WATER RESOURCES DATA COLLECTED DURING WATER YEAR 1988 AT SELECTED JAMES RIVER BASIN SITES IN NORTH DAKOTA AND SOUTH DAKOTA

By Steven K. Sando, Kevin G. Guttormson, and Thomas A. Gleich

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CONVERSION FACTORS

For readers who may prefer to use metric (International System) units rather than inch-pound units, the conversion factors for the terms in this report are listed below:

Multiply inch-pound unit	By	To obtain metric unit
acre	4,047	square meter
acre-foot (acre-ft)	1,233	cubic meter
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year
cubic foot per second (ft^3/s)	0.028317	cubic meter per second
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square foot (ft^2)	0.09294	square meter
square mile (mi^2)	2.590	square kilometer
ton	0.9072	megagram

Temperature can be converted to degrees Fahrenheit (°F) or degrees Celsius (°C) by the following equations:

$$°F = 9/5\ (°C) + 32$$

$$°C = 5/9\ (°F-32)$$

Nephelometric turbidity units (NTU) are equivalent to formazin turbidity units (FTU).

Tons per acre-foot is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

WATER RESOURCES DATA COLLECTED DURING WATER YEAR 1988 AT SELECTED JAMES RIVER BASIN SITES IN NORTH DAKOTA AND SOUTH DAKOTA

By Steven K. Sando, Kevin G. Guttormson, and Thomas A. Gleich

ABSTRACT

Operation of the proposed Garrison Diversion Unit will supply water from the Missouri River in North Dakota to the upstream part of the James River basin. The U.S. Bureau of Reclamation initiated a monitoring program in 1984 to aid in determining whether the potential impacts resulting from Garrison Diversion Unit operation will be compatible with the operational objectives of the three national wildlife refuges located on the James River in North Dakota and South Dakota. This report presents water resources data collected by the U.S. Geological Survey during water year 1988 in the James River basin as part of the Garrison Diversion Unit monitoring program. Water discharge records for 12 stations, reservoir elevation and contents records for one station, stream gage-height records for three stations, and water-quality records for 23 stations are presented.

INTRODUCTION

Operation of the proposed Garrison Diversion Unit (GDU) will supply water from the Missouri River in North Dakota to the upstream part of the James River basin. This water will be used along the entire length of the James River in North Dakota and South Dakota (fig. 1) for municipal, industrial, irrigation, recreational, and fish and wildlife purposes. In accord with the National Wildlife Refuge Administration Act of 1966, it must be determined if the potential impacts resulting from GDU operation will be compatible with the operational objectives of the three national wildlife refuges located on the James River in North Dakota and South Dakota. As a result, the U.S. Bureau of Reclamation initiated a monitoring program in 1984 with the following objectives: (1) To collect baseline information on selected wildlife areas that may be affected by the GDU project; (2) to determine relationships within these selected wetland ecosystems that may change due to GDU; (3) to provide specific data that can be used in the compatibility analysis process; and (4) to monitor changes that occur once GDU is operational (U.S. Bureau of Reclamation, 1989).

This report presents water resources data collected by the U.S. Geological Survey during water year 1988 in the James River basin as part of the GDU monitoring program.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Water-discharge records from eight stations in North Dakota and four stations in South Dakota, reservoir elevation and contents records from one station in North Dakota, and stream gage-height records from two stations in North Dakota and one station in South Dakota (figs. 2 and 3) appear in this report.

