
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

82 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...DOCYSTACEAE				
...ANKISTRODESMUS		7	9	
...SCENEDESMACEAE				
LSCENEDESMUS			0	
	TOTALS	7	9	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...ACNANTHACEAE				
LCOCCONEIS			0	
...RHODICOSPHENIA		7	9	
...CYMBELLACEAE				
...CYMBELLA		7	9	
LEPITHEMIA			0	
...DIATOMACEAE				
DDIATOMA		30	36	
...FRAGILARIACEAE				
LASTERIONELLA			0	
...NAVICULACEAE	NAVICULOID			
DNAVICULA		15	18	
...NITZSCHACEAE				
...NITZSCHIA		7	9	
	TOTALS	67	81	2.059=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
...PERIDINIALES				
...PERIDINIACEAE				
...PERIDINIUM		7	9	
	TOTALS	7	9	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.866
 CLASS 0.866
 ORDER 0.866
 FAMILY 2.550
 GENERA 2.550

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 13, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
LCYCLOTELLA			0
..PENNALES	PENNATE		
...ACHNANTHACEAE			
LRHOICOSPHEA			0
...CYMBELLACEAE			
LCYMBELLA			0
...DIATOMACEAE			
LDIATOMA			0
...FRAGILARIACEAE			
DASTERIONELLA		3	100
...NITZSCHIA			
LNITZSCHIA			0
TOTALS		3	100

0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

FEB. 9, 1976
1100 HOURS

IDENTIFICATION OF PHYTOPLANKTON

160 CELLS/ML

ORGANISM__NAME_____	COMMON__NAME_____	CELLS/ML	PER_CENT
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
...COSCINODISCACEAE			
DCYCLOTELLA		87	53
..PENNALES	PENNATE		
...DIATOMACEAE			
LDIATOMA			0
...FRAGILARIACEAE			
...ASTERIONELLA		22	13
DFRAGILARIA		43	27
...GOMPHONEMACEAE			
LGOMPHONEMA			0
...NAVICULACEAE	NAVICULOID		
...NAVICULA		11	7
...NITZSCHIA			
LNITZSCHIA			0
TOTALS		160	100

1.640=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.997
FAMILY 1.273
GENERA 1.640

MISSOURI RIVER MAIN STEM

461

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 23, 1976
1400 HOURS

IDENTIFICATION OF PHYTOPLANKTON

700 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHRYSTOPHYTA				
.BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...DIATOMACEAE				
DDIATOMA		150	21	
...FRAGILARIACEAE				
...ASTERIONELLA		100	14	
...GOMPHONEMACEAE				
...GOMPHONEMA		50	7	
...NAVICULACEAE	NAVICULOID			
...CALONEIS		50	7	
LGYROSIGMA			0	
...PINNULARIA		50	7	
...NITZSCHACEAE				
...NITZSCHIA		100	14	
...TABELLARIACEAE				
DTABELLARIA		150	21	
	TOTALS	650	91	2.661=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
.MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIAEAE				
....SPIRULINA		50	7	
	TOTALS	50	7	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.371
 CLASS 0.371
 ORDER 0.371
 FAMILY 2.700
 GENERA 2.842

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 22, 1976
1045 HOURS

IDENTIFICATION OF PHYTOPLANKTON

1,000 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE		30	3	
....ANKISTRODESMUS				
	TOTALS	30	3	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
....COSCINODISCACEAE				
DCYCLOTELLA		760	76	
..PENNALES	PENNATE			
..DIATOMACEAE				
....DIATOMA		30	3	
..FRAGILARIACEAE				
....ASTERIONELLA		60	6	
..GOMPHONEMACEAE				
....GOMPHONEMA		30	3	
..NAVICULACEAE	NAVICULOID			
....NAVICULA		30	3	
..NITZSCHACEAE				
....NITZSCHIA		60	6	
..SURIRELLACEAE				
LSURIRELLA			0	
	TOTALS	970	97	1.247=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE				
LOSCILLATORIA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 15%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.196

CLASS 0.196

ORDER 0.931

FAMILY 1.405

GENERA 1.405

MISSOURI RIVER MAIN STEM

463

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 19, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

850 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OCYSTACEAE				
....ANKISTRODESMUS		35	4	
	TOTALS	35	4	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...HELOSIRA		69	8	
...PENNATES	PENNATE			
...CYMBELLACEAE		35	4	
...CYMBELLA				
D ...FRAGILARIACEAE		660	78	
...ASTERIONELLA				
...NAVICULACEAE	NAVICULOID	52	6	
...NAVICULA				
	TOTALS	810	96	0.998=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.246
CLASS 0.246
ORDER 0.649
FAMILY 1.203
GENERA 1.203

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 15, 1976
1530 HOURS

IDENTIFICATION OF PHYTOPLANKTON

760 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		29	4	
LDICTYOSPHAERIUM			0	
....OOCYSTIS		10	1	
....SCENEDESMACEAE				
....SCENEDESMUS		38	5	
		TOTALS	77	10
				1.406=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCACEAE				
....CYCLOTELLA		57	8	
LMELOSIRA			0	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
....COCONEIS		10	1	
....RHOICOSPHEA		19	3	
....CYMBELLACEAE				
....CYMBELLA		19	3	
....DIATOMACEAE				
....DIATOMA		29	4	
....FRAGILARIACEAE				
DASTERIONELLA		240	32	
....FRAGILARIA		110	14	
....SYNEDRA		19	3	
....GOMPHONEMATACEAE				
....GOMPHONEMA		19	3	
....NAVICULACEAE	NAVICULOID			
....NAVICULA		96	13	
....NITZSCHACEAE				
....NITZSCHIA		67	9	
		TOTALS	680	93
				2.836=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.473
 CLASS 0.473
 ORDER 0.849
 FAMILY 2.540
 GENERA 3.164

MISSOURI RIVER MAIN STEM

465

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 14, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

410 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...DOCYSTACEAE				
....ANKISTRODESMUS		16	4	
	TOTALS	16	4	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		16	4	
...MELOSIRA		16	4	
...PENNATES	PENNATE			
...ACHNANTHACEAE				
...ACHNANTHES		33	8	
...COCCONEIS		16	4	
...CYMBELLACEAE				
...AMPHORA		33	8	
...DIATOMACEAE				
D ...DIATOMA		65	16	
...FRAGILARIACEAE				
...FRAGILARIA		16	4	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		33	8	
...NITZSCHIA		160	40	
D ...NITZSCHIA				
	TOTALS	390	96	2.617=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.242
 CLASS 0.242
 ORDER 0.640
 FAMILY 2.565
 GENERA 2.755

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

AUG. 10, 1976
1130 HOURS

IDENTIFICATION OF PHYTOPLANKTON

220 CELLS/ML

__ORGANISM__NAME_____	__COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		16	7	
	TOTALS	16	7	0.000=DIVERSITY
CHRYSTOPHYTA	DIATOMS			
..BACILLARIOPHYCEAE	CENTRIC			
...CENTRALES				
...COSCINODISCEAE				
....CYCLOTELLA		8	4	
....MELOSIRA		16	7	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCONEIS		8	4	
....RHOICOSPHEA		24	11	
...DIATOMACEAE				
....DIATOMA		32	14	
...GOMPHONEMACEAE				
....GOMPHONEMA		16	7	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		16	7	
...NITZSCHACEAE				
DNITZSCHIA		80	36	
	TOTALS	200	90	2.565=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
...CHRYSONOMADALES				
...OCHROMONADACEAE				
....OCHROMONAS		8	4	
	TOTALS	8	4	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.371
 CLASS 0.590
 ORDER 1.062
 FAMILY 2.665
 GENERA 2.880

MISSOURI RIVER MAIN STEM

467

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 8, 1976
1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON

250 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....OOCYSTIS		12	5	
	TOTALS	12	5	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINOIDISCAEAE				
....CYCLOTELLA		29	11	
..PENNALES	PENNATE			
...ACHNANTHACEAE				
...COCCONEIS		12	5	
...RHODOSPHENIA		29	11	
...DIATOMACEAE				
....DIATOMA		17	7	
...FRAGILARIACEAE				
....SYNEDRA		17	7	
...NAVICULACEAE	NAVICULOID			
....NAVICULA		17	7	
...NITZSCHACEAE				
DNITZSCHIA		58	23	
...SURIPELLACEAE				
....SURIPELLA		12	5	
	TOTALS	190	76	2.781=DIVERSITY
..CHRYSTOPHYCEAE	YELLOW-BROWN ALGAE			
...CHRYSDOMONADALES				
...OCHROMONADACEAE				
....OCHROMONAS		6	2	
	TOTALS	6	2	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		46	18	
	TOTALS	46	18	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.937
CLASS 1.085
ORDER 1.545
FAMILY 3.033
GENERA 3.171

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll _a	Chlorophyll _b	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight	(mg/m ²)	(mg/m ²)		
Nov. 4	26	0.4	0.2	0.1	0.1	1,600	Polyethylene strip
Feb. 9	28	12	12	1.9	.3	360	Polyethylene strip

CANNONBALL RIVER BASIN

06349930 COAL BANK CREEK NEAR HAVELOCK, ND

LOCATION.--Lat 46°27'50", long 102°44'20", in NW¼SW¼ sec.34, T.135 N., R.96 W., Hettinger County, Hydrologic Unit 10130204, one mile south of Havelock at county highway bridge.

DRAINAGE AREA.--70.0 mi² (181.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,505 ft (764 m) above mean sea level from topographic map.

REMARKS.--Records fair except periods of no gage height record and periods of ice effect, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,400 ft³/s (39.5 m³/s) May 9, 1975, gage height, 10.15 ft (3.094 m), no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18 ft³/s (0.51 m³/s) Feb. 16, gage height, 5.04 ft (1.536 m), from high water mark; minimum daily, 0.01 ft³/s (0.0003 m³/s) Aug. 24, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.17	.15	.25	3.0	2.0	.70	.48	.10	.05	.05	.03
2	.15	.17	.15	.20	1.5	1.5	.64	.53	.09	.05	.05	.04
3	.13	.18	.15	.20	1.5	.80	.62	.58	.09	.10	.04	.04
4	.13	.17	.15	.20	1.0	.50	.62	.55	.08	.50	.07	.05
5	.13	.18	.15	.20	.50	.30	.57	.51	.11	.40	.07	.04
6	.13	.18	.15	.20	.30	.20	.50	.49	.16	.20	.10	.12
7	.13	.18	.15	.15	.30	.20	.48	.48	.17	.10	.09	.02
8	.13	.17	.15	.15	.50	.20	.46	.46	.16	.10	.08	.03
9	.14	.18	.15	.15	1.0	.50	.46	.44	.12	.05	.08	.06
10	.13	.17	.15	.10	2.0	1.0	.48	.42	.10	.05	.08	.04
11	.14	.18	.15	.10	3.0	1.0	.46	.37	.17	.05	.06	.05
12	.15	.17	.10	.10	5.0	1.0	.45	.37	4.6	.05	.08	.03
13	.17	.18	.10	.10	7.0	1.0	.45	.40	4.7	.05	.05	.07
14	.19	.17	.10	.10	10	1.0	.46	.38	2.5	.05	.02	.08
15	.19	.18	.10	.10	12	1.0	.48	.34	1.6	.05	.03	.10
16	.17	.17	.10	.10	15	1.0	.50	.33	1.9	.07	.03	.11
17	.17	.17	.10	.10	13	1.5	.53	.31	3.8	.06	.04	.18
18	.17	.17	.10	.10	13	2.0	.53	.31	3.0	.06	.07	.21
19	.17	.17	.10	.10	12	2.5	.58	.27	2.0	.05	.07	.22
20	.17	.16	.10	.10	10	2.5	.64	.23	1.5	.05	.04	.20
21	.17	.16	.15	.10	9.0	2.0	.78	.22	1.0	.04	.03	.15
22	.21	.15	.15	.15	9.0	2.0	.78	.21	.50	.03	.02	.17
23	.21	.15	.15	.15	9.0	2.0	.78	.20	.30	.04	.02	.16
24	.20	.15	.15	.15	9.0	2.0	.92	.17	.25	.07	.01	.16
25	.19	.15	.15	.15	8.0	1.7	.97	.17	.20	.04	.03	.16
26	.19	.15	.20	.15	8.0	1.7	.90	.23	.35	.04	.03	.17
27	.18	.15	.20	.15	7.0	1.4	.72	.20	.50	.04	.03	.17
28	.18	.15	.25	.15	7.0	1.2	.64	.10	.40	.04	.01	.17
29	.18	.15	.25	.20	5.0	.94	.62	.08	.20	.03	.02	.15
30	.17	.15	.25	.50	---	.82	.53	.08	.10	.03	.03	.06
31	.17	---	.25	1.0	---	.80	---	.10	---	.03	.03	---
TOTAL	5.10	4.98	4.70	5.65	182.60	38.26	18.25	10.01	30.75	2.57	1.46	3.24
MEAN	.16	.17	.15	.18	6.30	1.23	.61	.32	1.03	.083	.047	.11
MAX	.21	.18	.25	1.0	15	2.5	.97	.58	4.7	.50	.10	.22
MIN	.13	.15	.10	.10	.30	.20	.45	.08	.08	.03	.01	.02
AC-FT	10	9.9	9.3	11	362	76	36	20	61	5.1	2.9	6.4
CAL YR 1975 TOTAL	5254.07			MEAN 14.4	MAX 885	MIN 0	AC-FT 10420					
WTR YR 1976 TOTAL	307.57			MEAN .84	MAX 15	MIN .01	AC-FT 610					

CANNONBALL RIVER BASIN

469

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
NOV												
03...	1620	.18	2500	7.8	9.0	5	12.0	113	1.5	880	510	170
DEC												
08...	1420	.16	2600	7.5	1.5	4	8.8	69	.4	850	390	180
JAN												
05...	1250	.19	3100	7.4	.5	6	9.6	73	4.6	950	460	200
FEB												
02...	1350	1.5	1430	7.3	.5	5	7.2	55	8.5	360	190	76
MAR												
03...	1250	.80	2550	7.5	.5	8	9.1	69	2.2	690	440	130
APR												
05...	1240	.57	2590	8.5	10.0	7	19.2	186	3.5	650	400	120
MAY												
03...	1355	.59	2500	8.5	12.5	5	16.8	172	--	760	480	140
JUN												
01...	1300	.10	2410	8.5	24.0	3	14.0	180	4.5	690	370	110
JUL												
12...	1500	.04	1900	8.4	26.0	5	--	--	2.2	410	170	66
12...	1501	.04	1900	8.4	26.0	--	--	--	--	510	260	70
AUG												
02...	1345	.05	2000	9.0	23.0	3	15.4	194	2.6	380	21	39
SEP												
07...	1345	.03	2030	9.5	16.0	5	14.0	155	2.4	290	0	23

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
NOV												
03...	110	260	39	3.8	8.4	447	0	367	11	980	12	.3
DEC												
08...	96	250	39	3.7	8.2	562	0	461	28	890	10	.4
JAN												
05...	110	270	38	3.8	8.5	598	0	490	38	990	11	.7
FEB												
02...	42	110	39	2.5	12	210	0	172	17	430	8.2	.2
MAR												
03...	88	250	44	4.2	11	301	0	247	15	930	21	.2
APR												
05...	84	250	45	4.3	8.8	287	6	245	1.5	870	11	.2
MAY												
03...	100	290	45	4.6	9.1	320	10	279	1.7	1100	12	.3
JUN												
01...	100	300	48	5.0	8.3	387	0	317	2.0	910	11	.2
JUL												
12...	81	260	53	5.1	9.9	290	0	238	1.8	760	6.8	.3
12...	81	280	54	5.4	8.6	303	0	249	1.9	840	8.7	.4
AUG												
02...	68	350	66	7.8	12	372	31	357	.7	750	12	.3
SEP												
07...	57	400	74	10	11	278	76	355	.2	750	12	.4

CANNONBALL RIVER BASIN

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BROMIDE (BR) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)
NOV 03...	.0	4.0	1940	1780	2.64	.94	1.1	.54	2.5	2.0	3.6	16
DEC 08...	.1	8.6	1880	1730	2.56	.81	.79	.74	2.0	1.3	2.8	12
JAN 05...	.1	11	2020	1900	2.75	1.04	1.6	.64	3.7	3.1	5.3	23
FEB 02...	.0	5.9	858	788	1.17	3.47	.70	.08	1.6	1.5	2.3	10
MAR 03...	.1	7.6	1740	1590	2.37	3.76	3.7	.18	2.1	1.9	5.8	26
APR 05...	.0	.5	1660	1490	2.26	2.55	1.5	.02	1.8	1.8	3.3	15
MAY 03...	.1	.4	1920	1820	2.61	3.06	.08	.01	1.3	1.3	1.4	6.1
JUN 01...	.1	3.3	1820	1640	2.48	.49	.02	.02	.88	.86	.90	4.0
JUL 12...	.1	1.1	1420	1330	1.93	.15	.02	.05	.98	.93	1.0	4.4
JUL 12...	--	1.7	1370	1440	1.86	.15	--	--	--	--	--	--
AUG 02...	.0	.2	1470	1450	2.00	.20	.02	.04	.72	.68	.74	3.3
SEP 07...	.1	.3	1510	1470	2.05	.12	.02	.02	.66	.64	.68	3.0

DATE	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHOPHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHOPHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDED ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDED BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)
NOV 03...	.02	.00	.00	--	--	--	--	--	--	--	--	--
DEC 08...	.01	.00	.00	270	160	110	0	0	0	--	--	50
JAN 05...	.06	.00	.00	--	--	--	--	--	--	--	--	--
FEB 02...	.15	.05	.15	--	--	--	--	--	--	--	--	--
MAR 03...	.06	.00	.00	210	170	40	0	0	0	0	0	100
APR 05...	.04	.00	.00	--	--	--	--	--	--	--	--	--
MAY 03...	.03	.00	.00	--	--	--	--	--	--	--	--	--
JUN 01...	.04	.01	.03	50	40	10	3	1	2	0	0	0
JUL 12...	.03	--	.01	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	.06	.01	.03	--	--	--	--	--	--	--	--	--
SEP 07...	.05	.00	.00	260	240	20	4	1	3	0	0	0

DATE	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)
NOV 03...	--	--	--	1800	--	--	--	--	--	--	--
DEC 08...	0	0	0	1800	<10	<9	1	10	0	<10	110
JAN 05...	--	--	--	1700	--	--	--	--	--	--	--
FEB 02...	--	--	--	570	--	--	--	--	--	--	--
MAR 03...	0	0	0	780	<10	<9	1	0	0	0	10
APR 05...	--	--	--	800	--	--	--	--	--	--	--
MAY 03...	--	--	--	890	--	--	--	--	--	--	--
JUN 01...	0	0	0	1100	0	0	0	0	0	0	10
JUL 12...	--	--	--	840	--	--	--	--	--	--	--
JUL 12...	--	--	--	980	--	--	--	--	--	--	--
AUG 02...	--	--	--	1400	--	--	--	--	--	--	--
SEP 07...	0	0	0	1700	<10	<9	1	--	--	0	10

CANNONBALL RIVER BASIN

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06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDE D LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)
NOV										
03...	--	--	--	--	--	--	--	--	--	--
DEC										
08...	10	100	280	50	100	97	3	60	0	60
JAN										
05...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	--	--	--	--	--	--	--	--	--	--
MAR										
03...	6	4	570	150	<100	<98	2	50	10	40
APR										
05...	--	--	--	--	--	--	--	--	--	--
MAY										
03...	--	--	--	--	--	--	--	--	--	--
JUN										
01...	10	0	330	40	1	0	2	50	0	50
JUL										
12...	--	--	--	120	--	--	--	--	--	--
12...	--	--	--	120	--	--	--	--	--	--
AUG										
02...	--	--	--	--	--	--	--	--	--	--
SEP										
07...	2	8	220	40	<100	<93	7	70	0	70

DATE	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE D MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE D MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDE D MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)
NOV										
03...	--	--	--	--	--	--	--	--	--	--
DEC										
08...	810	10	800	.0	.0	.0	2	2	0	50
JAN										
05...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	--	--	--	--	--	--	--	--	--	--
MAR										
03...	270	40	230	.1	.0	.1	1	0	1	<50
APR										
05...	--	--	--	--	--	--	--	--	--	--
MAY										
03...	--	--	--	--	--	--	--	--	--	--
JUN										
01...	250	40	210	.5	.0	<.5	2	0	2	3
JUL										
12...	--	--	60	--	--	--	--	--	--	--
12...	--	--	100	--	--	--	--	--	--	--
AUG										
02...	--	--	--	--	--	--	--	--	--	--
SEP										
07...	30	20	10	.3	.0	.3	1	0	2	<50

CANNONBALL RIVER BASIN

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)
NOV 03...	--	--	--	--	--	--	--	--	--	--
DEC 08...	37	13	3	1	2	3700	100	3600	.7	--
JAN 05...	--	--	--	--	--	--	--	--	--	--
FEB 02...	--	--	--	--	--	--	--	--	--	--
MAR 03...	<43	7	7	0	7	1500	0	1500	1.5	30
APR 05...	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--
JUN 01...	0	4	0	0	0	2100	0	2400	.0	10
JUL 12...	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--
SEP 07...	<46	4	1	1	0	--	--	1200	1.6	--

DATE	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM
NOV 03...	--	--	37	1.1	17	.01	--	--	--
DEC 08...	--	330	25	.3	6	.00	--	--	--
JAN 05...	--	--	20	.5	124	.06	--	--	--
FEB 02...	--	--	22	.9	17	.07	--	--	--
MAR 03...	20	10	24	.6	24	.05	--	--	--
APR 05...	--	--	16	--	4	.01	--	--	--
MAY 03...	--	--	19	2.4	5	.01	--	--	--
JUN 01...	0	10	21	2.1	22	.01	--	--	--
JUL 12...	--	--	19	--	10	.00	--	--	--
AUG 02...	--	--	19	1.6	10	.00	--	--	--
SEP 07...	0	30	14	.8	11	.00	2	5	13

DATE	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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM	BED MAT. FALL DIAM. % FINER THAN 64.0 MM
SEP 07...	24	24	31	40	49	53	58	100

CANNONBALL RIVER BASIN

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06350000 CANNONBALL RIVER AT REGENT, ND

LOCATION.--Lat 46°25'36", long 102°33'05", in NE¼NE¼ sec.13, T.134 N., R.95 W., Hettinger County, Hydrologic Unit 10130204, on right bank 400 ft (120 m) upstream from bridge on county highway 0.3 mi (0.5 km) north of Regent.

DRAINAGE AREA.--580 mi² (1,500 km²), approximately.

PERIOD OF RECORD.--September 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,422.90 ft (738.500 m) above mean sea level.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--26 years, 44.5 ft³/s (1.260 m³/s), 32,240 acre-ft/yr (39.8 hm³/yr); median of yearly mean discharges, 26 ft³/s (0.74 m³/s), 18,800 acre-ft/yr (23 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,430 ft³/s (210 m³/s) Mar. 12, 1972, gage height, 19.49 ft (5.941 m), from floodmark, backwater from ice; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1914, 26.1 ft (7.96 m) Apr. 16, 1950, from floodmarks, discharge, 20,300 ft³/s (575 m³/s), on basis of slope-area measurement at site 4 mi (6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 458 ft³/s (13.0 m³/s) June 8, gage height, 5.69 ft (1.734 m); minimum daily discharge, 0.90 ft³/s (0.025 m³/s) Sept. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	5.5	4.0	6.5	8.0	40	20	15	12	14	2.2	1.9
2	6.4	5.3	4.0	6.5	8.0	35	19	13	8.5	12	2.0	2.0
3	4.6	5.3	4.0	6.0	8.0	30	18	12	6.2	12	1.9	1.1
4	4.7	5.3	5.0	6.0	8.0	25	18	11	5.1	11	2.0	.90
5	4.5	5.1	6.0	6.0	8.0	25	18	10	6.0	9.9	2.0	.90
6	5.3	5.3	6.0	6.0	10	25	18	9.5	6.4	8.9	2.0	.90
7	5.5	4.9	6.0	5.5	12	20	17	9.2	6.2	7.7	2.0	1.6
8	5.7	4.7	6.0	5.5	12	20	16	8.9	276	6.6	2.0	1.6
9	6.0	4.7	6.5	5.0	15	20	16	8.2	186	6.0	1.9	1.7
10	6.0	4.5	7.0	5.0	25	25	16	7.7	108	5.3	1.9	1.4
11	5.7	5.0	7.0	5.0	30	25	15	7.7	68	6.2	1.7	2.0
12	6.2	5.0	7.0	5.0	50	25	15	8.9	99	5.1	1.7	2.5
13	6.9	5.0	6.5	5.0	90	25	15	9.2	81	4.5	1.7	2.9
14	8.0	5.0	6.0	5.0	110	25	15	8.5	46	4.4	1.7	2.5
15	8.0	5.0	5.5	5.0	130	25	15	8.9	35	4.0	1.6	2.5
16	7.7	5.0	5.0	5.0	150	25	17	8.2	28	3.4	1.2	2.7
17	6.9	5.0	4.5	5.0	200	30	18	7.2	33	3.2	1.6	2.9
18	6.6	5.0	4.0	5.0	190	50	21	7.2	33	2.9	1.7	2.9
19	6.6	5.0	4.0	5.5	150	100	45	7.4	29	2.9	1.7	3.8
20	6.2	4.5	4.5	5.5	120	95	45	6.2	26	3.2	2.2	4.0
21	6.0	4.5	5.5	6.0	90	90	44	6.2	21	2.9	2.2	3.4
22	6.6	4.5	6.0	6.0	70	80	44	6.6	17	2.9	2.2	2.9
23	7.4	4.5	6.0	6.0	55	75	43	6.6	17	2.9	1.9	2.7
24	7.4	4.5	6.0	6.0	50	66	42	7.2	16	2.9	2.2	2.5
25	7.2	4.5	6.5	6.0	45	45	42	8.0	15	2.7	2.0	2.4
26	7.2	4.5	6.5	6.0	40	40	40	9.9	15	2.4	2.2	3.0
27	6.4	4.5	7.0	6.0	40	35	35	11	27	2.4	2.2	3.0
28	5.7	4.5	7.0	6.0	40	30	30	8.9	32	2.4	2.2	3.0
29	5.5	4.5	7.0	6.5	40	26	25	8.2	25	2.0	1.4	3.2
30	5.5	4.0	7.0	7.0	---	23	20	8.0	19	2.2	1.9	2.7
31	5.5	---	7.0	7.5	---	22	---	8.2	---	2.2	1.9	---
TOTAL	195.1	144.6	180.0	178.0	1804.0	1222	762	272.7	1302.4	161.1	59.0	71.50
MEAN	6.29	4.82	5.81	5.74	62.2	39.4	25.4	8.80	43.4	5.20	1.90	2.38
MAX	8.0	5.5	7.0	7.5	200	100	45	15	276	14	2.2	4.0
MIN	4.5	4.0	4.0	5.0	8.0	20	15	6.2	5.1	2.0	1.2	.90
AC-FT	387	287	357	353	3580	2420	1510	541	2580	320	117	142
CAL YR 1975 TOTAL	34386.70			MEAN 94.2	MAX 2930	MIN 1.0	AC-FT 68210					
WTR YR 1976 TOTAL	6352.40			MEAN 17.4	MAX 276	MIN .90	AC-FT 12600					

CANNONBALL RIVER BASIN

06351000 CANNONBALL RIVER BELOW BENTLEY, ND

LOCATION.--Lat 46°21'30", long 102°02'30", in SW¼SW¼ sec.6, T.133 N., R.90 W., Grant County, Hydrologic Unit 10130204, on left bank 0.25 mi (0.4 km) downstream from Thirty Mile Creek, 2 mi (3 km) northeast of Bentley.

DRAINAGE AREA.--1,140 mi² (2,950 km²), approximately.

PERIOD OF RECORD.--April 1943 to current year. Published as "near New Leipzig" 1943 to June 1952. Records published for both sites October 1951 to June 1952.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder at present site and datum since Oct. 1, 1951. Datum of gage is 2,252.09 ft (686.437 m) above mean sea level. Prior to Nov. 7, 1947, nonrecording gage and Nov. 7, 1947, to June 16, 1952, water-stage recorder, at site 8 mi (13 km) downstream at different datum.

REMARKS.--Records good except those for the winter period, which are fair. Some diversions and some storage in small lakes above the station.

AVERAGE DISCHARGE.--33 years, 87.2 ft³/s (2,470 m³/s), 63,180 acre-ft/yr (77.9 hm³/yr); median of yearly mean discharges, 69 ft³/s (1.95 m³/s), 50,000 acre-ft/yr (62 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,800 ft³/s (1,467 m³/s) Apr. 17, 1950, gage height, 34.0 ft (10.363 m), from floodmark in well, site and datum then in use, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement at gage height 26.9 ft (8.199 m) and slope-area and contracted-opening measurements at gage height 34.0 ft (10.363 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1889 that of Apr. 17, 1950. Flood of Mar. 25 and 26, 1943, reached a stage of 26.9 ft (8.199 m), site and datum then in use, discharge 15,000 ft³/s (425 m³/s) by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s (31.4 m³/s) June 12, gage height, 7.41 ft (2.258 m); minimum, 1.2 ft³/s (0.034 m³/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	15	10	14	132	120	47	46	15	25	4.0	1.7
2	11	14	10	12	113	100	44	41	124	20	4.2	1.6
3	11	14	10	10	61	80	42	39	125	18	5.4	1.4
4	11	14	11	9.0	42	60	39	36	97	16	4.7	1.5
5	11	14	12	8.0	26	55	37	34	57	15	4.2	1.7
6	12	16	12	8.0	16	50	37	31	37	15	4.0	1.5
7	14	15	13	7.0	12	50	35	29	32	14	3.7	1.5
8	12	14	14	6.0	12	45	24	27	28	13	3.0	1.4
9	12	13	15	5.5	25	45	24	25	20	13	3.0	1.5
10	14	13	16	6.0	71	45	31	24	234	12	2.7	1.6
11	15	12	17	9.0	84	45	28	23	154	13	2.7	1.6
12	14	12	16	10	102	45	31	22	583	15	2.6	1.7
13	14	12	15	11	147	45	31	25	613	14	2.7	1.7
14	16	12	15	12	297	50	31	23	296	13	2.7	1.9
15	15	13	14	12	331	75	29	23	240	13	3.3	1.9
16	16	13	12	12	350	80	33	23	270	13	3.5	2.1
17	16	13	11	12	335	90	44	22	210	12	3.4	2.1
18	16	12	10	13	340	150	50	20	136	11	8.3	1.9
19	16	12	10	13	340	220	49	19	105	9.9	4.7	1.9
20	16	12	11	12	300	260	46	18	95	9.8	3.5	2.0
21	31	12	12	13	250	240	64	17	90	9.5	3.3	2.2
22	33	12	13	14	220	200	64	17	78	9.1	4.5	2.7
23	21	12	13	15	200	140	66	16	144	7.8	3.5	3.1
24	17	11	13	16	180	110	128	15	346	6.7	2.9	3.6
25	16	11	14	16	170	115	142	14	157	5.4	2.8	3.8
26	17	11	14	13	170	100	109	15	90	5.2	2.5	4.5
27	17	11	14	13	160	95	90	15	70	5.2	2.1	4.4
28	16	11	14	15	120	78	74	15	54	5.0	2.0	4.3
29	16	10	15	20	110	71	60	14	54	5.0	1.8	4.4
30	15	10	15	49	---	59	51	15	30	4.4	1.8	4.2
31	15	---	15	86	---	52	---	15	---	4.2	1.8	---
TOTAL	486	376	406	471.5	4716	2970	1580	718	4584	352.2	105.3	71.4
MEAN	15.7	12.5	13.1	15.2	163	95.8	52.7	23.2	153	11.4	3.40	2.38
MAX	33	16	17	86	350	260	142	46	613	25	8.3	4.5
MIN	10	10	10	5.5	12	45	24	14	15	4.2	1.8	1.4
AC-FT	964	746	805	935	9350	5890	3130	1420	9090	699	209	142
CAL YR 1975 TOTAL	58834.1			MEAN 161	MAX 4790	MIN 2.0	AC-FT 116700					
WTR YR 1976 TOTAL	16836.4			MEAN 46.0	MAX 613	MIN 1.4	AC-FT 33390					

CANNONBALL RIVER BASIN

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06351680 WHITE BUTTE FORK CEDAR CREEK NEAR SCRANTON, ND

LOCATION.--Lat 46°19'20", long 102°59'45", in NW¼ sec.21, T.133 N., R.98 W., Slope County, Hydrologic Unit 10130205, on left bank 1,200 ft (366 m) downstream from county highway bridge and 13 mi (21 km) northeast of Scranton.

DRAINAGE AREA.--42.9 mi² (111 km²).

PERIOD OF RECORD.--March 1965 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--11 years, 1.36 ft³/s (0.039 m³/s), 3,540 acre-ft/yr (4.36 hm³/yr), median of yearly mean discharges, 4.6 ft³/s (0.130 m³/s), 3,330 acre-ft/yr (4.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 645 ft³/s (18.3 m³/s) May 8, 1970, gage height, 7.20 ft (2.19 m); maximum gage height, 7.76 ft (2.365 m) May 8, 1967; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 70 ft³/s (1.98 m³/s) Feb. 13, gage height, 4.31 ft (1.314 m), backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.55	.35	.35	.80	.70	1.0	1.2	.60	.15		
2	0	.35	.27	.35	1.0	.60	.86	1.0	.51	.09		
3	0	.27	.24	.30	2.0	.60	1.0	.92	.39	.55		
4	0	.32	.21	.30	10	.50	1.1	.86	.31	1.2		
5	0	.39	.24	.25	5.0	.30	1.1	.80	.35	.80		
6	0	.41	.21	.25	2.0	.20	1.0	.75	.35	.80		
7	0	.35	.24	.20	1.0	.10	1.0	.70	.51	.80		
8	0	.24	.24	.20	1.5	.10	1.2	.65	4.2	.60		
9	0	.24	.27	.20	3.0	.40	1.7	.65	18	.43		
10	0	.24	.27	.15	5.0	.40	1.0	.55	7.2	.24		
11	0	.24	.25	.20	10	.40	.98	.55	3.1	.10		
12	0	.24	.25	.25	15	.50	.98	.60	2.6	.03		
13	0	.31	.20	.35	50	1.5	.98	.92	1.9	.01		
14	0	.31	.20	.40	45	2.0	1.0	1.1	1.7	0		
15	0	.35	.15	.45	30	1.9	1.2	.70	1.9	0		
16	0	.65	.15	.40	20	1.5	1.2	.60	1.3	0		
17	0	.51	.10	.40	20	1.8	2.5	.65	1.1	0		
18	0	.47	.10	.40	15	2.5	1.7	.70	.98	0		
19	0	.47	.10	.40	10	2.9	3.2	1.0	1.3	0		
20	.01	.47	.15	.40	5.0	4.7	3.5	.86	1.5	0		
21	.04	.51	.15	.40	4.0	6.3	2.6	.70	1.2	0		
22	.24	.51	.15	.40	3.0	6.3	2.0	.65	1.0	0		
23	.39	.51	.20	.40	2.0	6.5	1.8	.65	.92	0		
24	.43	.43	.20	.40	1.5	5.1	1.7	.60	1.3	0		
25	.43	.43	.25	.35	1.5	2.4	2.0	.60	.92	0		
26	.47	.43	.30	.30	1.5	1.9	3.4	.65	.65	0		
27	.51	.35	.30	.25	2.0	1.5	3.2	.65	.60	0		
28	.51	.27	.35	.25	1.0	1.5	2.3	.65	.39	0		
29	.51	.27	.35	.40	.70	1.2	1.8	.60	.27	0		
30	.51	.39	.40	.40	---	1.2	1.4	.65	.24	0		
31	.55	---	.40	.60	---	1.1	---	.65	---	0		---
TOTAL	4.60	11.48	7.24	10.35	268.50	58.60	50.40	22.81	57.29	5.80	0	0
MEAN	.15	.38	.23	.33	9.26	1.89	1.68	.74	1.91	.19	0	0
MAX	.55	.65	.40	.60	50	6.5	3.5	1.2	18	1.2	0	0
MIN	0	.24	.10	.15	.70	.10	.86	.55	.24	0	0	0
AC-FT	9.1	23	14	21	533	116	100	45	114	12	0	0

CAL YR 1975 TOTAL 2773.65 MEAN 7.60 MAX 284 MIN 0 AC-FT 5500

WTR YR 1976 TOTAL 497.07 MEAN 1.36 MAX 50 MIN 0 AC-FT 986

CANNONBALL RIVER BASIN

06352000 CEDAR CREEK NEAR HAYNES, ND

LOCATION.--Lat 46°09'15", long 102°28'25", in W½ sec.20, T.131 N., R.94 W., Adams County, Hydrologic Unit 10130205, on left bank 30 ft (9 m) downstream from bridge on State Highway 8 and 12.5 mi (20 km) north of Haynes.

DRAINAGE AREA.--553 mi² (1,430 km²).

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,472.90 ft (753.740 m) above mean sea level, North Dakota Highway Department benchmark. Prior to May 20, 1951, nonrecording gage on former bridge 400 ft (120 m) upstream at same datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--26 years, 33.6 ft³/s (0.952 m³/s), 24,340 acre-ft/yr (30.0 hm³/yr); median of yearly mean discharges, 28 ft³/s (0.79 m³/s), 20,300 acre-ft/yr (25 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,870 ft³/s (223 m³/s) Apr. 7, 1952, gage height, 21.25 ft (6.477 m); no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 17, 1950 reached a stage of about 23 ft (7.0 m), discharge, 26,900 ft³/s (762 m³/s), by slope-area measurement at site 9 mi (14 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96 ft³/s (2.72 m³/s) Feb. 19, gage height, 6.91 ft (2.106 m), minimum daily, 0.65 ft³/s (0.018 m³/s) Aug. 2-4, 15, 16, 22-24, 27-30, Sept. 3-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	6.5	2.0	5.5	50	51	23	20	5.1	8.0	.77	.77
2	2.9	6.3	1.5	5.5	50	46	21	20	4.8	7.1	.65	.71
3	2.9	6.5	1.5	5.0	55	36	20	20	4.6	6.4	.65	.65
4	2.9	6.2	2.0	4.5	50	27	19	18	4.4	6.4	.65	.65
5	2.9	5.8	2.5	4.0	25	19	19	17	8.0	6.4	.77	.71
6	3.0	6.1	3.0	3.5	15	13	18	14	6.6	6.4	1.1	.77
7	3.0	5.5	3.5	3.0	9.0	11	18	13	6.1	6.4	1.1	.77
8	3.0	5.5	4.0	2.5	8.0	12	18	12	6.4	6.1	.84	.77
9	3.0	5.5	5.0	2.0	10	19	18	11	6.8	6.1	.77	.77
10	3.0	5.8	6.0	2.0	22	28	17	10	7.0	5.8	.77	.79
11	3.0	5.7	6.5	2.0	42	35	16	9.1	6.8	5.7	.84	.79
12	3.2	6.6	6.5	2.5	52	40	16	8.7	6.2	5.5	.84	.86
13	3.2	6.1	6.0	4.0	71	45	15	8.7	18	5.2	.77	.86
14	3.4	6.1	5.5	5.0	63	35	15	8.7	38	4.6	.71	.88
15	3.6	6.1	5.0	4.5	71	30	15	8.7	32	3.6	.65	.92
16	3.8	6.1	4.5	4.5	49	33	15	8.9	44	2.5	.65	.94
17	4.1	6.1	4.0	5.0	46	42	16	8.7	38	2.3	.71	.94
18	4.4	5.3	4.0	5.5	75	54	18	8.9	23	2.2	.71	.99
19	4.5	5.3	5.5	6.0	90	52	20	8.2	16	1.9	.71	1.0
20	4.7	5.0	7.5	6.0	83	53	22	7.1	13	1.8	.71	1.1
21	5.0	5.0	7.0	6.0	69	47	23	7.0	11	1.7	.71	1.1
22	5.1	4.5	6.5	6.5	58	47	23	6.8	9.1	1.3	.65	1.1
23	5.2	4.5	6.0	7.0	47	50	24	6.6	8.4	1.3	.65	1.1
24	5.7	4.5	6.0	8.0	38	53	26	6.2	8.9	1.2	.65	1.1
25	6.2	4.0	6.0	8.0	28	57	27	6.1	8.2	1.1	.77	1.1
26	6.3	4.0	6.0	7.5	23	55	28	6.2	8.7	.99	.77	1.2
27	6.4	3.5	6.0	6.0	18	40	26	6.4	9.3	.99	.65	1.2
28	6.5	3.5	6.0	5.5	14	35	23	6.2	11	.84	.65	1.3
29	6.5	3.0	6.0	10	39	29	21	5.9	10	.77	.65	1.3
30	6.5	2.5	6.0	25	---	26	20	5.7	8.9	.77	.65	1.3
31	6.7	---	6.0	35	---	24	---	5.4	---	.77	.71	---
TOTAL	133.5	157.1	153.5	207.0	1270.0	1144	600	309.2	388.3	112.13	22.88	28.44
MEAN	4.31	5.24	4.95	6.68	43.8	36.9	20.0	9.97	12.9	3.62	.74	.95
MAX	6.7	6.6	7.5	35	90	57	28	20	44	8.0	1.1	1.3
MIN	2.9	2.5	1.5	2.0	8.0	11	15	5.4	4.4	.77	.65	.65
AC-FT	265	312	304	411	2520	2270	1190	613	770	222	45	56
CAL YR 1975	TOTAL	29861.39	MEAN 81.8	MAX 3100	MIN .54	AC-FT 59230						
WTR YR 1976	TOTAL	4526.05	MEAN 12.4	MAX 90	MIN .65	AC-FT 8980						

CANNONBALL RIVER BASIN

477

06352500 CEDAR CREEK NEAR PRETTY ROCK, ND

LOCATION.--Lat 46°01'55", long 101°49'55", in S½ sec.33, T.130 N., R.89 W., Grant County, Hydrologic Unit 10130205, on left bank on downstream side of county highway bridge, 7 mi (11 km) north of Keldron, SD, 10.5 mi (17 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.--April 1943 to current year.