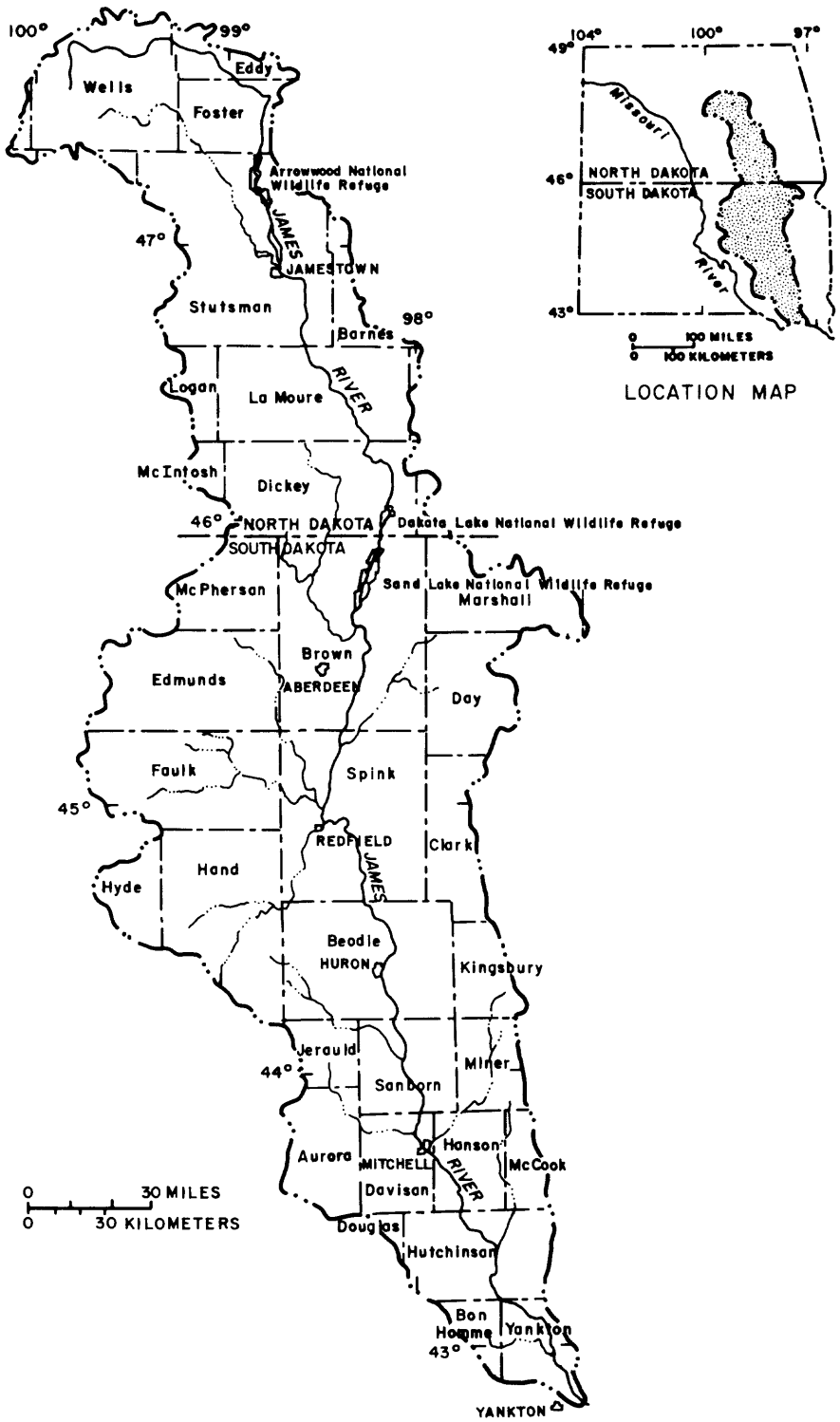

Figure 1.--James River basin.

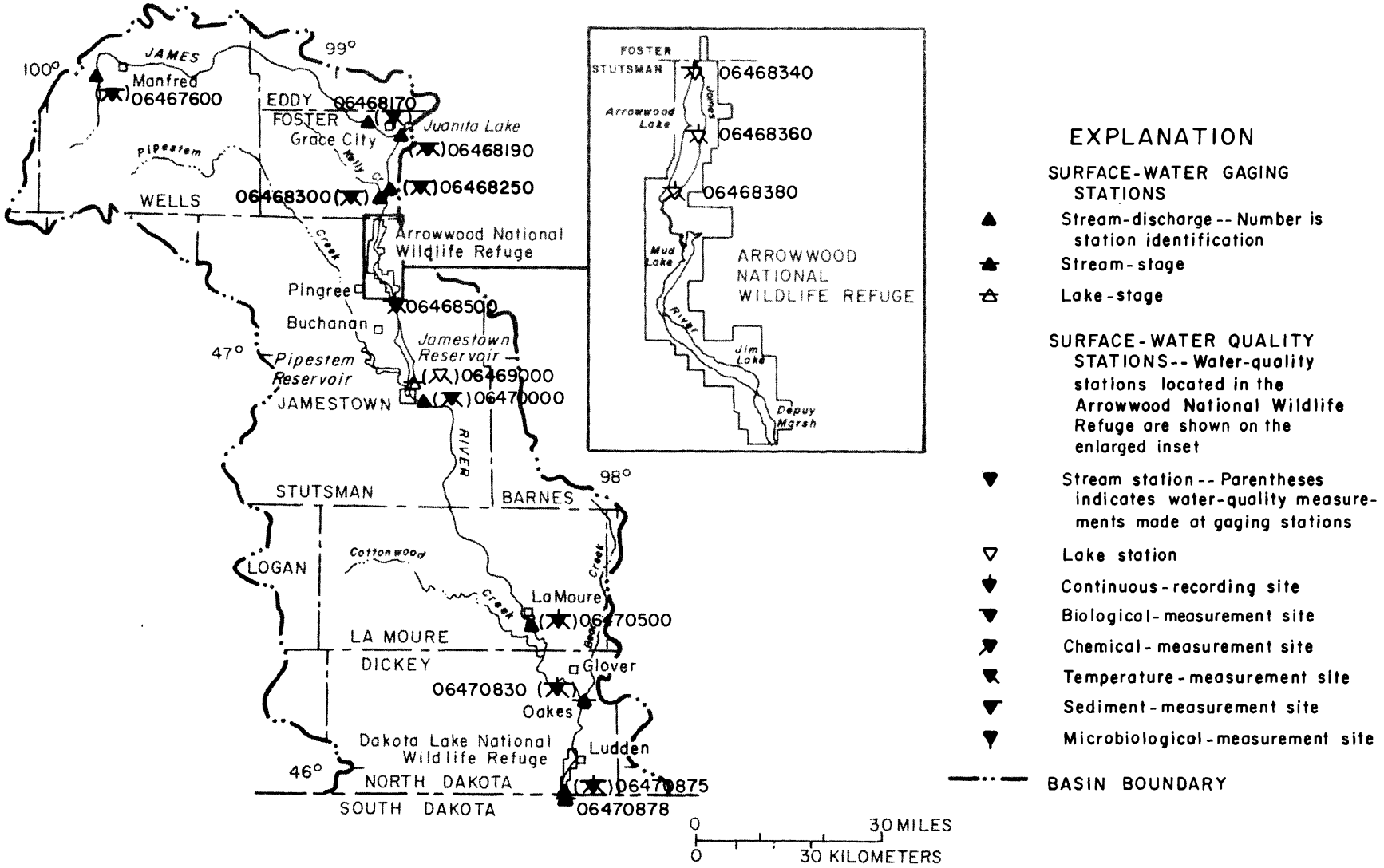

Figure 2.--Location of U.S. Geological Survey gaging stations and water-quality stations in North Dakota used in the Garrison Diversion Unit monitoring program.

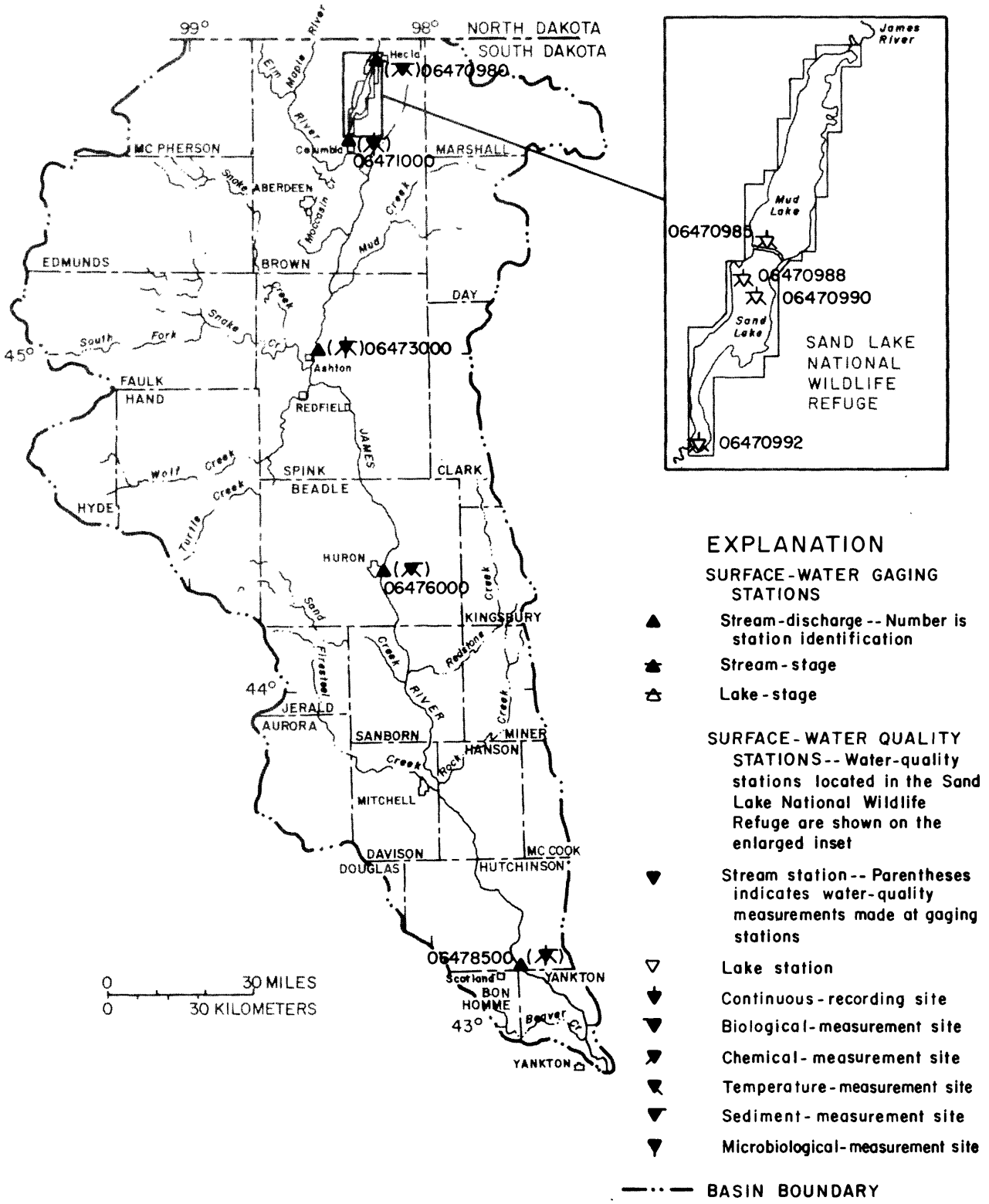

Figure 3.--Location of U.S. Geological Survey gaging stations and water-quality stations in South Dakota used in the Garrison Diversion Unit monitoring program.

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

Data Collection and Computation

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

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, by Rantz and others (1982), and by Carter and Davidian (1968).

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

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

Curves or tables derived from surveys which define the relation of stage and content are used to compute records of lake or reservoir contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. The computed contents may increase in error as time increases since the last survey.

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. Missing gage-height record occurs when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next section (Remarks paragraph).

Data Presentation

The records published for each gaging station (tables 3, 5, 7, 9, 11, 17, 19, 21, 23, 25, 27, 28, 34, 36, 38, and 40 in the Data Tables section at the end of the report) consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

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

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

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

that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Extremes given in this section are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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

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

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

Accuracy of the Records

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

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

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

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

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

EXPLANATION OF WATER-QUALITY RECORDS

Some records of water-quality in this report were obtained through continuous recordings, a series of discrete values recorded at hourly intervals on an electronic data-logging device. However, because of costs and analytical considerations, other water-quality records were obtained by periodic sampling, generally monthly or less frequently.

Continuous Recording Records

North Dakota Stations

Continuous recordings of several water-quality and meteorological parameters were obtained at six locations in North Dakota. Three of the continuous monitoring stations were located on Arrowwood Lake and three monitoring stations were at James River gaging stations (fig. 2). The parameters that were measured at each site are presented in table 1.

The instantaneous values that were recorded at hourly intervals were used to compute a daily record of maximum, minimum, and mean values for the parameters specific conductance, air temperature, water temperature, and dissolved oxygen. The daily record for pH consists of maximum and minimum values only. The daily record for wind speed and direction consists of maximum and mean wind speed, and wind direction at the time of maximum wind speed.

Records for light penetration and solar radiation also were collected at the stations on Arrowwood Lake. Because of problems with the calibration of the instruments collecting the data and verification of the data, the accuracy of these data is unknown and these records are not included in this report. These data are available in files at the District office.

South Dakota Stations

Continuous recordings of water-quality and meteorological parameters were made at four stations on Sand Lake National Wildlife Refuge and three stations on the main stem of the James River (fig. 3). The parameters measured at each station are presented in table 2.