REVISED RECORDS (WATER YEARS).--WSP 1146: 1944, 1947. WSP 1209: Drainage area. WSP 1389: 1951.

GAGE.--Water-stage recorder. Datum of gage is 2,155.17 ft (656.896 m) above mean sea level, levels by Corps of Engineers. Prior to Oct. 17, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--33 years, 73.2 ft³/s (2.073 m³/s), 53,030 acre-ft/yr (65.4 hm³/yr); median of yearly mean discharges, 52 ft³/s (1.47 m³/s), 37,700 acre-ft/yr (46 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s (1,360 m³/s) Apr. 17, 1950, gage height, 26.5 ft (8.077 m), from floodmark in gage house, from rating curve extended above 7,800 ft³/s (221 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 24, 1943, reached a stage of 21.8 ft (6.645 m), from floodmarks, discharge, 14,300 ft³/s (405 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 297 ft³/s (8.41 m³/s) June 3, gage height, 4.30 ft (1.311 m); minimum, no flow Aug. 12 - Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	12	7.1	14	45	71	45	44	5.7	17	.26	
2	1.8	12	7.3	14	40	58	41	38	5.3	15	.17	
3	1.2	12	8.5	14	35	50	38	33	187	15	.13	
4	1.7	11	9.7	14	30	45	36	29	92	16	.09	
5	2.3	11	11	12	36	45	38	31	46	14	.13	
6	2.6	11	11	10	54	40	33	29	29	13	.06	
7	3.7	11	11	10	40	35	29	28	21	14	.03	
8	4.1	10	11	9.2	29	30	31	26	15	14	.02	
9	4.9	9.7	12	7.4	28	31	28	23	12	12	.02	
10	6.2	9.9	13	7.0	35	32	23	21	9.0	11	.01	
11	6.7	11	13	7.0	65	32	21	18	7.2	8.7	.01	
12	6.7	10	13	7.0	106	34	22	17	7.7	6.4	0	
13	7.2	9.6	13	7.0	106	36	22	17	7.7	5.4	0	
14	8.4	10	12	7.0	106	36	27	16	8.4	5.4	0	
15	8.4	9.9	9.4	6.4	115	41	26	16	15	5.8	0	
16	9.0	9.7	8.2	6.4	108	51	26	16	14	5.5	0	
17	7.7	9.9	5.8	6.2	130	56	34	14	16	4.7	0	
18	7.2	9.7	4.7	6.7	186	77	41	13	45	4.4	0	
19	7.2	10	4.7	7.2	192	94	42	13	43	3.5	0	
20	7.7	10	5.0	8.4	174	100	40	12	49	2.8	0	
21	9.0	10	6.5	8.4	130	85	41	12	46	2.3	0	
22	9.6	9.5	7.8	9.7	147	88	48	12	35	1.8	0	
23	9.6	9.5	8.3	10	192	98	52	10	34	1.6	0	
24	10	9.5	8.3	12	186	82	60	9.7	36	1.4	0	
25	10	9.0	8.3	14	162	87	79	9.0	40	1.0	0	
26	10	9.0	9.0	15	150	104	80	9.0	46	.86	0	
27	10	8.5	10	16	135	84	66	8.4	46	.65	0	
28	9.9	8.0	11	16	108	77	58	7.2	38	.67	0	
29	9.6	8.0	12	16	80	77	52	6.7	29	.63	0	
30	11	7.5	13	16	---	65	48	6.2	22	.44	0	
31	12	---	14	20	---	53	---	5.7	---	.35	0	---
TOTAL	216.8	297.9	298.6	334.0	2950	1894	1227	549.9	1007.0	205.30	.93	0
MEAN	6.99	9.93	9.63	10.8	102	61.1	40.9	17.7	33.6	6.62	.030	0
MAX	12	12	14	20	192	104	80	44	187	17	.26	0
MIN	1.2	7.5	4.7	6.2	28	30	21	5.7	5.3	.35	0	0
AC-FT	430	591	592	662	5850	3760	2430	1090	2000	407	1.8	0

CAL YR 1975 TOTAL 53386.98 MEAN 146 MAX 4280 MIN .96 AC-FT 105900
WTR YR 1976 TOTAL 8981.43 MEAN 24.5 MAX 192 MIN 0 AC-FT 17810

CANNONBALL RIVER BASIN

06353000 CEDAR CREEK NEAR RALEIGH, ND

LOCATION.--Lat 46°05'30", long 101°20'00", in NE4SE4 sec.8, T.130 N., R.85 W., Grant County, Hydrologic Unit 10130205, on left bank at upstream side of bridge on N.D. Highway 31, 6 mi (10 km) upstream from mouth, and 19 mi (30 km) south of Raleigh.

DRAINAGE AREA.--1,750 mi² (4,530 km²), approximately.

PERIOD OF RECORD.--April to September 1939, March 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,881.23 ft (573.399 m) above mean sea level. Prior to June 6, 1962, nonrecording gage at same site and datum, and June 6, 1962, to Sept. 7, 1972, at site 1 mi (2 km) upstream at datum 9.58 ft (2.920 m) higher.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--14 years (1962-76) 95.2 ft³/s (2.696 m³/s), 68,970 acre-ft/yr (85.0 hm³/yr); median of yearly mean discharges, 80 ft³/s (2.27 m³/s), 58,000 acre-ft/yr (72 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft³/s (170 m³/s) Mar. 15, 1966, gage height, 12.32 ft (3.755 m), backwater from ice; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1950, about 18 ft (5.486 m) Apr. 18, 1950, discharge 45,000 ft³/s (1,270 m³/s), on basis of slope-area measurement 5 mi (8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 245 ft³/s (6.94 m³/s) June 24, gage height, 3.51 ft (1.070 m); maximum gage height, 4.09 ft (1.247 m), Mar. 18, backwater from ice; minimum discharge, no flow Aug. 16 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	11	12	6.0	6.0	30	44	35	11	18	1.2	
2	1.6	10	12	6.0	6.0	30	37	34	10	15	1.1	
3	1.6	10	15	6.0	6.0	25	34	30	9.5	13	1.0	
4	1.6	10	14	5.0	5.0	25	30	27	8.7	13	.95	
5	1.8	10	14	5.0	5.0	20	28	27	75	11	1.1	
6	1.9	10	13	5.0	5.0	20	27	24	69	11	1.0	
7	1.9	10	13	5.0	6.0	20	26	23	42	9.5	.95	
8	2.0	10	13	5.0	10	20	24	23	29	8.3	.81	
9	2.1	10	12	5.0	15	20	22	21	22	7.2	.67	
10	2.3	10	12	5.0	20	20	22	20	18	6.9	.61	
11	2.1	10	12	5.0	25	20	21	19	15	6.2	.55	
12	2.1	9.5	12	6.0	20	20	19	18	14	6.2	.40	
13	2.4	10	12	6.0	20	25	18	17	12	5.6	.22	
14	2.4	9.1	11	6.0	30	35	18	15	13	5.3	.13	
15	2.7	9.5	11	6.0	30	60	19	15	31	5.0	.01	
16	2.9	9.5	11	6.0	70	62	37	13	21	4.3	0	
17	5.6	9.5	10	6.0	60	70	185	14	17	3.8	0	
18	5.9	10	10	6.0	50	180	71	13	15	3.6	0	
19	5.9	10	10	6.0	40	105	48	12	15	3.0	0	
20	6.2	7.9	9.0	6.0	40	80	56	12	15	3.0	0	
21	8.3	9.0	8.0	6.0	30	70	48	19	27	3.2	0	
22	9.1	9.0	8.0	6.0	30	65	44	20	31	3.6	0	
23	9.1	9.0	8.0	6.0	30	60	45	17	99	3.2	0	
24	9.5	9.0	8.0	6.0	35	50	98	16	172	2.9	0	
25	9.5	9.0	7.0	6.0	35	60	81	15	50	2.0	0	
26	9.5	10	7.0	6.0	30	57	52	20	31	1.7	0	
27	10	10	7.0	6.0	25	55	57	16	27	1.6	0	
28	9.5	11	7.0	6.0	25	57	55	15	27	1.6	0	
29	9.5	12	7.0	6.0	25	57	46	14	27	1.5	0	
30	10	12	7.0	6.0	---	56	40	13	23	1.4	0	
31	11	---	7.0	6.0	---	55	---	11	---	1.3	0	---
TOTAL	161.6	296.0	319.0	178.0	734.0	1529	1352	588	976.2	182.9	10.70	0
MEAN	5.21	9.87	10.3	5.74	25.3	49.3	45.1	19.0	32.5	5.90	.35	0
MAX	11	12	15	6.0	70	180	185	35	172	18	1.2	0
MIN	1.6	7.9	7.0	5.0	5.0	20	18	11	8.7	1.3	0	0
AC-FT	321	587	633	353	1460	3030	2680	1170	1940	363	21	0
CAL YR 1975 TOTAL	54050.10			MEAN 148		MAX 3980	MIN 0		AC-FT 107200			
WTR YR 1976 TOTAL	6327.40			MEAN 17.3		MAX 185	MIN 0		AC-FT 12550			

CANNONBALL RIVER BASIN

479

06354000 CANNONBALL RIVER AT BREIEN, ND

LOCATION.--Lat 46°22'33", long 100°56'03", in sec.36, T.134 N., R.82 W., Morton County, Hydrologic Unit 10130206, on left bank at downstream side of bridge on State Highway 6, 1,500 ft (460 m) downstream from Louise Creek and 0.6 mi (1.0 km) southeast of Breien. Prior to June 12, 1973, at site 600 ft (180 m) upstream on right bank.

DRAINAGE AREA.--4,100 mi² (10,600 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1934 to current year.

REVISED RECORDS.--WSP 786: 1934. WSP 1146: 1943. WSP 1279: 1936-37(M), 1947(M). WSP 1509: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,675.54 ft (510.705 m) above mean sea level. Prior to June 12, 1973, at site 600 ft (180 m) upstream at datum 1 ft (0.3048 m) higher.

REMARKS.--Records good except those for the winter period, which are fair. Some storage in several small lakes above station.

AVERAGE DISCHARGE.--42 years, 241 ft³/s (6.825 m³/s), 174,600 acre-ft/yr (215 hm³/yr); median of yearly mean discharges, 180 ft³/s (5.10 m³/s), 130,000 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,800 ft³/s (2,680 m³/s) Apr. 19, 1950, gage height, 22.30 ft (6.797 m), from floodmarks, from rating curve extended above 16,000 ft³/s (453 m³/s) on basis of slope-area and contracted-opening of peak flow, site and datum then in use; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,010 ft³/s (28.6 m³/s) June 15, gage height, 3.51 ft (1.070 m); maximum gage height, 5.00 ft (1.524 m) Mar. 22; backwater from ice; minimum discharge, no flow Aug. 24 to Sept. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	39	22	18	25	110	242	228	36	124	4.7	0
2	15	38	22	18	25	90	210	198	34	101	4.0	0
3	15	38	22	17	22	70	192	174	30	83	2.5	0
4	15	38	22	17	22	50	174	155	28	74	1.6	0
5	15	37	22	16	20	40	160	142	26	76	2.0	0
6	16	36	22	16	20	35	148	126	68	79	4.5	0
7	17	36	22	15	30	35	138	113	119	63	7.8	0
8	17	36	22	15	40	30	131	105	180	55	4.0	0
9	17	35	22	15	45	30	124	95	117	49	2.6	0
10	18	35	22	15	40	30	117	90	86	45	1.6	0
11	19	34	21	16	35	30	111	83	68	40	1.1	0
12	20	37	20	16	30	25	107	77	80	36	.50	0
13	23	27	20	16	50	25	99	76	51	33	.45	0
14	22	33	19	16	60	25	86	73	131	30	.29	0
15	20	43	18	16	100	25	90	69	679	27	.23	0
16	20	36	18	16	110	25	118	69	555	24	.17	0
17	21	32	16	16	130	150	458	65	335	25	.13	0
18	21	33	14	17	150	300	515	62	264	26	.13	.05
19	21	33	14	17	160	350	344	58	264	24	.15	.10
20	25	34	14	17	170	550	274	58	236	21	.15	.05
21	26	22	14	18	170	640	236	58	186	19	.11	.02
22	27	31	14	18	180	620	222	63	158	15	.07	.01
23	29	34	15	19	180	600	256	69	182	13	.01	.05
24	34	28	15	20	200	580	445	59	385	12	0	.10
25	36	26	16	20	200	550	485	53	343	8.5	0	.20
26	37	25	16	21	200	525	475	54	236	7.4	0	.60
27	39	24	16	22	190	425	440	59	371	6.2	0	.50
28	49	24	17	22	170	371	380	59	256	5.6	0	.36
29	45	24	17	22	140	327	315	46	186	5.4	0	.36
30	43	23	18	24	---	299	267	42	150	5.9	0	.36
31	42	---	18	24	---	253	---	38	---	5.1	0	---
TOTAL	779	971	570	555	2914	7215	7359	2716	5840	1138.1	38.79	2.76
MEAN	25.1	32.4	18.4	17.9	100	233	245	87.6	195	36.7	1.25	.092
MAX	49	43	22	24	200	640	515	228	679	124	7.8	.60
MIN	15	22	14	15	20	25	86	38	26	5.1	0	0
AC-FT	1550	1930	1130	1100	5780	14310	14600	5390	11580	2260	77	5.5
CAL YR 1975 TOTAL	148455.70			MEAN 407	MAX 8080	MIN 1.0	AC-FT 294500					
WTR YR 1976 TOTAL	30098.65			MEAN 82.2	MAX 679	MIN 0	AC-FT 59700					

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued
(National Water-Quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-50 (partial-record station), 1970-72, 1974 to current year (monthly).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1972 to September 1974 (weekly); October 1974 to current year.

WATER TEMPERATURES: July 1972 to September 1974 (weekly); October 1974 to current year.

SUSPENDED SEDIMENT DISCHARGE: May 1948 to September 1951, July 1959 to September 1976 (daily).

REMARKS.--Sediment records from May 1948 to September 1951, July 1959 to September 1971 are available from U.S. Corps of Engineers, Omaha, Neb. No flow August 24 to September 17, 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 3,800 micromhos Jan. 24, 1975; minimum, 308 micromhos Apr. 17, 1975.

WATER TEMPERATURES: Maximum, 27.0°C on July 5 and 17, 1975; minimum, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS (1972-76): Maximum daily mean, 7,200 mg/L Sept. 4, 1973; minimum daily mean, 10 mg/L on several days in 1972 and 1974.

SEDIMENT LOADS (1972-76): Maximum daily, 172,000 tons (156,000 tonnes) Mar. 15, 1972; minimum daily, 0 ton (0 tonne) Aug. 29 to Oct. 1, 1974 and Aug. 23 to Sept. 17, 21-23, 1976.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,300 micromhos Dec. 21; minimum daily, 865 micromhos June 19.

WATER TEMPERATURES: Maximum daily, 24.0°C July 11, Aug. 4 and 19; minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,460 mg/L Apr. 18; minimum daily mean, 14 mg/L Dec. 18-22.

SEDIMENT LOADS: Maximum daily, 10,500 tons (9,500 tonnes) June 15; minimum daily, 0 ton (0 tonne) Aug. 23 to Sept. 17, 21-23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT 28...	1600	48	1900	8.7	4.5	7	12.2	98	12	88	430	120
NOV 24...	1345	27	2100	8.3	.0	4	13.0	95	86	33	550	120
DEC 22...	1600	14	3000	8.0	.0	4	12.5	91	85	817	870	270
JAN 26...	1430	21	2900	8.0	.0	3	10.1	74	84	27	710	160
FEB 24...	1120	190	1180	8.1	.0	75	12.4	90	85	105	320	150
MAR 29...	1230	298	1200	8.2	5.0	52	12.0	100	<1	60	330	150
APR 26...	1430	467	1300	8.3	10.0	190	10.2	96	750	1120	410	170
MAY 24...	1345	60	2000	8.5	19.0	25	9.7	111	93	154	570	250
JUN 24...	1115	402	1450	8.5	18.5	350	8.4	95	86400	8600	360	180
JUL 26...	1315	7.4	2020	8.6	25.0	15	8.8	111	850	821	520	230
SEP 27...	1245	.60	2100	8.7	12.0	10	10.1	99	204	280	290	0

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

CANNONBALL RIVER BASIN

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06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINIT- AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT											
28...	72	60	270	57	5.7	9.7	366	7	312	1.2	680
NOV											
24...	98	74	320	55	5.9	10	519	0	426	4.2	780
DEC											
22...	150	120	490	55	7.2	14	735	0	603	12	1300
JAN											
26...	130	93	430	56	7.0	11	669	0	549	11	1100
FEB											
24...	59	42	140	48	3.4	10	213	0	175	2.7	420
MAR											
29...	60	43	140	47	3.4	8.9	215	0	176	2.2	440
APR											
26...	69	57	150	44	3.2	9.2	288	0	236	2.3	450
MAY											
24...	88	85	300	53	5.5	11	392	0	322	2.0	900
JUN											
24...	58	52	190	53	4.4	10	220	0	180	1.1	570
JUL											
26...	83	77	340	58	6.5	15	348	6	295	1.4	870
SEP											
27...	38	47	400	74	10	13	670	21	585	2.3	510

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT											
28...	12	.3	2.4	1340	1290	1.82	174	.01	1.2	1.2	.03
NOV											
24...	16	.5	4.1	1590	1560	2.16	116	.00	1.2	1.2	.04
DEC											
22...	21	.6	5.6	2520	2460	3.43	95.3	.09	.80	.89	.01
JAN											
26...	18	.5	5.8	2100	2120	2.86	119	.32	.76	1.1	.00
FEB											
24...	8.1	.2	5.1	853	789	1.16	438	.78	2.3	3.1	.18
MAR											
29...	6.3	.3	4.5	881	809	1.20	709	.47	1.8	2.3	.09
APR											
26...	7.6	.3	6.0	955	891	1.30	1200	.14	1.8	1.9	.16
MAY											
24...	12	.4	4.3	1640	1590	2.23	266	.01	.85	.86	.06
JUN											
24...	6.4	.3	6.5	1050	1000	1.43	1140	.53	2.3	2.8	.40
JUL											
26...	14	.4	6.8	1590	1580	2.16	31.8	.00	.99	.99	.05
SEP											
27...	37	1.0	3.6	1450	1400	1.97	2.35	.06	1.3	1.4	.05

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDED ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
DEC 22...	1	0	1	10	10	0	0	0	0
MAR 29...	2	2	0	<10	<9	1	0	0	0
JUN 24...	11	11	0	1	0	1	30	20	10
SEP 27...	1	0	2	<10	<10	0	0	0	0

DATE	TOTAL COBALT (CO) (UG/L)	SUS- PENDED COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
DEC 22...	50	50	0	20	--	2	110	20	<100
MAR 29...	<50	<50	0	20	17	3	3500	60	<100
JUN 24...	17	17	0	30	20	10	19000	50	28
SEP 27...	<50	<50	0	<10	<6	4	420	10	<100

DATE	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)
DEC 22...	<100	0	60	20	40	.1	.1	.0
MAR 29...	<96	4	140	120	20	.0	.0	.0
JUN 24...	20	8	550	550	4	<.5	.0	<.5
SEP 27...	<98	2	40	30	10	.1	.0	.1

DATE	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDED ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDED ORGANIC CARBON (C) (MG/L)
DEC 22...	1	0	1	10	10	0	--	15	.4
MAR 29...	0	0	0	30	30	0	7.8	--	--
JUN 24...	0	0	0	120	110	6	27	--	--
SEP 27...	0	0	0	10	2	8	14	--	--

CANNONBALL RIVER BASIN

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06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)	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	SUS. SED. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM
OCT										
28...	46	6.0	--	--	--	--	--	--	79	--
NOV										
24...	25	1.8	--	--	--	--	--	--	60	--
DEC										
22...	43	1.6	--	--	--	--	--	--	61	--
JAN										
26...	62	3.5	--	--	--	--	--	--	70	--
FEB										
24...	140	72	--	--	--	--	--	--	94	--
MAR										
29...	112	90	72	81	100	--	--	--	--	--
APR										
26...	596	751	84	95	100	--	--	--	--	6
MAY										
24...	90	15	--	--	--	--	--	--	98	--
JUN										
24...	1360	1480	54	63	70	71	97	100	--	4
JUL										
26...	42	.84	--	--	--	--	--	--	88	--
SEP										
27...	--	--	--	--	--	--	--	--	--	1

DATE	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 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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM
OCT									
28...	--	--	--	--	--	--	--	--	--
NOV									
24...	--	--	--	--	--	--	--	--	--
DEC									
22...	--	--	--	--	--	--	--	--	--
JAN									
26...	--	--	--	--	--	--	--	--	--
FEB									
24...	--	--	--	--	--	--	--	--	--
MAR									
29...	--	--	--	--	--	--	--	--	--
APR									
26...	10	33	57	68	76	83	88	93	100
MAY									
24...	--	--	--	--	--	--	--	--	--
JUN									
24...	10	67	77	78	86	92	96	98	100
JUL									
26...	--	--	--	--	--	--	--	--	--
SEP									
27...	3	31	64	80	88	93	97	100	--

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1640	1780	2310	2860	2460	1260	1310	2030	1950	1390	2220	
2	1620	1750	2420	2950	2460	1290	1290	2230	2070	1320	2200	
3	1620	1700	2470	2900	2460	1290	1310	2340	2190	1330	2270	
4	1770	1680	2280	2830	2190	1330	1330	---	2250	1360	2280	
5	1650	1740	2280	2900	2210	1340	1360	2320	2200	1490	2220	
6	1700	1640	2280	2710	2720	1380	1370	2350	2330	1420	2300	
7	1740	1630	2400	2870	2820	1470	1390	2210	2290	1520	2250	
8	1830	1580	2450	2690	2940	1580	1410	---	2410	1580	2250	
9	1720	1680	2330	2800	2870	1600	1450	2350	1820	1700	2240	
10	1730	1730	2350	2710	2280	1630	1480	2390	2310	1570	2230	
11	1730	1710	2570	2710	2670	1640	1510	2380	2410	1640	2190	
12	1860	1750	2520	2670	2920	1830	1560	---	2220	1690	2220	
13	1790	1820	2520	2710	2110	1750	1570	2350	2230	1820	2110	
14	1600	1700	2550	2720	2070	1680	1560	2390	2490	1730	2250	
15	1600	1630	2650	2780	2070	1640	1580	2410	1480	1750	2180	
16	1850	1630	2940	2710	1850	1560	1590	---	1780	1820	2180	
17	1780	1730	3010	2680	1400	1540	1130	2440	1320	1940	2160	
18	1760	1620	3080	2660	1300	1140	870	2460	920	1870	2250	
19	1760	1720	3210	2650	1410	900	1140	2460	865	1880	2190	
20	1860	1700	3100	2570	1620	941	1160	---	1210	1900	2220	
21	1770	2060	3300	2510	1200	955	1300	2440	1500	2130	2230	
22	1740	2110	3130	2630	1240	1030	1280	2340	1390	1970	2480	
23	1760	2180	2930	2700	1240	1070	1330	2390	1410	1950	2300	
24	1890	2060	3060	2560	1200	1140	1040	---	1460	1980	---	
25	1860	2190	3120	2730	1140	1190	1100	2360	1250	2110	---	
26	1840	2250	2990	2740	1150	1160	1320	2180	910	2370	---	
27	1850	2150	2930	2750	1200	1220	1560	2230	1040	2340	---	
28	1910	2220	3160	---	1360	1770	1790	---	1330	2370	---	
29	1790	2230	3260	2750	1300	1240	1790	2370	1450	2270	---	
30	1750	2340	3270	2700	---	1250	1830	2330	1510	2460	---	
31	1760	---	3060	2650	---	1260	---	2070	---	2460	---	
MONTH	1760	1860	2770	2730	1930	1360	1390	---	1730	1840	---	

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	3.0	0.0	0.0	0.0	0.0	5.0	10.5	19.0	20.0	20.0	
2	7.5	5.0	0.0	0.0	0.0	0.0	6.0	7.0	20.0	20.0	19.5	
3	10.0	5.0	0.0	0.0	0.0	0.0	3.0	7.5	20.0	19.5	20.0	
4	10.5	5.0	0.0	0.0	0.0	0.0	5.0	10.0	18.5	18.0	24.0	
5	10.0	4.5	0.0	0.0	0.0	0.0	6.5	9.5	19.0	20.5	19.0	
6	8.0	3.5	0.0	0.0	0.0	0.0	8.0	9.0	20.0	21.0	17.0	
7	10.5	4.0	0.0	0.0	0.0	0.0	10.0	8.5	20.5	21.0	19.0	
8	12.5	2.0	0.0	0.0	0.0	0.0	9.0	11.5	23.0	21.5	21.0	
9	7.0	1.0	0.0	0.0	0.0	0.0	10.5	14.0	23.5	23.0	21.0	
10	5.0	0.0	0.0	0.0	0.0	0.0	10.0	14.5	22.5	23.5	20.0	
11	5.5	1.0	0.0	0.0	0.0	0.0	6.0	15.0	22.0	24.0	18.5	
12	7.0	0.0	0.0	0.0	0.0	0.0	8.0	12.5	20.0	20.0	18.0	
13	7.0	0.0	0.0	0.0	0.0	0.0	11.0	11.0	17.0	22.0	20.0	
14	6.5	0.0	0.0	0.0	0.0	0.0	13.0	14.0	19.0	21.0	19.5	
15	2.5	0.0	0.0	0.0	0.0	0.0	10.0	15.0	13.0	20.0	18.0	
16	6.0	1.0	0.0	0.0	0.0	0.0	10.5	12.0	15.5	16.0	20.0	
17	6.5	1.0	0.0	0.0	0.0	0.0	7.0	13.5	16.0	19.0	21.0	
18	6.0	1.5	0.0	0.0	0.0	0.0	5.0	13.0	15.0	21.0	22.0	
19	7.0	0.0	0.0	0.0	0.0	0.0	5.0	16.5	17.0	22.0	24.0	
20	8.0	0.0	0.0	0.0	0.0	0.0	7.0	16.0	19.0	20.5	23.0	
21	9.0	0.0	0.0	0.0	0.0	0.0	7.0	17.0	20.5	20.0	22.0	
22	7.0	0.0	0.0	0.0	0.0	0.0	6.0	15.0	20.0	20.0	19.0	
23	5.0	0.0	0.0	0.0	0.0	0.0	8.5	15.5	22.0	19.0	20.0	
24	4.0	0.0	0.0	0.0	0.0	0.0	6.5	13.0	17.0	21.0	---	
25	1.0	0.0	0.0	0.0	0.0	0.0	5.0	15.0	15.5	23.5	---	
26	1.5	0.0	0.0	0.0	0.0	0.0	7.0	15.0	16.0	20.0	---	
27	3.5	0.0	0.0	0.0	0.0	0.0	8.0	14.5	16.0	20.5	---	
28	0.0	0.0	0.0	0.0	0.0	0.0	9.0	15.0	16.0	18.5	---	
29	0.0	0.0	0.0	0.0	0.0	0.0	11.0	17.0	17.0	20.0	---	
30	1.0	0.0	0.0	0.0	---	0.0	10.0	18.0	19.0	20.0	---	
31	3.0	---	0.0	0.0	---	0.0	---	18.5	---	19.0	---	
MONTH	6.0	1.5	0.0	0.0	0.0	0.0	8.0	13.5	18.5	20.5	---	

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	15	25	1.0	39	22	2.3	22	34	2.0
2	15	25	1.0	38	22	2.3	22	32	1.9
3	15	24	.97	38	24	2.5	22	30	1.8
4	15	24	.97	38	24	2.5	22	30	1.8
5	15	24	.97	37	26	2.6	22	30	1.8
6	16	25	1.1	36	26	2.5	22	30	1.8
7	17	25	1.1	36	24	2.3	22	30	1.8
8	17	25	1.1	36	24	2.3	22	30	1.8
9	17	24	1.1	35	22	2.1	22	30	1.8
10	18	22	1.1	35	22	2.1	22	30	1.8
11	19	22	1.1	34	22	2.0	21	30	1.7
12	20	20	1.1	37	26	2.6	20	32	1.7
13	23	40	2.5	27	30	2.2	20	34	1.8
14	22	42	2.5	33	36	3.2	19	40	2.1
15	20	33	1.8	43	42	4.9	18	44	2.1
16	20	32	1.7	36	40	3.9	18	46	2.2
17	21	30	1.7	32	38	3.3	16	44	1.9
18	21	28	1.6	33	36	3.2	14	42	1.6
19	21	26	1.5	33	34	3.0	14	42	1.6
20	25	30	2.0	34	32	2.9	14	42	1.6
21	26	34	2.4	22	30	1.8	14	40	1.5
22	27	37	2.7	31	30	2.5	14	44	1.7
23	29	40	3.1	34	28	2.6	15	44	1.8
24	34	46	4.2	28	25	1.9	15	48	1.9
25	36	44	4.3	26	24	1.7	16	52	2.2
26	37	42	4.2	25	30	2.0	16	56	2.4
27	39	44	4.6	24	32	2.1	16	60	2.6
28	49	46	6.1	24	32	2.1	17	60	2.8
29	45	40	4.9	24	30	1.9	17	60	2.8
30	43	34	3.9	23	34	2.1	18	60	2.9
31	42	28	3.2	---	---	---	18	60	2.9
TOTAL	779	---	71.51	971	---	75.4	570	---	62.1

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	18	60	2.9	25	140	9.5	110	40	12
2	18	60	2.9	25	140	9.5	90	30	7.3
3	17	60	2.8	22	135	8.0	70	25	4.7
4	17	60	2.8	22	130	7.7	50	20	2.7
5	16	60	2.6	20	125	6.8	40	18	1.9
6	16	60	2.6	20	120	6.5	35	16	1.5
7	15	60	2.4	30	130	11	35	15	1.4
8	15	60	2.4	40	150	16	30	15	1.2
9	15	56	2.3	45	180	22	30	16	1.3
10	15	52	2.1	40	170	18	30	18	1.5
11	16	48	2.1	35	160	15	30	20	1.6
12	16	44	1.9	30	150	12	25	24	1.6
13	16	40	1.7	50	150	20	25	28	1.9
14	16	36	1.6	60	140	23	25	32	2.2
15	16	34	1.5	100	130	35	25	36	2.4
16	16	32	1.4	110	120	36	25	40	2.7
17	16	32	1.4	130	110	39	150	100	40
18	17	30	1.4	150	100	40	300	250	202
19	17	30	1.4	160	100	43	350	350	331
20	17	30	1.4	170	90	41	550	340	505
21	18	34	1.7	170	90	41	640	330	570
22	18	38	1.8	180	100	49	620	320	536
23	19	42	2.2	180	120	58	600	340	551
24	20	46	2.5	200	140	76	580	330	517
25	20	50	2.7	200	130	70	550	280	416
26	21	55	3.1	200	110	59	525	200	283
27	22	65	3.9	190	90	46	425	148	170
28	22	85	5.0	170	70	32	371	136	136
29	22	95	5.6	140	50	19	327	110	97
30	24	110	7.1	---	---	---	299	86	69
31	24	125	8.1	---	---	---	253	62	42
TOTAL	555	---	85.3	2914	---	869.0	7215	---	4512.9

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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	242	54	35	228	89	55	36	50	4.9
2	210	49	28	198	79	42	34	50	4.6
3	192	42	22	174	69	32	30	50	4.1
4	174	36	17	155	63	26	28	51	3.9
5	160	29	13	142	60	23	26	51	3.6
6	148	25	10	126	60	20	68	518	247
7	138	23	8.6	113	58	18	119	1940	623
8	131	21	7.4	105	58	16	180	1620	787
9	124	20	6.7	95	56	14	117	1130	357
10	117	19	6.0	90	56	14	86	810	188
11	111	18	5.4	83	54	12	68	580	106
12	107	17	4.9	77	54	11	80	1050	240
13	99	15	4.0	76	52	11	51	1340	74
14	86	15	3.5	73	50	9.9	131	1340	532
15	90	15	3.6	69	48	8.9	679	4630	10500
16	118	499	208	69	46	8.6	555	2810	4900
17	458	4910	7310	65	46	8.1	335	1050	950
18	515	5460	7590	62	48	8.0	264	860	613
19	344	1500	1390	58	50	7.8	264	1280	912
20	274	880	651	58	52	8.1	236	490	312
21	236	1230	784	58	60	9.4	186	340	171
22	222	620	372	63	78	13	158	280	119
23	256	680	470	69	95	18	182	470	231
24	445	1200	1440	59	66	11	385	2490	2740
25	485	790	1030	53	57	8.2	343	3220	3190
26	475	630	808	54	70	10	236	800	510
27	440	240	285	59	103	16	371	600	601
28	380	140	144	59	92	15	256	340	235
29	315	108	92	46	65	8.1	186	210	105
30	267	98	71	42	54	6.1	150	145	59
31	---	---	---	38	51	5.2	---	---	---
TOTAL	7359	---	22820.1	2716	---	473.4	5840	---	29323.1

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	124	109	36	4.7	50	.63	0	---	0
2	101	85	23	4.0	50	.54	0	---	0
3	83	66	15	2.5	48	.32	0	---	0
4	74	58	12	1.6	46	.20	0	---	0
5	76	59	12	2.0	61	.37	0	---	0
6	79	87	19	4.5	91	1.2	0	---	0
7	63	70	12	7.8	109	2.3	0	---	0
8	55	64	9.5	4.0	86	.93	0	---	0
9	49	61	8.1	2.6	80	.56	0	---	0
10	45	72	8.7	1.6	64	.28	0	---	0
11	40	78	8.4	1.1	60	.18	0	---	0
12	36	80	7.8	.50	55	.07	0	---	0
13	33	79	7.0	.45	47	.06	0	---	0
14	30	75	6.1	.29	41	.03	0	---	0
15	27	71	5.2	.23	40	.02	0	---	0
16	24	67	4.3	.17	42	.02	0	---	0
17	25	76	5.1	.13	42	.01	0	---	0
18	26	95	6.7	.13	44	.02	.05	50	.01
19	24	88	5.7	.15	44	.02	.10	50	.01
20	21	82	4.6	.15	42	.02	.05	45	.01
21	19	76	3.9	.11	42	.01	.02	40	0
22	15	69	2.8	.07	40	.01	.01	36	0
23	13	63	2.2	.01	40	0	.05	32	0
24	12	56	1.8	0	---	0	.10	30	.01
25	8.5	50	1.1	0	---	0	.20	28	.02
26	7.4	47	.94	0	---	0	.60	26	.04
27	6.2	50	.84	0	---	0	.50	25	.03
28	5.6	50	.76	0	---	0	.36	25	.02
29	5.4	50	.73	0	---	0	.36	25	.02
30	5.9	50	.80	0	---	0	.36	25	.02
31	5.1	50	.69	0	---	0	---	---	---
TOTAL	1138.1	---	232.76	38.79	---	7.80	2.76	---	.19
YEAR 30098.65			58533.56						

CANNONBALL RIVER BASIN

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06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 28, 1975
1600 HOURS

IDENTIFICATION OF PHYTOPLANKTON

9,500 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..NOCTYACEAE				
DANKISTRODESMUS		3,900	41	
....SELENASTRUM		180	2	
....SCENEDESMACEAE				
DCRUCIGENIA		2,500	26	
....SCENEDESMUS		180	2	
....TETRASTRUM		360	4	
	TOTALS	7,100	75	1.494=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
....CYCLOTELLA		90	1	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
....ACHNANTHES		90	1	
....NAVICULACEAE	NAVICULOID			
....NAVICULA		90	1	
....NITZSCHIAEAE				
....NITZSCHIA		720	8	
	TOTALS	990	11	1.278=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
....OSCILLATORIAEAE				
....OSCILLATORIA		1,300	13	
	TOTALS	1,300	13	0.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLLAGELLATES			
..PERIDINIALES				
....PERIDINIAEAE				
....PERIDINIUM		180	2	
	TOTALS	180	2	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.149
CLASS 1.149
ORDER 1.195
FAMILY 2.017
GENERA 2.395

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NOV. 24, 1975
1345 HOURS

IDENTIFICATION OF PHYTOPLANKTON

8,100 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		5,500	68	
....DICTYOSPHAERIUM		950	12	
....SCENEDESMACEAE				
....CRUCIGENIA		950	12	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		240	3	
	TOTALS	7,600	95	1.249=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
....CYCLOTELLA		480	6	
..PENNALES	PENNATE			
....SURIRELLACEAE			0	
LCYMATOPLEURA			6	0.000=DIVERSITY
	TOTALS	480	6	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.323
 CLASS 0.323
 ORDER 0.512
 FAMILY 1.017
 GENERA 1.498

DEC. 22, 1975
1600 HOURS

IDENTIFICATION OF PHYTOPLANKTON

770 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		410	53	
....SCENEDESMACEAE				
DCRUCIGENIA		210	27	
	TOTALS	620	80	0.918=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
....NITZSCHIA		150	20	
DNITZSCHIA			20	0.000=DIVERSITY
	TOTALS	150	20	
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
....CRYPTOMONADACEAE				
LCRYPTOMONAS			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.722
 CLASS 0.722
 ORDER 0.722
 FAMILY 1.457
 GENERA 1.457

CANNONBALL RIVER BASIN

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06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JAN. 26, 1976
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

250 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
DANKISTRODESMUS		130	53	
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	130	53	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISACEAE		13	5	
...CYCLOTELLA				
..PENNALES	PENNATE			
...GOMPHONEMACEAE		13	5	
...GOMPHONEMA				
...NAVICULACEAE	NAVICULOID			
LCALONEIS			0	
DNAVICULA		52	21	
...NITZSCHIA				
DNITZSCHIA		39	16	
...SURIRELLACEAE				
LCYMATOPLEURA			0	
	TOTALS	120	47	1.753=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
LAGMENELLUM			0	
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
...CRYPTOMONODACEAE				
LCRYPTOMONAS			0	
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFAGELLATES			
..PERIDINIALES				
...PERIDINIACEAE				
LPERIDINIUM			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%

L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.998

CLASS 0.998

ORDER 1.236

FAMILY 1.828

GENERA 1.828

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

FEB. 24, 1976
1120 HOURS

IDENTIFICATION OF PHYTOPLANKTON

5,600 CELLS/ML

_ORGANISM_NAME_____	_COMMON_NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..ODCYSTACEAE				
DANKISTRODESMUS		910	16	
....SCENEDESMACEAE				
....SCENEDESMUS		230	4	
..VOLVOCALES				
....CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		230	4	
	TOTALS	1,400	24	1.252=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
....COSCINODISCACEAE				
....CYCLOTELLA		110	2	
..PENNALES	PENNATE			
....ACHNANTHACEAE				
LACHNANTHES			0	
....NAVICULACEAE	NAVICULOID			
DNAVICULA		1,300	22	
....NITZSCHACEAE				
DNITZSCHIA		2,500	45	
....SURIPELLACEAE				
....SURIPELLA		230	4	
	TOTALS	4,100	73	1.332=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
....PERIDINIACEAE		110	2	
....PERIDINIUM				
	TOTALS	110	2	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.938
 CLASS 0.938
 ORDER 1.232
 FAMILY 2.224
 GENERA 2.224

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAR. 29, 1976
1230 HOURS

IDENTIFICATION OF PHYTOPLANKTON

16,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		3,400	22	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	3,400	22	0.000=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCEAE				
DCYCLOTELLA		7,200	46	
..PENNALES	PENNATE			
..CYMBELLACEAE				
LRHOPALODIA			0	
..FRAGILARIACEAE				
..ASTERIONELLA		850	5	
..NAVICULACEAE	NAVICULOID			
..DIPLONEIS		430	3	
..NAVICULA		430	3	
..NITZSCHIAEAE				
DNITZSCHIA		3,000	19	
	TOTALS	12,000	76	1.552=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
..PERIDINIAEAE				
..PERIDINIUM		430	3	
	TOTALS	430	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.923
 CLASS 0.923
 ORDER 1.654
 FAMILY 2.044
 GENERA 2.098

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APR. 26, 1976
1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,400 CELLS/ML

_ORGANISM__NAME_____	_COMMON__NAME_____	CELLS/ML	PER_CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....MICRACTINIUM		340	5	
...OOCYSTACEAE				
DANKISTRODESMUS		970	15	
....CHLORELLA		340	5	
....CLOSTERIOPSIS		57	1	
...OOCYSTIS		230	4	
...SCENEDESMACEAE				
....SCENEDESMUS		230	4	
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS		680	11	
	TOTALS	2,800	45	2.453=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIAATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID	170	3	
....NAVICULA				
...NITZSCHACEAE				
DNITZSCHIA		970	15	
	TOTALS	1,100	18	0.610=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
....CHROOCOCCACEAE		2,200	34	
DANACYSTIS				
	TOTALS	2,200	34	0.000=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDALES				
....CRYPTOMONADACEAE		57	1	
....CRYPTOMONAS				
	TOTALS	57	1	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGLENALES				
....EUGLENACEAE				
.....EUGLENA		57	1	
....TRACHELOMONAS		57	1	
	TOTALS	110	2	1.000=DIVERSITY
PYRRHOPHYTA	FIRE ALGAE			
..DINOPHYCEAE	DINOFLLAGELLATES			
...PERIDINIALES				
....PERIDINIAEAE				
.....PERIDINIUM		57	1	
	TOTALS	57	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.693
CLASS 1.718
ORDER 2.073
FAMILY 2.550
GENERA 2.940

CANNONBALL RIVER BASIN

493

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MAY 24, 1976
1345 HOURS

IDENTIFICATION OF PHYTOPLANKTON

30,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
DANKISTRODESMUS		12,000	41	
....DICTYOSPHAERIUM		1,700	6	
....OOCYSTIS		1,100	4	
....SCENEDESMACEAE				
....ACTINASTRUM		2,800	9	
....SCENEDESMUS		1,700	6	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	20,000	66	1.700=DIVERSITY
CHRYSDOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
..COSCINODISCAEAE				
..CYCLOTELLA		830	3	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
LAMPHIPRORA			0	
....NITZSCHIAEAE		690	2	
....NITZSCHIA				
	TOTALS	1,700	5	1.325=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
....ANACYSTIS		1,400	5	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIAEAE		7,200	24	
DOSCILLATORIA				
	TOTALS	8,600	29	0.637=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
..EUGLENACEAE				
LTRACHELOMONAS			0	
	TOTALS	140	0	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 1.181
 CLASS 1.181
 ORDER 1.457
 FAMILY 1.976
 GENERA 2.550

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JUNE 24, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

10,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
...ANKISTRODESMUS		860	8	
...SCENEDESMACEAE				
...ACTINASTRUM		1,200	11	
...SCENEDESMUS		1,200	11	
...TETRASTRUM		1,200	11	
	TOTALS	4,300	41	1.990=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		860	8	
...MELOSIRA		1,200	11	
..PENNALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
D ...NAVICULA		2,600	25	
...NITZSCHACEAE				
...NITZSCHIA		1,200	11	
	TOTALS	5,800	55	1.858=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
...TRACHELOMONAS		290	3	
	TOTALS	290	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.141
 CLASS 1.141
 ORDER 1.660
 FAMILY 2.282
 GENERA 3.002

CANNONBALL RIVER BASIN

495

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

JULY 26, 1976
1315 HOURS

IDENTIFICATION OF PHYTOPLANKTON

210,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OOCYSTACEAE				
....ANKISTRODESMUS		9,500	5	
....CHODATELLA		2,000	1	
DDICTYOSPHAERIUM		47,000	23	
....SCENEDESMACEAE				
....CRUCIGENIA		1,100	1	
....SCENEDESMUS		2,200	1	
..VOLVOCALES				
..CHLAMYDOMONADACEAE				
LCHLAMYDOMONAS			0	
	TOTALS	62,000	31	1.188=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNATES	PENNATE			
..NAVICULACEAE	NAVICULOID			
LNAVICULA			0	
	TOTALS	560	0	0.000=DIVERSITY
..CHRYSOPHYCEAE	YELLOW-BROWN ALGAE			
..CHRYSONOMADALES				
..OCHROMONADACEAE				
LOCHROMONAS			0	
	TOTALS	280	0	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
DANACYSTIS	FILAMENTOUS	120,000	58	
..OSCILLATORIALES				
..OSCILLATORIACEAE				
....LYNGBYA		5,600	3	
....OSCILLATORIA		20,000	9	
	TOTALS	150,000	70	0.797=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.915
 CLASS 0.918
 ORDER 1.395
 FAMILY 1.485
 GENERA 1.829

CANNONBALL RIVER BASIN

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

SEP. 27, 1976
1245 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,700 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..OCCYSTACEAE				
D ..ANKISTRODESMIUS		1,700	63	211010909001000- 24
..SCENEDESMACEAE				
L ..CRUCIGENIA			0	211010910003000- 0
D ..SCENEDESMUS		430	16	211010910007000- 6
CHRYSDOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNIALES	PENNATE			
..NAVICULACEAE	NAVICULOID			
..CALONEIS		72	3	216030207005000- 1
..NITZSCHIAEAE				
..NITZSCHIA		72	3	216030210004000- 1
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
..ANACYSTIS		360	13	218010101021000- 5
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIAEAE				
L ..SPIRULINA			0	218010301012000- 0
PYRRHOPHYTA				
..DINOPHYCEAE	DINOFLAGELLATES			
..PERIDINIALES				
..GLENODINIAEAE				
..GLENODINIUM		72	3	215020202001000- 1
				CAL FACTOR = 71.60

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER • 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.016
 CLASS 1.016
 ORDER 1.016
 FAMILY 1.638
 GENERA 1.638

PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m ²)		Chlorophyll a (mg/m ²)	Chlorophyll b (mg/m ²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 28	34	0.5	0.4	0.2	0.0	850	Polyethylene strip
Jan. 26	35	1.2	.8	.6	.0	790	Polyethylene strip
Sept. 27	33	22.3	25.3	7.87	.113	380	Polyethylene strip

BEAVER CREEK BASIN

497

06354500 BEAVER CREEK AT LINTON, ND

LOCATION.--Lat 46°15'27", long 100°13'58", on line between secs.17 and 18, T.132 N., R.76 W., Emmons County, Hydrologic Unit 10130104, on left bank 60 ft (18 m) downstream from bridge on U.S. Highway 83, 0.7 mi (1.1 km) south of railway station in Linton, and 1 mi (2 km) upstream from Spring Creek.