Instantaneous values were recorded at hourly intervals for all parameters except wind speed and incident light intensity above the water surface. For wind speed, the total distance summed over an hour was recorded. For incident light intensity, instantaneous values were measured at 15-minute intervals during the hours of 0800 to 2100. For each hour, the maximum, minimum, and mean of the four 15-minute values of the previous hour were recorded.

Continuous monitor records consist of daily maximum, minimum, and mean values for each parameter measured except wind speed and direction, turbidity, and incident light intensity. Records for wind speed and direction consist of daily maximum and mean wind speed, and wind direction at the time of the daily maximum wind speed. The only daily statistic reported for turbidity is the mean because individual readings sometimes had large fluctuations, probably because of the influence of large suspended particulates on the operation of the turbidity sensor. For incident light intensity, the daily recording period (0800 to 2100 hours) remained constant throughout the year and therefore the proportion of the daily recording period relative to the total daylight period varied seasonally with the length of the daylight period. For this reason, the daily minimum and daily mean values of the recorded incident light intensity may have little value when compared for

Table 1.--Parameters measured at U.S. Geological Survey continuous recording water-quality stations in North Dakota used in the Garrison Diversion Unit monitoring program

[US/CM, microsiemens per centimeter at 25 °Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; MPH, miles per hour; DEG, degrees clockwise from true north]

WATER-QUALITY STATION NUMBER	PARAMETER							
	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	RELATIVE HUMIDITY (PERCENT)	WIND SPEED (MPH)	WIND DIRECTION (DEG)
06468340	X	X	X	X	X	X	X	X
06468360	X	X	X	X	X	X	X	X
06468380	X	X	X	X	X	X	X	X
06470500	X			X				
06470830	X			X				
06470875	X	X		X	X			

Table 2.--Parameters measured at U.S. Geological Survey continuous recording water-quality stations in South Dakota used in the Garrison Diversion Unit monitoring program

[US/CM, microsiemens per centimeter at 25 °Celsius; DEG C, degrees Celsius; NTU, Nephelometric turbidity units; MG/L, milligrams per liter; UE/M2/SC, microeinsteins per square meter per second; MPH, miles per hour; DEG, degrees clockwise from true north]

WATER-QUALITY STATION NUMBER	PARAMETER								
	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	LIGHT, INCIDENT INTENSITY (UE/M2/SC)	WIND SPEED (MPH)	WIND DIRECTION (DEG)
06470985	X	X		X		X			
06470988			X	X	X	X	X	X	X
06470990	X	X	X	X	X	X	X	X	X
06470992	X	X		X		X			
06471000	X	X		X		X			
06473000	X	X		X		X			
06478500	X			X					

different periods of the year. In order to provide the most useful data possible, records of incident light intensity consist of the recorded hourly maximum, minimum, and mean values.

Accuracy of the Records

The accuracy of water-quality continuous records depends primarily on the integrity of the sensors during periods between site visits by U.S. Geological Survey personnel. In eutrophic lake systems like Arrowwood, Sand, and Mud Lakes, fouling of immersed sensors can occur due to: (1) Particulate matter adhesion and accumulation; (2) algal growth; and (3) invertebrate, fish, and semi-aquatic mammal activity.

During site visits, field measurements of all continuous monitor water-quality parameters except turbidity, incident light intensity and wind speed were made and compared to continuous monitor readings to determine the acceptability of the data recorded since the previous visit. When differences occurred, the data were examined to determine whether the discrepancies were due to discrete events or gradual drift affecting the accuracy of the sensors. When data inaccuracies were due to a discrete event, data recorded prior to the event were accepted without adjustment and data recorded during the time between the event and the site visit were adjusted according to the guidelines outlined below. When data inaccuracies were due to gradual drift, the difference between the field measurement and the continuous monitor reading was prorated back to the time of the last site visit and the following adjustment guidelines were applied to the data:

SPECIFIC CONDUCTANCE.--When field measurements differed from monitor readings by 5 percent or less, the data were accepted without adjustment. For differences between 5 to 15 percent, the data were adjusted using proportional shifting. When differences exceeded 15 percent, the data were discarded.

pH.--When field measurements differed from monitor readings by 10 percent or less for North Dakota stations and 0.5 units or less for South Dakota stations, the data were accepted without adjustment. For differences exceeding these criteria, the data were discarded.

TEMPERATURE.--When field measurements greater than or equal to 5.0 °C differed from monitor readings by 10 percent or less, the data were accepted without adjustment. When field measurements less than 5.0 °C differed from monitor readings by 0.5 °C or less, the data were accepted without adjustment. When differences between field measurements and monitor readings exceeded these criteria, the data were discarded.

DISSOLVED OXYGEN.--When field measurements differed from monitor readings by 10 percent or less for North Dakota stations and by 1.0 mg/L or less for South Dakota stations, the data were accepted without adjustment. For differences exceeding these criteria, the data were discarded.

WIND DIRECTION.--When field measurements differed from monitor readings by 20 degrees or less the data were accepted without adjustment. For differences exceeding 20 degrees, the data were discarded.

Turbidity sensors were calibrated periodically throughout the year and the data were accepted without adjustment except when negative readings occurred and then the data were discarded. Relative humidity sensors were calibrated once and all data were accepted without adjustment. Incident light intensity and wind speed sensors were calibrated prior to installation and the data were accepted without adjustment.

Other Records Available

Incident light intensity was also recorded at two different depths below the water surface. Since algal growth occurred frequently on the subsurface light intensity sensors and the sensors were not recalibrated throughout the water year, the accuracy of these data is unknown and the records are not included in this report. These data and more detailed records (hourly values) of the parameters included in this report may be obtained from the U.S. Geological Survey District offices whose addresses are included on the back of the title page of this report.