DRAINAGE AREA.--717 mi² (1,857 km²), of which about 100 mi² (260 km²) is probably noncontributing.

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

REVISED RECORDS.--WSP 1209: Drainage area. WSP 1239: 1950(M).

GAGE.--Water-stage recorder. Datum of gage is 1,690.55 ft (515.280 m) above mean sea level. Prior to June 18, 1958, nonrecording gage at site 60 ft (18 m) upstream at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--27 years, 40.6 ft³/s (1.150 m³/s), 29,410 acre-ft/yr (36.3 hm³/yr); median of yearly mean discharges, 27 ft³/s (0.76 m³/s), 19,600 acre-ft/yr (24 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,800 ft³/s (278 m³/s) Apr. 8, 1952, gage height, 17.50 ft (5.334 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 370 ft³/s (10.5 m³/s) Mar. 23, gage height, 9.64 ft (2.938 m), backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	1.8	.48	.50	2.2	6.0	41	22	3.1	.19		
2	.20	1.8	.45	.48	2.2	5.8	39	21	2.6	.12		
3	.30	1.8	.45	.46	2.2	5.6	37	20	2.3	.06		
4	.35	1.8	.45	.44	2.0	5.4	37	20	1.9	.04		
5	.35	1.4	.45	.44	1.8	5.2	36	19	1.5	.31		
6	.35	1.6	.45	.44	1.8	5.0	35	18	1.3	1.4		
7	.40	1.8	.45	.42	2.0	5.0	35	18	1.1	.14		
8	.40	1.9	.45	.40	2.5	5.0	35	18	.85	.06		
9	.35	1.7	.45	.40	3.0	5.0	34	18	.72	.02		
10	.30	1.7	.45	.50	3.5	5.0	33	18	.66	0		
11	.30	1.9	.45	.60	4.0	5.0	32	16	.56	0		
12	.92	1.8	.45	.80	4.5	5.0	31	16	.46	0		
13	.34	1.6	.45	.80	5.0	5.0	31	17	.30	0		
14	.56	1.4	.45	.80	5.5	7.0	31	19	.59	0		
15	.72	1.4	.45	.80	6.2	10	30	16	1.9	0		
16	.72	1.4	.45	.80	7.0	12	32	15	.38	0		
17	.85	1.4	.43	.80	7.8	15	40	14	.34	0		
18	.92	1.4	.40	1.0	7.6	30	40	13	.38	0		
19	.85	1.4	.40	1.2	7.4	60	39	12	.42	0		
20	.92	1.0	.40	1.4	7.2	100	38	11	.38	0		
21	.85	.70	.40	1.6	7.0	250	32	11	.42	0		
22	.92	.60	.42	1.8	6.8	320	28	10	.34	0		
23	.92	.60	.42	2.0	7.0	300	27	8.4	.30	0		
24	.85	.60	.45	2.0	7.0	200	27	7.6	.34	0		
25	.66	.56	.45	1.7	7.2	130	27	6.5	.22	0		
26	.72	.52	.48	1.5	7.4	100	29	5.6	.26	0		
27	1.6	.50	.50	1.5	7.2	85	33	5.1	.22	0		
28	1.8	.50	.50	1.6	6.8	70	30	5.1	.22	0		
29	1.7	.50	.50	1.8	6.4	58	27	4.7	.19	0		
30	1.7	.50	.50	2.0	---	49	24	4.3	.22	0		
31	1.8	---	.50	2.2	---	44	---	3.8	---	0		---
TOTAL	23.62	37.58	13.98	33.18	148.2	1908.0	990	413.1	24.47	2.34	0	0
MEAN	.76	1.25	.45	1.07	5.11	61.5	33.0	13.3	.82	.076	0	0
MAX	1.8	1.9	.50	2.2	7.8	320	41	22	3.1	1.4	0	0
MIN	0	.50	.40	.40	1.8	5.0	24	3.8	.19	0	0	0
AC-FT	47	75	28	66	294	3780	1960	819	49	4.6	0	0
CAL YR 1975	TOTAL	11168.26	MEAN	30.6	MAX	480	MIN	0	AC-FT	22150		
WTR YR 1976	TOTAL	3594.47	MEAN	9.82	MAX	320	MIN	0	AC-FT	7130		

GRAND RIVER BASIN

06354988 BOWMAN-HALEY LAKE NEAR HALEY, ND

LOCATION.--Lat 45°59'06", long 103°14'43", in NE¼ sec.24, T.129 N., R.101 W., Bowman County, at dam on North Fork Grand River 6 mi (10 km) west of Haley.

DRAINAGE AREA.--446 mi² (1,155 km²), approximately.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Reservoir is formed by a rolled earth-fill dam; storage began Aug. 22, 1966; dam completed April 1967. Total capacity is 93,000 acre-ft (115 hm³) at maximum pool, elevation, 2,777.0 ft (846.430 m). Dead storage is 4,280 acre-ft (5.28 hm³) below lowest point of outlet, elevation, 2,740.0 ft (835.152 m). Normal operating storage is 20,100 acre-ft (24.8 hm³) at elevation 2,755.0 ft (839.724 m), crest of spillway. Figures given herein represent total contents. Controlled releases are through a 30-inch (0.762 m) or 8-inch (0.203 m) gate valve. The spillway is uncontrolled "glory hole" type and discharges through a conduit 9 ft (2.743 m) in diameter. The reservoir is for flood control, water supply, and recreation.

COOPERATION.--Records of elevations and contents furnished by Corps of Engineers from capacity table dated August 1966. Elevations affected by wind.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,130 acre-ft (33.5 hm³) Mar. 13, 1972, elevation, 2,758.50 ft (840.791 m); minimum since first reaching spillway level, 16,500 acre-ft (20.3 hm³) Mar. 8-10, 1975, elevation, 2,752.78 ft (839.047 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,250 acre-ft (25.0 hm³) June 23, elevation, 2,755.07 ft (839.745 m); minimum, 17,220 acre-ft (21.2 hm³) Jan. 22, elevation, 2,753.25 ft (839.191 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	2,753.58	17,740	--
Oct. 31-----	2,753.46	17,550	-190
Nov. 30-----	2,753.42	17,490	-60
Dec. 31-----	2,753.49	17,600	+110
CAL YR 1975-----	--	--	+980
Jan. 31-----	2,753.56	17,710	+110
Feb. 29-----	2,754.57	19,390	+1,680
Mar. 31-----	2,754.86	19,880	+490
Apr. 30-----	2,754.86	19,880	0
May 31-----	2,754.71	19,630	-250
June 30-----	2,754.95	20,040	+410
July 31-----	2,754.59	19,420	-620
Aug. 31-----	2,753.93	18,300	-1,120
Sept. 30-----	2,753.45	17,540	-760
WTR YR 1976-----	--	--	-200

GRAND RIVER BASIN

499

06355000 NORTH FORK GRAND RIVER AT HALEY, ND

LOCATION.--Lat 45°57'39", long 103°07'09", at southwest corner of sec.30, T.129 N., R.99 W., Bowman County, Hydrologic Unit 10130301, on left bank 10 ft (3 m) downstream from county highway bridge, 300 ft (91 m) south of post office at Haley, and 1 mi (1.6 km) north of South Dakota state line.

DRAINAGE AREA.--509 mi² (1,318 km²).

PERIOD OF RECORD.--May 1908 to September 1917, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1239: 1908-10, 1913-15(M), 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 2,658.60 ft (810.341 m) above mean sea level. Oct. 23, 1945, to June 18, 1951, nonrecording gage on downstream side of bridge near left abutment at present datum. See WSP 1729 or 1917 for history of changes prior to Oct. 23, 1945.

REMARKS.--Records good. Flow regulated since August 1966 by Bowman-Haley Lake (station 06354988) 8 mi (12.9 km) upstream.

AVERAGE DISCHARGE.--40 years, 28.7 ft³/s (0.813 m³/s), 20,790 acre-ft/yr (25.6 hm³/yr); median of yearly mean discharges, 22 ft³/s (0.62 m³/s), 15,900 acre-ft/yr (20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s (399 m³/s) Apr. 7, 1952, gage height, 17.03 ft (5.191 m), from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of discharge measurement at gage height 15.09 ft (4.599 m), half of which was indirect measurement of flow over roadway outside of main channel; maximum gage height, 17.10 ft (5.212 m) Apr. 15, 1950; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft³/s (0.425 m³/s) Aug. 24, gage height, 4.90 ft (1.494 m), minimum, 0.10 ft³/s (0.003 m³/s) Nov. 12, gage height, 4.14 ft (1.262 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.6	1.0	1.8	3.6	1.8	2.2	4.4	1.4	2.4	.82	3.2
2	1.3	1.6	1.0	1.6	4.5	2.1	2.3	4.8	1.2	2.1	.70	1.4
3	1.3	1.6	1.0	1.5	3.0	2.7	3.4	3.3	1.0	2.4	.54	.86
4	1.2	1.5	1.1	1.4	2.2	2.2	3.1	2.5	1.1	2.3	.63	.78
5	1.2	1.4	1.3	1.5	2.0	2.4	2.3	2.6	1.5	2.8	.71	.71
6	1.1	1.4	1.2	2.1	1.5	2.3	2.5	2.7	1.9	2.8	.95	.56
7	1.1	1.3	1.3	2.0	1.2	1.7	2.1	2.4	2.3	2.7	.63	.42
8	1.2	1.3	1.4	1.8	1.5	1.7	2.1	2.1	1.9	2.4	.49	.63
9	1.4	1.3	1.6	1.6	2.0	1.8	2.3	1.8	1.5	2.4	.42	.68
10	1.3	1.3	1.8	1.5	4.0	1.9	3.1	1.9	1.2	2.6	.35	.60
11	1.4	1.3	1.8	1.5	6.0	1.5	2.3	1.9	1.5	2.3	.35	.51
12	1.4	.95	1.6	2.0	5.3	1.4	1.9	4.4	1.6	2.3	.28	.30
13	1.4	1.6	1.6	2.5	4.6	1.7	2.4	8.0	2.6	2.0	.28	.45
14	1.5	1.7	1.5	2.0	4.0	1.7	2.2	2.8	3.9	4.6	1.1	.54
15	1.5	1.7	1.4	2.0	4.0	1.6	3.7	2.3	3.7	2.9	.56	.42
16	1.9	1.6	1.2	2.0	3.8	1.5	3.4	2.8	3.4	2.0	.28	.46
17	2.2	1.7	.93	2.0	3.5	1.6	6.7	2.2	3.0	2.7	2.0	.39
18	2.2	1.5	1.1	2.3	3.1	1.7	8.0	1.7	5.0	2.0	12	.37
19	2.1	1.4	2.1	2.3	2.8	1.4	3.4	2.2	6.0	1.8	14	.56
20	2.1	1.4	2.9	2.9	2.7	1.3	3.8	2.0	7.0	1.5	14	.53
21	2.4	1.3	2.4	2.6	2.6	1.5	3.2	1.8	6.4	1.5	14	.41
22	2.2	1.3	2.3	2.2	2.6	1.4	2.8	1.6	5.7	2.1	14	.35
23	2.0	1.3	2.1	2.2	2.6	1.3	2.9	1.6	6.7	2.1	14	.35
24	1.9	1.2	2.0	2.3	2.6	1.3	2.7	1.5	9.2	2.1	15	.26
25	1.6	1.2	2.0	2.1	2.6	1.6	2.8	1.5	9.5	1.5	15	.42
26	1.5	1.2	2.1	1.8	2.6	1.6	2.7	2.1	6.7	1.3	15	.60
27	1.5	1.2	2.2	1.6	2.4	2.8	2.8	3.2	6.3	1.8	14	.66
28	1.5	1.1	2.2	1.6	2.7	2.5	2.6	2.4	5.4	2.1	15	.60
29	1.5	1.1	2.2	2.0	1.9	2.8	2.3	1.6	4.5	1.1	14	.67
30	1.5	1.1	2.0	2.5	---	2.5	2.2	1.6	3.0	.92	14	.66
31	1.6	---	2.0	3.1	---	2.6	---	1.5	---	1.1	11	---
TOTAL	49.3	41.15	52.33	62.3	87.9	57.9	90.2	79.2	116.1	66.62	206.09	19.35
MEAN	1.59	1.37	1.69	2.01	3.03	1.87	3.01	2.55	3.87	2.15	6.65	.65
MAX	2.4	1.7	2.9	3.1	6.0	2.8	8.0	8.0	9.5	4.6	15	3.2
MIN	1.1	.95	.93	1.4	1.2	1.3	1.9	1.5	1.0	.92	.28	.26
AC-FT	98	82	104	124	174	115	179	157	230	132	409	38
CAL YR 1975 TOTAL	10318.87			MEAN 28.3	MAX 947	MIN .15	AC-FT 20470					
WTR YR 1976 TOTAL	928.44			MEAN 2.54	MAX 15	MIN .26	AC-FT 1840					

GRAND RIVER BASIN

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND

LOCATION.--Lat 46°06'40", long 103°02'20", in SE¼NE¼ sec. 3, T.130 N., R.99 W., Bowman County, on left bank 46 ft (14 m) downstream from Chicago, Milwaukee, St. Paul, Pacific Railway bridge, 1.8 mi (2.9 km) east of Gascoyne.

DRAINAGE AREA.--15.7 mi² (40.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,725 ft (831 m), from topographic map.

REMARKS.--Records fair. Some regulation by strip mine above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100 ft³/s (2.83 m³/s), revised, May 9, 1975, gage height, 8.41 ft (2.563 m), no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60 ft³/s (1.70 m³/s) July 3, gage height, 7.01 ft (2.137 m), no flow for many days.

REVISIONS.--The maximum discharge for the water year 1975 has been revised to 100 ft³/s (2.83 m³/s) May 9, 1975, gage height 8.41 ft (2.563 m), superseding figure published in the report for 1975. Supplemental peaks in that report are also in error and should not be used. No supplemental peaks will be published because of regulation. A revised table of daily mean discharges is given below.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975 (Revised)
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.30	.12									
2	.06	.20	.11				0	3.5	2.4	1.5	.40	.25
3	.06	.10	.11				0	2.3	2.0	1.2	.40	.11
4	.06	.09	.11				0	1.7	1.7	1.0	.35	.12
5	.06	.08	.11				0	1.4	2.1	.90	.35	.57
							0	1.0	.42	.80	.32	.42
6	.06	.07	.11				0	7.0	.45	.70	.27	.72
7	.06	.08	.11				0	25	1.5	.60	.17	.72
8	.06	.09	.10				0	5.4	1.7	.52	.15	.42
9	.06	.10	.09				2.0	30	2.4	.52	.10	.79
10	.06	.12	.09				4.0	80	1.9	.47	.37	.57
11	.06	.12	.09				6.0	30	2.1	.19	.31	.40
12	.06	.12	.09				10	8.6	2.0	.19	.11	.47
13	.05	.12	.09				14	3.8	4.0	.19	.04	.40
14	.05	.10	.09				15	2.4	5.0	.17	.14	.45
15	.05	.08	.08				30	2.1	1.4	.17	.42	.35
16	.04	.08	.08				40	1.6	2.4	.15	.31	.23
17	.04	.10	.08				50	3.6	2.4	.15	.25	.35
18	.04	.12	.08				45	2.9	3.2	.25	.16	.37
19	.04	.15	.08				40	1.1	12	1.0	.34	.63
20	.04	.20	.08				30	2.5	7.2	.80	1.1	1.1
21	.04	.25	.08				20	2.9	2.4	.70	.63	.45
22	.04	.30	.08				10	6.7	1.2	.60	.44	.40
23	.04	.35	.08				5.0	7.8	.29	.50	.69	.50
24	.04	.30	.06				3.3	4.0	.25	.40	.34	.29
25	.04	.25	.02				2.6	1.4	.25	.35	.28	.40
26	.04	.25	.01				4.0	.71	1.0	.30	.21	.34
27	.04	.25	0				2.0	2.2	2.5	.25	.21	.31
28	.04	.20	0				40	2.0	2.0	.20	.32	.40
29	.04	.18	0		---		35	1.7	1.5	.20	.50	.42
30	.04	.16	0		---		11	2.8	2.0	.15	.37	1.1
31	.10	---	0		---		---	2.0	---	.20	.25	---
TOTAL	1.57	4.91	2.23	0	0	0	418.9	250.11	71.66	15.32	10.30	14.05
MEAN	.051	.16	.072	0	0	0	14.0	8.07	2.39	.49	.33	.47
MAX	.10	.35	.12	0	0	0	50	80	12	1.5	1.1	1.1
MIN	.04	.07	0	0	0	0	0	.71	.25	.15	.04	.11
AC-FT	3.1	9.7	4.4	0	0	0	831	496	142	30	20	28
WTR YR 1975	TOTAL	789.05	MEAN	2.16	MAX	80	MIN	0	AC-FT	1570		

GRAND RIVER BASIN

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06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	.45	0	0	.01	3.0	.95	.34	.23	.29	.28	.28
2	.54	.40	0	0	.01	1.0	.38	.35	.23	.19	.29	.21
3	.72	.40	0	0	0	0	.66	.38	.12	.35	.29	.59
4	.63	.35	0	0	0	0	3.6	.25	.11	8.0	.32	.57
5	.63	.30	0	0	0	0	.72	.25	.37	2.5	.44	.42
6	.66	.31	0	0	0	0	.54	.44	.35	1.2	.52	.37
7	.52	.27	0	0	0	.50	.40	.34	10	.45	.37	.28
8	.47	.27	.04	0	.05	1.0	.63	.31	3.2	.13	.44	.38
9	.57	.27	.27	0	.50	3.0	.45	.23	.79	.08	.23	.35
10	.69	.27	.13	0	1.0	3.0	.57	.28	.28	.05	.11	.28
11	.54	.28	.14	0	1.5	3.0	.63	.21	.27	.05	1.0	.37
12	.63	.18	.04	0	2.0	2.5	.60	.52	4.3	.04	1.3	.50
13	.60	.37	.01	0	5.0	2.0	.44	1.1	2.0	.01	1.2	.79
14	.75	.34	.01	0	8.0	2.5	.87	.63	11	.28	1.1	.37
15	.57	.28	0	0	7.5	2.5	.92	.52	12	.35	.60	.45
16	.60	.38	0	0	7.0	2.5	1.6	.35	2.2	.45	.75	.50
17	.69	.52	0	.01	6.5	3.0	4.4	.35	.83	.95	.60	.47
18	.95	.31	0	.02	6.5	3.0	3.2	.27	.38	.87	.63	.37
19	.95	.44	0	.05	6.0	3.0	.83	.34	.28	.69	.54	.40
20	.90	.22	0	.10	6.0	3.0	.42	.32	.25	.50	.45	.45
21	.90	.13	0	.02	6.0	2.5	.54	.35	.10	.34	.28	.47
22	.85	.13	0	.04	5.5	2.5	.54	.35	.07	.31	.44	.60
23	.80	.15	0	.06	5.5	2.5	.37	.31	.32	.25	.29	.66
24	.75	.11	0	.08	5.5	2.0	.66	.35	.92	.16	.21	.50
25	.75	.09	0	.06	5.0	.99	.50	.28	.38	.15	.25	.59
26	.70	.06	0	.04	5.0	.75	.32	.79	.66	.17	.10	.72
27	.70	.04	0	.02	5.0	.72	.54	.52	.34	.27	.19	1.3
28	.65	.03	0	.02	4.5	.72	.42	.35	.17	.66	.05	.83
29	.60	.01	0	.02	4.5	.72	.83	.42	.11	.29	.05	.83
30	.55	0	0	.02	---	1.6	.38	.32	.21	.28	.05	.72
31	.50	---	0	.02	---	1.9	---	.32	---	.32	.12	---
TOTAL	20.88	7.36	.64	.58	104.07	55.40	27.91	12.14	52.47	55.28	13.49	15.92
MEAN	.67	.25	.021	.019	3.59	1.79	.93	.39	1.75	1.78	.44	.53
MAX	.95	.52	.27	.10	8.0	3.0	4.4	1.1	12	35	1.3	1.3
MIN	.47	0	0	0	0	0	.32	.21	.07	.01	.05	.21
AC-FT	41	15	1.3	1.2	206	110	55	24	104	110	27	32
CAL YR 1975	TOTAL	809.22	MEAN	2.22	MAX	80	MIN	0	AC-FT	1610		
WTR YR 1976	TOTAL	366.14	MEAN	1.00	MAX	35	MIN	0	AC-FT	726		

GRAND RIVER BASIN

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
NOV 05...	1120	.28	5300	8.2	8.0	25	9.4	87	.8	1100	520	170
DEC 09...	1430	.45	7800	8.1	.5	7	11.4	88	2.6	1300	470	230
APR 06...	1430	.45	5600	8.4	17.0	31	9.3	106	3.4	1000	490	150
MAY 04...	1115	.19	4600	8.3	14.0	18	8.2	87	1.6	780	200	130
JUN 02...	1200	.27	5700	7.6	20.0	10	7.2	86	2.1	1200	640	180
AUG 03...	1005	.26	3600	8.2	19.5	10	7.6	91	.8	600	75	110
SEP 08...	1015	.39	5000	8.3	12.0	25	6.2	--	2.4	720	100	120

DATE	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
NOV 05...	160	860	63	11	14	691	0	567	7.0	2300	13	.8
DEC 09...	170	1200	67	15	21	987	0	810	13	2900	18	.9
APR 06...	160	850	64	12	12	601	30	543	4.2	2200	12	.9
MAY 04...	110	870	71	14	12	709	0	582	5.7	2100	11	.9
JUN 02...	180	980	64	12	17	683	0	560	27	2700	10	.9
AUG 03...	79	740	72	13	12	640	0	525	6.5	1700	10	.8
SEP 08...	100	950	74	16	18	750	0	615	6.0	2100	1.3	.8

DATE	BROMIDE (BR) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL NITROGEN (NO3) (MG/L)
NOV 05...	.1	5.7	3970	3870	5.40	3.00	.19	.13	2.1	2.0	2.3	10
DEC 09...	.2	13	5190	5050	7.06	6.31	.29	.22	2.2	2.0	2.5	11
APR 06...	.2	5.3	3900	3730	5.30	4.74	.04	.10	2.0	1.9	2.0	9.0
MAY 04...	.1	3.3	3620	3590	4.92	1.86	.02	.01	1.1	1.1	1.1	5.0
JUN 02...	.1	.8	4570	4410	6.22	3.33	.04	.04	1.0	.96	1.0	4.6
AUG 03...	.1	1.3	2900	2970	3.94	2.04	.58	.01	.49	.48	1.1	4.7
SEP 08...	.1	5.9	3680	3670	5.00	3.88	.12	.03	.88	.85	1.0	4.4

GRAND RIVER BASIN

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06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO4) (MG/L)	TOTAL ALUM- INUM (AL) (UG/L)	SUS- PENDED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDED ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	SUS- PENDED BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)
NOV 05...	.35	.00	.00	--	--	--	--	--	--	--	--	--
DEC 09...	.13	.06	.18	120	80	40	2	0	2	50	0	50
APR 06...	.11	.01	.03	690	660	30	1	0	1	0	0	0
MAY 04...	.08	.00	.00	--	--	--	--	--	--	--	--	--
JUN 02...	.06	--	--	140	120	20	3	2	1	100	100	0
AUG 03...	.06	.02	.06	--	--	--	--	--	--	--	--	--
SEP 08...	.14	.01	.03	840	820	20	3	1	2	100	100	0

DATE	TOTAL BERYL- LIUM (BE) (UG/L)	SUS- PENDED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BERYL- LIUM (BE) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)
NOV 05...	--	--	--	2500	--	--	--	--	--	--	--
DEC 09...	10	10	0	3100	<10	<9	1	10	0	10	10
APR 06...	10	0	20	2300	10	10	0	20	20	0	10
MAY 04...	--	--	--	1900	--	--	--	--	--	--	--
JUN 02...	0	0	0	2500	0	0	0	10	0	10	10
AUG 03...	--	--	--	1900	--	--	--	--	--	--	--
SEP 08...	0	0	0	2100	10	9	1	10	10	0	20

DATE	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	SUS- PENDED LITHIUM (LI) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)
NOV 05...	--	--	--	--	--	--	--	--	--	--
DEC 09...	6	4	340	110	<100	<90	10	110	0	110
APR 06...	8	2	1100	60	<100	<93	7	90	0	90
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 02...	10	0	550	50	1	0	2	80	0	90
AUG 03...	--	--	--	--	--	--	--	--	--	--
SEP 08...	0	30	1200	80	100	95	5	100	0	100

GRAND RIVER BASIN

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL MOLYB- DENUM (MO) (UG/L)	SUS- PENDE MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	TOTAL NICKEL (NI) (UG/L)
NOV 05...	--	--	--	--	--	--	--	--	--	--
DEC 09...	660	50	610	.0	.0	.0	5	1	4	50
APR 06...	220	80	140	.0	.0	.0	3	1	2	<50
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 02...	130	40	90	<.5	.0	<.5	4	1	3	3
AUG 03...	--	--	--	--	--	--	--	--	--	--
SEP 08...	90	20	70	.2	.0	.2	2	0	2	50

DATE	SUS- PENDE NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL STRON- TIUM (SR) (UG/L)	SUS- PENDE STRON- TIUM (SR) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	TOTAL ZINC (ZN) (UG/L)
NOV 05...	--	--	--	--	--	--	--	--	--	--
DEC 09...	48	2	0	0	0	5900	0	6100	2.7	20
APR 06...	<41	9	1	0	1	3600	0	3900	1.7	10
MAY 04...	--	--	--	--	--	--	--	--	--	--
JUN 02...	1	2	0	0	0	5200	300	4900	.0	20
AUG 03...	--	--	--	--	--	--	--	--	--	--
SEP 08...	42	8	0	0	0	--	--	4000	2.6	--

DATE	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOL- VED ORGANIC CARBON (C) (MG/L)	SUS- PENDE ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .004 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
NOV 05...	--	--	28	1.4	317	.24	--	--	--	--
DEC 09...	0	20	40	1.1	193	.23	6	17	19	25
APR 06...	0	20	25	3.3	93	.11	--	4	4	6
MAY 04...	--	--	30	2.2	87	.04	--	--	--	--
JUN 02...	0	20	34	--	44	.03	--	--	--	--
AUG 03...	--	--	21	2.3	37	.03	--	--	--	--
SEP 08...	--	--	21	3.5	137	.14	--	--	--	--

DATE	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	BED MAT. FALL DIAM. % FINER THAN 32.0 MM
DEC 09...	36	43	51	62	76	85	100
APR 06...	15	18	25	35	50	70	100

MISSOURI RIVER MAIN STEM

505

06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi (9.7 km) northwest of Pierre, 7.1 mi (11.4 km) upstream from Bad River, and at mile 1,072.3 (1,725.3 km).

DRAINAGE AREA.--243,500 mi² (630,700 km²), approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Jan. 14, 1959, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,630,000 acre-ft (29.1 km³) below elevation 1,620.0 ft (493.78 m), top of spillway gates. Normal maximum, 22,530,000 acre-ft (27.8 km³) below 1,617.0 ft (492.86 m), of which about 2,390,000 acre-ft (2.95 km³) is designated for flood control. Inactive storage, 5,538,000 acre-ft (6.83 km³) below elevation 1,540.0 ft (469.39 m). Dead storage, 2,000 acre-ft (2.47 hm³) below elevation 1,425.0 ft (434.34 m), invert of lowest outlet tunnel. Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect. The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft (486.61 m), 8 gates, 50 by 23.5 ft (15.24 x 7.16 m) each; design capacity, 300,000 ft³/s (8,500 m³/s). The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,681,000 acre-ft (28.0 km³) Aug. 22, 1975, elevation, 1,617.9 ft (493.14 m), affected by wind; minimum since initial filling, 16,500,000 acre-ft (20.3 km³) Dec. 21, 1972, elevation, 1599.2 ft (487.44 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,143,000 acre-ft (26.1 km³) Oct. 1, 4, elevation, 1,613.3 ft (491.73 m), affected by wind; minimum, 18,122,000 acre-ft (22.3 km³) Oct. 29, 30, minimum elevation, 1,603.9 ft (488.87 m) Jan. 15, Oct. 29, 30.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	1,613.5	21,182,000	--
Oct. 31-----	1,608.7	19,638,000	-1,544,000
Nov. 30-----	1,604.8	18,407,000	-1,231,000
Dec. 31-----	1,605.0	18,474,000	+67,000
CAL YR 1975-----	--	--	-25,000
Jan. 31-----	1,604.9	18,421,000	-53,000
Feb. 29-----	1,606.5	18,940,000	+519,000
Mar. 31-----	1,606.2	18,851,000	-89,000
Apr. 30-----	1,606.0	19,005,000	+154,000
May 31-----	1,607.5	19,273,000	+268,000
June 30-----	1,609.0	19,723,000	+450,000
July 31-----	1,608.1	19,415,000	-308,000
Aug. 31-----	1,606.7	18,993,000	-422,000
Sept. 30-----	1,603.9	18,122,000	-871,000
WTR YR 1976-----	--	--	-3,060,000

JAMES RIVER BASIN

06467600 JAMES RIVER NEAR MANFRED, ND

LOCATION.--Lat 47°38'40", long 99°49'40", near midpoint of north line sec.15, T.148 N., R.72 W., Wells County, Hydrologic Unit 10160001, on right upstream wingwall of bridge on county highway, 5 mi (8 km) southwest of Manfred.

DRAINAGE AREA.--253 mi² (655 km²), of which about 197 mi² (510 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1954 to August 1957 (annual maximum only), September 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,605.73 ft (489.427 m) above mean sea level. Prior to Sept. 16, 1957, crest-stage gage only on downstream side of bridge at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--19 years (1957-76), 2.89 ft³/s (0.0818 m³/s), 2,090 acre-ft/yr (2.58 hm³/yr); median of yearly mean discharges, 2.5 ft³/s (0.071 m³/s), 1,800 acre-ft/yr (2.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s (25.5 m³/s) Apr. 10, 1969, gage height, 7.70 ft (2.347 m); no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 200 ft³/s (5.66 m³/s) Mar. 19, gage height, 6.60 ft (2.012 m) backwater from ice; maximum gage height observed, 6.70 ft (2.042 m) Mar. 19, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	33	5.5	.01	.04		
2						0	25	4.9	0	.01		
3						0	23	4.4	0	0		
4						0	19	4.2	0	0		
5						0	15	3.9	0	0		
6						0	12	3.5	0	0		
7						0	9.8	3.1	0	0		
8						0	8.0	2.7	0	0		
9						0	6.7	2.3	0	.02		
10						0	5.6	1.9	0	0		
11						0	4.8	1.6	0	0		
12						0	4.1	1.3	.07	0		
13						0	3.4	1.1	.07	0		
14						0	3.2	.86	.18	0		
15						0	3.2	.98	.26	0		
16						0	3.9	.94	.29	0		
17						0	6.0	.82	.20	0		
18						0	6.2	.70	.09	0		
19						50	5.7	.54	.06	0		
20						150	6.5	.35	.04	0		
21						130	6.0	.24	.01	0		
22						120	6.7	.20	0	0		
23						120	6.7	.12	0	0		
24						100	8.8	.09	.04	0		
25						85	8.7	.08	.01	0		
26						70	7.6	.07	.03	0		
27						60	6.5	.06	.04	0		
28						50	5.9	.06	.06	0		
29						45	6.0	.05	.06	0		
30						44	5.9	.04	.06	0		
31		---			---	43	---	.03	---	0		---
TOTAL	0	0	0	0	0	1067	272.9	46.63	1.58	.07	0	0
MEAN	0	0	0	0	0	34.4	9.10	1.50	.053	.002	0	0
MAX	0	0	0	0	0	150	33	5.5	.29	.04	0	0
MIN	0	0	0	0	0	0	3.2	.03	0	0	0	0
AC-FT	0	0	0	0	0	2120	541	92	3.1	.1	0	0
CAL YR 1975	TOTAL	3015.91	MEAN 8.26	MAX 233	MIN 0	AC-FT 5980						
WTR YR 1976	TOTAL	1388.18	MEAN 3.79	MAX 150	MIN 0	AC-FT 2750						

JAMES RIVER BASIN

507

06468170 JAMES RIVER NEAR GRACE CITY, ND

LOCATION.--Lat 47°33'29", long 98°51'45", in NW¼NW¼NW¼ sec.17, T.147 N., R.64 W., Foster County, Hydrologic Unit 10160001, on left bank on downstream side of county highway bridge and 2.5 mi (4.0 km) northwest of Grace City.

DRAINAGE AREA.--1,060 mi² (2,750 km²), approximately, of which about 650 mi² (1,680 km²) is probably non-contributing.

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,460 ft (445 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--8 years, 29.8 ft³/s (0.844 m³/s), 21,590 acre-ft/yr (26.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s (87.8 m³/s) Apr. 13, 1969, gage height, 12.00 ft (3.658 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 250 ft³/s (7.08 m³/s) April 1, gage height, 7.92 ft (2.414 m), backwater from ice; maximum gage height, 8.02 ft (2.444 m), Mar. 28, backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.31	.12		0	4.0	230	34	5.1	1.0	.01	
2	.41	.31	.10		0	3.0	210	33	4.5	.85	.01	
3	.41	.31	.10		0	2.5	198	33	3.9	.77	.01	
4	.36	.36	.10		0	2.0	203	30	3.4	.63	.01	
5	.36	.31	.10		0	1.5	188	29	2.8	.57	.01	
6	.36	.31	.06		0	1.0	164	27	2.4	.63	.01	
7	.34	.31	.06		0	1.0	143	25	2.0	.57	.01	
8	.34	.36	.06		0	1.0	120	24	2.0	.70	.01	
9	.34	.36	.06		0	1.0	104	22	2.0	.77	.01	
10	.32	.36	.04		0	1.0	88	21	2.0	.70	.01	
11	.32	.41	.04		0	1.0	74	21	1.6	.63	.01	
12	.32	.51	.04		0	.80	65	18	2.2	.63	.01	
13	.30	.57	.04		0	.80	60	16	2.1	.51	.01	
14	.30	.57	.02		0	.80	55	16	1.5	.36	.01	
15	.30	.51	.01		0	.80	53	15	1.8	.23	.01	
16	.28	.51	0		0	.60	53	16	2.0	.16	.01	
17	.28	.57	0		0	.60	52	15	1.8	.14	0	
18	.28	.57	0		0	5.0	48	15	1.6	.10	0	
19	.28	.46	0		0	70	48	13	1.6	.10	0	
20	.30	.41	0		0	100	47	13	1.3	.08	0	
21	.38	.36	0		0	80	47	13	1.1	.06	0	
22	.38	.36	0		0	60	48	12	1.0	.04	0	
23	.36	.23	0		0	65	47	11	.93	.02	0	
24	.36	.27	0		4.0	80	46	11	1.6	.01	0	
25	.36	.31	0		12	100	45	11	2.0	.01	0	
26	.34	.27	0		15	130	44	9.6	1.8	.01	0	
27	.34	.23	0		10	150	42	8.1	1.6	.01	0	
28	.32	.19	0		7.0	160	40	7.6	1.4	.01	0	
29	.32	.16	0		5.0	170	37	7.2	1.4	.01	0	
30	.31	.14	0		---	180	35	6.2	1.3	.01	0	
31	.31	---	0		---	200	---	5.4	---	.01	0	---
TOTAL	10.34	10.91	.95	0	53.0	1573.40	2634	538.1	61.73	10.33	.16	0
MEAN	.33	.36	.031	0	1.83	50.8	87.8	17.4	2.06	.33	.005	0
MAX	.41	.57	.12	0	15	200	230	34	5.1	1.0	.01	0
MIN	.28	.14	0	0	0	.60	35	5.4	.93	.01	0	0
AC-FT	21	22	1.9	0	105	3120	5220	1070	122	20	.3	0
CAL YR 1975	TOTAL	18395.67	MEAN 50.4	MAX 884	MIN 0	AC-FT 36490						
WTR YR 1976	TOTAL	4892.92	MEAN 13.4	MAX 230	MIN 0	AC-FT 9710						

JAMES RIVER BASIN

06469000 JAMESTOWN RESERVOIR NEAR JAMESTOWN, ND

LOCATION.--Lat 46°55'50", long 98°42'23", in SE¼NW¼ sec.24, T.140 N., R.64 W., Stutsman County, Hydrologic Unit 10160001, on left bank in control house below Jamestown Dam on James River, 1.7 mi (2.7 km) north of Jamestown Post Office, and 3.3 mi (5.3 km) upstream from Pipestem Creek.

DRAINAGE AREA.--1,760 mi² (4,560 km²), approximately, of which about 1,010 mi² (2,620 km²) is probably noncontributing.

PERIOD OF RECORD.--November 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.720 m) above mean sea level; gage readings have been reduced to elevations above mean sea level. June 22, 1959 to June 3, 1971 at site 0.2 mi (0.3 km) upstream at same datum. Prior to June 22, 1959, nonrecording gages at different locations.

REMARKS.--Reservoir is formed by earth-fill dam, completed Oct. 1, 1953. Closure made May 7, 1953, and filling of dead storage started. Gates initially closed Feb. 8, 1954. Usable capacity, 229,470 acre-ft (283 hm³) between elevations 1,400 ft (426.720 m), sill of outlet and 1,454 ft (443.179 m), crest of spillway. Dead storage below elevation 1,400 ft (426.720 m), 820 acre-ft (1.01 hm³). Maximum design pool, 389,000 acre-ft (480 hm³), elevation, 1,464.6 ft (446.410 m). Figures given herein represent total contents based on capacity table dated Oct. 1, 1965. Reservoir is used for flood control and municipal supply. Monthend elevations are adjusted for wind effect.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,100 acre-ft (127 hm³) May 1, 1969, elevation, 1,443.60 ft (440.009 m); minimum since initial filling of reservoir, 18,220 acre-ft (22.5 hm³) Mar. 4, 5, 1965, elevation, 1,423.66 ft (433.932 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,400 acre-ft (44.9 hm³) Apr. 24, elevation, 1,433.01 ft (436.781 m); minimum, 27,830 acre-ft (34.3 hm³) Feb. 7-13, elevation, 1,429.27 ft (435.641 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30-----	1,429.89	29,090	-
Oct. 31-----	1,429.50	28,300	-790
Nov. 30-----	1,429.37	28,030	-270
Dec. 31-----	1,429.34	27,970	-60
CAL YR 1975-----	--	--	-1,120
Jan. 31-----	1,429.28	27,850	-120
Feb. 29-----	1,429.58	28,460	+610
Mar. 31-----	1,430.81	31,090	+2,630
Apr. 30-----	1,432.75	35,750	+4,660
May 31-----	1,432.57	35,290	-460
June 30-----	1,432.49	35,090	-200
July 31-----	1,431.85	33,500	-1,590
Aug. 31-----	1,430.83	31,140	-2,360
Sept. 30-----	1,429.85	29,010	-2,130
WTR YR 1976-----	--	--	-80

JAMES RIVER BASIN

509

06469400 PIPESTEM CREEK NEAR PINGREE, ND

LOCATION.--Lat 47°10'03", long 98°58'07", in NE¼NE¼NW¼ sec.31, T.143 N., R.65 W., Stutsman County, Hydrologic Unit 10160002, on right bank on downstream side of State Highway 36 bridge, 3 mi (5 km) west of Pingree.

DRAINAGE AREA.--700 mi² (1,810 km²), of which about 440 mi² (1,140 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,500.63 ft (457.392 m) above mean sea level.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft³/s (68.0 m³/s) Apr. 19, 1975, gage height, 11.47 ft (3.496 m), backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 100 ft³/s (2.832 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 20	--	160	45.3	Mar. 29	0800	*334	9.46
Mar. 25	0800	Backwater	*8.17				2.490

Minimum, no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.02	.02	.02	.02	2.0	209	22	1.1	.18		
2	.21	.02	.02	.01	.02	2.0	170	21	1.1	.18		
3	.18	.02	.02	.01	.02	2.0	140	17	1.1	.18		
4	.18	.04	.04	.01	.02	2.0	119	18	.76	.16		
5	.14	.04	.04	.01	.02	2.0	99	15	.55	.16		
6	.14	.04	.04	.01	.02	2.0	90	11	.55	.14		
7	.12	.04	.04	.01	.02	2.0	86	8.3	.55	.14		
8	.12	.04	.04	.01	.03	2.5	78	8.3	.46	.16		
9	.12	.02	.04	.01	.10	3.0	70	7.3	.50	.16		
10	.12	.04	.03	.01	.08	2.5	67	6.1	.50	.18		
11	.12	.06	.02	.01	.06	2.5	60	4.5	.50	.18		
12	.10	.04	.02	.01	.10	2.5	55	4.5	.55	.16		
13	.10	.04	.02	.01	.08	3.0	50	4.7	.55	.14		
14	.10	.04	.02	.01	.15	4.0	47	3.7	.38	.10		
15	.08	.04	.02	.01	.30	4.0	44	3.8	.55	.08		
16	.08	.04	.02	.01	.40	4.0	42	3.5	.27	.06		
17	.08	.02	.02	.01	.40	6.0	44	3.2	.24	.06		
18	.08	.02	.03	.01	.39	10	44	2.6	.24	.04		
19	.06	.04	.03	.01	.38	40	41	2.8	.24	.02		
20	.06	.04	.03	.01	.37	150	38	2.7	.16	0		
21	.06	.02	.03	.01	.37	100	35	2.4	.16	0		
22	.06	.04	.03	.01	.50	70	35	2.5	.14	0		
23	.06	.04	.03	.01	.70	90	33	2.2	.08	0		
24	.04	.04	.03	.01	1.1	140	37	2.0	.16	0		
25	.02	.06	.03	.01	3.7	180	37	1.6	.14	0		
26	.02	.06	.03	.01	6.0	200	37	1.6	.14	0		
27	.02	.06	.03	.01	7.0	240	35	1.7	.16	0		
28	.02	.06	.03	.02	4.0	293	31	1.6	.16	0		
29	.02	.06	.03	.02	2.0	331	29	1.6	.21	0		
30	.02	.04	.03	.02	---	311	25	1.4	.18	0		
31	.02	---	.03	.02	---	261	---	1.3	---	0		---
TOTAL	2.76	1.18	.89	.36	28.35	2464.0	1927	189.9	12.38	2.48	0	0
MEAN	.089	.039	.029	.012	.98	79.5	64.2	6.13	.41	.080	0	0
MAX	.21	.06	.04	.02	7.0	331	209	22	1.1	.18	0	0
MIN	.02	.02	.02	.01	.02	2.0	25	1.3	.08	0	0	0
AC-FT	5.5	2.3	1.8	.7	56	4890	3820	377	25	4.9	0	0
CAL YR 1975 TOTAL	19179.81			MEAN 52.5	MAX 2200	MIN 0	AC-FT 38040					
WTR YR 1976 TOTAL	4629.30			MEAN 12.6	MAX 331	MIN 0	AC-FT 9180					

JAMES RIVER BASIN

06470000 JAMES RIVER AT JAMESTOWN, ND

LOCATION.--Lat 46°53'22", long 98°40'58", in NW¼NE¼ sec.6, T.139 N., R.63 W., Stutsman County, Hydrologic Unit 10160003, on left bank 200 ft (60 m) upstream from Interstate 94 bridge at southeast corner of Jamestown and 3 mi (5 km) downstream from Pipestem Creek.

DRAINAGE AREA.--2,820 mi² (7,300 km²), approximately, of which about 1,650 mi² (4,270 km²) is probably non-contributing.

PERIOD OF RECORD.--June 1929 to September 1934, March to May 1935, August 1937 to September 1939, March 1943 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1239: 1938(M). WSP 1917: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,373.27 ft (418.573 m) above mean sea level. Oct. 1, 1949 to Sept. 30, 1965, at former bridge 0.5 mi (0.8 km) upstream at datum 2.00 ft (0.610 m) higher. See WSP 1729 or 1917 for history of changes prior to Oct. 1, 1949.

REMARKS.--Records fair. Flow regulated by Arrowwood, Jim, and Pipestem Lakes, and Jamestown Reservoir, combined capacity, 393,000 acre-ft (485 hm³). Regulation by Jamestown Reservoir (station 06469000) 6 mi (10 km) upstream since 1953 and by Pipestem Lake, capacity 147,000 acre-ft (181 hm³), since 1973.

AVERAGE DISCHARGE.--41 years (water years 1929-34, 1938-39, 1944-76) 58.3 ft³/s (1.651 m³/s), 42,240 acre-ft/yr (52.1 hm³/yr); median of yearly mean discharge, 25 ft³/s (0.71 m³/s), 18,100 acre-ft/yr (22 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,390 ft³/s (181 m³/s), May 13, 1950, gage height, 15.82 ft (4.822 m), site and datum then in use; no flow at times in 1933.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 414 ft³/s (11.7 m³/s) Apr. 23, gage height, 6.00 ft (1.829 m); minimum daily, 5.0 ft³/s (0.14 m³/s) Jan. 3-9, minimum gage height, 2.30 ft (0.701 m) Feb. 22, June 7,8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	310	16	7.0	6.2	29	152	268	10	20	16	18
2	261	305	16	6.0	6.2	29	157	266	9.0	20	16	17
3	275	288	16	5.0	6.8	30	156	263	9.5	20	16	17
4	280	136	16	5.0	7.0	28	157	246	9.0	20	16	17
5	280	108	14	5.0	7.0	28	157	190	7.9	22	16	17
6	280	79	13	5.0	7.6	28	156	169	7.3	23	16	16
7	295	85	13	5.0	8.6	27	156	157	6.8	20	16	16
8	294	109	12	5.0	9.0	24	161	139	6.8	19	16	16
9	282	112	11	5.0	10	23	197	123	31	19	16	16
10	291	112	10	6.0	10	22	229	86	42	19	16	16
11	289	108	9.5	6.0	7.6	20	229	80	24	18	16	16
12	291	71	10	6.0	11	23	229	85	18	18	16	16
13	289	51	11	6.0	10	22	244	77	12	18	21	17
14	288	44	11	6.0	8.6	22	290	40	23	18	19	17
15	285	40	11	6.0	8.6	19	336	32	34	16	18	17
16	285	35	13	6.0	7.6	24	332	30	20	16	18	16
17	284	32	11	7.0	8.6	19	328	26	17	16	18	16
18	277	30	14	8.0	7.6	20	320	20	16	16	16	16
19	267	30	13	7.0	6.8	160	321	24	15	17	16	16
20	296	28	13	8.0	8.6	120	323	19	15	17	16	16
21	308	26	13	8.0	6.5	170	321	21	16	17	18	16
22	308	23	13	7.0	6.5	150	321	19	16	17	18	15
23	308	21	12	7.0	11	130	363	18	16	16	18	15
24	307	20	12	7.0	22	125	344	16	21	16	19	15
25	305	18	12	7.0	30	125	323	15	19	17	19	15
26	305	18	12	7.0	29	120	320	14	22	16	19	15
27	305	18	10	7.9	29	119	320	14	22	17	18	15
28	304	17	9.5	7.9	38	122	323	15	23	17	18	15
29	302	16	8.6	8.6	27	121	312	14	21	17	18	15
30	302	17	7.9	7.3	---	121	270	13	20	17	18	12
31	316	---	7.6	7.3	---	109	---	12	---	17	18	---
TOTAL	9027	2307	371.1	202.0	362.4	2129	7847	2512	529.3	556	535	477
MEAN	291	76.9	12.0	6.52	12.5	68.7	262	81.0	17.6	17.9	17.3	15.9
MAX	316	310	16	8.6	38	170	363	268	42	23	21	18
MIN	261	16	7.6	5.0	6.2	19	152	12	6.8	16	16	12
AC-FT	17910	4580	736	401	719	4220	15560	4980	1050	1100	1060	946
CAL YR 1975 TOTAL	66116.7			MEAN 181	MAX 540	MIN 2.1	AC-FT 131100					
WTR YR 1976 TOTAL	26854.8			MEAN 73.4	MAX 363	MIN 5.0	AC-FT 53270					

JAMES RIVER BASIN

511

06470500 JAMES RIVER AT LA MOURE, ND

LOCATION.--Lat 46°21'20", long 98°18'15", in NE&NE¼ sec.11, T.133 N., R.61 W., LaMoure County, Hydrologic Unit 10160003, on left bank 80 ft (24 m) downstream from bridge on State Highway 13, 0.5 mi (0.8 km) west of LaMoure, and 12 mi (19 km) upstream from Cottonwood Creek.

DRAINAGE AREA.--4,390 mi² (11,370 km²), approximately, of which about 2,600 mi² (6,730 km²) is probably non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to July 1903 (gage-height record only), April 1950 to current year. Gage-height records for 1902-11 are contained in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 1917: Drainage area.

GAGE.--Water-stage recorder and rubble-masonry control. Datum of gage is 1,290.00 ft (393.192 m) above mean sea level. See WSP 1729 or 1917 for history of changes prior to Apr. 19, 1950.

REMARKS.--Records good. Flow regulated by Arrowwood, Jim, and Pipestem Lakes, and Jamestown Reservoir, combined capacity, 393,000 acre-ft (485 hm³). Regulation by Jamestown Reservoir (station 06469000) 85 mi (137 km) upstream since 1953 and by Pipestem Lake, capacity 147,000 acre-ft (181 hm³), since 1973.

AVERAGE DISCHARGE.--26 years (water years 1951-76), 89.3 ft³/s (2.529 m³/s), 64,700 acre-ft/yr (79.8 hm³/yr); median of yearly mean discharges, 60 ft³/s (1.70 m³/s), 43,500 acre-ft/yr (54 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft³/s (193 m³/s) Apr. 14, 1969, gage height, 16.17 ft (4.929 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Prior to flood of Apr. 14, 1969, a long-time resident said that the flood of May 16, 1950 was the highest since 1881, with stage in either 1942 or 1943 being almost as high owing to large ice jam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 498 ft³/s (14.1 m³/s) Mar. 22, gage height, 8.26 ft (2.518 m); no flow for part of Sept. 2, gage height, 6.95 ft (2.118 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	366	50	30	25	60	250	393	40	40	18	6.5
2	300	377	42	28	24	55	250	360	35	37	17	8.5
3	311	377	40	26	23	50	230	333	30	35	12	18
4	311	377	40	24	22	45	230	333	28	30	22	6.5
5	306	371	42	24	22	42	230	322	30	28	17	6.5
6	306	316	42	22	22	40	220	311	26	37	14	8.5
7	322	235	40	20	22	38	220	267	24	26	11	15
8	333	190	40	20	22	36	210	230	24	26	15	15
9	350	159	40	20	24	36	200	215	20	33	17	8.5
10	344	150	42	22	26	34	220	200	24	30	17	8.5
11	360	200	42	22	26	32	205	159	15	26	17	14
12	366	168	40	22	28	30	245	172	28	22	15	15
13	360	154	40	22	28	30	267	134	37	37	15	18
14	366	138	40	22	30	30	283	114	52	28	14	9.6
15	360	142	35	22	33	30	272	138	69	30	12	11
16	366	146	35	22	37	37	294	110	60	24	14	12
17	366	118	30	22	44	44	383	81	78	24	18	12
18	360	110	30	24	47	66	383	60	63	22	14	15
19	371	114	30	24	50	138	377	81	55	26	15	20
20	366	92	30	24	47	245	388	63	47	24	17	12
21	338	52	30	25	44	311	371	60	47	17	17	9.6
22	355	74	30	25	44	459	371	58	33	22	9.6	15
23	366	69	30	25	44	476	371	55	30	20	7.5	12
24	388	60	33	25	50	432	388	52	52	15	9.6	14
25	377	60	33	25	60	410	421	47	40	22	14	12
26	377	55	33	25	74	393	443	60	44	18	12	20
27	377	52	33	25	85	333	432	50	44	15	14	11
28	371	50	33	25	80	338	426	47	55	20	6.5	12
29	371	50	33	26	70	349	415	42	52	18	6.5	18
30	371	50	32	26	---	305	410	47	40	20	11	20
31	371	---	32	26	---	272	---	42	---	15	12	---
TOTAL	10886	4872	1122	740	1153	5196	9405	4636	1222	787	430.7	383.7
MEAN	351	162	36.2	23.9	39.8	168	314	150	40.7	25.4	13.9	12.8
MAX	388	377	50	30	85	476	443	393	78	40	22	20
MIN	300	50	30	20	22	30	200	42	15	15	6.5	6.5
AC-FT	21590	9660	2230	1470	2290	10310	18650	9200	2420	1560	854	751
CAL YR 1975	TOTAL	101694.9	MEAN	279	MAX	2900	MIN	7.8	AC-FT	201700		
WTR YR 1976	TOTAL	40833.4	MEAN	112	MAX	476	MIN	6.5	AC-FT	80990		

JAMES RIVER BASIN

06470500 JAMES RIVER AT LA MOURE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: June 1953 to September 1975 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 01...	1700	273	480	7.9	12.0	25	190	4	43	19	28
DEC 30...	1200	31	1100	7.5	.0	6	460	70	120	40	90
MAR 30...	1700	349	440	7.8	1.5	35	170	23	40	17	25
JUN 02...	1500	32	910	8.4	23.5	8	340	40	79	34	77

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)
OCT 01...	24	.9	10	222	0	182	4.5	63	7.7	.2
DEC 30...	29	1.8	9.6	481	0	395	24	190	45	.2
MAR 30...	23	.8	8.5	179	0	147	4.5	69	9.1	.1
JUN 02...	32	1.8	11	362	0	297	2.3	150	35	.3

DATE	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)	DIS-SOLVED BODIUM (B) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
OCT 01...	14	311	297	.42	229	.63	.16	100	20	40
DEC 30...	14	739	752	1.01	61.9	1.1	.05	270	10	1000
MAR 30...	11	290	272	.39	273	.77	.11	50	20	360
JUN 02...	7.7	590	573	.80	51.8	.00	.11	240	10	600

JAMES RIVER BASIN

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06470833 PILOT DRAIN AT OAKES, ND

LOCATION.--Lat 46°07'30", long 98°05'49", in SW¼SE¼ sec.29, T.131 N., R.59 W., Dickey County, Hydrologic Unit 10160003, on left bank 1 mi (2 km) southwest of Oakes.

DRAINAGE AREA.--5.1 mi² (13.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,295 ft (394.7 m), from topographic map.

AVERAGE DISCHARGE.--5 years, 1.45 ft³/s (0.0411 m³/s), 1,050 acre-ft/yr (1.29 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 8.0 ft³/s (0.23 m³/s), June 29, 1975, gage height, 2.20 ft (0.671 m), estimated; no flow Jan. 12-26, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5.3 ft³/s (0.15 m³/s), Apr. 1, gage height, 2.02 ft (0.616 m), from destruction of beaver dam upstream; no flow Aug. 30 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.3	1.5	1.5	1.7	1.8	3.0	2.9	2.3	.58	.11	
2	2.8	2.3	1.5	1.4	1.7	1.8	3.0	2.8	2.3	.58	.11	
3	2.8	2.3	1.5	1.2	1.3	1.8	3.3	2.8	2.2	.58	.11	
4	2.8	2.2	1.7	1.1	.89	2.0	2.9	2.8	2.2	.51	.11	
5	2.8	2.2	1.5	.98	.98	1.7	2.9	2.8	2.2	.51	.11	
6	2.8	2.3	1.5	1.2	1.1	2.0	2.8	2.8	2.1	.51	.11	
7	2.8	2.3	1.5	.89	1.1	2.1	2.9	2.8	2.0	.51	.11	
8	2.8	2.2	1.5	.89	1.2	2.1	2.9	2.6	1.8	.44	.11	
9	2.6	2.2	1.5	.98	1.4	2.0	2.9	2.8	1.7	.38	.11	
10	2.6	2.2	1.4	1.0	2.0	1.8	2.9	2.8	1.6	.38	.11	
11	2.6	2.2	1.4	1.1	2.1	1.6	2.9	2.8	1.4	.32	.11	
12	2.6	2.2	1.4	1.2	2.1	1.6	2.9	2.8	1.4	.32	.11	
13	2.6	2.2	1.4	1.1	2.1	1.7	2.9	2.8	1.3	.32	.11	
14	2.6	2.1	1.4	.98	2.1	2.0	3.2	2.8	1.3	.32	.11	
15	2.5	2.2	1.4	1.5	2.1	1.8	3.0	2.8	1.3	.32	.07	
16	2.5	2.2	1.4	1.7	2.1	2.0	3.0	2.8	1.2	.32	.07	
17	2.5	2.2	1.4	1.7	2.1	2.1	2.8	2.6	1.2	.32	.07	
18	2.5	2.2	1.4	1.7	2.1	2.4	2.9	2.8	1.1	.26	.07	
19	2.5	2.2	1.2	2.0	2.1	2.4	3.0	2.8	1.1	.26	.07	
20	2.4	2.2	1.4	1.7	2.0	2.4	2.9	2.8	.98	.26	.07	
21	2.4	2.0	1.4	2.0	1.8	2.3	2.9	2.6	.89	.26	.07	
22	2.4	1.3	1.5	2.0	1.8	2.5	2.9	2.6	.98	.26	.04	
23	2.3	1.2	1.7	2.2	1.6	2.6	2.9	2.6	.98	.16	.04	
24	2.4	1.6	2.3	2.1	1.8	2.4	2.9	2.6	.89	.16	.04	
25	2.4	1.5	1.6	2.0	2.3	2.4	2.9	2.6	.73	.16	.04	
26	2.4	1.5	1.6	1.9	2.2	2.4	2.8	2.5	.73	.21	.04	
27	2.4	1.6	1.6	1.8	2.1	2.5	2.8	2.5	.73	.21	.04	
28	2.4	1.7	1.6	2.0	2.1	2.5	2.8	2.4	.65	.16	.01	
29	2.3	1.6	1.7	1.8	2.1	2.6	2.8	2.4	.58	.16	.01	
30	2.3	1.5	1.7	1.7	---	2.6	2.8	2.4	.58	.16	0	
31	2.3	---	1.6	1.5	---	2.4	---	2.3	---	.16	0	---
TOTAL	79.0	59.9	47.2	46.72	52.07	66.3	87.5	83.2	40.42	10.06	2.29	0
MEAN	2.55	2.00	1.52	1.51	1.80	2.14	2.92	2.68	1.35	.32	.074	0
MAX	2.9	2.3	2.3	2.2	2.3	2.6	3.3	2.9	2.3	.58	.11	0
MIN	2.3	1.2	1.2	.89	.89	1.6	2.8	2.3	.58	.16	0	0
AC-FT	157	119	94	93	103	132	174	165	80	20	4.5	0
CAL YR 1975	TOTAL	655.22	MEAN	1.80	MAX	7.0	MIN	0	AC-FT	1300		
WTR YR 1976	TOTAL	574.66	MEAN	1.57	MAX	3.3	MIN	0	AC-FT	1140		

JAMES RIVER BASIN

06470833 PILOT DRAIN AT OAKES, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1971 to current year.

WATER TEMPERATURES: October 1971 to current year.

REMARKS.--Extremes for current year are not given due to missing record. No flow Aug. 30 - Sept. 30.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Apr. 5, 10, and 12, 1973; minimum daily, 320 micromhos

Mar. 16, 1972.

WATER TEMPERATURES: Maximum daily, 26.5°C Aug. 18, 1972; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)
OCT										
02...	1000	2.7	700	7.6	8.5	12	360	60	88	33
28...	1700	2.2	720	7.5	7.0	4	370	80	93	33
NOV										
24...	1600	1.6	750	7.7	1.5	5	380	74	96	33
DEC										
30...	1430	1.6	740	7.8	2.0	2	370	68	96	32
JAN										
26...	1530	1.8	700	7.5	.5	7	370	66	95	32
FEB										
26...	0900	1.9	600	7.3	4.5	15	300	57	78	26
MAR										
31...	0830	2.4	700	7.6	5.5	20	360	62	91	31
MAY										
05...	1515	2.7	700	8.0	11.5	12	350	55	89	31
JUN										
02...	1700	3.2	700	8.7	23.0	2	350	63	90	31
29...	0945	.58	690	7.8	17.5	12	340	82	80	33
AUG										
03...	1745	.10	640	7.7	15.0	25	320	71	78	31

DATE	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CaCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT										
02...	19	10	.4	6.1	360	0	295	14	95	11
28...	21	11	.5	6.4	351	0	288	18	97	12
NOV										
24...	19	10	.4	6.7	368	0	302	12	100	12
DEC										
30...	19	10	.4	6.3	371	0	304	9.4	99	12
JAN										
26...	19	10	.4	6.1	370	--	303	19	100	12
FEB										
26...	16	10	.4	7.5	299	0	245	21	80	11
MAR										
31...	18	10	.4	6.3	358	0	294	13	87	11
MAY										
05...	19	10	.4	5.8	359	0	294	5.7	99	11
JUN										
02...	18	10	.4	5.9	353	0	290	1.1	99	12
29...	18	10	.4	5.9	309	0	253	7.8	110	14
AUG										
03...	14	9	.3	4.5	307	0	252	9.8	75	12

JAMES RIVER BASIN

515

06470833 PILOT DRAIN AT OAKES, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)
OCT										
02...	.2	27	467	461	.64	3.48	.88	.02	--	--
28...	.2	25	463	464	.63	2.81	.76	.00	--	--
NOV										
24...	.2	29	488	481	.66	2.19	.92	.00	--	--
DEC										
30...	.2	27	477	479	.65	2.13	.72	.01	0	4
JAN										
26...	.3	25	471	476	.64	2.29	.87	.00	--	--
FEB										
26...	.2	21	404	391	.55	2.09	.79	.06	--	--
MAR										
31...	.3	26	513	451	.70	3.39	.56	.00	0	4
MAY										
05...	.2	25	457	459	.62	3.36	.53	.00	--	--
JUN										
02...	.3	28	473	462	.64	4.14	.81	.03	--	--
29...	.3	25	477	441	.65	.75	.49	.00	--	--
AUG										
03...	.2	26	418	408	.57	.11	3.5	.01	--	--

DATE	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL- LIUM (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 IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
OCT										
02...	--	--	90	--	--	--	--	--	--	--
28...	--	--	80	--	--	--	--	--	--	--
NOV										
24...	--	--	90	--	--	--	--	--	--	--
DEC										
30...	200	10	80	0	0	1	0	0	0	880
JAN										
26...	--	--	90	--	--	--	--	--	--	--
FEB										
26...	--	--	70	--	--	--	--	--	--	--
MAR										
31...	100	0	80	0	0	0	0	10	0	1000
MAY										
05...	--	--	70	--	--	--	--	--	--	--
JUN										
02...	--	--	90	--	--	--	--	--	--	--
29...	--	--	80	--	--	--	--	--	--	--
AUG										
03...	--	--	70	--	--	--	--	--	--	--

DATE	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 VANA- DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	CYANIDE (CN) (MG/L)
DEC									
30...	.0	4	3	0	0	330	.1	10	.00
MAR									
31...	.0	3	2	0	0	280	.0	0	.00

06470833 PILOT DRAIN AT OAKES, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

[illegible]

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

[illegible]

JAMES RIVER BASIN

517

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'10", long 98°10'26", in SE¼SE¼ sec.34, T.129 N., R. 60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota State line road 6.5 mi (9.8 km) south and 1 mi (1.6 km) west from Ludden, ND.

DRAINAGE AREA.--6,650 mi² (17,200 km²), approximately, of which about 2,800 mi² (7,300 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos, Mar. 16, 1975; minimum daily, 242 micromhos

Apr. 25, 1975.

WATER TEMPERATURES: Maximum daily, 28.5°C Jan. 12, 1976; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,580 micromhos, Sept. 25; minimum daily, 331 micromhos, Apr. 2.

WATER TEMPERATURES: Maximum daily, 28.5°C, Jun. 12; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO
OCT												
02...	1130	500	8.2	9.5	25	190	2	42	20	31	25	1.0
28...	1330	480	8.3	4.5	30	190	14	46	19	28	23	.9
NOV												
24...	1415	700	8.1	.5	30	270	18	65	27	47	26	1.2
DEC												
31...	0930	1150	8.2	1.0	20	430	56	91	49	100	33	2.1
JAN												
26...	1330	1400	7.5	.0	9	560	66	140	52	110	29	2.0
FEB												
25...	1015	840	7.7	1.5	35	310	53	77	29	68	31	1.7
MAR												
31...	1100	375	7.9	2.0	40	120	26	29	12	21	26	.8
MAY												
06...	0900	620	8.5	8.5	30	240	23	52	26	48	30	1.4
JUN												
03...	0815	620	8.6	20.0	25	210	27	37	28	54	35	1.6
28...	1500	690	9.2	23.0	80	210	31	37	29	69	40	2.1
AUG												
04...	0930	800	9.6	20.0	350	140	41	28	16	110	61	4.1
SEP												
09...	0930	1120	9.4	12.0	500	250	0	53	28	170	58	4.7

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TDS) PER AC-FT)
OCT												
02...	9.9	226	0	185	2.3	69	9.5	.1	12	323	306	.44
28...	10	218	0	179	1.7	67	9.7	.1	10	311	299	.42
NOV												
24...	12	311	0	255	4.0	110	18	.2	14	452	450	.61
DEC												
31...	16	455	0	373	4.6	210	44	.3	2.8	728	738	.99
JAN												
26...	14	607	0	498	31	260	22	.3	5.8	962	908	1.31
FEB												
25...	9.8	315	0	258	10	150	37	.2	5.5	567	536	.77
MAR												
31...	7.3	117	0	96	2.4	56	11	.1	6.9	225	204	.31
MAY												
06...	9.7	261	0	214	1.3	120	18	.2	1.7	412	404	.56
JUN												
03...	12	221	0	181	.9	130	19	.2	7.2	411	397	.56
28...	13	218	0	179	.2	140	27	.4	.1	448	423	.61
AUG												
04...	15	121	0	99	.0	190	53	.3	15	545	488	.74
SEP												
09...	14	357	0	293	.2	220	91	.3	27	820	780	1.12

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

[illegible]

JAMES RIVER BASIN

519

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	500	502	722	1010	1090	667	336	636	633	712	820	1180
2	496	493	734	1040	1100	637	331	623	628	708	839	1210
3	492	489	769	1100	1090	700	336	617	640	762	871	1260
4	496	493	778	1130	1110	692	427	612	637	725	858	---
5	501	492	817	1140	1120	652	445	635	637	725	848	---
6	501	489	811	1140	1170	659	460	676	640	723	840	---
7	508	496	845	1170	1100	692	490	677	627	738	876	1320
8	509	498	869	1220	1120	695	498	700	619	734	893	1290
9	506	512	888	1320	1070	728	567	708	629	736	887	1280
10	508	517	908	1220	1060	732	532	710	639	732	879	1330
11	509	512	933	1240	945	810	548	702	666	741	868	1310
12	510	520	979	1260	964	833	556	697	679	762	847	1310
13	513	533	990	1260	1100	842	561	689	666	773	856	1390
14	516	528	1040	1260	1080	778	578	687	679	760	915	1360
15	521	541	998	1280	1260	783	581	689	704	758	899	1360
16	520	534	1020	1320	947	769	598	697	704	771	895	1370
17	505	534	1060	1320	1060	752	588	692	711	776	905	1380
18	501	531	1040	1410	980	747	602	700	711	762	919	1380
19	500	536	1070	1340	1030	760	598	707	700	757	940	1470
20	495	584	1040	1280	1180	735	598	703	674	770	961	1480
21	493	602	1060	1220	1000	703	602	698	672	772	1040	1520
22	492	611	1060	1310	927	752	589	702	675	775	1020	1540
23	491	676	1000	1180	910	625	595	704	676	773	1040	1560
24	488	679	1070	1160	850	600	587	703	666	784	1070	1560
25	496	701	1060	1380	850	527	589	712	671	800	1070	1580
26	490	702	1020	1320	845	527	582	712	686	788	1070	1560
27	489	685	1080	1260	824	572	592	710	696	793	1100	1290
28	492	684	1090	1290	765	480	593	708	698	791	1140	1260
29	497	710	1110	1350	670	404	605	700	713	830	1160	1240
30	498	713	1070	1350	---	374	623	700	719	839	1150	1240
31	502	---	1130	1310	---	360	---	674	---	803	1180	---
MONTH	501	570	970	1240	1010	664	540	686	670	764	957	1370

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.5	---	2.5	2.0	1.0	1.5	3.0	11.5	21.5	22.0	20.5	16.5
2	10.5	---	2.0	1.0	0.5	2.0	3.0	7.0	25.0	22.0	20.5	19.0
3	11.5	---	2.5	0.5	0.5	0.5	2.5	7.5	21.0	21.5	23.5	17.0
4	12.5	---	2.5	0.0	0.5	0.5	8.0	10.0	19.0	21.5	23.0	---
5	10.0	---	1.5	0.5	0.5	0.5	8.0	8.5	24.0	24.0	25.5	---
6	13.0	---	2.5	0.5	0.5	1.0	10.5	9.5	23.0	24.0	21.5	---
7	16.0	---	2.5	0.5	1.0	1.5	10.0	10.5	22.0	27.0	21.5	21.5
8	14.5	---	3.5	0.5	1.0	1.5	11.5	12.5	24.5	25.0	21.0	17.5
9	10.5	---	3.0	0.5	1.5	1.0	11.5	17.0	25.0	27.0	22.0	13.5
10	9.0	---	2.0	0.5	1.5	1.0	12.0	18.0	24.5	24.5	23.0	14.0
11	9.0	---	2.0	0.5	2.0	2.0	11.0	18.0	28.0	24.0	22.0	18.0
12	10.5	---	1.0	0.5	2.0	1.0	12.0	15.5	28.5	22.0	28.0	20.0
13	10.5	---	1.5	0.0	1.5	1.0	15.0	18.0	23.5	25.0	24.0	17.5
14	11.0	---	0.5	0.0	1.5	1.5	14.5	15.5	21.0	24.0	21.0	16.5
15	8.0	---	1.5	0.5	1.5	1.5	15.5	16.0	16.0	22.0	20.0	16.0
16	9.0	---	2.0	0.5	2.0	1.5	12.5	14.0	16.5	19.5	20.5	15.5
17	8.5	---	2.0	0.5	1.5	2.0	11.5	17.0	17.5	24.0	23.5	19.0
18	9.0	---	1.5	0.5	1.5	3.0	10.0	16.5	15.0	24.0	24.0	15.5
19	9.0	---	2.5	0.0	1.5	3.5	11.5	16.5	17.5	25.0	24.0	13.5
20	9.5	---	2.0	0.5	1.5	2.0	11.0	17.5	18.5	23.0	22.0	14.0
21	10.0	---	3.0	0.5	1.5	1.5	9.5	16.5	22.0	23.0	24.0	11.5
22	9.5	---	3.0	0.5	2.0	2.0	12.0	15.0	25.0	24.5	21.0	14.0
23	8.0	---	3.0	0.5	2.0	3.0	10.5	18.0	21.0	25.0	23.0	9.0
24	6.0	---	1.5	0.5	2.5	1.5	10.0	17.5	21.0	24.5	24.0	8.5
25	4.0	3.0	3.0	0.5	3.0	2.0	9.5	18.0	18.5	24.5	27.0	10.0
26	5.0	2.0	3.0	0.5	3.0	2.0	12.0	19.0	19.0	25.5	24.0	13.0
27	6.0	1.0	2.0	1.5	3.5	1.5	13.5	17.0	19.0	25.0	22.5	9.5
28	5.0	2.5	3.0	1.5	2.0	2.0	14.5	16.5	19.0	23.5	13.0	8.5
29	5.0	2.5	1.5	2.0	1.5	1.5	13.0	17.5	19.0	23.0	17.0	10.0
30	6.5	2.5	2.0	2.0	---	2.0	11.5	18.0	24.0	22.0	20.5	13.0
31	---	---	2.5	1.0	---	2.0	---	21.5	---	21.5	17.5	---
MONTH	9.0	---	2.0	0.5	1.5	1.5	10.5	15.0	21.5	23.5	22.0	14.5

JAMES RIVER BASIN

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, N. Dak., Hydrologic Unit 10160004, on left bank 0.4 mi (0.6 km) upstream from State line, 7.8 mi (12.6 km) northeast of Frederick, S. Dak. and 15.7 mi (25.3 km) upstream from mouth.

DRAINAGE AREA.--750 mi² (1,940 km²), approximately, of which about 270 mi² (699 km²) is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,365 ft (416 m), from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi (0.6 km) downstream at datum 0.94 ft (0.287 m) lower.

REMARKS.--Records good except those for winter periods, which are poor.

AVERAGE DISCHARGE.--20 years, 19.0 ft³/s (0.538 m³/s), 13,770 acre-ft/yr (17.0 hm³/yr); median of yearly mean discharges, 10 ft³/s (0.28 m³/s), 7,200 acre-ft/yr (8.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s (168 m³/s) Apr. 11, 1969, gage height, 15.22 ft (4.639 m); maximum gage height, 16.05 ft (4.892 m) Apr. 11, 1969, backwater from ice; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.4 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 29	--	60 1.70	-- --	Mar. 22	0800	*515 14.6	*7.36 2.243

Minimum discharge, no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.01			0	48	47	16	.33			
2	.11	0			0	40	42	16	.22			
3	.09	0			0	35	43	15	.09			
4	.07	0			0	30	36	13	.04			
5	.13	0			0	20	34	13	.01			
6	.04	0			0	10	31	12	.02			
7	0	.01			0	10	30	11	.02			
8	0	.02			0	12	28	9.2	.01			
9	0	.02			0	14	32	8.2	0			
10	0	.02			0	12	37	7.2	0			
11	0	.07			0	12	28	6.4	0			
12	0	.03			0	12	23	5.3	0			
13	0	0			0	10	22	6.1	0			
14	0	0			0	12	22	4.8	.01			
15	0	0			0	10	21	5.1	.13			
16	0	0			0	10	19	4.4	.03			
17	0	0			0	12	20	3.5	.13			
18	0	.03			0	15	20	2.0	.05			
19	0	.19			0	20	18	2.0	.02			
20	0	.07			0	25	18	2.0	0			
21	0	0			0	100	18	1.7	0			
22	0	0			0	458	17	1.6	0			
23	0	0			.10	333	17	1.3	0			
24	.07	0			3.8	296	17	1.2	0			
25	.06	0			3.5	225	17	.67	0			
26	.05	0			2.5	166	17	.74	0			
27	.06	0			5.0	125	17	.90	0			
28	.06	0			10	104	17	.74	0			
29	.03	0			50	90	17	.53	0			
30	.02	0			---	73	17	.42	0			
31	.03	---			---	58	---	.42	---			---
TOTAL	.98	.47	0	0	74.90	2397	742	172.42	1.11	0	0	0
MEAN	.032	.016	0	0	2.58	77.3	24.7	5.56	.037	0	0	0
MAX	.16	.19	0	0	50	458	47	16	.33	0	0	0
MIN	0	0	0	0	0	10	17	.42	0	0	0	0
AC-FT	1.9	.9	0	0	149	4750	1470	342	2.2	0	0	0
CAL YR 1975 TOTAL	14849.40		MEAN 40.7		MAX 924	MIN 0	AC-FT 29450					
WTR YR 1976 TOTAL	3388.88		MEAN 9.26		MAX 458	MIN 0	AC-FT 6720					

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations and the second is a table of both low flow and high flow measurements.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

					Annual maximum		
Station No.	Station name	Location	Drainage area (m ²)	Period of record	Date	Gage height (feet)	Dis-charge (ft ³ /s)
Red River of the North basin							
05060000	Maple River near Mapleton, ND	Lat 46°51'40", long 97°06'10", in SW¼SE¼ sec.10, T.139 N., R. 51 W., Cass County, on left bank 25 ft upstream from dam, 3 miles southwest of Mapleton.	1,450	1944-76	3-27-76	7.50	^a 1,000
05065500	Goose River near Portland, ND	Lat 47°32'20", long 97°27'20", in SE¼NE¼ sec.19, T.147 N., R. 53 W., Traill County, on left bank 75 ft upstream from bridge on State Highway 18, 5 miles northwest of Portland.	517	1939-76	4-1-76	10.15	680
Little Missouri River basin							
06336000	Little Missouri River at Medora, ND	Lat 46°55'10", long 103°31'40", in NE¼ sec.27, T.140 N., R.102 W., Billings County, on left bank 600 ft downstream from bridge on county highway, 0.2 mile northwest of Medora.	^a 6,190	1903-08, 1921-24, 1928-34, 1945-76	^a 6-21-76	--	^a 6,000
Heart River basin							
06345000	Green River near Gladstone, ND	Lat 46°53'40", long 102°37'25", in SW¼ sec.36, T.140 N., R.95 W., Stark County, on right bank 0.5 mile upstream from county highway bridge, 3.5 miles northwest of Gladstone.	356	1945-76	3-21-76	4.25	350
06347000	Antelope Creek near Carson, ND	Lat 46°31'50", long 101°38'25", in NW¼NE¼ sec.8, T.135 N., R.87 W., Grant County, on right bank 800 ft upstream from county highway bridge, 8 miles northwest of Carson.	221	1948-76	^a 3-20-76	5.46	^a 100

^a Approximately.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1976

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Red River of the North basin						
Sheyenne River	Red River of the North	Lat 46°48'13", long 96°54'13", in NW¼NW¼NW¼ sec.5, T.138 N., R.49 W., Cass County, 3 miles north of Horace.	--	--	8-31-76 9-8-76 9-27-76	24.3 23.5 26.3
Drain ditch 21	Sheyenne River	Lat 46°53'29", long 96°55'06", north line sec.6, T.139 N., R.49 W., Cass County, at bridge on county highway, 1 mile north of West Fargo.	--	1965-67, 1969, 1975	4-7-76	b 5.0
Red River of the North	Hudson Bay	Lat 48°11'40", long 97°08'30", sec.6, T.154 N., R.50 W., Grand Forks County, at bridge on State Highway 1 at Oslo, Minn.	--	‡1936-37, ‡1941-43, ‡1945-49, 1965-69	4-5-76	26,400
Middle Branch Park River	Red River of the North	Lat 48°26'25", long 97°26'54", NW¼NW¼NW¼ sec.10, T.157 N., R.53 W., Walsh County, 2 miles northwest of Grafton.	--	--	4-2-76 4-5-76 4-16-76	830 588 203
McCleod Drain	Park River	Lat 48°23'53", long 97°23'00", in SW¼SW¼SW¼ sec.20, T.157 N., R.52 W., at bridge on county highway, 2 miles southeast of Grafton.	--	1971	4-2-76	131
Gassman Coulee	Souris River	Lat 48°13'54", long 101°22'20", in NE¼SW¼ sec.20, T.155 N., R.83 W., Ward County, at culvert on U.S. Highways 2 and 52, 2 miles west of Minot.	61	1969-73, 1975	3-19-76 3-25-76	246 44.2
Souris River	Red River of the North	Lat 48°14'23", long 101°17'30", in NE¼NW¼NW¼ sec.24, T.155 N., R.83 W., Ward County, at bridge on Main Street in Minot.	--	1968-75	3-25-76 3-30-76 4-5-76 4-7-76 4-8-76 4-13-76 4-14-76 4-15-76 4-17-76 4-18-76 5-10-76	2,230 3,050 3,870 4,350 4,810 5,410 5,970 7,290 9,210 9,340 4,860
Larson Coulee	Souris River	Lat 48°11'47", long 101°13'51", in NE¼NE¼NE¼ sec.5, T.154 N., R.82 W., Ward County, at bridge on U.S. Highway 52, 4 miles southeast of Minot.	--	1971-75	3-25-76	56.7
Souris River	Red River of the North	Lat 48°09'11", long 101°09'00", on north line sec.24, T.154 N., R.82 W., Ward County, at bridge on county highway at Logan.	--	1971-75	4-1-76 4-15-76 4-17-76	3,290 6,420 7,990
Bonnes Coulee	Souris River	Lat 48°03'30", long 100°57'00", in NE¼SW¼ sec.21, T.153 N., R.80 W., McHenry County, at culvert on U.S. Highway 52, 0.5 mile west of Velva.	53	1962, 1965, 1971-73	3-23-76	314
Souris River	Red River of the North	Lat 48°03'50", long 100°55'42", in NE¼NE¼ sec.22, T.153 N., R.80 W., Ward County, at bridge on State Highway 41 in Velva.	--	1966-75	4-1-76 4-15-76 4-17-76 4-20-76	3,250 6,360 8,970 10,000
Souris River	Red River of the North	Lat 48°21'05", long 100°25'08", in SW¼NE¼ sec.10, T.156 N., R.76 W., McHenry County, at bridge on State Highway 14, 0.5 mile northwest of Towner.	--	1971-75	4-1-76 4-16-76 4-22-76	4,170 4,990 9,420
Heart River basin						
Heart River	Missouri River	Lat 46°51'43", long 102°48'58", in SE¼SW¼SE¼ sec.8, T.139 N., R.96 W., Stark County, on left bank 1 mile downstream from Dickinson Dam and 1.8 miles southwest of Dickinson.	--	‡1951-72	12-2-75	0.56
Sweetbriar Creek	Heart River	Lat 46°51'54", long 101°15'34", in SW¼SW¼ sec.11, T.139 N., R.84 W., Morton County, 300 feet below spillway and 2.5 miles northeast of Judson.	--	--	10-31-75	0.51
Beaver Creek basin						
Spring Creek	Knife River	Lat 46°19'40", long 100°13'27", SW¼SE¼ sec.15, T.133 N., R.76 W., Emmons County, 300 feet above bridge, 5 miles north of Linton.	22.9	--	6-11-76	0.89
James River basin						
Pipestem Creek	James River	Lat 46°57'00", long 98°45'26", on south line sec.9, T.140 N., R.64 W., Stutsman County, at bridge on county highway, 3 miles northwest of Jamestown.	--	1974-75	10-8-75	373

b Estimated.