Sampling Records

In North Dakota, periodic water-quality sampling for the Garrison Diversion Unit monitoring program was done at three open-water sites and 10 stream sites (fig. 2). In South Dakota, periodic water-quality sampling was done at two open-water sites and six stream sites (fig. 3). The frequency of sampling and the water-quality constituents and characteristics analyzed varied between stations.

Onsite Measurements and Sample Collection

In obtaining water-quality data, a major objective is to assure that the data obtained represent the in-situ quality of the water. To assure this, certain measurements such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in-situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given by Wood (1976), Guy and Norman (1970), Skougstad and others (1979), Goerlitz and Brown (1972), and Greeson and others (1977). Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey District office.

Chemical-quality data published in this report are considered to be representative values for the stations listed. The values reported represent water-quality conditions at the time of sampling consistent with available sampling techniques and methods of analysis.

Laboratory Measurements

Samples for indicator bacteria and biochemical oxygen demand were analyzed locally. All other samples were analyzed in the U.S. Geological Survey laboratories in Arvada, Colo., or Iowa City, Ia. Methods used in analyzing sediment samples and computing sediment records are given by Guy (1969). Methods used by the Geological Survey laboratories are given by Wood (1976), Guy and Norman (1970), Skougstad and others (1979), Goerlitz and Brown (1972), and Greeson and others (1977).

Data Presentation

The water-quality tables in this report include a description of the station and tabulations of monthly, daily, and hourly values (tables 4, 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 29, 30, 31, 32, 33, 35, 37, 39, and 41 in the Data Tables section at the end of this report). Information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available,

instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, air temperature, water temperature, turbidity, dissolved oxygen, and wind speed and direction, and tables of "hourly values" of incident light intensity then follow in sequence. Blanks and dashes in water-quality tables both indicate no data.

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

LOCATION.--See Data Presentation under EXPLANATION OF STAGE AND WATER DISCHARGE RECORDS; same comments apply.

DRAINAGE AREA.--See Data Presentation under EXPLANATION OF STAGE AND WATER DISCHARGE RECORDS; same comments apply.

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

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

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

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

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

Remark Codes

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

Printed output	Remark
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

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DATA TABLES

(Blanks and dashes in water-quality tables both indicate no data.)

NORTH DAKOTA STATIONS

Table 3.--Water-discharge records for James River near Manfred, ND (06467600)

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, and 5 mi southwest of Manfred.

DRAINAGE AREA.--253 mi^2, of which about 197 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1954 to August 1957 (annual maximum only), September 1957 to current year (seasonal records only from 1982 to 1985).

GAGE.--Water-stage recorder. Datum of gage is 1,605.73 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 16, 1957, crest-stage gage only on downstream side of bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Apr. 6. Records fair except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--28 years (water years 1958-82, 1986 to current year), 4.20 ft^3/s, 3,040 acre-ft/yr; median of yearly mean discharges, 3.7 ft^3/s, 2,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 2,000 ft^3/s, Apr. 18 or 19, 1979, gage height, 9.2 ft, from highwater mark, backwater from snow; no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Peaks greater than a base of 30 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 26	1700	a*80	ab*3.70				

No flow for several months.
a - observed
b - ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.39	.39	.00	.00	3.5	9.2	.90	.30	.00	.00	.00
2	.14	.40	.37	.00	.00	2.7	10	1.2	.27	.00	.00	.00
3	.15	.48	.36	.00	.00	2.2	8.9	1.5	.22	.00	.00	.00
4	.16	.60	.35	.00	.00	2.1	7.6	1.4	.18	.00	.00	.00
5	.16	.58	.35	.00	.00	2.4	6.5	1.3	.17	.00	.00	.00
6	.16	.56	.35	.00	.00	2.3	5.2	1.3	.12	.00	.00	.00
7	.16	.54	.34	.00	.00	1.9	3.4	1.2	.07	.00	.00	.00
8	.17	.54	.33	.00	.00	1.7	3.3	.90	.0	.00	.00	.00
9	.17	.54	.32	.00	.00	1.8	3.2	.61	.00	.00	.00	.00
10	.17	.56	.30	.00	.00	1.2	2.6	.46	.00	.00	.00	.00
11	.18	.54	.28	.00	.00	.10	2.2	1.2	.00	.00	.00	.00
12	.19	.52	.22	.00	.00	.05	1.2	1.9	.00	.00	.00	.00
13	.20	.54	.20	.00	.00	.04	1.4	1.8	.00	.00	.00	.00
14	.21	.70	.18	.00	.00	.03	1.9	1.5	.00	.00	.00	.00
15	.22	.66	.17	.00	.00	.02	1.5	1.0	.00	.00	.00	.00
16	.23	.64	.16	.00	.00	.02	1.3	.53	.00	.00	.00	.00
17	.22	.62	.15	.00	.00	.02	1.1	.46	.00	.00	.00	.00
18	.24	.60	.14	.00	.00	.03	1.1	.69	.00	.00	.00	.00
19	.26	.57	.13	.00	.00	.05	1.1	.61	.00	.00	.00	.00
20	.26	.56	.12	.00	.00	.06	1.0	.37	.00	.00	.00	.00
21	.25	.56	.11	.00	.00	.50	1.3	.32	.00	.00	.00	.00
22	.27	.54	.10	.00	.00	1.0	3.2	.30	.00	.00	.00	.00
23	.28	.52	.09	.00	.00	2.0	1.2	.32	.00	.00	.00	.00
24	.30	.50	.08	.00	.01	10	.46	.34	.00	.00	.00	.00
25	.30	.49	.07	.00	.10	20	.53	.23	.00	.00	.00	.00
26	.32	.48	.06	.00	.50	40	1.1	.29	.00	.00	.00	.00
27	.33	.44	.06	.00	2.5	60	1.1	.56	.00	.00	.00	.00
28	.33	.43	.05	.00	4.0	45	.79	.60	.00	.00	.00	.00
29	.35	.42	.04	.00	3.7	38	1.9	.46	.00	.00	.00	.00
30	.36	.40	.03	.00	---	28	.87	.34	.00	.00	.00	.00
31	.37	---	.02	.00	---	15	---	.32	---	.00	.00	---
TOTAL	7.25	15.92	5.92	0.00	10.81	281.72	86.15	24.91	1.33	0.00	0.00	0.00
MEAN	.23	.53	.19	.00	.37	9.09	2.87	.80	.044	.00	.00	.00
MAX	.37	.70	.39	.00	4.0	60	10	1.9	.30	.00	.00	.00
MIN	.14	.39	.02	.00	.00	.02	.46	.23	.00	.00	.00	.00
AC-FT	14	32	12	.0	21	559	171	49	2.6	.0	.0	.0