‡ Operated as a continuous gaging station.

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	STAGE (FT ABOVE DATUM)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

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

OCT , 1975												
22...	1210	a 59.20	835	8.5	7.0	40	260	67	44	36	69	34
JAN , 1976												
21...	0930	a 59.04	1180	7.6	.0	30	390	62	66	54	110	36
MAY												
05...	1115	a 60.79	830	8.1	7.5	17	280	49	50	37	67	32
JUL												
22...	0900	a 59.95	750	9.1	23.0	45	220	28	26	38	71	38

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

OCT , 1975												
22...	1030	b 14.43	1140	8.5	5.5	70	410	110	74	54	92	31
MAY , 1976												
05...	1000	b 17.28	590	8.4	5.5	35	230	54	51	24	34	23
JUL												
21...	1030	b 16.43	825	8.0	21.0	45	270	9	51	35	67	33

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

OCT , 1975												
22...	0920	b 13.31	950	8.5	4.0	150	390	94	81	46	75	28
MAY , 1976												
05...	0910	b 16.50	530	8.3	5.5	45	240	76	50	27	40	26
JUL												
21...	0930	b 13.08	900	8.5	27.0	70	370	120	74	44	60	25

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

OCT , 1975												
23...	1055	a 23.48	3700	8.8	7.0	20	730	320	76	130	630	62
JAN , 1976												
21...	1415	a 23.47	4180	8.6	.0	25	780	330	83	140	680	62
MAY												
05...	1500	a 24.65	3700	8.1	9.0	25	730	310	78	130	600	61
JUL												
21...	1315	a 24.51	3750	8.7	23.5	25	730	320	78	130	570	60

05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)

OCT , 1975												
23...	1130	a 23.48	3980	8.7	6.5	28	730	320	77	130	640	63
JAN , 1976												
21...	1200	a 23.47	4110	8.6	.0	25	780	320	81	140	690	63
MAY												
05...	1600	a 24.65	3510	8.5	9.0	30	730	310	76	130	570	60
JUL												
21...	1345	a 24.51	3750	8.7	23.5	25	730	310	76	130	560	60

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

OCT , 1975												
22...	1625	a 23.25	4700	8.7	7.5	28	770	340	78	140	670	62
JAN , 1976												
21...	1230	a 23.16	4500	8.5	~.5	45	900	360	95	160	820	63
MAY												
05...	1250	a 23.84	4200	8.4	9.0	40	820	370	82	150	670	61
JUL												
21...	1430	a 23.94	4000	8.7	23.0	22	770	340	76	140	610	60

a - Add 1,400 ft to convert to mean sea level.

b - Feet above arbitrary datum.

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (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 SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

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

OCT , 1975												
22...	1.9	25	233	0	191	1.2	190	35	.1	27	609	542
JAN , 1976												
21...	2.4	27	397	0	326	16	270	37	.2	36	849	797
MAY												
05...	1.8	22	279	0	229	3.5	180	21	.2	25	579	541
JUL												
22...	2.1	24	236	0	194	.3	160	24	.2	30	511	490

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

OCT , 1975												
22...	2.0	28	368	0	302	1.9	290	35	.2	11	824	766
MAY , 1976												
05...	1.0	15	210	0	172	1.3	130	13	.1	9.0	412	380
JUL												
21...	1.8	24	321	0	263	5.1	150	26	.2	23	--	540

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

OCT , 1975												
22...	1.7	25	341	11	298	1.8	250	29	.2	22	731	711
MAY , 1976												
05...	1.1	12	195	0	160	1.6	130	12	.1	10	401	378
JUL												
21...	1.4	24	250	25	247	1.5	220	25	.2	28	581	625

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

OCT , 1975												
23...	10	84	434	32	409	1.3	1400	290	.1	17	2880	2870
JAN , 1976												
21...	11	92	490	32	455	2.2	1500	310	.2	19	3090	3100
MAY												
05...	9.7	88	510	0	418	6.5	1300	270	.1	18	2820	2740
JUL												
21...	9.2	82	412	45	413	1.6	1200	280	.2	2.4	2700	2590

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

OCT , 1975												
23...	10	82	420	39	409	1.6	1400	300	.1	17	2860	2890
JAN , 1976												
21...	11	86	490	32	455	2.2	1500	310	.2	19	3090	3100
MAY												
05...	9.2	81	451	26	413	2.5	1300	260	.1	16	2710	2680
JUL												
21...	9.1	82	414	43	411	1.6	1200	280	.2	2.2	2680	2580

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

OCT , 1975												
22...	11	87	468	30	434	1.7	1400	310	.1	18	3070	2970
JAN , 1976												
21...	12	110	568	40	532	3.3	1700	380	.2	21	3720	3610
MAY												
05...	10	90	483	31	448	3.5	1500	320	.1	18	3180	3100
JUL												
21...	9.6	86	441	41	430	1.7	1300	300	.2	2.4	2850	2770

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

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

OCT , 1975											
22...	.83	.05	.03	10	4	0	120	1	0	0	4
JAN , 1976											
21...	1.15	.12	.01	0	4	100	180	1	0	0	4
MAY											
05...	.79	.15	.08	20	3	0	100	1	0	2	5
JUL											
22...	.70	.01	.02	20	5	0	140	1	0	0	7

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

OCT , 1975											
22...	1.12	.01	.00	20	6	0	150	1	0	0	9
MAY , 1976											
05...	.56	.03	.03	10	4	0	70	0	0	2	4
JUL											
21...	.97	1.0	.59	30	23	100	160	1	0	0	5

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

OCT , 1975											
22...	.99	.65	.51	60	19	100	130	0	0	0	12
MAY , 1976											
05...	.55	.01	.05	20	39	0	60	1	10	2	6
JUL											
21...	.79	.15	.29	40	21	100	140	2	0	0	8

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

OCT , 1975											
23...	3.92	.06	.52	20	26	0	580	1	5	0	2
JAN , 1976											
21...	4.20	.24	.58	0	24	0	590	0	0	0	1
MAY											
05...	3.84	.22	.57	0	18	0	520	1	10	0	4
JUL											
21...	3.67	.02	.57	20	23	100	520	1	0	2	1

05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)

OCT , 1975											
23...	3.89	.06	.52	10	28	0	590	1	10	0	4
JAN , 1976											
21...	4.20	.20	.58	0	22	100	630	0	0	0	2
MAY											
05...	3.69	.20	.56	0	16	0	500	1	0	2	7
JUL											
21...	3.64	.02	.56	20	18	100	520	1	0	0	2

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

OCT , 1975											
22...	4.18	.11	.52	10	26	0	640	1	0	0	9
JAN , 1976											
21...	5.06	.22	.57	2	24	0	760	0	0	1	5
MAY											
05...	4.32	.54	.50	20	26	0	600	1	0	0	4
JUL											
21...	3.88	.01	.61	0	20	100	560	0	0	0	1

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MANGANESE (MN) (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)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
PART 5. HUDSON BAY BASIN											
RED RIVER OF THE NORTH BASIN											
05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)											
OCT , 1975 22...	40	2	5	.0	2	3	0	240	4.0	9	--
JAN , 1976 21...	30	9	120	.0	5	2	0	330	2.2	0	--
MAY 05...	0	3	0	.0	0	6	0	230	.0	10	--
JUL 22...	40	11	10	.0	2	0	0	230	.8	0	2100000
05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)											
OCT , 1975 22...	50	2	10	.0	3	7	0	360	6.4	20	--
MAY , 1976 05...	0	3	0	.0	3	4	0	180	4.5	10	--
JUL 21...	110	7	400	.0	2	3	0	240	.6	10	100000
05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)											
OCT , 1975 22...	150	2	30	.2	5	6	1	330	18	20	--
MAY , 1976 05...	10	2	0	.2	0	6	0	180	3.7	10	--
JUL 21...	80	8	10	.0	1	4	0	330	.0	0	6900
05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)											
OCT , 1975 23...	30	4	20	.0	1	5	0	400	8.9	10	--
JAN , 1976 21...	20	0	0	.0	2	2	0	390	6.7	0	--
MAY 05...	30	4	0	.0	2	4	0	330	1.8	10	--
JUL 21...	70	6	20	.0	2	2	0	380	.1	0	22000
05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)											
OCT , 1975 23...	40	1	5	.0	3	5	0	390	9.1	4	--
JAN , 1976 21...	20	0	20	.1	3	1	0	390	6.5	0	--
MAY 05...	10	4	10	.0	1	6	0	320	2.2	10	--
JUL 21...	60	9	20	.0	0	2	0	380	.1	0	19000
05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)											
OCT , 1975 22...	40	2	10	.0	2	5	0	410	8.2	20	--
JAN , 1976 21...	20	4	10	.0	4	4	0	450	7.6	10	--
MAY 05...	10	4	10	.0	2	6	0	360	3.1	0	--
JUL 21...	40	3	10	.0	1	3	0	390	.2	10	24000

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	STAGE (FT ABOVE DATUM)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
PART 5. HUDSON BAY BASIN												
RED RIVER OF THE NORTH BASIN												
05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)												
OCT , 1975												
21...	1535	a 25.41	5700	8.8	8.0	30	1500	900	100	300	1700	68
JAN , 1976												
20...	1530	a 25.57	10000	8.6	.0	40	1700	1000	110	350	1800	66
MAY												
04...	1445	a 25.85	7800	8.5	12.0	45	1400	810	98	280	1500	67
JUL												
21...	1800	a 25.32	8500	8.7	24.5	45	1500	890	86	300	1600	67
05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)												
OCT , 1975												
21...	1400	a 1.18	47000	8.7	7.5	--	7000	5800	14	1700	10000	73
JAN , 1976												
20...	1430	a 1.56	41100	8.6	-1.0	130	7900	6500	28	1900	11000	74
MAY												
04...	1245	a 2.66	45000	8.7	10.5	120	5000	4100	19	1200	10000	79
JUL												
21...	1645	a 2.54	29300	8.6	27.0	90	5000	4000	5.7	1200	6900	72
05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)												
OCT , 1975												
21...	1045	c 84.13	74200	8.5	7.5	--	20000	19000	190	4800	25000	71
JAN , 1976												
20...	1230	c 83.20	65000	8.1	-3.0	70	30000	29000	450	7100	15000	51
MAY												
04...	1045	c 84.56	60200	8.4	8.0	40	19000	18000	230	4400	19000	67
JUL												
22...	1200	c 83.78	78400	8.8	23.0	45	25000	24000	14	6000	29000	70
05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)												
OCT , 1975												
21...	1200	c 98.90	10700	306	7.5	20	2000	1700	83	440	2200	68
JAN , 1976												
20...	1330	c 98.82	17000	8.1	.0	35	3300	2700	170	690	3400	67
MAY												
04...	1115	c 99.35	9300	8.4	8.5	35	1900	1600	100	410	1900	66
JUL												
22...	1115	c 98.54	14000	8.9	24.0	25	2500	2100	64	560	2400	66

a - Add 1,400 ft to convert to mean sea level.

c - Add 1,300 ft to convert to mean sea level.

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (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 SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)

OCT , 1975												
21...	19	190	592	58	582	1.8	3700	820	.1	2.0	7010	7160
JAN , 1976												
20...	19	210	727	59	695	3.4	3900	940	.1	7.2	7950	7740
MAY												
04...	17	190	606	56	590	3.6	3200	720	.1	8.0	6520	6350
JUL												
21...	18	200	586	50	564	2.2	3300	810	.1	17	6720	6650

05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)

OCT , 1975												
21...	52	830	966	252	1210	4.7	24000	3500	.0	11	40200	40800
JAN , 1976												
20...	54	360	1260	232	1420	7.0	25000	4000	--	13	46600	43200
MAY												
04...	62	610	805	152	913	3.6	22000	3000	--	6.4	30000	37400
JUL												
21...	43	650	925	126	968	4.7	16000	2700	.1	8.8	28900	28100

05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)

OCT , 1975												
21...	76	1200	740	147	852	5.3	61000	9900	--	11	110000	103000
JAN , 1976												
20...	37	1100	1530	0	1260	19	45000	14000	--	18	89200	83400
MAY												
04...	60	1600	812	69	781	6.1	47000	8700	--	11	82600	81400
JUL												
22...	80	1500	700	239	972	3.0	67000	12000	.1	11	128000	116000

05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)

OCT , 1975												
21...	21	190	280	46	306	.0	4800	1100	.1	2.6	9300	9000
JAN , 1976												
20...	26	240	697	0	572	8.9	7800	1800	.1	6.3	14900	14500
MAY												
04...	19	130	403	12	351	2.7	4300	960	.1	5.8	8450	8020
JUL												
22...	21	180	388	40	385	.9	5300	1500	.0	5.2	10600	10200

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (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)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)

OCT , 1975											
21...	9.53	.00	.19	10	35	0	1300	0	5	0	6
JAN , 1976											
20...	10.8	.07	.35	0	28	0	1500	0	0	1	3
MAY											
04...	8.87	.02	.27	0	18	0	1300	1	10	0	3
JUL											
21...	9.14	.01	.33	0	28	100	1300	1	0	0	3

05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)

OCT , 1975											
21...	54.7	.00	.14	90	150	0	5200	1	40	0	12
JAN , 1976											
20...	63.4	.19	.03	20	150	0	500	0	0	0	2
MAY											
04...	40.8	.11	.07	30	110	100	2700	0	30	2	6
JUL											
21...	39.3	.03	.05	10	150	100	3700	1	20	0	4

05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)

OCT , 1975											
21...	150	.00	.63	20	150	100	10000	1	90	0	0
JAN , 1976											
20...	121	.10	.70	0	170	100	1300	3	0	0	4
MAY											
04...	112	.02	.45	10	48	0	3400	1	100	0	3
JUL											
22...	174	.01	.54	0	250	100	11000	1	90	0	1

05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)

OCT , 1975											
21...	12.6	.00	.05	20	16	0	1400	0	15	0	2
JAN , 1976											
20...	20.3	.04	.12	0	31	0	470	0	0	0	3
MAY											
04...	11.5	.09	.04	0	9	0	1300	0	10	2	4
JUL											
22...	14.4	.01	.05	10	200	0	1900	1	0	0	4

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MANGANESE (MN) (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)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)

OCT , 1975											
21...	40	1	5	.0	6	5	0	580	18	20	--
JAN , 1976											
20...	30	2	60	.3	5	4	0	510	13	160	--
MAY											
04...	0	4	10	.0	2	6	0	480	8.8	20	--
JUL											
21...	20	2	10	.0	1	2	0	510	6.5	10	42000

05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)

OCT , 1975											
21...	240	7	60	.0	10	4	0	190	53	70	--
JAN , 1976											
20...	80	2	100	.0	6	4	0	140	68	210	--
MAY											
04...	70	4	30	.1	4	4	0	120	35	40	--
JUL											
21...	80	6	40	.0	3	3	0	150	12	30	180000

05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)

OCT , 1975											
21...	150	9	120	.0	9	0	0	440	180	100	--
JAN , 1976											
20...	140	11	280	.0	9	7	0	730	210	350	--
MAY											
04...	140	3	100	.0	4	6	0	340	76	60	--
JUL											
22...	170	7	170	.0	7	0	0	280	63	90	2300

05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)

OCT , 1975											
21...	50	3	10	.0	13	10	0	710	26	30	--
JAN , 1976											
20...	40	4	140	.0	12	11	0	840	25	170	--
MAY											
04...	0	3	20	.0	11	8	0	740	14	20	--
JUL											
22...	20	10	40	.0	8	6	1	410	10	20	3000

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	STAGE (FT ABOVE DATUM)	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)	PER- CENT SATUR- ATION	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

OCT , 1975											
01...	1000	a29.84	480	8.2	12.5	18	--	--	--	180	0
DEC											
29...	1630	a29.30	520	8.6	.5	15	--	--	--	200	0
JUN , 1976											
02...	0830	a32.55	524	8.0	26.5	12	--	--	--	190	0

06470880 - HYATT SLOUGH NR LUDDEN, ND (LAT 45 56 18 LONG 098 09 03)

OCT , 1975											
02...	1230	--	700	7.7	11.0	44	3	7.9	77	290	0
DEC											
31...	1030	--	1300	7.8	.0	45	10	7.1	53	520	39
MAR , 1976											
31...	1200	--	210	7.4	3.5	9	2	6.2	50	46	0
JUN											
03...	1000	--	1050	8.1	21.5	45	4	5.3	60	440	35

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

OCT , 1975										
01...	36	21	33	27	1.1	11	232	0	190	2.3
DEC										
29...	44	22	39	28	1.2	11	254	7	220	1.1
JUN , 1976										
02...	39	22	38	29	1.2	9.9	235	0	193	3.8

06470880 - HYATT SLOUGH NR LUDDEN, ND (LAT 45 56 18 LONG 098 09 03)

OCT , 1975										
02...	63	31	37	21	1.0	20	347	0	285	11
DEC										
31...	120	53	78	23	1.5	42	585	0	480	15
MAR , 1976										
31...	11	4.6	6.3	21	.4	4.0	61	0	50	3.9
JUN										
03...	100	46	72	25	1.5	33	493	0	404	6.3

a - Add 1,400 ft to convert to mean sea level.

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

OCT , 1975										
01...	60	7.3	.1	12	311	298	.42	.50	.12	--
DEC										
29...	70	8.3	.2	2.5	343	332	.47	.30	.02	0
JUN , 1976										
02...	70	8.5	.2	6.0	332	312	.45	.22	.04	20

06470880 - HYATT SLOUGH NR LUDDEN, ND (LAT 45 56 18 LONG 098 09 03)

OCT , 1975										
02...	84	17	.1	12	476	436	.65	.01	.42	--
DEC										
31...	200	42	.2	32	893	857	1.21	.00	.66	0
MAR , 1976										
31...	13	3.1	.1	3.1	81	76	.11	.03	.10	--
JUN										
03...	170	35	.2	.9	745	703	1.01	.12	.98	10

DATE	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)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

OCT , 1975										
01...	--	--	--	110	--	--	--	--	30	--
DEC										
29...	1	100	10	120	1	0	0	2	0	3
JUN , 1976										
02...	2	100	0	100	0	0	0	5	40	8

06470880 - HYATT SLOUGH NR LUDDEN, ND (LAT 45 56 18 LONG 098 09 03)

OCT , 1975										
02...	--	--	--	210	--	--	--	2	40	0
DEC										
31...	4	100	--	280	0	0	0	1	90	3
MAR , 1976										
31...	--	--	--	7	--	--	--	1	20	0
JUN										
03...	6	0	--	260	0	0	0	6	60	9

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	DIS- SOLVED MAN- GANESE (MN) (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)	CYANIDE (CN) (MG/L)
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PART 6. MISSOURI RIVER BASIN
 JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

OCT , 1975										
01...	710	--	--	--	--	--	--	--	--	--
DEC										
29...	630	.0	2	6	0	0	230	2.2	0	.00
JUN , 1976										
02...	930	.0	1	4	0	0	230	.0	0	.00

06470880 - HYATT SLOUGH NR LUDDEN, ND (LAT 45 56 18 LONG 098 09 03)

OCT , 1975										
02...	40	--	--	--	--	--	--	--	10	--
DEC										
31...	780	.1	2	4	0	--	540	1.7	0	.00
MAR , 1976										
31...	220	--	--	--	--	--	--	--	0	--
JUN										
03...	1200	.1	0	4	0	--	460	.0	10	.00

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 SWEETWATER LAKE AT SWEETWATER, ND

JULY 22, 1976
0900 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,100,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
..HYDRODICTYACEAE			
LPEDIASTRUM			0
..OOCYSTACEAE			
LANKISTRODESMUS			0
LKIRCHNERIELLA			0
LOOCYSTIS			0
LTETRAEDRON			0
..SCENEDESMACEAE			
LACTINASTRUM			0
..CRUCIGENIA		22,000	1
LSCENEDESMUS			0
..TETRASPORALES			
..COCCOMYXACEAE			
LELAKATOTHRIX			0
..ZYGNEMATALES			
..DESMIDIACEAE	PLACODERM DESMIDS		
LEUASTRUM			0
LSTAUSTRUM			0
TOTALS		56,000	1
			2.477=DIVERSITY
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINODISCEAE			
LCYCLOTELLA			0
LMELOSIRA			0
..PENNALES	PENNATE		
..ACHNANTHACEAE			
LCOCCONEIS			0
..CYMBELLACEAE			
LCYMBELLA			0
..FRAGILARIACEAE			
LFRAGILARIA			0
..NITZSCHIIACEAE			
LNITZSCHIA			0
TOTALS		7,900	0
			1.449=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..CHROOCOCCALES	COCCOID		
..CHROOCOCCACEAE			
..ANACYSTIS			
DA.INSERTA		580,000	28
..AGMENELLUM		170,000	8
LANACYSTIS			0
LGOMPHOSPHAERIA			0
..OSCILLATORIALES	FILAMENTOUS		
..NOSTOCACEAE			
..ANABAENA		59,000	3
..APHANIZOMENON		23,000	1
..OSCILLATORIAACEAE			
DLYNGBYA		1,200,000	56
LSPIRULINA			0
TOTALS		2,000,000	96
			1.503=DIVERSITY
EUGLENOPHYTA	EUGLENIDS		
..EUGLENOPHYCEAE			
..EUGLENALES			
..EUGLENACEAE			
LEUGLENA			0
LTRACHELOMONAS			0

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.216
 CLASS 0.216
 ORDER 1.151
 FAMILY 1.391
 GENERA 1.745

PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05056250 LAKE ALICE NEAR CHURCHS FERRY, ND

JULY 21, 1976
 1030 HOURS

IDENTIFICATION OF PHYTOPLANKTON
 100,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...COELASTRACEAE				
LCOELASTRUM			0	
...OOCYSTACEAE				
LANKISTRODESMUS			0	
LDICTYOSPHAERIUM			0	
...SELENASTRUM		860	1	
...SCENEDESMACEAE				
...SCENEDESMUS		5,200	5	
	TOTALS	6,400	6	0.906=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...CENTRALES	CENTRIC			
...COSCINODISCACEAE				
...CYCLOTELLA		1,700	2	
...PENNATES	PENNATE			
...GOMPHONEMACEAE				
LGOMPHONEMA			0	
...NAVICULACEAE	NAVICULOID			
...NAVICULA		1,700	2	
...NITZSCHACEAE				
LNITZSCHIA			0	
	TOTALS	3,900	4	1.392=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
...ANACYSTIS		2,600	2	
...OSCILLATORIALES	FILAMENTOUS			
...OSCILLATORIACEAE				
DOSCILLATORIA		90,000	87	
	TOTALS	93,000	89	0.183=DIVERSITY
EUGLENOPHYTA	EUGLENIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
...CRYPTOMONIDAE				
...CRYPTOMONODACEAE				
LCRYPTOMONAS			0	
	TOTALS	430	0	0.000=DIVERSITY
..EUGLENOPHYCEAE				
...EUGENALES				
...EUGENACEAE				
LEUGLENA			0	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.601
 CLASS 0.601
 ORDER 0.802
 FAMILY 0.862
 GENERA 0.873

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056260 LAKE IRVINE NEAR CHURCHS FERRY, ND

JULY 21, 1976
0930 HOURS

IDENTIFICATION OF PHYTOPLANKTON

6,900 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...COELASTRACEAE				
...COELASTRUM		640	9	
...ODCYSTACEAE				
....ANKISTRODESMUS		560	8	
....KIRCHNERIELLA		79	1	
....ODCYSTIS		440	6	
....TETRAEDRON		40	1	
....WESTELLA		79	1	
...SCENEDESMACEAE				
...CRUCIGENIA		870	13	
...SCENEDESMUS		480	7	
...ODCYSTACEAE				
....GLOEOACTINIUM		160	2	
	TOTALS	3,300	48	2.720=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
...NAVICULA		40	1	
...NITZSCHACEAE				
...NITZSCHIA		160	2	
	TOTALS	200	3	0.722=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....AGMENELLUM		320	5	
DANACYSTIS		3,100	44	
	TOTALS	3,400	49	0.450=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.159
 CLASS 1.159
 ORDER 1.159
 FAMILY 2.012
 GENERA 2.713

PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05056405 BIG COULEE AT GRAHAMS ISLAND INLET NR FORT TOTTEN, ND

JULY 21, 1976
 1145 HOURS

IDENTIFICATION OF PHYTOPLANKTON

110,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..CHARACIACEAE				
....SCHROEDERIA		580	1	
....TETRASPORALES				
....COCCOMYXACEAE				
LELAKATOTHRIX			0	
	TOTALS	970	1	0.971=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..OSCILLATORIALES	FILAMENTOUS			
..NOSTOCACEAE				
DANABAENA		59,000	55	
DAPHANIZOMENON		28,000	26	
..OSCILLATORIACEAE				
DOSCILLATORIA		18,000	17	
	TOTALS	110,000	98	1.412=DIVERSITY
EUGLENOPHYTA	EUGLENOIDS			
..CRYPTOPHYCEAE	CRYPTOMONADS			
..CRYPTOMONIDALES				
..CRYPTOCHRYSIDACEAE		1,600	1	
....CHROOMONAS				
	TOTALS	1,600	1	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.183
 CLASS 0.183
 ORDER 0.191
 FAMILY 0.845
 GENERA 1.571

05056500 DEVILS LAKE NR DEVILS LAKE, ND

JULY 21, 1976
 1315 HOURS

IDENTIFICATION OF PHYTOPLANKTON

22,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
..CHARACIACEAE				
LSCHROEDERIA			0	
..OOCYSTACEAE				
....ANKISTRODESMUS		240	1	
	TOTALS	290	1	0.650=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
..CHROOCOCCACEAE				
DANACYSTIS		20,000	94	
..OSCILLATORIALES	FILAMENTOUS			
..OSCILLATORIACEAE		970	4	
....OSCILLATORIA				
	TOTALS	21,000	98	0.266=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.103
 CLASS 0.103
 ORDER 0.365
 FAMILY 0.374
 GENERA 0.374

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056505 NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND

JULY 26, 1976
1345 HOURS

IDENTIFICATION OF PHYTOPLANKTON

19,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHARACIACEAE				
...SCHROEDERIA		170	1	
...COELASTRACEAE				
...COELASTRUM		550	3	
...HYDRODICTYACEAE				
...PEDIASTRUM		1,100	6	
...OOCYSTACEAE				
L ...ANKISTRODESMUS			0	
...OOCYSTIS		280	1	
...TETRASPORALES				
...PALMELLACEAE				
L ...GLOEOCYSTIS			0	
	TOTALS	2,200	11	1.843=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
..CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
...ANACYSTIS				
DA.INSERTA		11,000	61	
DANACYSTIS		4,600	25	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
...ANABAENA		170	1	
...OSCILLATORIACEAE		170	1	
...OSCILLATORIA				
	TOTALS	16,000	88	1.018=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%

L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED

ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE

DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.526

CLASS 0.526

ORDER 0.670

FAMILY 0.886

GENERA 0.894

PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN
 05056506 MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND

JULY 21, 1976
 1430 HOURS

IDENTIFICATION OF PHYTOPLANKTON

24,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
....CHARACIACEAE				
....SCHROEDERIA		200	1	
....OOCYSTACEAE				
....ANKISTRODESMUS		200	1	
..TETRASPORALES				
...PALMELLACEAE				
....SPHAEROCYSTIS		1,300	5	
TOTALS		1,700	7	1.022=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..CENTRALES	CENTRIC			
...COSCINODISCEAE				
....MELOSIRA		200	1	
TOTALS		200	1	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
D ...ANACYSTIS		4,900	20	
..OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE				
L ...ANABAENA			0	
D ...APHANIZOMENON		17,000	72	
TOTALS		22,000	92	0.762=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.431
 CLASS 0.431
 ORDER 1.189
 FAMILY 1.205
 GENERA 1.205

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND

JULY 21, 1976
1800 HOURS

IDENTIFICATION OF PHYTOPLANKTON

42,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....ANKISTRODESMUS		360	1	
	TOTALS	360	1	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
...PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
L ...NAVICULA			0	
...NITZSCHIAEAE			0	
LNITZSCHIA			0	
	TOTALS	180	0	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		40,000	94	
...OSCILLATORIALES	FILAMENTOUS			
...NOSTOCACEAE		2,000	5	
....APHANIZOMENON				
	TOTALS	42,000	99	0.278=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 0.112
 CLASS 0.112
 ORDER 0.386
 FAMILY 0.386
 GENERA 0.386

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS 541
 QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN
 05056570 EAST DEVILS LAKE NR HAMAR, ND

JULY 21, 1976
 1645 HOURS

IDENTIFICATION OF PHYTOPLANKTON
 180,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...ODCYSTACEAE				
DDICTYOSPHAERIUM		19,000	11	
....ODCYSTIS		35,000	20	
....SCENEDESMACEAE				
....CRUCIGENIA		4,500	3	
....SCENEDESMUS		16,000	9	
TOTALS		74,000	43	1.734=DIVERSITY
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NITZSCHIA				
....NITZSCHIA		3,400	2	
TOTALS		3,400	2	0.000=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
....ANACYSTIS				
DA.INSERTA		45,000	26	
....AGMENELLUM		2,300	1	
DANACYSTIS		51,000	29	
LGOMPHOSPHAERIA			0	
TOTALS		99,000	56	1.132=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
 L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
 ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
 DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
 PHYL/DIV 1.104
 CLASS 1.104
 ORDER 1.104
 FAMILY 1.461
 GENERA 2.468

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056630 EASTERN STUMP LAKE NR LAKOTA, ND

JULY 22, 1976
1200 HOURS

IDENTIFICATION OF PHYTOPLANKTON

2,300 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...OEDOGONIALES				
...OEDOGONIACEAE				
DOEDOGONIUM		2,300	97	
	TOTALS	2,300	97	0.000=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...CYMBELLACEAE		78	3	
....AMPHORA				
	TOTALS	78	3	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.211
CLASS 0.211
ORDER 0.211
FAMILY 0.211
GENERA 0.211

05056670 WESTERN STUMP LAKE NR LAKOTA, ND

JULY 22, 1976
1115 HOURS

IDENTIFICATION OF PHYTOPLANKTON

3,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT	
CHLOROPHYTA	GREEN ALGAE			
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...OOCYSTACEAE				
....DICTYOSPHAERIUM		190	6	
....OOCYSTIS		330	11	
...SCENEDESMACEAE				
DCRUCIGENIA		1,800	60	
....SCENEDESMUS		70	2	
	TOTALS	2,400	79	1.130=DIVERSITY
CHRYSOPHYTA				
..BACILLARIOPHYCEAE	DIATOMS			
..PENNALES	PENNATE			
...NAVICULACEAE	NAVICULOID			
....NAVICULA		23	1	
...NITZSCHIA				
....NITZSCHIA		35	1	
	TOTALS	58	2	0.971=DIVERSITY
CYANOPHYTA	BLUE-GREEN ALGAE			
..MYXOPHYCEAE				
...CHROOCOCCALES	COCCOID			
...CHROOCOCCACEAE				
DANACYSTIS		560	19	
	TOTALS	560	19	0.000=DIVERSITY

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER, 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.823
CLASS 0.823
ORDER 0.823
FAMILY 1.437
GENERA 1.741

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

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

OCT , 1975										
22...	1400	--	3230	8.7	7.5	38	--	640	240	75
JAN , 1976										
21...	1130	--	3510	7.8	.0	70	--	950	230	150
MAY										
05...	1345	--	1720	8.0	8.0	45	--	420	130	62
JUL										
21...	1145	E.00	1600	9.0	22.5	35	--	400	120	66

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

APR , 1976										
08...	1205	72	645	8.1	12.5	45	2	260	81	46

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

FEB , 1976										
06...	1415	.80	1910	--	.0	60	6	700	50	100
APR										
08...	1900	E350	570	8.0	12.0	50	10	150	27	30
JUL										
12...	1910	2.6	1120	8.6	25.0	65	6	440	45	62

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
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05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

OCT , 1975										
22...	110	490	59	8.4	69	416	33	396	1.5	1100
JAN , 1976										
21...	140	460	49	6.5	80	881	0	723	22	1100
MAY										
05...	64	240	53	5.1	40	350	0	287	5.6	500
JUL										
21...	57	200	50	4.4	34	267	36	279	.5	430

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

APR , 1976										
08...	34	42	25	1.1	9.9	212	0	174	2.7	150

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

FEB , 1976										
06...	110	190	36	3.1	26	796	--	653	--	400
APR										
08...	18	17	19	.6	10	149	0	122	2.4	50
JUL										
12...	68	110	35	2.3	13	456	10	391	1.9	250

E - Estimated.

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

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CHLORIDE (CL) (MG/L)	DIS- SOLVED FLUORIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED (RESIDUE AT 180 C) (MG/L)	DIS- SOLVED (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED PHOSPHORUS (P) (MG/L)	DIS- SOLVED ALUMINUM (AL) (UG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

OCT , 1975										
22...	230	.2	12	2390	2330	3.25	--	.02	.50	--
JAN , 1976										
21...	200	.3	27	2600	2590	3.54	--	.26	1.1	--
MAY										
05...	100	.1	8.7	1220	1190	1.66	--	.01	.23	--
JUL										
21...	90	.1	4.4	1080	1050	1.47	.00	.32	.28	--

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

APR , 1976										
08...	12	.1	8.5	435	407	.59	84.6	.01	.24	0

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

FEB , 1976										
06...	58	.3	40	1380	1320	1.88	2.98	.01	.88	10
APR										
08...	9.4	.1	11	245	221	.33	--	.43	.07	10
JUL										
12...	25	.2	21	838	785	1.14	5.88	.00	.25	20

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 IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)
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05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

OCT , 1975										
22...	--	--	480	--	--	--	--	60	--	5
JAN , 1976										
21...	--	--	480	--	--	--	--	60	--	1000
MAY										
05...	--	--	310	--	--	--	--	30	--	0
JUL										
21...	--	--	230	--	--	--	--	30	--	30

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

APR , 1976										
08...	1	0	50	0	0	0	1	80	3	10

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

FEB , 1976										
06...	6	100	240	0	0	2	0	90	2	2200
APR										
08...	1	0	20	0	0	2	1	80	2	20
JUL										
12...	9	100	120	0	10	0	1	40	3	10

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY STREAM STATIONS
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

545

DATE	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)	CYANIDE (CN) (MG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

OCT , 1975	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
JAN , 1976	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
MAY	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
JUL	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	110000

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

APR , 1976	.0	0	4	0	170	1.6	10	.01	--
08...	.0	0	4	0	170	1.6	10	.01	--

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

FEB , 1976	.0	0	3	0	480	2.3	0	.00	--
06...	.0	0	3	0	480	2.3	0	.00	--
APR	.0	0	2	0	110	1.6	10	.00	--
08...	.0	0	2	0	110	1.6	10	.00	--
JUL	.0	1	0	0	370	.0	10	.02	--
12...	.0	1	0	0	370	.0	10	.02	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are collected usually less than quarterly.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEMIS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)

MAR , 1976										
28...	1320	1600	470	8.1	2.0	240	95	46	30	14
AUG										
09...	1425	80	460	8.8	24.0	230	6	41	31	11

05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)

MAR , 1976										
31...	1450	75	700	7.3	7.5	290	160	61	33	32

05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)

MAR , 1976										
30...	1220	3030	460	7.6	1.0	200	77	42	23	15

05054500 - SHEYENNE RIVER ABOVE HARVEY, ND (LAT 47 42 10 LONG 099 56 55)

MAR , 1976										
29...	1200	170	1050	8.4	1.5	260	0	33	43	150

05056100 - MAUVAIS COULEE NR CANDON, ND (LAT 48 26 53 LONG 099 06 08)

APR , 1976										
14...	1535	540	470	7.8	11.5	200	76	45	21	16
AUG										
05...	1330	.03	1030	8.2	22.0	470	180	79	66	68

05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)

APR , 1976										
08...	1300	280	410	7.6	11.0	140	26	34	13	32
AUG										
05...	1635	.35	950	8.2	22.0	330	0	76	34	89

05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)

APR , 1976										
02...	1545	77	450	--	2.5	170	48	39	18	20
AUG										
02...	1725	.19	1100	8.2	23.0	290	1	43	44	150

05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)

OCT , 1975										
10...	1410	21	624	8.0	11.5	200	0	42	23	51
APR , 1976										
09...	1300	884	960	7.9	4.5	310	0	60	39	100
AUG										
03...	0905	13	560	8.6	21.5	190	0	35	25	51

05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)

MAR , 1976										
31...	0905	523	560	7.5	.5	200	32	50	18	45

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)

MAR , 1976 28...	11	.4	5.8	175	0	144	2.2	100	6.7
AUG 09...	9	.3	3.7	267	3	224	.7	24	6.5

05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)

MAR , 1976 31...	19	.8	9.6	158	0	130	13	230	9.2
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05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)

MAR , 1976 30...	14	.5	5.9	149	0	122	6.0	94	6.1
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05054500 - SHEYENNE RIVER ABOVE HARVEY, ND (LAT 47 42 10 LONG 099 56 55)

MAR , 1976 29...	54	4.1	11	445	0	365	2.8	210	16
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05056100 - MAUVAIS COULEE NR CANDON, ND (LAT 48 26 53 LONG 099 06 08)

APR , 1976 14...	14	.5	6.2	150	0	123	3.8	110	5.1
AUG 05...	24	1.4	8.4	338	7	289	3.6	290	24

05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)

APR , 1976 08...	32	1.2	6.4	137	0	112	5.5	83	7.0
AUG 05...	36	2.1	11	451	10	387	4.8	110	29

05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)

APR , 1976 02...	19	.7	7.9	150	0	123	--	86	5.9
AUG 02...	52	3.8	11	345	3	288	3.5	250	51

05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)

OCT , 1975 10...	35	1.6	8.6	247	0	203	4.0	93	9.9
APR , 1976 09...	40	2.5	10	399	0	327	8.0	160	17
AUG 03...	36	1.6	7.7	240	0	197	1.0	91	11

05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)

MAR , 1976 31...	32	1.4	8.2	204	0	167	10	99	15
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548 ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)

MAR , 1976 28...	.1	7.4	324	305	.44	1400	200	60	80
AUG 09...	.1	4.7	255	259	.35	55.1	110	40	0

05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)

MAR , 1976 31...	.1	11	465	464	.63	94.2	40	60	40
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05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)

MAR , 1976 30...	.1	12	286	280	.39	2340	40	80	100
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05054500 - SHEYENNE RIVER ABOVE HARVEY, ND (LAT 47 42 10 LONG 099 56 55)

MAR , 1976 29...	.2	12	718	701	.98	330	600	100	120
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05056100 - MAUVAIS COULEE NR CANDO, ND (LAT 48 26 53 LONG 099 06 08)

APR , 1976 14...	.1	17	289	298	.39	421	0	620	20
AUG 05...	.0	20	709	731	.96	.06	40	190	120

05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)

APR , 1976 08...	.1	19	267	262	.36	202	200	120	20
AUG 05...	.0	33	591	618	.80	.56	0	80	80

05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)

APR , 1976 02...	.1	14	270	270	.37	56.1	0	60	540
AUG 02...	.0	9.6	695	733	.95	.36	0	80	220

05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)

OCT , 1975 10...	.1	.6	350	353	.48	19.8	40	0	220
APR , 1976 09...	.1	9.2	638	598	.87	1520	200	100	1200
AUG 03...	.1	9.0	328	352	.45	11.5	0	40	680

05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)

MAR , 1976 31...	.1	12	302	354	.41	427	0	150	200
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ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)

APR , 1976	07...	1600	1.3	1050	7.9	12.0	380	210	86	40	80
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05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 18 LONG 097 34 25)

APR , 1976	13...	1040	33	1050	8.2	10.5	440	230	110	40	72
AUG	10...	1610	2.7	1550	7.4	22.5	740	360	190	65	84

05060000 - MAPLE RIVER NR MAPLETON, ND (LAT 46 51 40 LONG 097 06 10)

AUG , 1976	11...	1045	4.0	1500	8.0	21.5	580	250	110	74	120
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05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

MAR , 1976	30...	1500	68	470	7.8	1.5	190	64	49	16	19
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05064500 - RED RIVER OF THE NORTH AT HALSTAD, MN (LAT 47 21 00 LONG 096 51 00.01)

APR , 1976	03...	1545	7720	410	7.8	4.0	200	69	46	21	15
AUG	11...	1450	109	710	8.6	25.5	300	43	63	34	38

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

APR , 1976	08...	1200	11600	450	7.9	6.0	200	62	48	19	11
AUG	25...	1055	1030	360	8.3	25.0	180	6	47	15	6.5

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

APR , 1976	15...	1045	6.3	910	8.1	6.0	320	170	71	35	80
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05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

OCT , 1975	07...	1215	6.4	664	7.9	10.5	310	71	78	28	22
APR , 1976	02...	1710	621	425	7.6	2.0	170	67	42	16	32
AUG	03...	1235	4.0	640	8.4	21.0	310	66	75	30	23

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

APR , 1976	16...	0930	250	670	8.0	9.0	280	100	67	27	34
AUG	05...	1220	3.3	840	8.2	21.0	340	87	81	33	47

E - Estimated.