CAL YR 1987 TOTAL 5008.49 MEAN 13.7 MAX 250 MIN .00 AC-FT 9930
WTR YR 1988 TOTAL 434.01 MEAN 1.19 MAX 60 MIN .00 AC-FT 861

Table 4.--Water-quality records for James River near Manfred, ND (06467600)

PERIOD OF RECORD.--Water years 1959-60, 1962-64, 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
NOV											
19...	0900	0.57	1140	8.22	0.0	0.5	3.5	13.0	89	--	310
MAR											
28...	1100	48	640	--	2.0	0.5	--	--	--	--	--
APR											
14...	0840	1.8	880	8.28	-3.0	5.0	2.7	9.6	74	4.4	270
MAY											
16...	1100	0.51	1110	8.35	15.0	10.5	1.1	10.0	89	2.4	310

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
NOV											
19...	71	33	130	47	3	8.2	403	170	15	707	669
APR											
14...	56	31	95	42	3	11	296	180	11	580	562
MAY											
16...	60	38	150	51	4	7.8	465	170	14	761	720

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV										
19...	0.96	1.09	8	--	<0.010	--	<0.100	--	<0.010	--
APR										
14...	0.79	2.79	40	<0.010	<0.010	<0.100	<0.100	0.030	0.030	1.5
MAY										
16...	1.03	1.05	1	<0.010	<0.010	<0.100	<0.100	0.030	0.090	1.0

DATE	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
NOV										
19...	0.50	--	0.050	--	0.039	--	1	310	--	2
APR										
14...	0.60	0.130	0.080	0.063	0.052	2	2	230	2	<1
MAY										
16...	0.70	0.260	0.230	0.226	0.204	4	4	410	<1	<1

Table 4.--Water-quality records for James River near Manfred, ND (06467600)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 19...	<1	--	46	<5	--	82	<0.1	--	<1	8
APR 14...	1	280	120	<5	90	67	0.2	<1	<1	<3
MAY 16...	<1	210	44	<5	100	78	0.6	<1	<1	5

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 19...	--	--	--	--	--	--	--	71	0.11	73
APR 14...	14	<0.010	<0.01	5.60	0.400	7.5	1100	5	0.02	100
MAY 16...	15	<0.010	<0.01	1.00	<0.100	17	1200	29	0.04	79

Table 5.--Water-discharge records for James River near Grace City, ND (0648170)

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 northwest of Grace City.

DRAINAGE AREA.--1,060 mi^2, approximately, of which about 650 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,457.60 ft, above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 4 and Nov. 26 to Apr. 13. Records good except for periods of estimated discharge, which are poor.

AVERAGE DISCHARGE.--20 years, 31.4 ft^3/s, 22,750 acre-ft/yr; median of yearly mean discharges, 26 ft^3/s, 18,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s, Apr. 13, 1969, gage height, 12.00 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 26	1045	*150	a*6.79				

No flow for many days.
a - Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	.73	1.0	.00	.00	20	34	8.6	1.5	.30	.00	.00
2	3.2	.72	.95	.00	.00	15	33	6.7	2.2	.18	.00	.00
3	3.0	.71	.95	.00	.00	13	34	5.1	2.7	.18	.01	.00
4	2.8	.70	.90	.00	.00	10	33	4.8	3.0	.20	.00	.00
5	2.6	.75	.85	.00	.00	12	31	5.3	2.9	.24	.00	.00
6	2.4	.84	.80	.00	.00	15	30	7.3	2.8	.24	.00	.00
7	2.3	.88	.75	.00	.00	20	30	6.3	2.0	.18	.00	.00
8	2.2	.90	.70	.00	.00	30	29	4.5	1.9	.06	.00	.00
9	2.1	.89	.65	.00	.00	40	29	3.7	1.5	.04	.00	.00
10	2.0	.90	.60	.00	.00	35	28	3.7	1.1	.00	.00	.00
11	1.9	.87	.55	.00	.00	30	28	3.4	.87	.00	.00	.00
12	1.8	.76	.50	.00	.00	20	27	2.7	.75	.00	.00	.00
13	1.7	.76	.45	.00	.00	15	27	2.8	.83	.00	.00	.00
14	1.6	.80	.40	.00	.00	12	26	2.7	.69	.00	.00	.00
15	1.5	.85	.35	.00	.00	10	27	1.5	.62	.00	.00	.00
16	1.5	.80	.30	.00	.00	9.0	27	1.8	.72	.00	.00	.00
17	1.4	1.1	.25	.00	.00	10	25	3.2	.80	.00	.00	.00
18	1.3	1.2	.20	.00	.00	12	24	1.8	.73	.00	.00	.00
19	1.2	.96	.16	.00	.00	13	20	1.4	.57	.00	.00	.07
20	1.1	.90	.14	.00	.00	12	19	1.5	.56	.00	.00	.00
21	1.0	.90	.12	.00	.00	11	17	1.6	.78	.00	.00	.00
22	.95	.90	.10	.00	.00	10	16	1.8	.56	.00	.00	.00
23	.90	.90	.08	.00	.00	20	14	2.1	1.0	.00	.00	.00
24	.85	1.1	.06	.00	.00	50	13	2.5	.83	.00	.00	.00
25	.80	1.1	.04	.00	.00	100	11	1.8	.66	.00	.00	.00
26	.79	1.1	.03	.00	.10	120	10	1.2	.66	.00	.00	.01
27	.78	1.1	.02	.00	1.0	60	9.5	.98	.66	.00	.00	.00
28	.77	1.6	.01	.00	10	45	8.9	1.1	.51	.00	.00	.00
29	.76	1.0	.01	.00	30	40	9.0	1.6	.54	.00	.00	.00
30	.75	1.0	.01	.00	---	45	8.7	1.6	.46	.00	.00	.02
31	.74	---	.00	.00	---	36	---	1.6	---	.00	.00	---
TOTAL	49.99	27.72	11.93	0.00	41.10	890.0	678.1	96.68	35.40	1.62	0.01	0.10
MEAN	1.61	.92	.38	.00	1.42	28.7	22.6	3.12	1.18	.052	.000	.003
MAX	3.3	1.6	1.0	.00	30	120	34	8.6	3.0	.30	.01	.07
MIN	.74	.70	.00	.00	.00	9.0	8.7	.98	.46	.00	.00	.00
AC-FT	99	55	24	.0	82	1770	1350	192	70	3.2	.02	.2