550 ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)

APR , 1976 07...	31	1.8	4.0	212	0	174	4.3	360	21
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05059700 - MAPLE RIVER NR EMDERLIN, ND (LAT 46 37 18 LONG 097 34 25)

APR , 1976 13...	26	1.5	8.6	262	0	215	2.6	310	53
AUG 10...	20	1.3	9.8	444	14	387	30	440	63

05060000 - MAPLE RIVER NR MAPLETON, ND (LAT 46 51 40 LONG 097 06 10)

AUG , 1976 11...	31	2.2	12	405	0	332	6.5	400	85
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05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

MAR , 1976 30...	17	.6	6.7	151	0	124	3.8	100	7.1
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05064500 - RED RIVER OF THE NORTH AT HALSTAD, MN (LAT 47 21 00 LONG 096 51 00.01)

APR , 1976 03...	14	.5	4.8	161	0	132	4.1	81	9.6
AUG 11...	21	1.0	5.9	296	7	254	1.2	110	23

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

APR , 1976 08...	11	.3	4.2	166	0	136	3.3	75	5.8
AUG 25...	7	.2	2.6	207	2	173	1.7	18	6.0

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

APR , 1976 15...	35	1.9	5.6	187	0	153	2.4	310	26
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05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

OCT , 1975 07...	13	.5	4.1	292	0	240	5.9	100	7.8
APR , 1976 02...	28	1.1	3.2	126	0	103	5.1	110	11
AUG 03...	14	.6	4.9	264	17	245	1.9	98	7.4

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

APR , 1976 16...	21	.9	5.3	217	0	178	3.5	140	19
AUG 05...	23	1.1	6.0	296	5	251	3.1	130	49

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)

APR , 1976 07...	.1	19	732	715	1.00	2.57	200	60	40
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05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 18 LONG 097 34 25)

APR , 1976 13...	.1	13	777	739	1.06	69.2	80	120	380
AUG 10...	.1	25	1170	1110	1.59	8.53	190	60	1100

05060000 - MAPLE RIVER NR MAPLETON, ND (LAT 46 51 40 LONG 097 06 10)

AUG , 1976 11...	.1	17	1050	1020	1.43	11.3	300	230	1100
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05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

MAR , 1976 30...	.1	11	299	289	.41	54.9	0	710	260
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05064500 - RED RIVER OF THE NORTH AT HALSTAD, MN (LAT 47 21 00 LONG 096 51 00.01)

APR , 1976 03...	.1	12	270	269	.37	5630	0	350	80
AUG 11...	.2	17	448	446	.61	132	0	40	20

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

APR , 1976 08...	.1	11	275	256	.37	8620	0	20	20
AUG 25...	.1	9.3	208	210	.28	578	0	40	80

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

APR , 1976 15...	.1	23	658	650	.89	11.2	200	130	140
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05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

OCT , 1975 07...	.1	16	388	400	.53	6.71	0	20	180
APR , 1976 02...	.1	14	294	291	.40	493	0	170	240
AUG 03...	.0	25	362	412	.49	3.91	0	80	90

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

APR , 1976 16...	.1	19	431	422	.59	291	40	0	40
AUG 05...	.1	19	499	520	.68	4.45	110	130	520

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

APR , 1976										
02...	1410	514	340	7.5	.0	130	41	36	9.7	28
AUG										
05...	1545	3.7	530	7.8	21.0	200	43	50	18	35

05089100 - MIDDLE BRANCH PARK RIVER NR UNION, ND (LAT 48 32 32 LONG 098 01 10)

APR , 1976										
07...	1730	21	270	7.4	10.0	68	3	16	6.8	28
AUG										
05...	1730	.01	645	8.4	25.0	200	0	51	18	61

05089500 - CART CREEK AT MOUNTAIN, ND (LAT 48 40 37 LONG 097 51 41)

APR , 1976										
08...	1925	16	510	8.0	6.5	180	76	48	15	28

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

APR , 1976										
16...	1125	340	580	7.7	8.5	200	75	52	17	42
AUG										
04...	1615	.54	1090	8.0	25.5	360	130	80	39	100

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

APR , 1976										
07...	1250	27500	390	7.9	4.0	170	61	42	16	17
AUG										
04...	1300	1070	500	8.3	24.0	200	15	48	19	22

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

APR , 1976										
07...	1520	22	450	7.6	14.0	210	110	51	20	6.0

05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)

APR , 1976										
15...	1400	16	610	7.6	10.5	260	120	55	30	24

05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)

APR , 1976										
15...	1505	27	470	7.7	10.5	200	61	47	20	22

05100000 - PEMRINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)

APR , 1976										
09...	1000	3100	410	7.7	5.0	150	36	46	8.5	36
AUG										
06...	1435	92	850	8.1	22.0	370	98	92	34	48

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 5. HUDSON BAY BASIN
RED RIVER OF THE NORTH BASIN

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

APR , 1976									
02...	31	1.1	4.0	108	0	89	5.5	83	6.7
AUG									
05...	27	1.1	5.5	190	0	156	4.8	98	9.7

05089100 - MIDDLE BRANCH PARK RIVER NR UNION, ND (LAT 48 32 32 LONG 098 01 10)

APR , 1976									
07...	47	1.5	1.6	79	0	65	5.0	47	5.7
AUG									
05...	39	1.9	5.6	269	3	226	1.8	96	12

05089500 - CART CREEK AT MOUNTAIN, ND (LAT 48 40 37 LONG 097 51 41)

APR , 1976									
08...	25	.9	1.6	129	0	106	2.1	120	8.8

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

APR , 1976									
16...	31	1.3	5.0	152	0	125	4.9	120	29
AUG									
04...	37	2.3	10	279	0	229	4.5	250	81

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

APR , 1976									
07...	17	.6	4.4	134	0	110	2.7	65	18
AUG									
04...	19	.7	3.1	219	2	183	1.8	37	27

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

APR , 1976									
07...	6	.2	4.8	127	0	104	5.1	110	3.2

05098700 - HIDDEN ISLAND COULEE NR HANSBORG, ND (LAT 48 57 10 LONG 099 25 35)

APR , 1976									
15...	16	.6	6.3	173	0	142	7.0	170	3.8

05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)

APR , 1976									
15...	19	.7	5.3	169	0	139	5.4	100	4.0

05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)

APR , 1976									
09...	34	1.3	3.2	139	0	114	4.4	110	5.4
AUG									
06...	22	1.1	8.8	305	13	272	4.2	200	14

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

APR , 1976									
02...	.1	16	263	238	.36	365	80	250	560
AUG									
05...	.1	18	337	337	.46	3.37	110	60	2700

05089100 - MIDDLE BRANCH PARK RIVER NR UNION, ND (LAT 48 32 32 LONG 098 01 10)

APR , 1976									
07...	.1	18	204	163	.28	11.6	80	710	120
AUG									
05...	.1	30	408	410	.55	.01	0	40	240

05089500 - CART CREEK AT MOUNTAIN, ND (LAT 48 40 37 LONG 097 51 41)

APR , 1976									
08...	.2	20	316	306	.43	13.7	120	120	70

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

APR , 1976									
16...	.1	21	423	367	.58	388	360	170	60
AUG									
04...	.1	22	694	722	.94	1.01	0	20	620

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

APR , 1976									
07...	.1	10	277	247	.38	20600	0	120	30
AUG									
04...	.1	7.5	272	276	.37	786	110	330	0

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

APR , 1976									
07...	.1	16	303	274	.41	18.0	320	100	20

05098700 - HIDDEN ISLAND COULEE NR HANSBRO, ND (LAT 48 57 10 LONG 099 25 35)

APR , 1976									
15...	.1	17	409	394	.56	17.7	280	80	60

05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)

APR , 1976									
15...	.1	23	316	307	.43	23.0	0	130	20

05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)

APR , 1976									
09...	.2	22	308	300	.42	2580	200	100	100
AUG									
06...	.3	24	577	587	.78	143	380	210	80

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)

APR , 1976										
14...	1545	34	495	7.5	8.0	110	35	30	8.5	22
AUG										
11...	1050	E.01	710	7.8	20.0	330	66	89	26	29

05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)

OCT , 1975										
09...	0910	1.3	580	8.0	12.0	250	60	63	23	26
APR , 1976										
13...	1620	213	345	7.5	5.0	140	50	41	9.1	20
AUG										
06...	1550	2.5	500	8.0	21.0	220	50	55	20	25

05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)

NOV , 1975										
05...	1130	7.8	2100	8.5	6.0	500	120	85	70	290
APR , 1976										
02...	1800	4700	335	7.8	2.5	100	36	21	12	25

05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)

APR , 1976										
07...	0925	E4300	575	7.8	6.0	200	66	41	24	55
JUL										
08...	2125	860	545	8.7	23.0	200	13	43	22	43

05120200 - WINTERING RIVER NR BERGEN, ND (LAT 47 55 50 LONG 100 40 15)

MAR , 1976										
29...	1600	150	580	7.6	6.5	110	0	20	15	82

05120500 - WINTERING RIVER NR KARLSRUHE, ND (LAT 48 10 14 LONG 100 32 20)

OCT , 1975										
04...	1545	8.0	820	8.0	13.0	270	0	60	29	81
APR , 1976										
05...	1900	180	580	7.9	10.0	140	0	24	19	90
JUL										
06...	1935	2.8	920	8.2	25.0	280	0	57	33	120

05122000 - SOURIS RIVER NR RANTRY, ND (LAT 48 30 20 LONG 100 26 04)

APR , 1976										
13...	1630	3600	770	8.2	13.5	260	57	54	30	76
JUL										
12...	1510	1000	560	8.0	22.5	200	11	43	22	44

05123100 - OAK CR AT LAKE METIGOSHE OUTLET NR ROTTINEAU, ND (LAT 48 57 56 LONG 100 21 47)

APR , 1976										
13...	1000	105	410	7.9	5.5	230	20	35	35	6.0
JUL										
13...	0800	.10	395	8.5	20.5	210	7	29	33	4.6

E - Estimated.

556 ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 5. HUDSON BAY BASIN
 RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)

APR , 1976 14...	29	.9	4.3	91	0	75	4.6	62	7.5
AUG 11...	16	.7	4.6	321	0	263	8.1	100	20

05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)

OCT , 1975 09...	18	.7	7.6	234	0	192	3.7	100	11
APR , 1976 13...	23	.7	3.8	110	0	90	5.6	76	8.5
AUG 06...	19	.7	5.2	207	0	170	3.3	96	8.0

05113600 - LONG CREEK NR NODMAN, ND (LAT 48 58 52 LONG 103 04 34)

NOV , 1975 05...	55	5.6	11	464	0	381	2.3	710	26
APR , 1976 02...	33	1.1	7.8	80	0	66	2.0	76	3.0

05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)

APR , 1976 07...	36	1.7	7.0	165	0	135	4.2	160	12
JUL 08...	31	1.3	8.4	222	2	185	.7	110	7.4

05120200 - WINTERING RIVER NR BERGEN, ND (LAT 47 55 50 LONG 100 40 15)

MAR , 1976 29...	60	3.4	6.5	179	0	147	7.2	130	7.8
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05120500 - WINTERING RIVER NR KARLSRUHE, ND (LAT 48 10 14 LONG 100 32 20)

OCT , 1975 04...	39	2.1	5.3	420	0	345	6.7	86	13
APR , 1976 05...	57	3.3	6.8	236	0	194	4.8	110	10
JUL 06...	48	3.1	4.1	474	13	410	5.1	130	11

05122000 - SOURIS RIVER NR BANTRY, ND (LAT 48 30 20 LONG 100 26 04)

APR , 1976 13...	38	2.1	8.8	245	0	201	2.5	190	15
JUL 12...	31	1.4	8.5	228	0	187	3.6	110	7.5

05123100 - DAK CR AT LAKE METIGOSHE OUTLET NR BOTTINEAU, ND (LAT 48 57 56 LONG 100 21 47)

APR , 1976 13...	5	.2	8.4	258	0	212	5.2	29	2.3
JUL 13...	4	.1	8.3	241	2	201	1.2	33	1.9

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)

APR , 1976 14...	.2	16	211	205	.29	19.4	160	350	240
AUG 11...	.2	17	440	447	.60	--	0	100	1300

05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)

OCT , 1975 09...	.2	3.0	410	352	.56	1.44	160	60	100
APR , 1976 13...	.2	16	244	237	.33	140	0	60	300
AUG 06...	.1	17	300	341	.41	2.02	0	60	11000

05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)

NOV , 1975 05...	.2	6.0	1540	1430	2.10	32.5	0	230	20
APR , 1976 02...	.0	8.3	215	199	.29	2730	0	330	90

05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)

APR , 1976 07...	.1	7.9	412	392	.56	--	80	80	60
JUL 08...	.1	3.1	353	352	.48	820	80	80	0

05120200 - WINTERING RIVER NR BERGEN, ND (LAT 47 55 50 LONG 100 40 15)

MAR , 1976 29...	.1	6.3	419	359	.57	170	360	290	0
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05120500 - WINTERING RIVER NR KARLSRUHE, ND (LAT 48 10 14 LONG 100 32 20)

OCT , 1975 04...	.1	7.9	508	490	.69	11.0	0	80	80
APR , 1976 05...	.1	12	424	390	.58	206	160	230	20
JUL 06...	.1	13	643	616	.87	4.86	110	40	80

05122000 - SOURIS RIVER NR BANTRY, ND (LAT 48 30 20 LONG 100 26 04)

APR , 1976 13...	.1	8.1	546	504	.74	5310	120	80	0
JUL 12...	.1	2.9	365	354	.50	985	40	20	0

05123100 - OAK CR AT LAKE METIGOSHE OUTLET NR BOTTINEAU, ND (LAT 48 57 56 LONG 100 21 47)

APR , 1976 13...	.1	11	307	255	.42	87.1	80	80	20
JUL 13...	.1	14	269	246	.37	.07	0	60	60

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)

OCT . 1975										
02...	1800	23	575	8.4	13.5	290	50	47	42	14
APR . 1976										
13...	1300	998	550	7.9	12.5	200	34	39	25	45
JUL										
12...	1715	5.6	1120	8.5	22.5	450	60	61	72	110

05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)

APR . 1976										
07...	1500	1960	305	7.8	10.0	150	44	30	18	11
JUL										
13...	1235	1.4	995	8.3	23.0	470	130	74	69	49

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

APR . 1976										
08...	1030	1150	335	7.7	6.0	110	23	25	12	26

PART 6. MISSOURI RIVER BASIN

LITTLE MUDDY CREEK BASIN

06331000 - LITTLE MUDDY RIVER BL COW CREEK NR WILLISTON, ND (LAT 48 17 04 LONG 103 34 21)

OCT . 1975										
01...	0835	11	2050	8.4	9.0	390	0	54	62	330
MAR . 1976										
24...	1630	2850	220	8.0	2.5	99	16	20	12	16

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

NOV . 1975										
03...	1605	14	1790	8.4	5.5	410	0	61	63	270
MAR . 1976										
25...	1100	1079	390	8.3	1.0	130	33	22	18	34

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

OCT . 1975										
01...	1055	3.6	1790	8.6	10.0	270	0	42	40	310
JUL . 1976										
14...	1135	5.0	1490	8.5	23.0	280	0	52	36	240

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

OCT . 1975										
01...	1320	15	2300	8.6	14.5	230	0	35	35	420
JUL . 1976										
14...	1420	157	1000	8.4	26.0	250	52	55	27	130

06336000 - LITTLE MISSOURI RIVER AT MEDORA, ND (LAT 46 55 10 LONG 103 31 40)

OCT . 1975										
15...	1235	32	2400	8.5	5.0	330	57	64	41	400

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	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)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)

OCT , 1975									
02...	9	.4	11	293	0	240	1.9	72	5.9
APR , 1976									
13...	32	1.4	8.4	203	0	167	4.1	120	6.2
JUL									
12...	34	2.3	9.6	445	14	388	2.4	290	11

05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)

APR , 1976									
07...	13	.4	8.2	128	0	105	3.2	45	8.2
JUL									
13...	18	1.0	13	399	5	336	3.3	180	60

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

APR , 1976									
06...	32	1.1	6.8	108	0	89	3.4	68	2.4

PART 6. MISSOURI RIVER BASIN

LITTLE MUDDY CREEK BASIN

06331000 - LITTLE MUDDY RIVER BL COW CREEK NR WILLISTON, ND (LAT 48 17 04 LONG 103 34 21)

OCT , 1975									
01...	64	7.3	11	667	0	547	4.2	560	8.4
MAR , 1976									
24...	25	.7	6.1	101	0	83	1.6	39	1.4

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

NOV , 1975									
03...	58	5.8	9.3	585	0	480	3.7	430	61
MAR , 1976									
25...	35	1.3	7.0	117	0	96	.9	75	15

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

OCT , 1975									
01...	71	8.2	5.9	460	3	382	1.9	560	8.5
JUL , 1976									
14...	65	6.3	6.9	427	14	374	2.3	380	7.5

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

OCT , 1975									
01...	79	12	8.5	445	2	368	1.8	770	19
JUL , 1976									
14...	52	3.6	8.3	234	3	197	1.5	340	5.9

06336000 - LITTLE MISSOURI RIVER AT MEDORA, ND (LAT 46 55 10 LONG 103 31 40)

OCT , 1975									
15...	72	9.6	7.3	331	0	272	1.7	900	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO ₂) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)

OCT , 1975									
02...	.1	5.4	379	343	.52	23.5	0	120	20
APR , 1976									
13...	.1	18	431	363	.59	1160	160	120	10
JUL									
12...	.3	8.1	845	797	1.15	12.8	150	60	10

05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)

APR , 1976									
07...	.1	11	257	198	.35	1360	40	170	10
JUL									
13...	.1	6.7	696	656	.95	2.63	110	100	0

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

APR , 1976									
06...	.1	15	256	216	.35	796	0	190	0

PART 6. MISSOURI RIVER BASIN

LITTLE MUDDY CREEK BASIN

06331000 - LITTLE MUDDY RIVER BL COW CREEK NR WILLISTON, ND (LAT 48 17 04 LONG 103 34 21)

OCT , 1975									
01...	.3	8.0	1410	1370	1.92	41.9	320	130	0
MAR , 1976									
24...	.1	3.9	198	154	.27	1520	160	230	80

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

NOV , 1975									
03...	.2	2.8	1230	1190	1.67	46.5	520	130	20
MAR , 1976									
25...	.1	4.4	261	240	.36	761	120	290	140

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

OCT , 1975									
01...	.3	1.5	1240	1200	1.69	12.1	440	80	10
JUL , 1976									
14...	.3	12	1020	961	1.39	13.8	1200	40	0

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

OCT , 1975									
01...	.3	1.3	1540	1510	2.10	62.4	520	60	0
JUL , 1976									
14...	.4	9.9	683	698	.93	290	870	0	10

06336000 - LITTLE MISSOURI RIVER AT MEDORA, ND (LAT 46 55 10 LONG 103 31 40)

OCT , 1975									
15...	.3	2.4	1620	1600	2.20	140	200	100	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 6. MISSOURI RIVER BASIN

KNIFE RIVER BASIN

06339100 - KNIFE RIVER AT MANNING, ND (LAT 47 14 10 LONG 102 46 10)

OCT , 1975	03...	1305	1.6	2220	8.1	10.5	330	0	64	41	410
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06339300 - KNIFE RIVER AT MARSHALL, ND (LAT 47 08 17 LONG 102 20 00)

OCT , 1975	16...	1710	12	2410	8.2	6.5	320	0	54	45	420
JUL , 1976	22...	1350	6.3	1980	8.4	25.0	280	0	49	38	390

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

OCT , 1975	16...	1425	12	2090	8.5	6.5	280	0	45	41	370
JUL , 1976	21...	1520	7.7	1900	8.4	24.0	280	0	48	39	370

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

JUL , 1976	21...	1230	6.10	1250	9.3	20.0	220	0	23	40	210
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TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)

MAR , 1976	31...	1200	5.4	1600	9.0	5.0	84	0	14	12	370
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SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIBUTARY NO 2 NR CENTER, ND (LAT 47 06 40 LONG 101 15 05)

APR , 1976	01...	1220	.77	560	7.5	8.0	160	0	34	18	70
JUL	20...	1145	.08	1020	8.2	25.0	240	0	41	33	170

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)

JAN , 1976	27...	1500	.08	1400	8.2	.5	500	0	82	72	200
MAR	30...	1630	7.7	540	8.0	7.0	200	9	39	25	47

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HADECK, ND (LAT 47 01 40 LONG 103 03 10)

OCT , 1975	17...	1210	2.0	1020	8.2	8.0	240	0	43	32	130
JUL , 1976	20...	1215	.16	1090	8.5	24.0	210	0	35	30	190

06345000 - GREEN RIVER NR GLADSTONE, ND (LAT 46 53 40 LONG 102 37 25)

OCT , 1975	17...	1525	84	2080	8.3	8.0	430	22	83	54	290
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06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

MAR , 1976	30...	1000	293	1000	8.1	6.0	280	85	55	35	120
JUL	19...	1415	76	1200	8.4	28.5	360	120	63	49	160

562 ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES
 CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINITY AS CACO ₃ (MG/L)	CARRON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 6. MISSOURI RIVER BASIN
 KNIFE RIVER BASIN

06339100 - KNIFE RIVER AT MANNING, ND (LAT 47 14 10 LONG 102 46 10)

OCT , 1975 03...	73	9.8	6.2	749	0	614	9.5	600	6.0
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06339300 - KNIFE RIVER AT MARSHALL, ND (LAT 47 08 17 LONG 102 20 00)

OCT , 1975 16...	73	10	7.7	698	0	573	7.0	640	6.4
JUL , 1976 22...	75	10	9.1	584	24	519	4.0	590	7.1

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

OCT , 1975 16...	74	9.6	6.6	647	0	531	3.3	510	5.0
JUL , 1976 21...	73	9.6	9.7	555	14	479	3.7	580	5.5

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

JUL , 1976 21...	66	6.1	7.3	250	35	263	.3	410	5.0
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TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)

MAR , 1976 31...	89	18	12	648	0	532	1.0	330	8.5
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SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIBUTARY NO 2 NR CENTER, ND (LAT 47 06 40 LONG 101 15 05)

APR , 1976 01...	48	2.4	5.8	283	0	232	14	74	3.3
JUL 20...	60	4.8	5.9	587	14	505	6.2	110	3.7

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)

JAN , 1976 27...	46	3.9	7.0	637	0	523	6.4	390	9.1
MAR 30...	33	1.4	6.5	233	0	191	3.7	100	2.0

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, ND (LAT 47 01 40 LONG 103 03 10)

OCT , 1975 17...	54	3.7	4.4	391	0	321	3.9	190	14
JUL , 1976 20...	66	5.7	5.3	401	23	367	2.3	220	6.0

06345000 - GREEN RIVER NR GLADSTONE, ND (LAT 46 53 40 LONG 102 37 25)

OCT , 1975 17...	59	6.1	6.0	497	0	408	4.0	650	11
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06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

MAR , 1976 30...	47	3.1	8.1	239	0	196	3.0	350	5.5
JUL 19...	48	3.7	8.5	278	9	243	1.9	430	8.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED FLUO- RIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN- GANESE (MN) (UG/L)
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PART 6. MISSOURI RIVER BASIN

KNIFE RIVER BASIN

06339100 - KNIFE RIVER AT MANNING, ND (LAT 47 14 10 LONG 102 46 10)

OCT , 1975 03...	.5	5.4	1540	1510	2.10	6.66	360	190	20
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06339300 - KNIFE RIVER AT MARSHALL, ND (LAT 47 08 17 LONG 102 20 00)

OCT , 1975 16...	.4	4.8	1550	1530	2.11	50.3	80	130	0
JUL , 1976 22...	.4	11	1380	1410	1.88	23.5	80	40	60

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

OCT , 1975 16...	.4	5.7	1330	1310	1.81	43.1	240	130	20
JUL , 1976 21...	.3	8.2	1360	1350	1.85	28.3	340	100	0

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

JUL , 1976 21...	.1	.3	867	856	1.18	--	1200	120	10
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TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)

MAR , 1976 31...	.1	11	1130	1080	1.54	16.5	440	730	60
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SQUARE BUTTE CREEK BASIN

06342100 - SQUARE BUTTE CREEK TRIBUTARY NO 2 NR CENTER, ND (LAT 47 06 40 LONG 101 15 05)

APR , 1976 01...	.1	9.6	348	357	.47	.72	160	230	100
JUL 20...	.1	9.1	686	679	.93	.15	1300	230	100

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)

JAN , 1976 27...	.5	8.8	1120	1090	1.52	.24	200	60	90
MAR 30...	.1	9.8	356	346	.48	7.40	0	150	80

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, ND (LAT 47 01 40 LONG 103 03 10)

OCT , 1975 17...	.2	5.1	657	614	.89	3.55	280	60	10
JUL , 1976 20...	.2	1.7	702	710	.95	.30	380	80	10

06345000 - GREEN RIVER NR GLADSTONE, ND (LAT 46 53 40 LONG 102 37 25)

OCT , 1975 17...	.4	5.9	1400	1350	1.91	318	600	60	60
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06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

MAR , 1976 30...	.2	6.4	705	701	.96	558	80	40	30
JUL 19...	.1	5.8	851	873	1.16	175	1700	100	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, ND (LAT 46 25 36 LONG 102 33 05)

OCT , 1975										
03...	1030	4.6	1990	8.0	12.0	540	190	94	74	260
JUL , 1976										
16...	0950	3.8	2500	8.3	19.5	620	240	100	90	380

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

OCT , 1975										
02...	1740	11	1850	8.0	15.0	470	150	78	67	250
JUL , 1976										
15...	1910	13	1950	8.4	23.0	520	200	84	75	270

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

NOV , 1975										
04...	1510	.32	4300	8.1	12.0	1600	1200	280	220	540
JUL , 1976										
13...	1515	.01	3100	8.4	25.0	880	650	120	140	490

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

OCT , 1975										
02...	1115	2.8	2540	8.0	12.0	700	320	98	110	350
JUL , 1976										
15...	1335	2.9	2500	8.4	23.0	740	390	100	120	340

06352500 - CEDAR CREEK NR PRETTY ROCK, ND (LAT 46 01 55 LONG 101 49 55)

OCT , 1975										
02...	1405	1.8	2360	7.9	15.0	640	330	96	97	320
JUL , 1976										
15...	1620	6.3	2590	8.4	23.0	610	270	78	100	380

06353000 - CEDAR CREEK NR RALEIGH, ND (LAT 46 05 00 LONG 101 20 00)

MAR , 1976										
29...	1200	70	1400	8.6	6.0	410	220	70	57	170
JUL										
19...	1200	3.1	2800	8.5	27.0	650	360	77	110	420

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, ND (LAT 46 15 27 LONG 100 13 58)

MAR , 1976										
31...	1545	44	360	7.9	6.5	130	9	29	14	33

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

OCT , 1975										
01...	1655	1.3	2780	8.1	14.0	400	0	57	63	510
JUL , 1976										
15...	1020	3.1	2450	8.5	19.5	370	0	58	55	470

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO ₃) (MG/L)	CAR- BONATE (CO ₃) (MG/L)	ALKA- LINIT AS CACO ₃ (MG/L)	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, ND (LAT 46 25 36 LONG 102 33 05)

OCT , 1975 03...	51	4.9	6.6	431	0	354	6.9	750	12
JUL , 1976 16...	57	6.6	8.5	441	14	385	3.8	1000	11

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

OCT , 1975 02...	53	5.0	8.0	389	0	319	6.2	670	11
JUL , 1976 15...	53	5.2	8.8	383	5	322	2.5	740	8.5

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

NOV , 1975 04...	42	5.9	14	446	0	366	5.7	2300	26
JUL , 1976 13...	55	7.2	11	270	4	228	1.8	1600	14

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

OCT , 1975 02...	52	5.8	8.1	462	0	379	7.4	1000	15
JUL , 1976 15...	49	5.4	11	400	16	355	2.8	1100	13

06352500 - CEDAR CREEK NR PRETTY ROCK, ND (LAT 46 01 55 LONG 101 49 55)

OCT , 1975 02...	52	5.5	11	380	0	312	7.7	970	13
JUL , 1976 15...	57	6.7	11	408	4	341	2.7	1100	13

06353000 - CEDAR CREEK NR RALEIGH, ND (LAT 46 05 00 LONG 101 20 00)

MAR , 1976 29...	47	3.7	7.8	237	0	194	1.0	580	7.1
JUL 19...	58	7.2	12	334	9	289	1.8	1200	14

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, ND (LAT 46 15 27 LONG 100 13 58)

MAR , 1976 31...	34	1.3	7.3	147	0	121	3.0	74	3.1
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GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

OCT , 1975 01...	73	11	7.4	536	0	440	6.8	1000	9.9
JUL , 1976 15...	73	11	10	494	5	414	2.6	950	9.6

566 ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUID- RIDE (#) (MG/L)	DIS- SOLVED SILICA (#) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (#) (UG/L)	DIS- SOLVED IRON (#) (UG/L)	DIS- SOLVED MAN- GANESE (#) (UG/L)
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PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, ND (LAT 46 25 36 LONG 102 33 05)

OCT , 1975									
03...	.2	2.7	1410	1420	1.92	17.5	680	140	20
JUL , 1976									
16...	.3	8.9	1850	1830	2.52	19.0	600	40	140

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

OCT , 1975									
02...	.2	2.4	1290	1280	1.76	38.3	240	40	10
JUL , 1976									
15...	.2	7.9	1440	1390	1.96	50.5	1300	40	0

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

NOV , 1975									
04...	.3	3.9	3970	3610	5.40	3.43	1500	250	60
JUL , 1976									
13...	.2	.8	2650	2520	3.60	.07	2200	100	60

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

OCT , 1975									
02...	.1	4.3	1900	1820	2.59	14.4	560	140	20
JUL , 1976									
15...	.3	1.9	1910	1900	2.60	15.0	720	20	100

06352500 - CEDAR CREEK NR PRETTY ROCK, ND (LAT 46 01 55 LONG 101 49 55)

OCT , 1975									
02...	.1	3.6	1780	1700	2.42	8.66	560	0	40
JUL , 1976									
15...	.2	5.9	1900	1900	2.58	32.3	1500	100	10

06353000 - CEDAR CREEK NR RALEIGH, ND (LAT 46 05 00 LONG 101 20 00)

MAR , 1976									
29...	.1	1.9	1030	1010	1.40	195	200	150	60
JUL									
19...	.2	5.4	2030	2020	2.76	17.0	1900	80	80

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, ND (LAT 46 15 27 LONG 100 13 58)

MAR , 1976									
31...	.1	5.5	267	243	.36	31.8	360	190	100

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

OCT , 1975									
01...	.3	3.9	1970	1920	2.68	6.92	1300	20	10
JUL , 1976									
15...	.5	5.2	1860	1810	2.53	15.6	940	170	10

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

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CHEMICAL ANALYSES, WATER YEAR -OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)

MAR , 1976	29...	1430	41	340	7.8	5.0	110	0	21	14	27
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06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

APR , 1976	07...	1600	145	360	8.6	11.5	130	12	27	15	28
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06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

MAR , 1976	30...	0930	308	380	7.6	3.5	140	21	28	17	26
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06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

MAR , 1976	30...	1300	120	450	7.7	5.5	190	38	44	19	22
AUG	03...	1130	16	490	8.4	20.5	230	0	46	28	54

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
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06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)

MAR , 1976	29...	33	1.1	7.8	145	0	119	3.7	54	4.0
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06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

APR , 1976	07...	31	1.1	5.6	143	0	117	.6	70	6.2
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06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

MAR , 1976	30...	27	1.0	8.8	145	0	119	5.8	69	4.2
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06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

MAR , 1976	30...	19	.7	8.0	183	0	150	5.8	74	6.0
AUG	03...	33	1.5	9.2	274	3	230	1.6	99	15

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUOR- IDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
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PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)

MAR , 1976 29...	.1	7.6	270	213	.37	30.4	240	290	20
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06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

APR , 1976 07...	.1	8.6	231	231	.31	90.5	120	190	20
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06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

MAR , 1976 30...	.1	5.1	244	235	.33	203	120	190	40
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06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

MAR , 1976 30...	.1	7.4	293	279	.40	95.0	480	60	640
AUG 03...	.1	14	390	406	.53	17.3	40	40	260

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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, ND (LAT 46 15 55 LONG 096 35 40)

OCT , 1975					JUN , 1976				
23...	0945	325	420	8.5	01...	1520	258	445	22.0
NOV					JUL				
13...	1455	325	390	4.5	13...	1125	117	430	23.0
FEB , 1976					AUG				
05...	1440	293	600	.0	09...	1425	80	460	24.0
MAR					25...	1510	1.8	480	26.5
11...	1645	536	900	.0	SEP				
28...	1320	1600	470	2.0	09...	1210	1.7	520	18.0
MAY									
04...	0950	413	440	9.0					

05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)

FEB , 1976					MAR , 1976				
23...	1515	3.0	550	.5	31...	1450	75	700	7.5
MAR					MAY				
01...	1345	17	900	.0	04...	1435	4.5	1250	15.0
24...	1330	122	520	1.0					

05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)

JAN , 1976					JUL , 1976				
22...	1520	258	580	.0	29...	1200	64	510	24.5
MAR					SEP				
27...	1200	2590	420	.0	02...	1005	24	480	19.0
30...	1220	3030	460	1.0					
APR									
28...	1800	671	640	12.0					

05054500 - SHEYENNE RIVER ABOVE HARVEY, ND (LAT 47 42 10 LONG 099 56 55)

OCT , 1975					APR , 1976				
30...	1305	2.4	1300	4.5	07...	1230	68	760	12.0
FEB , 1976					MAY				
25...	1750	8.8	1000	.5	04...	1135	21	1020	11.0
MAR					JUN				
15...	1240	5.2	1100	.0	01...	1050	.71	1180	19.5
18...	1615	94	340	1.0	JUL				
19...	1610	176	220	1.0	02...	1140	1.0	1220	21.0
23...	1510	155	260	1.0					
29...	1200	170	1050	1.5					

05056100 - MAUVAIS COULEE NR CANDU, ND (LAT 48 26 53 LONG 099 06 08)

OCT , 1975					MAY , 1976				
15...	1540	.10	1200	8.0	14...	1100	27	800	14.0
MAR , 1976					JUN				
30...	1135	68	330	.0	09...	1350	3.2	900	22.5
APR					JUL				
06...	1605	548	--	10.0	06...	1700	.70	960	26.0
08...	1555	1110	420	11.0	AUG				
14...	1535	540	470	11.5	05...	1330	.03	1030	22.0

05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)

MAR , 1976					JUN , 1976				
26...	1810	18	280	.0	09...	1720	.03	1000	22.5
29...	1350	17	320	1.0	JUL				
APR					15...	1250	4.5	825	20.0
06...	1325	414	--	10.0	AUG				
08...	1300	280	410	11.0	05...	1635	.35	950	22.0
14...	1805	86	500	11.0					
MAY									
13...	1425	3.0	800	15.0					

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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, ND (LAT 47 13 45 LONG 098 07 28)

OCT , 1975					APR , 1976				
02...	1415	2.7	990	10.5	02...	1545	77	450	2.5
NOV					MAY				
06...	1420	3.3	1050	9.0	03...	1210	16	1110	6.5
JAN , 1976					JUN				
14...	1125	.92	1430	.0	04...	1225	1.1	1080	18.0
FEB					JUL				
06...	1235	1.0	1120	.0	02...	1135	2.2	800	21.5
24...	1425	12	500	.5	AUG				
MAR					02...	1725	.19	1100	23.0
05...	1435	3.4	750	.0	SEP				
27...	1245	183	315	.5	01...	1320	.03	1480	16.0

05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)

OCT , 1975					APR , 1976				
10...	1410	21	624	11.5	09...	1300	884	960	4.5
JAN , 1976					MAY				
14...	0940	79	900	1.0	07...	1505	180	610	10.0
FEB					JUN				
06...	1045	73	960	3.0	04...	1035	15	570	17.0
MAR					JUL				
05...	1300	58	1000	4.5	07...	1545	17	570	24.0
APR					AUG				
03...	1200	406	720	4.5	03...	0905	13	560	21.5
09...	1235	884	960	4.5					

05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)

OCT , 1975					MAY , 1976				
21...	1005	95	910	--	03...	1215	503	800	9.5
NOV					JUN				
13...	1225	108	940	.0	03...	0930	124	870	21.5
JAN , 1976					JUL				
15...	1635	102	900	.0	12...	1205	64	895	23.0
MAR					AUG				
11...	0930	164	740	.0	24...	1540	10	--	25.5
25...	1720	667	540	.0	SEP				
27...	1730	700	560	.0	01...	1005	12	880	17.5
31...	0905	523	560	.5	27...	1215	12	1040	10.5
APR									
07...	1335	442	650	7.0					

05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)

MAR , 1976					APR , 1976				
24...	1500	102	280	.0	07...	1600	1.3	1050	12.0
25...	1335	38	300	.0	MAY				
27...	1635	11	390	.5	07...	1240	.08	2000	11.0

05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 18 LONG 097 34 25)

OCT , 1975					MAY , 1976				
22...	1010	11	1690	9.0	05...	1235	14	1650	8.0
NOV					JUN				
12...	1005	7.0	1420	.5	02...	1620	3.7	1640	21.5
JAN , 1976					JUL				
16...	1320	3.9	1980	1.0	14...	0930	3.3	1600	19.0
FEB					AUG				
10...	1310	168	980	.0	10...	1610	2.7	1550	22.5
MAR					SEP				
03...	1120	9.2	900	.0	10...	1705	2.8	1550	19.0
24...	1605	160	600	1.0					
APR									
13...	1040	33	1050	10.5					

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

NOV , 1975					MAY , 1976				
11...	1215	.29	1680	3.0	05...	1555	3.0	1420	14.0
MAR , 1976					JUN				
25...	1450	131	490	.0	03...	1405	.20	1650	25.5
30...	1500	68	470	1.5					
APR									
06...	1135	20	840	6.0					

05064500 - RED RIVER OF THE NORTH AT HALSTAD, MN (LAT 47 21 00 LONG 096 51 00.01)