CAL YR 1987 TOTAL 18560.21 MEAN 50.8 MAX 1250 MIN .00 AC-FT 36810
WTR YR 1988 TOTAL 1832.65 MEAN 5.01 MAX 120 MIN .00 AC-FT 3640

Table 6.--Water-quality records for James River near Grace City, ND (06468170)

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
NOV											
18...	1400	1.2	1380	8.62	2.0	2.5	2.3	14.4	105	--	300
MAR											
28...	1600	41	500	--	5.0	0.5	--	--	--	--	--
APR											
13...	1600	27	670	8.40	11.0	10.5	3.4	11.8	104	6.0	230
MAY											
17...	0930	2.3	960	8.65	14.0	12.5	1.5	10.6	99	2.4	300
JUL											
07...	1330	0.15	1550	9.23	25.0	24.0	6.4	6.2	73	--	170

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
NOV											
18...	53	41	210	59	5	16	494	190	63	893	870
APR											
13...	45	29	62	35	2	11	237	120	16	449	425
MAY											
17...	54	39	110	44	3	10	352	150	28	646	602
JUL											
07...	20	30	290	77	10	10	392	290	110	1020	987

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV										
18...	1.21	2.89	11	--	<0.010	--	<0.100	--	0.020	--
APR										
13...	0.61	32.2	39	<0.010	<0.010	<0.100	<0.100	0.020	0.030	1.1
MAY										
17...	0.88	3.96	<1	<0.010	<0.010	<0.100	<0.100	0.030	0.050	1.1
JUL										
07...	1.39	0.41	23	--	0.020	--	0.280	--	0.310	--

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
NOV										
18...	0.90	--	0.070	--	0.042	--	3	260	--	1
APR										
13...	1.0	0.170	0.080	0.061	0.047	1	2	100	1	<1
MAY										
17...	1.0	0.140	0.120	0.100	0.034	4	3	160	1	<1
JUL										
07...	2.8	--	0.180	--	0.099	--	5	290	--	<1

Table 6.--Water-quality records for James River near Grace City, ND (06468170)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV										
18...	<1	--	18	<5	--	33	<0.1	--	<1	4
APR										
13...	1	150	31	<5	210	19	0.1	6	<1	11
MAY										
17...	1	120	20	<5	70	41	0.2	<1	<1	14
JUL										
07...	1	--	35	<5	--	110	0.8	--	<1	4

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV										
18...	--	--	--	--	--	--	--	59	0.19	81
APR										
13...	17	<0.010	<0.01	4.90	0.700	14	1200	5	0.37	97
MAY										
17...	18	<0.010	<0.01	0.700	<0.100	6.9	1200	15	0.09	62
JUL										
07...	--	--	<0.01	--	--	--	--	21	0.01	96

Table 7.--Water-discharge records for Juanita Lake Tributary near Grace City, ND (06468190)

LOCATION.--Lat 47°32'54", long 98°45'31", in SW¼NE¼SE¼ sec.13, T.147 N., R.64 W., Foster County, Hydrologic Unit 10160001, on left bank 1,000 ft upstream from Lake Juanita, 2 mi east of Grace City.

DRAINAGE AREA.--94 mi^2, approximately, of which about 54 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1986 to current year. Seasonal records only.