OCT , 1975					APR , 1976				
23...	1400	616	620	8.0	05...	1545	6010	500	4.0
NOV					MAY				
03...	1215	843	720	6.0	06...	1230	1620	720	11.0
JAN , 1976					JUN				
09...	1235	436	880	.0	04...	1255	447	700	23.0
FEB					JUL				
10...	1125	531	700	.0	09...	1350	322	740	25.0
MAR					AUG				
10...	1440	1100	710	.0	11...	1450	109	710	25.5
31...	1225	9940	370	.0	SEP				
APR					08...	1225	54	710	20.0
03...	1545	7720	410	4.0					

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

OCT , 1975					APR , 1976				
24...	1030	2400	460	8.5	05...	1150	22100	380	3.0
JAN , 1976					08...	1200	11600	450	6.0
23...	1515	1680	580	.0	23...	1345	5030	540	10.5
FEB					JUN				
12...	1450	1680	--	.0	24...	1110	1520	440	22.0
MAR					AUG				
23...	1430	2200	590	.0	25...	1055	1030	360	25.0
29...	1530	11400	360	1.5					
APR									
01...	1050	16200	330	.5					
03...	1825	23500	380	3.0					

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

OCT , 1975					APR , 1976				
16...	1425	.43	2200	6.5	06...	1055	57	--	1.0
MAR , 1976					15...	1045	6.3	910	6.0
29...	1130	52	370	.0					

05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

OCT , 1975					MAY , 1976				
07...	1215	6.4	664	10.5	10...	1300	19	730	15.0
NOV					JUN				
03...	1120	10	640	5.0	01...	1405	12	660	21.5
JAN , 1976					JUL				
09...	1240	9.1	700	.0	06...	1150	7.5	660	22.5
30...	1215	10	700	.0	AUG				
MAR					03...	1235	4.0	640	21.0
10...	1435	11	690	.0	SEP				
28...	1400	518	310	.0	07...	1505	4.1	590	22.0
APR									
02...	1710	621	425	2.0					

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

OCT , 1975					APR , 1976				
07...	1800	3.9	850	14.0	16...	0930	250	670	9.0
NOV					MAY				
03...	1600	11	720	5.0	17...	1500	30	--	16.0
JAN , 1976					JUN				
15...	1105	3.7	790	.0	02...	1650	21	800	22.0
FEB					JUL				
02...	1550	3.4	850	.0	06...	1610	10	750	25.0
MAR					AUG				
03...	1115	7.6	750	.0	05...	1220	3.3	840	21.0
APR					SEP				
01...	1405	1340	310	1.5	14...	0845	1.3	940	14.5
05...	1910	535	--	2.5					

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)
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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

OCT , 1975					MAY , 1976				
07...	1440	2.8	610	14.5	10...	1725	7.8	560	15.5
NOV					JUN				
03...	1255	.87	670	7.5	03...	1510	3.6	640	21.0
JAN , 1976					JUL				
08...	1715	3.9	860	.0	06...	1415	5.1	550	22.5
30...	1425	8.6	790	.0	AUG				
MAR					05...	1545	3.7	530	21.0
09...	1320	7.3	910	1.0	SEP				
APR					08...	1545	3.7	550	18.0
02...	1410	514	340	.0					
09...	1810	209	360	4.5					

05089100 - MIDDLE BRANCH PARK RIVER NR UNION, ND (LAT 48 32 32 LONG 098 01 10)

OCT , 1975					JUN , 1976				
08...	1105	E.05	670	13.0	03...	1325	.03	660	23.0
NOV					14...	1310	7.8	200	17.5
04...	1030	E.06	590	7.0	JUL				
MAR , 1976					07...	1610	.03	610	28.0
30...	1425	3.4	220	.0	AUG				
APR					05...	1730	.01	645	25.0
02...	1150	40	130	.0	SEP				
07...	1730	21	270	10.0	09...	1035	E.01	650	11.5
MAY									
10...	1515	.10	580	18.5					

05089500 - CART CREEK AT MOUNTAIN, ND (LAT 48 40 37 LONG 097 51 41)

OCT , 1975					APR , 1976				
08...	1200	E.04	1020	11.5	08...	1925	16	510	6.5
NOV					MAY				
04...	1150	.21	920	7.0	12...	1200	.80	860	10.5
MAR , 1976					JUN				
04...	1255	.25	950	.0	03...	1235	.24	960	21.0
26...	1410	1.9	420	--	JUL				
29...	1525	1.7	415	.0	12...	1640	.02	1000	20.5
APR									
02...	1025	53	--	.0					

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

OCT , 1975					APR , 1976				
07...	1615	E.05	1500	13.5	16...	1125	340	580	8.5
NOV					MAY				
03...	1500	.35	1680	5.5	10...	1730	33	1040	15.0
JAN , 1976					JUN				
09...	1605	1.7	1180	.5	03...	1650	7.2	1300	23.0
FEB					JUL				
02...	1305	4.0	1300	.0	01...	1510	9.9	800	22.5
MAR					AUG				
03...	1425	4.3	1110	.0	04...	1615	.54	1090	25.5
APR					SEP				
02...	1200	1170	--	.5	10...	1355	.22	1190	18.0
03...	1900	1830	--	.0					
05...	1725	1280	--	3.5					

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

OCT , 1975					APR , 1976				
09...	1625	2199	460	13.5	26...	1505	5580	700	11.5
NOV					MAY				
04...	1605	2780	500	6.0	10...	1440	3350	660	14.0
JAN , 1976					JUN				
19...	1235	1630	570	.0	02...	1205	1760	560	22.0
MAR					JUL				
17...	1625	1880	500	.0	01...	1230	1650	605	23.0
26...	1145	2750	600	.0	AUG				
APR					04...	1300	1070	500	24.0
03...	1415	24500	--	.5	SEP				
07...	1250	27500	390	4.0	13...	1715	819	450	17.5
09...	1520	22100	440	6.5					
19...	1705	7320	690	11.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

APR , 1976					APR , 1976				
01...	1930	63	--	.0	16...	1435	2.2	440	12.0
03...	1645	207	--	9.5					
07...	1520	22	450	14.0					

05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)

MAR , 1976					APR , 1976				
30...	1345	3.1	390	.0	15...	1555	14	590	11.0
APR					MAY				
08...	1615	49	430	10.5	14...	1235	.27	1200	13.5
15...	1400	16	610	10.5					

05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)

APR , 1976					MAY , 1976				
01...	1610	60	225	.5	14...	1350	E.06	960	15.0
08...	1430	126	460	9.5					
15...	1430	27	500	11.0					
15...	1505	27	470	10.5					

05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)

OCT , 1975					APR , 1976				
09...	1220	43	650	13.0	26...	1215	3310	460	12.0
NOV					MAY				
06...	0920	39	860	6.0	14...	1410	1390	640	13.5
JAN , 1976					JUN				
12...	1425	13	900	.0	02...	1425	685	740	21.5
FEB					JUL				
06...	1450	15	980	.0	07...	1210	195	820	24.5
MAR					21...	1300	1120	425	19.0
17...	1315	47	1080	.0	AUG				
APR					06...	1435	92	850	22.0
06...	1320	2307	375	1.0	SEP				
09...	1000	3100	410	5.0	10...	1315	45	900	16.0
13...	1600	2240	500	8.0					
19...	1335	4370	430	10.5					

05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)

NOV , 1975					JUN , 1976				
04...	1220	640	--	6.5	15...	0935	24	430	18.0
APR , 1976					AUG				
02...	0910	2.8	400	.0	11...	1050	E.01	710	20.0
14...	1545	34	495	8.0	SEP				
20...	1640	16	375	8.5	09...	0855	13	465	14.5
MAY									
12...	1310	.26	650	10.0					

05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)

OCT , 1975					MAY , 1976				
09...	0910	1.3	580	12.0	12...	1450	6.6	540	12.0
NOV					JUN				
04...	1300	E.02	610	8.5	03...	1115	.41	600	19.0
JAN , 1976					15...	1445	145	530	20.0
08...	1305	4.9	690	.5	JUL				
FEB					27...	1455	1.4	520	22.5
06...	1150	4.6	650	1.0	AUG				
MAR					06...	1550	2.5	500	21.0
04...	1515	6.2	700	--	SEP				
APR					10...	0950	1.6	550	17.0
06...	1620	267	460	2.0					
13...	1620	213	345	5.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)

OCT , 1975					APR , 1976				
01...	1520	10	1610	12.0	06...	1310	2800	330	8.0
NOV					13...	1710	560	510	11.0
05...	1130	7.8	2100	6.0	MAY				
DEC					05...	1325	97	1210	12.0
03...	1150	5.1	2120	.5	JUN				
JAN , 1976					03...	1430	22	1320	22.0
06...	1400	5.5	1700	.0	JUL				
FEB					01...	1850	140	910	21.0
05...	1315	4.3	2400	.0	15...	1440	53	1000	20.0
MAR					AUG				
04...	1430	4.1	2900	.0	04...	1245	7.4	1080	22.0
23...	1130	E300	610	.5	19...	1325	5.3	1120	21.5
25...	1415	820	280	.0	SEP				
APR					01...	1255	1.0	1120	17.5
02...	1800	4700	335	2.5					
03...	1435	3600	345	4.0					

05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)

OCT , 1975					APR , 1976				
04...	1120	202	830	12.0	07...	0925	E4300	575	6.0
31...	1730	159	930	4.5	08...	1440	4810	530	7.5
DEC					14...	1705	7630	400	13.5
03...	1700	162	840	.0	15...	1650	8200	510	9.5
JAN , 1976					JUN				
06...	1250	149	820	.0	12...	1130	524	585	21.5
FEB					JUL				
03...	1130	220	880	.0	08...	2125	860	545	23.0
MAR					AUG				
02...	1900	373	960	.0	05...	1310	569	615	21.5
25...	1145	2330	610	1.5	SEP				
30...	1155	3150	900	4.0	02...	1515	246	650	19.5

05120200 - WINTERING RIVER NR BERGEN, ND (LAT 47 55 50 LONG 100 40 15)

OCT , 1975					MAR , 1976				
04...	1645	E.05	2070	17.0	29...	1600	150	580	6.5
28...	1525	E.18	2310	4.5	APR				
NOV					05...	1430	42	930	12.0
25...	1435	E.04	2900	.0	26...	1420	48	1200	13.0
MAR , 1976					MAY				
23...	1920	390	423	2.0	17...	1630	1.9	2020	19.0
26...	1425	299	280	2.0					

05120500 - WINTERING RIVER NR KARLSRUHE, ND (LAT 48 10 14 LONG 100 32 20)

OCT , 1975					MAR , 1976				
04...	1545	8.0	820	13.0	29...	1745	513	480	1.5
NOV					APR				
25...	1700	5.5	850	.0	05...	1900	180	580	10.0
JAN , 1976					JUN				
14...	1200	4.6	700	.0	07...	1925	12	1390	24.0
FEB					JUL				
12...	1520	5.5	630	.0	06...	1935	2.8	920	25.0
MAR					AUG				
15...	1640	6.1	640	.0	02...	1930	1.9	690	23.5
24...	0905	315	290	.5	30...	1900	1.0	675	21.5
26...	1135	660	450	.5					

05122000 - SOURIS RIVER NR BANTRY, ND (LAT 48 30 20 LONG 100 26 04)

OCT , 1975					MAY , 1976				
02...	1630	254	880	11.5	04...	1600	6040	540	11.5
30...	1735	247	990	4.0	13...	1735	4690	490	15.5
DEC					JUN				
24...	1020	182	1000	.0	09...	1750	1070	680	22.0
JAN , 1976					JUL				
15...	1600	174	875	.0	12...	1510	1000	560	22.5
MAR					AUG				
05...	1550	429	875	.0	04...	1745	590	655	22.0
APR					SEP				
13...	1630	3600	770	13.5	01...	1730	289	760	19.0

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

575

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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 CR AT LAKE METIGOSHE OUTLET NR BOTTINEAU, ND (LAT 48 57 56 LONG 100 21 47)

OCT , 1975					APR , 1976				
03...	1520	13	430	11.5	06...	1230	29	480	4.0
30...	1250	26	430	4.0	13...	1000	105	410	5.5
DEC					MAY				
11...	1110	5.9	410	1.0	18...	1045	--	460	13.5
JAN , 1976					JUN				
07...	1715	13	475	1.0	09...	1025	9.8	430	20.0
FEB					JUL				
04...	1635	10	470	.5	13...	0800	.10	395	20.5
MAR									
17...	1200	8.0	460	1.5					
31...	1740	14	490	2.5					

05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)

OCT , 1975					APR , 1976				
02...	1800	23	575	13.5	02...	1335	90	360	.0
JAN , 1976					06...	1525	2000	420	8.5
15...	1250	3.0	950	.0	13...	1300	998	550	12.5
FEB					JUN				
05...	1515	.52	1030	.0	09...	1320	31	755	23.5
MAR					JUL				
05...	1225	5.9	970	.0	12...	1715	5.6	1120	22.5
31...	1600	22	600	.0					

05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)

NOV , 1975					APR , 1976				
01...	0920	28	1120	3.0	02...	1155	3190	265	2.0
DEC					07...	1500	1960	305	10.0
18...	1620	4.6	1700	.0	JUN				
FEB , 1976					10...	2145	11	950	26.5
13...	1255	2.5	1600	.0	JUL				
MAR					13...	1235	1.4	995	23.0
18...	1155	2.2	1650	.5					
31...	1200	2250	280	1.5					

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

OCT , 1975					APR , 1976				
02...	1135	11	1550	9.0	08...	1205	72	645	12.5
NOV					MAY				
06...	1355	7.1	1600	7.0	19...	1040	7.6	1450	16.0
JAN , 1976					JUN				
14...	1500	E.10	2400	.0	11...	1010	.11	1650	21.5
MAR					JUL				
24...	1300	600	290	.5	13...	1710	E.54	1540	23.0
26...	1205	680	250	1.0					
30...	1930	296	335	5.0					

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

OCT , 1975					MAR , 1976				
03...	1840	4.7	1150	16.5	24...	1635	1.1	800	.5
NOV					31...	1315	52	700	.0
01...	1205	10	1210	3.5	APR				
DEC					08...	1900	E350	570	12.0
04...	1440	1.9	1580	.0	MAY				
23...	1755	.78	2050	.0	18...	1355	69	1000	16.0
JAN , 1976					JUN				
08...	1635	.52	2050	.0	09...	2105	24	1030	26.0
FEB					JUL				
06...	1415	.80	1910	.0	12...	1910	2.6	1120	25.0

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

OCT , 1975					MAR , 1976				
03...	1120	1.2	1260	10.5	31...	1715	1720	335	.5
30...	1055	28	1490	2.0	APR				
DEC					02...	1140	1550	320	.5
04...	0950	1.9	2200	.0	06...	1030	1150	335	6.0
JAN , 1976					JUN				
08...	1215	E.15	3100	.0	10...	2000	2.0	1280	28.0
FEB									
04...	1445	E.04	3200	.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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 RIVER BL COW CREEK NR WILLISTON, ND (LAT 48 17 04 LONG 103 34 21)

OCT , 1975					MAR , 1976				
01...	0835	11	2050	9.0	24...	1630	2850	220	2.5
NOV					MAY				
06...	0835	16	2010	6.0	06...	0925	33	1700	11.0
DEC					JUN				
04...	1010	15	2350	1.0	04...	0940	17	1850	21.0
JAN , 1976					30...	0930	20	1820	18.0
08...	1525	8.0	2250	.5	AUG				
FEB					05...	1250	8.2	2030	21.0
04...	1600	13	2150	.0	SEP				
MAR					02...	1005	7.4	2000	16.0
03...	1555	23	1825	.0					

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

NOV , 1975					APR , 1976				
03...	1605	14	1790	5.5	01...	1635	932	610	5.0
DEC					12...	1720	248	900	11.0
04...	1235	7.7	2000	.5	MAY				
JAN , 1976					06...	1225	67	1290	10.0
08...	1220	5.3	3000	.0	JUN				
FEB					04...	1205	13	1500	21.0
04...	1230	7.2	2025	.0	30...	1115	7.7	16	19.0
MAR					AUG				
03...	1240	70	2250	.0	04...	1735	1.8	2070	21.0
23...	1510	956	360	1.0	SEP				
25...	1100	1079	360	1.0	02...	1305	1.7	2120	18.0
30...	1010	1451	530	1.5					

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

OCT , 1975					APR , 1976				
01...	1055	3.6	1790	10.0	07...	1015	17	1500	10.0
NOV					MAY				
04...	0840	5.3	1760	6.5	05...	1055	15	1500	11.0
DEC					JUN				
10...	0055	5.8	2050	.5	03...	1050	7.8	1750	22.0
JAN , 1976					JUL				
07...	1000	4.8	2140	.0	14...	1135	5.0	1490	23.0
FEB					AUG				
03...	1130	40	1700	.0	04...	1120	1.4	1600	24.0
16...	1325	250	610	1.0	SEP				
MAR					09...	1025	.02	2000	15.0
05...	1305	22	1190	.5					
22...	1435	62	1080	1.0					

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

OCT , 1975					APR , 1976				
01...	1320	15	2300	14.5	07...	1445	66	1760	16.0
NOV					MAY				
04...	1120	25	1980	8.0	05...	1300	256	1260	12.0
DEC					JUN				
10...	1435	24	2550	.0	03...	1245	43	1730	26.0
JAN , 1976					JUL				
09...	1140	14	3550	.0	14...	1420	157	1000	26.0
FEB					AUG				
03...	1525	120	1690	.5	04...	1300	34	1400	27.0
16...	1505	1058	630	.5	26...	1350	8.2	1790	22.0
MAR					SEP				
05...	1615	124	1540	1.0	09...	1145	5.1	2000	16.0
22...	1700	470	980	1.0					

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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, ND (LAT 47 14 10 LONG 102 46 10)

OCT , 1975					MAY , 1976				
03...	1305	1.6	2220	10.5	04...	1455	4.3	2000	14.0
NOV					JUN				
07...	1450	1.9	2190	5.0	04...	1730	1.3	2050	24.0
DEC					JUL				
05...	1230	1.8	2500	.5	02...	1315	1.1	2020	20.0
JAN , 1976					AUG				
09...	1215	1.3	2400	.0	06...	1830	.02	2520	25.0
FEB					25...	1720	.06	1040	20.0
06...	1215	1.9	1600	.0	SEP				
MAR					23...	1420	.01	2400	14.0
09...	1230	8.9	1070	.0					
24...	1625	53	580	.0					

06339300 - KNIFE RIVER AT MARSHALL, ND (LAT 47 08 17 LONG 102 20 00)

OCT , 1975					APR , 1976				
16...	1710	12	2410	6.5	20...	1830	84	2130	10.0
NOV					MAY				
21...	1550	7.4	2800	1.0	20...	1415	10	2150	19.0
DEC					JUN				
16...	1535	4.4	3100	.0	24...	1115	9.7	1720	18.0
JAN , 1976					JUL				
21...	1510	7.8	3200	.0	22...	1350	6.3	1980	25.0
FEB					AUG				
12...	1615	130	1240	.0	19...	1440	2.0	2200	27.0
24...	1715	150	720	.0	SEP				
MAR					23...	1155	5.6	3000	14.0
09...	1500	28	1060	.0					
26...	1430	120	690	.5					
31...	1750	41	1180	8.0					

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

OCT , 1975					APR , 1976				
16...	1425	12	2090	6.5	20...	1200	58	1620	10.0
NOV					MAY				
21...	1415	10	2750	1.0	20...	1240	14	2190	18.0
DEC					JUN				
16...	1310	7.8	3160	.0	24...	1450	22	1600	18.0
JAN , 1976					JUL				
21...	1230	12	3380	.0	21...	1420	7.7	1900	24.0
FEB					21...	1520	7.7	1900	24.0
16...	1430	514	1090	.5	AUG				
MAR					25...	1235	2.0	1040	26.0
18...	1305	108	950	1.0	SEP				
23...	1645	750	545	.5	22...	1520	44	650	14.5

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

FEB , 1976					JUL , 1976				
24...	1140	11	740	1.0	21...	1230	E.10	1250	20.0
MAR									
18...	1135	54	625	.0					
25...	1240	4.6	600	5.0					

TURTLE CREEK BASIN

06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)

FEB , 1976					APR , 1976				
26...	1540	4.7	390	.0	21...	1345	3.8	2700	9.0
MAR					MAY				
17...	1545	6.8	265	1.5	25...	1430	.56	3500	19.0
19...	0920	45	125	.0	JUN				
31...	1200	5.4	1600	5.0	24...	1030	E.28	3500	16.5

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

06342100 - SQUARE BUTTE CREEK TRIBUTARY NO 2 NR CENTER, ND (LAT 47 06 40 LONG 101 15 05)

OCT , 1975					MAY , 1976				
20...	1205	.36	750	9.0	20...	1125	.51	1120	15.0
DEC					JUN				
01...	1040	E.01	1400	1.0	23...	1005	.64	910	21.0
FEB , 1976					JUL				
24...	1350	1.7	400	.5	20...	1145	.08	1020	25.0
MAR					SEP				
18...	0950	3.1	320	.0	21...	1240	.06	1110	14.0
23...	1310	E12	295	2.0					
APR									
01...	1220	.77	560	8.0					

06342260 - SQUARE BUTTE CREEK BELOW CENTER, ND (LAT 47 03 25 LONG 101 11 35)

OCT , 1975					APR , 1976				
20...	1255	1.0	950	10.0	01...	1000	.92	980	8.5
DEC					MAY				
01...	1145	1.1	1150	--	20...	1225	1.9	1100	18.0
23...	1020	1.1	1100	.5	JUN				
JAN , 1976					23...	0920	5.2	900	21.0
23...	1300	1.4	950	.5	JUL				
FEB					20...	1100	1.9	1000	23.0
18...	1010	1.1	790	2.0	AUG				
MAR					24...	1130	1.8	900	23.0
09...	1515	1.3	900	1.5	SEP				
23...	1420	.97	860	9.0	21...	1110	1.7	1000	16.0

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)

DEC , 1975					MAR , 1976				
22...	1715	.04	1710	1.0	30...	1630	7.7	540	7.0
JAN , 1976					APR				
27...	1500	.08	1400	.5	21...	1535	8.7	910	9.0
FEB					MAY				
25...	1450	12	340	.5	21...	0955	1.4	1260	16.0
MAR					JUN				
09...	1010	1.7	600	1.0	25...	0910	1.2	760	15.0
18...	1645	280	380	1.5					
22...	1030	20	235	.0					

HEART RIVER BASIN

06344600 - GREEN RIVER NR NEW HRADEC, ND (LAT 47 01 40 LONG 103 03 10)

OCT , 1975					APR , 1976				
17...	1210	2.0	1020	8.0	21...	1120	7.0	1380	8.0
21...	1640	1.5	1000	8.0	MAY				
NOV					20...	1635	1.6	1120	17.0
20...	1345	1.4	1200	1.5	JUN				
DEC					25...	1235	6.9	900	17.0
15...	1130	1.4	1120	.0	JUL				
JAN , 1976					20...	1215	.16	1090	24.0
19...	1145	1.3	--	.0	AUG				
FEB					20...	1450	.04	1100	26.0
17...	1120	62	680	.0	SEP				
25...	1500	112	590	.0	23...	1555	.23	1200	16.0
MAR									
10...	1405	7.6	750	.0					
23...	1050	20	495	.5					

06345000 - GREEN RIVER NR GLADSTONE, ND (LAT 46 53 40 LONG 102 37 25)

OCT , 1975				
17...	1525	84	2080	8.0

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

579

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

OCT , 1975					MAR , 1976				
21...	1525	45	960	10.0	30...	1000	293	1000	6.0
NOV					APR				
28...	1305	33	1690	.0	19...	1335	194	1100	12.0
DEC					MAY				
24...	1335	31	1700	.5	24...	1420	34	1260	21.0
JAN , 1976					JUN				
26...	1450	36	1150	.0	22...	1320	114	1240	25.0
FEB					JUL				
18...	1505	E226	700	1.0	19...	1415	76	1200	28.5
MAR					AUG				
16...	1410	44	1130	.5	23...	1320	79	1000	25.5
19...	1335	352	740	--					

CANNONBALL RIVER BASIN

06350000 - CANNONBALL RIVER AT REGENT, ND (LAT 46 25 36 LONG 102 33 05)

OCT , 1975					JUN , 1976				
03...	1030	4.6	1990	12.0	01...	1520	7.2	2230	22.0
MAR , 1976					JUL				
09...	1215	21	2500	1.0	16...	0950	3.8	2500	19.5
24...	1730	77	2000	1.0	AUG				
APR					06...	1435	2.1	2210	25.0
05...	1545	18	2370	11.0	SEP				
MAY					10...	1715	1.2	2200	20.0
06...	1835	10	2350	14.0					

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

OCT , 1975					MAR , 1976				
02...	1740	11	1850	15.0	08...	1400	46	2000	1.0
03...	1030	4.6	2100	12.0	24...	1530	106	1460	1.0
NOV					APR				
03...	1140	14	1900	7.0	08...	1635	23	1680	14.0
06...	1420	5.4	1790	11.0	MAY				
DEC					06...	1645	30	2500	15.0
11...	1435	7.1	2300	.0	JUN				
12...	1355	16	2330	.0	04...	1650	82	2050	23.0
JAN , 1976					JUL				
14...	1220	5.0	3180	.0	15...	1910	13	1950	23.0
15...	1345	11	2750	.0	AUG				
FEB					05...	1225	4.2	1810	21.0
05...	1500	23	2000	.5	SEP				
06...	1305	10	2800	.5	10...	1510	1.8	1700	19.0

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

NOV , 1975					MAR , 1976				
04...	1510	.32	4300	12.0	23...	1515	7.2	3000	2.0
06...	0950	.41	4130	6.0	APR				
DEC					06...	1145	1.0	3100	12.0
11...	1210	.03	4600	.0	MAY				
JAN , 1976					03...	1700	.91	5100	15.0
08...	1350	.21	4750	.0	JUN				
FEB					01...	1719	.50	2600	25.0
02...	1705	.98	3600	.5	JUL				
MAR					13...	1515	.01	3100	25.0
04...	1320	.47	3250	.5					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS 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

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

OCT , 1975					APR , 1976				
02... 1115	2.8	2540	12.0		08... 1040	18	2550	10.0	
NOV 03... 1620	6.8	3120	8.0		MAY 06... 1145	14	2900	14.0	
DEC 11... 1615	6.7	3750	.0		JUN 04... 1050	4.4	2520	23.0	
JAN , 1976 14... 1435	5.2	3800	.0		JUL 15... 1335	2.9	2500	23.0	
FEB 06... 1120	14	2900	.0		AUG 04... 1700	.64	2500	24.0	
MAR 09... 1040	19	2400	1.0		SEP 10... 0925	.75	2400	12.0	
23... 1725	54	1980	.5						

06352500 - CEDAR CREEK NR PRETTY ROCK, ND (LAT 46 01 55 LONG 101 49 55)

OCT , 1975					APR , 1976				
02... 1405	1.8	2360	15.0		08... 1335	30	2000	12.0	
NOV 03... 1410	11	3030	9.0		MAY 06... 1410	30	2600	14.0	
DEC 12... 1110	12	3250	.0		JUN 04... 1355	86	2450	22.0	
JAN , 1976 15... 1055	6.2	4140	.0		JUL 15... 1620	6.3	2590	23.0	
FEB 05... 1200	29	2300	.5		AUG 05... 0950	.08	2390	20.0	
MAR 08... 1640	31	2420	1.0						
24... 1315	93	1860	2.0						

06353000 - CEDAR CREEK NR RALEIGH, ND (LAT 46 05 00 LONG 101 20 00)

OCT , 1975					MAR , 1976				
21... 1105	8.3	1600	9.0		19... 1110	116	1000	3.0	
NOV 28... 1055	10	3000	.5		29... 1200	70	1400	6.0	
DEC 24... 1010	7.8	3500	.0		APR 19... 1030	43	900	12.0	
JAN , 1976 26... 1140	5.9	3400	.0		MAY 24... 1055	16	2400	18.0	
FEB 17... 1305	65	1750	1.0		JUN 22... 1000	28	2600	23.0	
MAR 16... 1245	48	1600	.5		JUL 19... 1200	3.1	2800	27.0	

BEAVER CREEK BASIN

06354500 - BEAVER CREEK AT LINTON, ND (LAT 46 15 27 LONG 100 13 58)

OCT , 1975					MAR , 1976				
10... 1340	E.30	1000	8.0		22... 1250	320	310	1.0	
28... 1040	1.8	1000	4.5		31... 1545	44	360	6.5	
NOV 24... 1025	.61	1000	1.5		31... 1600	44	360	6.5	
JAN , 1976 26... 1050	1.4	1300	.0		MAY 06... 1335	18	1070	11.5	
FEB 18... 1055	7.5	580	--		JUN 28... 1120	.21	1050	21.0	
MAR 10... 1555	5.0	900	.0						
18... 0955	26	750	.0						

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)
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PART 6. MISSOURI RIVER BASIN

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

OCT , 1975					APR , 1976				
01...	1655	1.3	2780	14.0	07...	1730	2.0	2750	12.0
17...	1525	8.4	2080	8.0	MAY				
NOV					05...	1555	2.6	2260	14.0
04...	1305	1.6	2640	11.0	JUN				
DEC					03...	1505	1.1	2280	25.0
11...	1015	1.8	3500	.0	JUL				
JAN , 1976					15...	1020	3.1	2450	19.5
06...	1600	2.1	3900	.0	AUG				
FEB					03...	1645	.59	2700	27.0
04...	1620	2.1	2400	.0	18...	1355	13	2900	24.0
MAR					SEP				
04...	1525	2.0	2600	.5	09...	1535	.73	2100	18.0
23...	1025	1.3	1950	5.0					

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)

MAR , 1976					APR , 1976				
19...	1525	21	75	2.0	07...	1340	9.9	530	12.0
23...	1415	129	160	1.0	MAY				
29...	1430	41	340	5.0	04...	1250	4.1	770	12.0

06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

MAR , 1976					JUN , 1976				
19...	1325	54	250	.5	01...	1525	4.9	880	25.0
23...	1205	62	330	.5	JUL				
APR					01...	1520	.89	960	27.0
07...	1600	145	360	11.5					
MAY									
04...	1520	30	670	14.5					

06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

FEB , 1976					APR , 1976				
24...	1005	1.0	1100	.5	08...	0940	78	480	11.0
25...	1410	3.7	1150	.5	MAY				
MAR					04...	1750	18	800	16.0
19...	1010	39	580	.5	JUN				
23...	0945	90	740	.5	01...	1845	1.2	900	24.5
30...	0930	308	380	3.5					

06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

OCT , 1975					APR , 1976				
01...	1225	268	420	11.5	08...	1145	150	460	6.5
29...	1410	302	450	7.0	MAY				
NOV					05...	1030	169	470	10.5
25...	1245	18	680	.5	JUN				
DEC					02...	1045	9.4	740	20.0
29...	1505	8.6	1050	.5	30...	1520	20	670	24.0
FEB , 1976					AUG				
24...	1245	17	810	1.5	03...	1130	16	490	20.5
MAR					SEP				
22...	1805	139	560	1.0	08...	1430	17	450	19.5
30...	1300	120	450	5.5					

BENSON COUNTY

480230098484001. Local number, 153-063-30CBC.
 LOCATION.--Lat 48°02'30", long 098°48'40", Hydrologic Unit 09020201.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Spiritwood.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 200 ft (61 m), cased to 137 ft (41.8 m), plastic pipe, No. 18 slot screen set 137 to 143 ft (41.8 to 43.6 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,445 ft (440 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
 PERIOD OF RECORD.--June 1970 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.00 ft (5.49 m) below land-surface datum, Dec. 1, 1975; lowest measured, 25.05 ft (7.64 m) below land-surface datum, Mar. 4, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	18.00						

BENSON COUNTY

480958099154801. Local number, 154-067-15BBB.
 LOCATION.--Lat 48°09'58", long 099°15'48", Hydrologic Unit 09020201.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Spiritwood.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 180 ft (54.9 m), cased to 147 ft (44.8 m), plastic pipe, No. 18 slot screen set 147 to 153 ft (44.8 to 46.6 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,475 ft (450 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
 REMARKS.--Well pumped and painted on June 25, 1974.
 PERIOD OF RECORD.--June 1970 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.50 ft (9.91 m) below land-surface datum, Dec. 2, 1975; lowest measured, 33.76 ft (10.29 m) below land-surface datum, Dec. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	32.50						

BENSON COUNTY

481041099442701. Local number, 154-071-11AAD1.
 LOCATION.--Lat 48°10'41", long 099°44'27", Hydrologic Unit 09020202.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Fox Hills.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 100 ft (30.5 m), cased to 42 ft (12.8 m), plastic pipe, No. 12 slot screen set 42 to 45 ft (12.8 to 13.7 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,590 ft (485 m). Measuring point: Top of casing 2.0 ft (0.61 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on June 26, 1974.
 PERIOD OF RECORD.--August 1968 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.84 ft (2.08 m) below land-surface datum, Apr. 23, 1969; lowest measured, 8.82 ft (2.69 m) below land-surface datum, Jan. 15, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	7.70						

BOWMAN COUNTY

461534103491701. Local number, 132-105-16BDB.
 LOCATION.--Lat 46°15'34", long 103°49'17", Hydrologic Unit 10110203.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Hell Creek-Fox Hills.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 475 ft (145 m), cased to 441 ft (134 m), steel pipe, No. 12 slot screen set 441 to 459 ft (134 to 140 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 3,010 ft (917 m). Measuring point: Top of casing 3.40 ft (1.04 m) above land-surface datum.
 PERIOD OF RECORD.--September 1971 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 270.15 ft (82.34 m) below land-surface datum, Feb. 25, 1973; lowest measured, 271.73 ft (82.82 m) below land-surface datum, Jan. 11, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	271.01						

BURLEIGH COUNTY

464943100305801. Local number, 139-078-27CBB.
 LOCATION.--Lat 46°49'43", long 100°30'58", Hydrologic Unit 10130103.
 Owner: North Dakota State Water Commission.
 AQUIFER.--McKenzie.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 255 ft (77.7 m), cased to 200 ft (61 m), plastic pipe, slotted 200 to 220 ft (61 to 67 m) below land-surface datum, gravel packed.
 DATUM.--Altitude of land-surface datum is 1,713 (522 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on May 19, 1976.
 PERIOD OF RECORD.--August 1962 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.30 ft (6.80 m) below land-surface datum, June 17, 1970; lowest measured, 26.92 ft (8.21 m) below land-surface datum, Aug. 26, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	24.74	MAR 1	24.10	MAY 27	23.84	JUL 27	26.53
DEC 5	24.57	MAR 27	23.83	JUN 28	24.78	AUG 26	26.92
JAN 27	24.20	APR 27	23.50				

CASS COUNTY

464359096541301. Local number, 138-049-29CCC.
 LOCATION.--Lat 46°43'59", long 096°54'13", Hydrologic Unit 09020105.
 Owner: North Dakota State Water Commission.
 AQUIFER.--West Fargo.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 317 ft (96.6 m), cased to 278 ft (84.7 m), plastic pipe, screens set at 278 to 280 ft (84.7 to 85.3 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 912 ft (278 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
 REMARKS.--Well was pumped and painted on July 19, 1973.
 PERIOD OF RECORD.--August 1964 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.17 ft (9.81 m) below land-surface datum, Aug. 1, 1964; lowest measured, 40.52 ft (12.35 m) below land-surface datum, Aug. 8, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	40.13	MAR 11	39.43	JUN 2	40.21	SEP 10	42.02

DIVIDE COUNTY

485708103151701. Local number, 163-097-15ABB.
 LOCATION.--Lat 48°57'08", long 103°15'17", Hydrologic Unit 09010001.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Yellowstone.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 540 ft (165 m), cased to 240 ft (73 m), plastic pipe, No. 12 slot screen set 240 to 246 ft (73 to 75 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,910 ft (582 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
 PERIOD OF RECORD.--June 1972 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.72 ft (2.96 m) below land-surface datum, June 22, 1976; lowest measured, 10.99 ft (3.35 m) below land-surface datum, Jan. 30, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUN 22	9.72						

DUNN COUNTY

471323102290101. Local number, 143-093-09BCB.
 LOCATION.--Lat 47°13'23", long 102°29'01", Hydrologic Unit 10130201.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Sentinel Butte.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 965 ft (294 m), cased to 378 ft (115 m), steel pipe, No. 12 slot screen set 378 to 396 ft (115 to 121 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 2,133 ft (650 m). Measuring point: Top of casing 2.10 ft (0.64 m) above land-surface datum.
 PERIOD OF RECORD.--February 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 93.00 ft (28.35 m) below land-surface datum, Feb. 12, 1974; lowest measured, 93.37 ft (28.46 m) below land-surface datum, July 24, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 5	93.23						

EDDY COUNTY

473720098592401. Local number, 148-065-19DAA.

LOCATION.--Lat 47°37'20", long 098°59'24", Hydrologic Unit 10160001.

Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 242 ft (74 m), cased to 220 ft (67 m), plastic pipe, slotted from 210 to 220 ft (64 to 67 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,526 ft (465 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on June 4, 1974.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.51 ft (13.26 m) below land-surface datum, June 28, 1966; lowest measured, 46.09 ft (14.05 m) below land-surface datum, July 26, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	44.46						

EMMONS COUNTY

463632100171901. Local number, 136-076-07CBC.

LOCATION.--Lat 46°36'32", long 100°17'19", Hydrologic Unit 10130103.

Owner: North Dakota State Water Commission.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 150 ft (45.7 m), cased to 117 ft (35.7 m), plastic pipe, No. 12 slot screen set at 117 to 123 ft (35.7 to 37.5 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,735 ft (529 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.60 ft (1.10 m) below land-surface datum, Apr. 10, 1973; lowest measured, 6.55 ft (2.0 m) below land-surface datum, Dec. 5, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	5.09						

GRAND FORKS COUNTY

474957097343501. Local number, 150-054-04CCD.

LOCATION.--Lat 47°49'57", long 097°34'35", Hydrologic Unit 09020307.

Owner: North Dakota State Water Commission.

AQUIFER.--Elk Valley.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 126 ft (38.4 m), cased to 40 ft (12.2 m), plastic pipe, No. 12 slot screen set 40 to 43 ft (12.2 to 13.1 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,127 ft (344 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on July 10, 1973.

PERIOD OF RECORD.--September 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.48 ft (0.76 m) below land-surface datum, May 6, 1966; lowest measured, 5.81 ft (1.77 m) below land-surface datum, Dec. 7, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	5.63						

GRANT COUNTY

460159101500401. Local number, 130-089-32DDA.

LOCATION.--Lat 46°01'59", long 101°50'04", Hydrologic Unit 10130205.

Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 860 ft (262 m), cased to 525 ft (160 m), steel pipe, No. 12 slot screen set 525 to 543 ft (160 to 166 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 2,165 ft (660 m). Measuring point: Top of casing 4.00 ft (1.22 m) above land-surface datum.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.49 ft (16.91 m) below land-surface datum, Apr. 10, 1973; lowest measured, 57.00 ft (17.37 m) below land-surface datum, Nov. 7, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	56.09	MAR 8	56.07	JUN 4	56.10	SEP 10	56.43

GRIGGS COUNTY

471612098113101. Local number, 144-059-20CCC.

LOCATION.--Lat 47°16'12", long 098°11'31", Hydrologic Unit 09020203.

Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 240 ft (73 m), cased to 158 ft (48 m), plastic pipe, No. 25 slot screen set 158 to 161 ft (48 to 49 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,430 ft (436 m). Measuring point: Top of casing 2.0 ft (0.61 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on July 15, 1973.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.98 ft (15.23 m) below land-surface datum,

June 4, 1975; lowest measured, 86.99 ft (26.51 m) below land-surface datum, Aug. 10, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	56.69	DEC 5	54.49	JUN 23	71.39	AUG 2	86.62
OCT 22	54.94	DEC 17	53.65	JUN 30	69.55	AUG 10	86.99
OCT 29	54.59	MAR 17	51.49	JUL 8	70.47	AUG 25	77.89
NOV 3	54.29	APR 12	51.43	JUL 14	72.57	SEP 1	77.09
NOV 6	56.99	MAY 18	57.48	JUL 21	77.74	SEP 8	74.96
NOV 6	57.13	JUN 9	67.73	JUL 27	83.40	SEP 22	71.75
NOV 14	56.34						

GRIGGS COUNTY

473425098232901. Local number, 147-061-01CCC.

LOCATION.--Lat 47°34'25", long 098°23'29", Hydrologic Unit 09020203.

Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 340 ft (104 m), cased to 237 ft (72 m), plastic pipe, No. 25 slot screen set 237 to 240 ft (72 to 73 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,525 ft (464 m). Measuring point: Top of casing 2.00 ft (0.60 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on May 28, 1974.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.82 ft (8.17 m) below land-surface datum, May 19, 1976; lowest measured, 96.10 ft (29.3 m) below land-surface datum, Aug. 12, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	35.68	APR 13	27.29	JUL 9	63.46	AUG 12	93.84
NOV 6	29.94	MAY 19	26.82	JUL 15	58.93	AUG 26	78.79
DEC 5	28.54	JUN 10	69.51	JUL 22	87.85	SEP 2	77.77
DEC 18	28.20	JUN 24	54.92	JUL 28	93.84	SEP 8	82.89
MAR 18	27.73	JUL 1	43.74	AUG 7	93.02	SEP 23	63.20

GRIGGS COUNTY

473600098065901. Local number, 148-059-36AAB.

LOCATION.--Lat 47°36'00", long 098°06'59", Hydrologic Unit 09020203.

Owner: North Dakota State Water Commission.

AQUIFER.--McVile.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 180 ft (54.9 m), cased to 137 ft (41.8 m), plastic pipe, No. 12 slot screen set 137 to 143 ft (41.8 to 43.6 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,320 ft (402 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Sept. 17, 1973.

PERIOD OF RECORD.--October 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.07 ft (2.15 m) below land-surface datum, June 5, 1971; lowest measured, 9.76 ft (2.97 m) below land-surface datum, Dec. 7, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 5	9.46						

HETTINGER COUNTY

463153102521001. Local number, 135-097-04DCA.

LOCATION.--Lat 46°31'53", long 102°52'10", Hydrologic Unit 10130204.

Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 1,790 ft (546 m), cased to 1,320 ft (402 m), steel pipe, open hole.

DATUM.--Altitude of land-surface datum is 2,567 ft (782 m). Measuring point: Top of casing 0.70 ft (0.21 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on May 1, 1974.

PERIOD OF RECORD.--September 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.87 ft (43.24 m) below land-surface datum, Dec. 31, 1968; lowest measured, 144.20 ft (43.95 m) below land-surface datum, Nov. 26, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	142.70	MAR 3	142.75	JUN 1	142.80	SEP 7	142.92

KIDDER COUNTY

470638099324301. Local number, 142-070-16DDD.

LOCATION.--Lat 47°06'38", long 099°32'43", Hydrologic Unit 10130103.

Owner: North Dakota State Water Commission.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 84 ft (25.6 m), cased to 70 ft (21.3 m), plastic pipe, No. 18 slot screen set 70 to 73 ft (21.3 to 22.3 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,810 ft (552 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Aug. 23, 1974.

PERIOD OF RECORD.--November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.47 ft (6.24 m) below land-surface datum, Apr. 28, 1976; lowest measured, 25.44 ft (7.75 m) below land-surface datum, Aug. 27, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	21.00	JAN 27	20.90	APR 28	20.47	AUG 4	22.91
DEC 3	20.90	FEB 17	20.91	MAY 25	20.60	SEP 1	21.70
JAN 5	20.88	MAR 25	20.68	JUL 8	22.50		

MC LEAN COUNTY

473752101055301. Local number, 148-082-23BBB.

LOCATION.--Lat 47°37'52", long 101°05'53", Hydrologic Unit 10130101.

Owner: North Dakota State Water Commission.

AQUIFER.--Lake Nettie.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 300 ft (91 m), cased to 198 ft (60 m), plastic pipe, No. 24 slot screen set 198 to 204 ft (60 to 62 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,880 ft (573 m). Measuring point: Top of casing 2.30 ft (0.70 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Aug. 28, 1975.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 38.48 ft (11.73 m) below land-surface datum, Sept. 31, 1976; lowest measured, 42.30 ft (12.89 m) below land-surface datum, Dec. 2, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	38.61	SEP 31	38.48				

OLIVER COUNTY

470642101162701. Local number, 142-084-24BBA.

LOCATION.--Lat 47°06'42", long 101°16'27", Hydrologic Unit 10130101.

Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 1,295 ft (395 m), cased to 966 ft (294 m), steel pipe, open ended.

DATUM.--Altitude of land-surface datum is 2,006 ft (611 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Apr. 13, 1976.

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.04 ft (60.06 m) below land-surface datum, Dec. 8, 1972; lowest measured, 208.70 ft (63.61 m) below land-surface datum, Nov. 24, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	198.06						

GROUND-WATER LEVELS

587

PEMBINA COUNTY

485239097501702. Local number, 162-056-01CCC2.

LOCATION.--Lat 48°52'39", long 097°50'17", Hydrologic Unit 09020313.

Owner: North Dakota State Water Commission.

AQUIFER.--Icelandic.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 40 ft (12 m), cased to 37 ft (11.3 m), plastic pipe, No. 12 slot screen set 37 to 40 ft (11.3 to 12.2 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 988 ft (301 m). Measuring point: Top of casing 1.8 ft (0.55 m) above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.65 ft (1.42 m) below land-surface datum, May 8, 1970; lowest measured, 8.06 ft (2.46 m) below land-surface datum, Dec. 4, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	7.80						

PIERCE COUNTY

475323100092101. Local number, 151-074-20AAA.

LOCATION.--Lat 47°53'23", long 100°09'21", Hydrologic Unit 09020202.

Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 320 ft (98 m), cased to 256 ft (78 m), plastic pipe, No. 18 slot screen set 256 to 259 ft (78 to 79 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,605 ft (489 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on July 16, 1974.

PERIOD OF RECORD.--November 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.28 ft (8.62 m) below land-surface datum, Dec. 2, 1975; lowest measured, 51.73 ft (9.67 m) below land-surface datum, Dec. 10, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	28.28						

RICHLAND COUNTY

462633097163402. Local number, 134-052-06CCD2.

LOCATION.--Lat 46°26'33", long 097°16'34", Hydrologic Unit 09020204.

Owner: North Dakota State Water Commission.

AQUIFER.--Sheyenne Delta.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 40 ft (12 m), cased to 30 ft (9.1 m), plastic pipe, slotted 30 to 40 ft (9.1 to 12.2 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,067 ft (325 m). Measuring point: Top of casing 0.65 ft (0.20 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Sept. 17, 1969.

PERIOD OF RECORD.--September 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.78 ft (0.24 m) below land-surface datum, May 13, 1972; lowest measured, 8.39 ft (2.56 m) below land-surface datum, Sept. 30, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.96	4.19	3.28	3.90	5.07	4.15	2.00	2.42	4.76	6.52	7.57	8.22
10	4.22	4.19	3.36	4.23	5.13	4.19	2.00	2.70	5.22	6.76	7.69	8.19
15	4.16	2.74	3.65	4.12	4.85	4.31	2.16	3.02	5.53	6.90	7.80	8.25
20	4.21	2.72	3.91	5.15	4.67	4.04	1.86	3.39	5.85	7.04	7.82	8.30
25	4.19	3.08	3.93	5.03	4.35	3.40	1.84	3.75	5.85	7.23	8.06	8.34
DOM	4.19	3.34	3.87	4.90	4.15	2.38	2.10	4.09	6.18	7.43	8.14	8.38
MONTH	4.15	3.37	3.66	4.55	4.70	3.74	1.99	3.22	5.56	6.98	7.84	8.28
WTR YR 1976	MAX	8.39	SEPT 30, 1976	MIN	1.72	APR 24, 1976						

GROUND-WATER LEVELS

STARK COUNTY

465755102410701. Local number, 140-095-08AAA.

LOCATION.--Lat 46°57'55", long 102°41'07", Hydrologic Unit 10130204.

Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 160 ft (49 m), cased to 80 ft (24.4 m), plastic pipe, open ended.

DATUM.--Altitude of land-surface datum is 2,419 ft (737 m). Measuring point: Top of casing 1.70 ft (0.52 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Sept. 30, 1971.

PERIOD OF RECORD.--December 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.61 ft (4.76 m) below land-surface datum, June 19, 1970; lowest measured, 27.23 ft (8.30 m) below land-surface datum, Dec. 10, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	18.40	JAN 20	18.81	APR 22	17.92	JUL 22	18.35
NOV 19	18.59	FEB 16	18.52	MAY 20	18.15	AUG 19	18.82
DEC 1	18.58	MAR 18	17.80	JUN 23	17.84	SEP 22	19.08
DEC 19	18.62						

STEELE COUNTY

471516097360301. Local number, 144-055-26BBB.

LOCATION.--Lat 47°15'16", long 097°36'03", Hydrologic Unit 09020109.

Owner: North Dakota State Water Commission.

AQUIFER.--Galesburg.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 300 ft (91 m), cased to 53 ft (16.2 m), plastic pipe, slotted 53 to 68 ft (16.1 to 20.7 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,160 ft (354 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on Sept. 16, 1973.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.43 ft (5.31 m) below land-surface datum, June 27, 1970; lowest measured, 19.94 ft (6.08 m) below land-surface datum, Mar. 28, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	19.82						

STUTSMAN COUNTY

463846098274101. Local number, 137-062-26DDD.

LOCATION.--Lat 46°38'46", long 098°27'41", Hydrologic Unit 10160003.

Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 240 ft (73 m), cased to 157 ft (48 m), plastic pipe, No. 12 slot screen set 157-163 ft (48 to 50 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,455 ft (443 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Well pumped, repainted and identification installed on June 3, 1974.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.90 ft (4.85 m) below land-surface datum, Dec. 4, 1975; lowest measured, 20.67 ft (6.30 m) below land-surface datum, May 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	15.90	FEB 24	16.30	JUN 2	16.21	SEP 8	16.73

TRAILL COUNTY

473228097091501. Local number, 147-051-22BBB.
 LOCATION.--Lat 47°32'28", long 097°09'15", Hydrologic Unit 09020301.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Hillsboro.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 103 ft (31.4 m), cased to 97 ft (29.6 m), plastic pipe, No. 18 slot screen set 97 to 100 ft (29.6 m to 30.5 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 925 ft (282 m). Measuring point: Top of casing 2.40 ft (0.73 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on July 12, 1973.
 PERIOD OF RECORD.--August 1965 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.73 ft (+0.22 m) above land-surface datum, July 6, 1970; lowest measured, 7.27 ft (2.22 m) below land-surface datum, Aug. 17, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	1.23						

WALSH COUNTY

481657097473601. Local number, 156-056-36CCC1.
 LOCATION.--Lat 48°16'57", long 097°47'36", Hydrologic Unit 09020308.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Fordville.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 280 ft (85.3 m), cased to 27 ft (8.23 m), plastic pipe, No. 18 slot screen set 27 to 30 ft (8.23 to 9.14 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,145 ft (349 m). Measuring point: Top of casing 1.85 ft (0.56 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on May 12, 1976.
 PERIOD OF RECORD.--May 1968 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.15 ft (1.57 m) below land-surface datum, Mar. 5, 1971; lowest measured, 6.95 ft (2.12 m) below land-surface datum, June 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	No measurement						

WALSH COUNTY

482408097443201. Local number, 157-055-21DBC.
 LOCATION.--Lat 48°24'08", long 097°44'32", Hydrologic Unit 09020301.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Dakota Formation.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 496 ft (151 m), cased to 491 ft (150 m), steel pipe, screen set 491 to 496 ft (150 to 151 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 975 ft (297 m). Measuring point: Top of casing at land-surface datum.
 PERIOD OF RECORD.--May 1968 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.10 ft (27.77 m) below land-surface datum, Oct. 7, 1968; lowest measured, 92.75 ft (28.27 m) below land-surface datum, Sept. 17, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	91.70	MAR 3	FROZEN	JUN 10	91.94	SEP 8	91.96

WALSH COUNTY

482449098095801. Local number, 157-058-18DDD.
 LOCATION.--Lat 48°24'49", long 098°09'58", Hydrologic Unit 09020308.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Pierre Shale.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 140 ft (42.7 m), cased to 80 ft (24.4 m), plastic pipe, slotted screen set 80 to 100 ft (24.4 to 30.5 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,580 ft (482 m). Measuring point: Top of casing 1.00 ft (0.30 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on Aug. 8, 1973.
 PERIOD OF RECORD.--June 1968 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.89 ft (+0.27 m) above land-surface datum, Dec. 5, 1972; lowest measured, 7.75 ft (2.36 m) below land-surface datum, Mar. 15, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	4.60						

GROUND-WATER LEVELS

WARD COUNTY

480912101090301. Local number, 154-082-24ABA.
 LOCATION.--Lat 48°09'12", long 101°09'03", Hydrologic Unit 09010001.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Lower Souris.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 115 ft (35.1 m), cased to 10 ft (3.0 m), plastic pipe, slotted screen set 10 to 40 ft (3.0 to 12.2 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,850 ft (564 m). Measuring point: Top of casing 1.70 ft (0.52 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on July 2, 1971.
 PERIOD OF RECORD.--January 1964 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.33 ft (1.93 m) below land-surface datum, July 30, 1969; lowest measured, 13.69 ft (4.17 m) below land-surface datum, Mar. 4, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	8.35						

WELLS COUNTY

474419099371201. Local number, 149-070-09DAA1.
 LOCATION.--Lat 47°44'19", long 099°37'12", Hydrologic Unit 10160001.
 Owner: North Dakota State Water Commission.
 AQUIFER.--New Rockford.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 283 ft (86 m), cased to 177 ft (54 m), plastic pipe, slotted 177 to 197 ft (54 to 60 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,610 ft (491 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
 REMARKS.--Well pumped, repainted and identification installed on Aug. 15, 1974.
 PERIOD OF RECORD.--May 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 65.50 ft (19.96 m) below land-surface datum, Dec. 20, 1969; lowest measured, 66.65 ft (20.31 m) below land-surface datum, Mar. 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	65.61						

WILLIAMS COUNTY

483048103373101. Local number, 158-100-17ADA.
 LOCATION.--Lat 48°30'48", long 103°37'31", Hydrologic Unit 10110102.
 Owner: North Dakota State Water Commission.
 AQUIFER.--Little Muddy.
 WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.032 m), depth 52 ft (15.8 m), cased to 35 ft (10.7 m), plastic pipe, slotted 35 to 43 ft (10.7 to 13.1 m) below land-surface datum.
 DATUM.--Altitude of land-surface datum is 1,987 ft (606 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
 REMARKS.--Well was pumped on Sept. 15, 1971.
 PERIOD OF RECORD.--August 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.70 ft (5.70 m) below land-surface datum, Dec. 5, 1972 and Dec. 2, 1975; lowest measured, 20.32 ft (6.19 m) below land-surface datum, July 18, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	18.70						

QUALITY OF GROUND WATER

591

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	GEO-LOGIC UNIT	TOTAL DEPTH OF WELL (FT)	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)
BOTTINEAU COUNTY									
483701101060401 159-081-11888		112TILL	20	75-12-18	1300	795	8.4	5.5	360
		112TILL	20	76-04-09	1100	520	7.8	5.0	240
		112TILL	20	76-06-03	1200	536	7.8	8.0	270
		112TILL	20	76-09-02	1250	500	--	--	260
DICKEY COUNTY									
460630098014703 130-059-02AAA3		112OKES	18	75-12-05	0815	580	--	--	270
		112OKES	18	76-03-09	1615	625	341	7.0	310
		112OKES	18	76-05-25	1600	559	7.6	8.5	270
		112OKES	18	76-09-01	1230	650	6.6	8.5	280
460401098012503 130-059-13CCC3		112OKES	18	75-12-05	0900	625	--	8.5	330
		112OKES	18	76-03-09	1650	615	7.2	7.5	330
		112OKES	18	76-05-26	1635	600	7.5	8.0	330
		112OKES	18	76-09-01	--	600	6.6	9.8	310
460448098041502 130-059-16AAA2		112OKES	18	75-12-05	1000	460	--	7.5	230
		112OKES	18	76-03-09	1750	450	7.0	7.0	220
		112OKES	18	76-05-25	1720	400	7.4	8.0	200
		112OKES	18	76-09-01	1340	500	6.6	8.5	230
460403098041503 130-059-16DD03		112OKES	18	75-12-05	0930	700	--	8.5	360
		112OKES	18	76-03-09	1730	740	7.1	7.5	400
		112OKES	18	76-05-25	1635	500	7.5	8.0	260
		112OKES	18	76-09-01	1335	750	6.6	9.5	350
460818098040202 131-059-278882		112OKES	23	75-12-02	0845	950	7.6	8.0	490
		112OKES	23	76-03-09	1330	1300	--	7.0	680
		112OKES	23	76-05-25	1400	1300	7.3	8.5	730
		112OKES	23	76-09-01	1520	1000	7.2	8.5	610
460732098032402 131-059-27DCC2		112OKES	18	75-12-04	1500	440	7.3	9.0	190
		112OKES	18	76-03-09	1445	460	6.8	8.0	220
		112OKES	18	76-05-25	1450	280	7.2	8.0	120
		112OKES	18	76-09-01	1430	311	6.9	8.5	150
460739098041102 131-059-28DDA2		112OKES	18	75-12-04	1430	560	7.7	8.0	260
		112OKES	18	76-03-09	1415	500	7.1	7.1	310
		112OKES	18	76-05-25	1430	550	7.5	8.5	250
		112OKES	18	76-09-01	1440	500	7.2	8.6	280
460706098041102 131-059-33ADD2		112OKES	23	75-10-28	1515	620	7.7	12.0	310
		112OKES	23	75-12-04	1615	625	7.6	9.0	310
		112OKES	23	75-12-30	1530	630	7.8	7.5	310
		112OKES	23	76-01-26	1700	610	--	4.0	330
		112OKES	23	76-03-09	1550	675	7.1	8.0	340
		112OKES	23	76-03-31	0945	750	7.1	3.0	330
		112OKES	23	76-05-05	1615	650	7.4	8.0	330
		112OKES	23	76-05-25	1530	625	7.3	8.0	330
		112OKES	23	76-06-29	0900	680	7.2	9.0	340
		112OKES	23	76-08-04	0800	690	7.4	9.5	360
		112OKES	23	76-09-01	1400	700	6.8	--	350
		112OKES	19	75-12-04	1530	450	7.5	9.5	210
460719098040202 131-059-3488C2		112OKES	19	76-03-09	1520	625	7.0	8.5	300
		112OKES	19	76-05-25	1030	660	7.5	9.0	310
		112OKES	19	76-09-01	1420	480	6.5	8.5	290

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	DATE OF SAMPLE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	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)
BOTTINEAU COUNTY												
483701101060401		75-12-18	59	78	41	23	12	.5	12	371	0	304
		76-04-09	0	48	29	13	10	.4	2.1	298	0	244
		76-06-03	23	58	31	13	9	.3	2.1	304	0	249
		76-09-02	5	58	28	15	11	.4	2.2	311	--	255
DICKEY COUNTY												
460630098014703		75-12-05	11	72	22	13	9	.3	11	316	--	259
		76-03-09	32	82	26	12	7	.3	11	341	0	280
		76-05-25	14	69	23	14	10	.4	9.6	308	0	253
		76-09-01	18	73	23	13	9	.3	9.9	316	0	259
460401098012503		75-12-05	17	90	26	8.2	5	.2	3.4	384	--	315
		76-03-09	32	88	26	8.7	5	.2	3.8	360	0	295
		76-05-26	31	89	27	7.2	4	.2	2.7	369	0	303
		76-09-01	22	82	25	7.0	5	.2	2.8	348	0	285
460448098041502		75-12-05	0	61	18	17	14	.5	3.8	309	0	253
		76-03-09	0	59	18	15	13	.4	3.5	290	0	238
		76-05-25	0	55	16	15	14	.5	3.1	283	0	232
		76-09-01	0	62	18	17	14	.5	3.5	300	0	246
460403098041503		75-12-05	28	85	37	11	6	.3	8.9	410	--	336
		76-03-09	51	91	42	10	5	.2	9.0	426	0	349
		76-05-25	16	58	29	8.6	6	.2	6.6	303	0	249
		76-09-01	50	83	35	11	6	.3	7.3	367	0	301
460818098040202		75-12-02	130	130	39	16	7	.3	6.1	434	0	356
		76-03-09	260	180	57	20	6	.3	6.9	516	0	423
		76-05-25	290	190	62	24	7	.4	6.3	540	0	443
		76-09-01	250	150	57	21	7	.4	5.5	444	0	364
460732098032402		75-12-04	14	51	16	1.7	2	.1	9.1	219	0	180
		76-03-09	37	61	17	1.8	2	.1	8.9	226	0	185
		76-05-25	4	35	8.0	1.4	2	.1	7.0	142	0	116
		76-09-01	18	46	9.7	1.5	2	.1	6.7	167	0	137
460739098041102		75-12-04	17	60	26	1.9	14	.5	3.9	293	0	240
		76-03-09	39	73	32	1.9	11	.5	3.8	335	0	275
		76-05-25	37	57	27	1.7	13	.5	3.1	264	0	217
		76-09-01	56	64	28	1.6	11	.4	3.5	267	0	219
460706098041102		75-10-28	6	68	33	2.5	15	.6	5.6	365	0	299
		75-12-04	10	73	31	2.2	13	.5	5.0	366	0	300
		75-12-30	5	76	29	2.1	13	.5	5.6	371	0	304
		76-01-26	9	84	28	2.1	12	.5	5.0	385	--	316
		76-03-09	28	95	27	1.9	11	.4	5.1	382	0	313
		76-03-31	14	87	28	2.0	11	.5	5.2	385	0	318
		76-05-05	15	88	27	2.1	12	.5	5.1	385	0	316
		76-05-25	18	87	28	2.1	12	.5	4.7	384	0	315
		76-06-29	23	91	27	2.1	12	.5	4.9	385	0	316
		76-08-04	48	100	27	2.1	11	.5	4.9	381	0	313
		76-09-01	39	97	26	2.1	11	.5	4.8	378	0	310
460719098040202		75-12-04	0	38	29	2.2	18	.7	4.7	312	0	256
		76-03-09	10	56	39	2.4	15	.6	5.8	354	0	290
		76-05-25	10	53	42	2.5	15	.6	5.0	360	0	295
		76-09-01	8	54	38	2.3	14	.6	5.3	345	0	283

QUALITY OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	DATE OF SAMPLE	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOL- VED)- PHOS- PHORUS (P) (MG/L)
BOTTINEAU COUNTY											
483701101060401		75-12-18	2.4	140	3.5	.2	21	503	.68	.10	.00
		76-04-09	7.6	31	.9	.3	11	290	.39	1.6	.01
		76-06-03	7.7	37	2.0	.3	11	321	.44	3.5	.01
		76-09-02	--	40	2.0	.3	9.4	310	.42	.23	.01
DICKEY COUNTY											
460630098014703		75-12-05	--	60	3.2	.2	29	367	.50	.04	.00
		76-03-09	.0	65	2.6	.2	27	395	.54	.03	.01
		76-05-25	12	55	3.1	.1	25	355	.48	.28	.07
		76-09-01	127	62	3.2	.2	27	373	.51	1.1	.01
460401098012503		75-12-05	--	24	2.6	.9	29	374	.51	.00	.01
		76-03-09	36	39	1.6	.4	28	375	.51	.04	.02
		76-05-26	19	54	2.5	.3	27	400	.54	.88	.08
		76-09-01	140	40	1.9	.5	27	362	.49	.64	.00
460448098041502		75-12-05	--	10	3.8	.3	28	295	.40	.24	.01
		76-03-05	46	11	3.0	.2	25	278	.38	.09	.03
		76-05-25	16	12	3.9	.1	24	270	.37	.06	.05
		76-09-01	121	13	3.4	.2	27	293	.40	.14	.03
460403098041503		75-12-05	--	47	14	.2	25	431	.59	.01	.01
		76-03-09	54	57	15	.1	23	454	.62	.06	.03
		76-05-25	15	40	4.6	.0	21	318	.43	.07	.04
		76-09-01	147	78	13	.1	24	436	.59	.20	.05
460818098040202		75-12-02	16	100	50	.3	28	584	.79	.02	.03
		76-03-09	--	180	85	.3	27	811	1.14	6.7	.06
		76-05-25	39	180	91	.2	25	872	1.19	6.1	.09
		76-09-01	45	140	81	.4	25	744	1.01	10	.06
460732098032402		75-12-04	18	32	1.8	.3	22	255	.35	.06	.14
		76-03-09	57	52	1.4	.1	23	288	.39	.21	.01
		76-05-25	14	28	1.2	.0	22	182	.25	.12	.02
		76-09-01	34	31	1.2	.1	22	209	.28	1.2	.00
460739098041102		75-12-04	9.4	21	5.2	.5	30	349	.47	8.6	.05
		76-03-09	43	31	3.2	.3	27	355	.57	16	.03
		76-05-25	12	27	3.0	.2	27	350	.48	13	.03
		76-09-01	27	28	2.0	.3	28	374	.51	16	.03
460706098041102		75-10-28	12	58	6.6	.3	23	400	.54	.03	.01
		75-12-04	15	52	5.3	.4	26	395	.54	.44	.00
		75-12-30	9.4	55	8.2	.3	25	403	.55	.08	.01
		76-01-26	--	66	5.3	.3	26	426	.58	.08	.00
		76-03-09	.0	61	4.6	.3	27	426	.58	.36	.02
		76-03-31	49	57	5.2	.3	29	424	.58	.13	.01
		76-05-05	25	56	5.6	.3	26	436	.59	.12	.02
		76-05-25	31	60	5.8	.2	26	423	.58	.25	.07
		76-06-29	39	70	5.4	.4	26	435	.59	.04	.05
		76-08-04	24	67	5.7	.3	27	442	.60	.15	.02
		76-09-01	96	69	5.7	.3	27	438	.59	.13	.01
460719098040202		75-12-04	16	5.5	1.6	.4	26	281	.38	.41	.03
		76-03-09	57	36	3.0	.3	24	363	.54	7.3	.03
		76-05-25	18	.2	3.6	--	23	411	.56	9.1	.06
		76-09-01	175	40	4.6	.3	24	377	.51	4.0	.04

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	DATE OF SAMPLE	DIS- SOLVED ORTHOPHOS- PHORUS (P) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)
BOTTINEAU COUNTY					
483701101060401		75-12-18	.01	50	400
		76-04-09	.00	10	700
		76-06-03	.01	10	740
		76-09-02	.02	40	690
DICKEY COUNTY					
460630098014703		75-12-05	.03	0	700
		76-03-09	.01	470	760
		76-05-25	.08	1700	660
		76-09-01	.01	30	940
460401098012503		75-12-05	.02	50	1100
		76-03-09	.02	210	1300
		76-05-26	.08	3400	1200
		76-09-01	.01	390	1200
460448098041502		75-12-05	.02	20	230
		76-03-09	.03	0	120
		76-05-25	.06	70	610
		76-09-01	.04	20	660
460403098041503		75-12-05	.01	10	800
		76-03-09	.02	0	310
		76-05-25	.04	30	1300
		76-09-01	.04	90	2200
460818098040202		75-12-02	.03	30	130
		76-03-09	.05	0	70
		76-05-25	.08	10	100
		76-09-01	.10	20	290
460732098032402		75-12-04	.03	8300	4200
		76-03-09	.01	6900	3900
		76-05-25	.05	4400	3900
		76-09-01	.00	380	2800
460739098041102		75-12-04	.02	20	640
		76-03-09	.02	30	230
		76-05-25	.06	60	770
		76-09-01	.02	170	1100
460706098041102		75-10-28	.01	20	170
		75-12-04	.03	160	140
		75-12-30	.02	0	60
		76-01-26	.01	0	150
		76-03-09	.02	0	50
		76-03-31	.01	0	20
		76-05-05	.02	20	20
		76-05-25	.07	20	10
		76-06-29	.05	30	280
		76-08-04	.03	130	290
		76-09-01	.01	30	270
460719098040202		75-12-04	.02	180	140
		76-03-09	.02	0	150
		76-05-25	.06	10	130
		76-09-01	.05	30	300

QUALITY OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	LOCAL IDENT- IFIER	GEO- LOGIC UNIT	TOTAL DEPTH OF WELL (FT)	DATE OF SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG (MG/L)
MC HENRY COUNTY										
482028100475601	156-079-14888		112TILL	12	75-12-22	1445	730	7.6	5.5	390
			112TILL	12	76-03-16	0830	850	7.6	3.0	440
			112TILL	12	76-04-09	1500	400	7.5	5.0	250
			112TILL	12	76-06-03	1750	900	--	8.5	440
			112TILL	12	76-09-02	1700	825	--	--	450
482028100503201	156-079-16888		112TILL	19	75-12-22	1405	830	7.6	5.0	440
			112TILL	19	76-06-03	1730	800	6.8	--	380
			112TILL	19	76-09-02	1645	837	6.6	8.5	410
482405100474601	157-078-19CCC		112TILL	20	75-12-22	1520	920	7.9	5.5	500
			112TILL	20	76-03-16	0915	1150	7.6	2.0	660
			112TILL	20	76-06-03	1700	1400	7.1	8.0	680
			112TILL	20	76-09-02	1610	1150	--	--	630
482357100502302	157-079-268882		112TILL	12	75-12-22	1555	700	7.8	6.0	370
			112TILL	12	76-01-14	1645	650	7.7	4.5	360
			112TILL	12	76-02-13	1405	670	7.5	4.0	350
			112TILL	12	76-03-16	0945	680	7.5	4.5	360
			112TILL	12	76-04-09	1425	650	7.5	5.0	320
			112TILL	12	76-04-30	1120	495	7.7	4.5	260
			112TILL	12	76-06-03	1550	520	6.8	8.0	260
			112TILL	12	76-07-13	1430	715	7.5	11.0	380
			112TILL	12	76-08-06	1215	775	7.7	12.0	440
			112TILL	12	76-09-02	1600	800	--	--	400
483240100503201	158-079-03AAA		112TILL	12	75-12-22	1745	8400	7.5	5.5	5900
			112TILL	12	76-03-16	1130	8380	7.3	4.5	5600
			112TILL	12	76-06-03	1350	9200	6.7	8.0	6400
			112TILL	12	76-09-02	1500	8130	--	--	6000
483003100503201	158-079-22AAA		112TILL	20	75-12-22	1635	510	8.4	6.0	280
			112TILL	20	76-03-16	1030	817	7.5	4.0	440
			112TILL	20	76-06-03	1410	494	7.3	8.0	240
			112TILL	20	76-09-02	1530	500	--	--	220
483003100480401	158-079-24AAB		112TILL	16	75-12-22	1710	410	8.4	6.0	220
			112TILL	16	76-03-16	1100	500	8.1	4.0	280
			112TILL	16	76-06-03	1320	500	7.3	8.0	270
			112TILL	16	76-09-02	1535	468	--	--	240
482825100565502	158-080-25CCC2		112TILL	12	75-12-19	1010	1050	7.7	5.0	410
			112TILL	12	76-03-16	1315	1400	7.5	4.5	170
			112TILL	12	76-06-03	1420	1500	7.2	8.0	630
			112TILL	12	76-09-02	1430	2000	--	--	750
482825101100202	158-080-290DD2		112TILL	12	75-12-19	0925	460	7.3	5.0	220
			112TILL	12	76-03-16	1345	740	7.2	4.5	360
			112TILL	12	76-06-03	1350	700	6.7	8.0	290
			112TILL	12	76-09-02	1445	900	--	--	340
483418100475501	159-079-25AAD		112TILL	12	75-12-23	1545	2050	7.6	5.5	900
			112TILL	12	76-03-16	1200	1850	7.4	4.5	850
			112TILL	12	76-04-09	1215	1500	7.4	5.0	730
			112TILL	12	76-06-03	1450	1810	7.0	8.0	940
			112TILL	12	76-09-02	1500	1700	--	--	730
483247100593201	159-080-34CCC		112TILL	12	75-12-18	1700	2200	7.5	5.5	1500
			112TILL	12	76-03-16	1245	2340	7.1	5.5	1500
			112TILL	12	76-06-03	1300	2340	6.8	8.0	2200
			112TILL	12	76-09-02	1330	2500	--	--	1600

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	DATE OF SAMPLE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CAC03 (MG/L)
MC HENRY COUNTY												
482028100475601		75-12-22	0	62	58	22	11	.5	7.0	491	0	403
		76-03-16	60	100	47	29	12	.6	5.1	467	0	383
		76-04-09	0	28	44	7.5	6	.2	7.7	262	23	253
		76-06-03	48	100	47	28	12	.6	4.8	482	0	395
		76-09-02	47	110	43	36	15	.7	5.3	493	--	404
482028100503201		75-12-22	70	97	47	30	13	.6	5.8	446	0	366
		76-06-03	0	74	48	33	16	.7	6.4	478	0	392
		76-09-02	24	100	39	25	12	.5	4.6	471	--	386
482405100474601		75-12-22	140	110	55	29	11	.6	5.0	439	0	360
		76-03-16	240	160	64	30	9	.5	4.6	515	0	422
		76-06-03	250	160	69	38	11	.6	4.7	524	0	430
		76-09-02	230	140	68	37	11	.6	4.9	485	--	398
482357100502302		75-12-22	120	84	39	7.8	4	.2	2.2	301	0	247
		76-01-14	120	84	36	7.8	5	.2	2.3	288	0	236
		76-02-13	120	80	37	6.9	4	.2	2.3	287	0	235
		76-03-16	123	87	35	8.0	5	.2	2.3	292	0	240
		76-04-09	77	74	33	7.2	5	.2	1.9	297	0	244
		76-04-30	50	57	29	7.1	6	.2	2.1	258	0	212
		76-06-03	55	56	28	7.6	6	.2	1.9	244	0	200
		76-07-13	130	90	38	10	5	.2	2.4	303	0	249
		76-08-06	180	110	40	9.9	5	.2	2.5	316	0	259
483240100503201		76-09-02	160	100	36	8.7	5	.2	2.5	285	--	234
		75-12-22	5400	400	1200	570	17	3.2	10	711	0	583
		76-03-16	5000	410	1100	540	17	3.2	11	672	0	551
		76-06-03	5700	400	1300	640	18	3.5	9.4	787	0	646
		76-09-02	5500	440	1200	570	17	3.2	13	680	--	558
483003100503201		75-12-22	18	69	27	10	7	.3	3.1	316	4	266
		76-03-16	110	97	47	12	6	.3	2.8	395	0	324
		76-06-03	19	48	30	12	10	.3	2.9	274	0	225
		76-09-02	24	42	27	13	11	.4	3.0	234	--	192
483003100480401		75-12-22	0	53	22	6.7	6	.2	2.4	259	10	229
		76-03-16	19	75	23	6.8	5	.2	2.5	321	0	263
		76-06-03	22	71	22	6.7	5	.2	2.1	300	0	246
		76-09-02	2	62	21	6.9	6	.2	2.3	292	--	240
482825100565502		75-12-19	74	63	61	99	34	2.1	3.9	408	0	335
		76-03-16	540	85	79	130	34	2.4	3.5	453	0	372
		76-06-03	240	100	92	140	32	2.4	3.9	479	0	393
		76-09-02	330	120	110	180	34	2.9	3.7	521	--	427
482825101100202		75-12-19	0	39	29	13	11	.4	2.1	278	--	228
		76-03-16	71	76	42	23	12	.5	12	356	0	292
		76-06-03	22	66	31	12	8	.3	11	330	0	271
		76-09-02	52	80	35	29	15	.7	13	356	--	292
483418100475501		75-12-23	260	97	160	180	30	2.6	7.3	785	0	644
		76-03-16	210	92	150	150	28	2.2	5.8	783	0	642
		76-04-09	240	61	140	180	35	2.9	8.3	592	0	486
		76-06-03	460	130	150	170	28	2.4	6.8	588	0	482
		76-09-02	69	77	130	150	31	2.4	6.4	803	--	659
483247100593201		75-12-18	1100	360	140	32	4	.4	10	415	0	340
		76-03-16	1200	380	140	25	3	.3	9.0	406	0	333
		76-06-03	1800	340	330	61	6	.6	7.5	507	0	416
		76-09-02	1300	370	170	32	4	.3	9.5	411	--	337

QUALITY OF GROUND WATER

597

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	DATE OF SAMPLE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SILICIC ACID (SIO2) (MG/L)	DIS-SOLVED SILICIC ACID (SIO2) (MG/L)	DIS-SOLVED SILICIC ACID (SIO2) (MG/L)	DIS-SOLVED SILICIC ACID (SIO2) (MG/L)	DIS-SOLVED SILICIC ACID (SIO2) (MG/L)
MC HENRY COUNTY											
482028100475601	75-12-22	20	50	1.1	.1	15	458	.62	.10	.00	
	76-03-16	19	120	8.7	.3	16	557	.76	.02	.01	
	76-04-09	16	19	1.6	.1	7.8	269	.37	.21	.01	
	76-06-03	--	120	9.1	.2	17	566	.77	.09	.08	
	76-09-02	--	130	1.5	.2	20	590	.80	.14	.01	
482028100503201	75-12-22	18	130	9.5	.2	18	559	.76	.06	.00	
	76-06-03	108	83	2.3	.1	15	498	.68	.11	.04	
	76-09-02	189	89	7.5	.3	16	515	.70	.11	.00	
482405100474601	75-12-22	8.8	200	8.0	.2	12	637	.87	.12	.00	
	76-03-16	21	260	17	.3	15	807	1.10	.06	.01	
	76-06-03	59	320	29	.2	13	895	1.22	.15	.01	
	76-09-02	--	250	30	.1	12	784	1.07	.45	.00	
482357100502302	75-12-22	7.6	88	1.7	.3	15	462	.63	17	.00	
	76-01-14	9.2	88	1.6	.4	14	451	.61	17	.00	
	76-02-13	15	82	1.4	.3	13	435	.59	16	.00	
	76-03-16	15	95	1.4	.4	14	454	.62	15	.49	
	76-04-09	15	69	.9	.3	14	368	.50	4.7	--	
	76-04-30	8.2	59	1.1	.3	14	315	.43	4.0	.00	
	76-06-03	55	63	1.1	.4	15	313	.43	4.4	.07	
	76-07-13	15	100	1.5	.4	18	472	.64	14	.01	
	76-08-06	10	110	2.1	.4	18	533	.72	19	.00	
	76-09-02	--	100	1.9	.3	19	502	.68	21	.00	
483240100503201	75-12-22	36	6100	39	.2	24	8770	11.9	18	.01	
	76-03-16	54	6000	35	.3	23	8540	11.6	19	.02	
	76-06-03	224	6900	27	.2	21	9810	13.3	28	.08	
	76-09-02	--	6500	34	.2	24	9240	12.6	28	.02	
483003100503201	75-12-22	2.1	46	1.6	.2	8.8	325	.44	.02	.00	
	76-03-16	20	110	13	.4	18	495	.67	.09	.01	
	76-06-03	22	38	1.9	.2	11	283	.38	.73	.05	
	76-09-02	--	59	3.2	.2	15	279	.38	.11	.00	
483003100480401	75-12-22	1.8	23	1.4	.1	13	259	.35	.00	.00	
	76-03-16	3.6	43	1.3	.3	18	329	.45	.07	.01	
	76-06-03	24	31	1.6	.2	15	298	.41	.07	.00	
	76-09-02	--	24	1.8	.2	14	277	.38	.10	.00	
482825100565502	75-12-19	13	300	6.0	.4	15	755	1.03	3.6	.00	
	76-03-16	23	400	6.5	.5	16	969	1.32	5.8	.01	
	76-06-03	48	490	8.7	.4	18	1120	1.52	6.2	.12	
	76-09-02	--	680	11	.3	23	1440	1.96	12	.01	
482825101100202	75-12-19	22	30	1.1	.3	8.7	261	.36	.02	.00	
	76-03-16	36	120	3.1	.2	21	474	.64	.07	.01	
	76-06-03	105	60	3.7	.2	20	375	.51	.15	.02	
	76-09-02	--	120	4.3	.1	23	482	.66	.13	.06	
483418100475501	75-12-23	32	630	12	.9	19	1490	2.03	.23	.00	
	76-03-16	50	520	8.8	1.1	19	1330	1.81	.15	.02	
	76-04-09	38	490	17	.6	13	1200	1.63	.25	.00	
	76-06-03	94	470	15	.8	20	1250	2.23	.20	.10	
	76-09-02	--	380	11	1.0	21	1180	1.60	.59	.01	
483247100593201	75-12-18	21	1200	8.3	.2	26	1980	2.69	.20	.00	
	76-03-16	52	1200	4.6	.3	25	1980	2.69	.08	.01	
	76-06-03	129	1800	9.2	.2	22	2820	3.84	.14	.13	
	76-09-02	--	1300	6.2	.2	27	2120	2.88	.96	.01	

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION	NUMBER	DATE (OF SAMPLE	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
MC HENRY COUNTY					
482028100475601		75-12-22	.01	10	20
		76-03-16	.00	300	680
		76-04-09	.00	10	0
		76-06-03	.10	960	740
		76-09-02	.04	40	800
482028100503201		75-12-22	.00	450	600
		76-06-03	.06	10	250
		76-09-02	.04	120	580
482405100474601		75-12-22	.01	100	700
		76-03-16	.00	170	1500
		76-06-03	.04	430	1600
		76-09-02	.02	70	1200
482357100502302		75-12-22	.00	10	10
		76-01-14	.01	0	0
		76-02-13	.01	20	0
		76-03-16	.16	0	10
		76-04-09	.00	0	0
		76-04-30	.00	10	0
		76-06-03	.07	40	0
		76-07-13	.01	20	0
		76-08-06	.02	10	10
		76-09-02	.03	10	10
483240100503201		75-12-22	.04	30	10
		76-03-16	.04	30	60
		76-06-03	.06	80	10
		76-09-02	.05	70	40
483003100503201		75-12-22	.01	10	200
		76-03-16	.00	10	110
		76-06-03	.04	20	120
		76-09-02	.03	30	260
483003100480401		75-12-22	.01	10	70
		76-03-16	.00	0	200
		76-06-03	.01	40	200
		76-09-02	.01	20	160
482825100565502		75-12-19	.00	10	0
		76-03-16	.02	10	10
		76-06-03	.12	10	50
		76-09-02	.03	170	20
482825101100202		75-12-19	.01	0	550
		76-03-16	.03	340	420
		76-06-03	.03	5500	1800
		76-09-02	.03	1100	800
483418100475501		75-12-23	.01	10	0
		76-03-16	.02	10	20
		76-04-09	.00	0	10
		76-06-03	.06	20	70
		76-09-02	.04	20	10
483247100593201		75-12-18	.02	10	40
		76-03-16	.02	10	10
		76-06-03	.14	40	10
		76-09-02	.04	20	100

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FACTORS FOR CONVERTING ENGLISH UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

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)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^{-3}	square meters (m ²)
	4.047×10^{-1}	*hectares (ha)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	**liters (l)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons (10 ⁶ gal)	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days [(ft ³ /s) · d]	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (l/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (l/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day (mgal/d)	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	tonnes (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.

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