GAGE.--Water-stage recorder. Datum of gage is 1,460.00 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 25 to Apr. 1 and Apr. 18 to June 5. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 204 ft^3/s, Apr. 2, 1987, gage height, 20.85 ft; no flow for several months each year.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, about 40 ft^3/s, Mar. 23, gage height, 19.76 ft, backwater from ice; maximum gage height, 19.79 ft, Mar. 12, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	1.5	1.2	2.2	.00	.00	.00	.00
2					.00	.80	1.1	2.0	.00	.00	.00	.00
3					.00	.50	.92	1.7	.00	.00	.00	.00
4					.00	.40	.73	1.4	.00	.00	.00	.00
5					.00	.50	.73	1.1	.00	.00	.00	.00
6					.00	1.0	1.6	.90	.00	.00	.00	.00
7					.00	.80	1.5	.80	.00	.00	.00	.00
8					.00	.60	1.4	.70	.00	.00	.00	.00
9					.00	.50	.97	.60	.00	.00	.00	.00
10					.00	.40	.97	.60	.00	.00	.00	.00
11					.00	.30	.92	.55	.00	.00	.00	.00
12					.00	.25	1.2	.55	.00	.00	.00	.00
13					.00	.20	1.1	.50	.00	.00	.00	.00
14					.00	.15	.88	.50	.00	.00	.00	.00
15					.00	.12	1.7	.50	.00	.00	.00	.00
16					.00	.10	1.8	.50	.00	.00	.00	.00
17					.00	.10	1.8	.45	.00	.00	.00	.00
18					.00	.10	1.6	.40	.00	.00	.00	.00
19					.00	.10	2.2	.35	.00	.00	.00	.00
20					.00	.30	2.5	.30	.00	.00	.00	.00
21					.00	1.0	2.0	.25	.00	.00	.00	.00
22					.00	5.0	1.8	.20	.00	.00	.00	.00
23					.00	30	1.6	.18	.00	.00	.00	.00
24					.00	35	1.5	.16	.00	.00	.00	.00
25					.10	33	1.4	.12	.00	.00	.00	.00
26					.20	30	1.2	.10	.00	.00	.00	.00
27					.50	20	1.1	.08	.00	.00	.00	.00
28					.80	8.5	.90	.06	.00	.00	.00	.00
29					1.0	6.0	2.0	.05	.00	.00	.00	.00
30					---	3.5	2.5	.04	.00	.00	.00	.00
31					---	1.5	---	.02	---	.00	.00	---
TOTAL					2.60	182.22	42.82	17.86	0.00	0.00	0.00	0.00
MEAN					.090	5.88	1.43	.58	.00	.00	.00	.00
MAX					1.0	35	2.5	2.2	.00	.00	.00	.00
MIN					.00	.10	.73	.02	.00	.00	.00	.00
AC-FT					5.2	361	85	35	.0	.0	.0	.0

Table 8.--Water-quality records for Juanita Lake Tributary near Grace City, ND (06468190)

PERIOD OF RECORD.--March 1986 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAR											
28...	1440	8.5	490	--	5.0	1.5	--	--	--	--	--
APR											
06...	1700	1.5	450	8.25	20.0	6.0	0.70	10.0	80	2.7	180
13...	1340	1.2	580	--	9.0	10.0	--	--	--	--	--
MAY											
17...	1100	0.47	910	8.25	20.0	13.0	0.60	10.1	95	1.6	370

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
APR											
06...	41	19	29	25	1	7.0	172	54	17	292	270
MAY											
17...	77	43	65	27	2	6.2	361	110	37	589	555

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
APR										
06...	0.40	1.19	<1	<0.010	<0.010	<0.100	<0.100	0.060	0.040	0.90
MAY										
17...	0.80	0.75	<1	<0.010	<0.010	<0.100	<0.100	0.030	0.060	0.80

DATE	NITRO-GEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
APR										
06...	0.70	0.070	0.040	0.023	0.015	1	1	30	<1	<1
MAY										
17...	0.70	0.080	0.070	0.054	0.054	2	4	40	1	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR										
06...	<1	120	70	<5	90	84	0.3	<1	<1	<3
MAY										
17...	<1	90	19	<5	30	25	0.1	<1	<1	5

Table 8.--Water-quality records for Juanita Lake Tributary near Grace City, ND (06468190)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR										
06...	11	<0.010	<0.01	2.50	0.300	14	1200	4	0.01	85
MAY										
17...	17	<0.010	<0.01	<0.300	<0.100	17	1100	9	0.01	54

Table 9.--Water-discharge records for James River above Arrowwood Lake near Kensal, ND (06468250)

LOCATION.--Lat 47°23'59", long 98°47'50", in SW¼SW¼SW¼ sec.2, T.145 N., R.64 W., Foster County, Hydrologic Unit 10160003, on right bank 30 ft upstream from bridge on county road 8 mi northwest of Kensal.

DRAINAGE AREA.--1,200 mi^2, approximately, of which about 750 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Water year 1986 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,440.00 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1 to July 1. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft^3/s, Mar. 28, 1987, gage height 11.48 ft, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT PERIOD.--Peak discharges greater than base of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage Height (ft)	Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Mar. 28	----	*a180	unknown				

a - Estimated
No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	2.0	2.1	.45	.00	20	53	15	4.0	.05	.00	.00
2	6.6	1.9	2.2	.40	.00	18	50	14	4.4	.00	.00	.00
3	6.4	1.9	2.3	.35	.00	17	47	13	4.1	.00	.00	.00
4	6.0	1.8	2.4	.33	.00	15	47	15	4.1	.00	.00	.00
5	5.6	1.8	2.5	.30	.00	23	38	17	4.2	.00	.00	.00
6	5.5	1.8	2.6	.27	.00	30	32	15	4.1	.00	.00	.00
7	5.4	1.8	2.7	.24	.00	20	34	13	4.0	.00	.00	.00
8	5.3	1.7	2.8	.20	.00	19	40	14	4.0	.00	.00	.00
9	5.2	1.7	2.9	.15	.00	40	47	15	3.5	.00	.00	.00
10	5.0	1.7	3.0	.12	.00	35	45	12	3.3	.00	.00	.00
11	4.9	1.7	2.8	.10	.00	30	42	10	3.0	.00	.00	.00
12	4.8	1.6	2.7	.06	.00	25	35	9.5	3.0	.00	.00	.00
13	4.7	1.6	2.5	.04	.00	15	31	9.0	3.3	.00	.00	.00
14	4.6	1.6	2.3	.02	.00	14	31	8.0	3.3	.00	.00	.00
15	4.5	1.6	2.2	.00	.00	13	30	7.0	3.5	.00	.00	.00
16	4.3	1.6	2.1	.00	.00	12	26	6.7	3.4	.00	.00	.00
17	4.1	1.6	2.0	.00	.00	12	25	6.0	3.3	.00	.00	.00
18	3.9	1.6	1.8	.00	.00	20	27	5.5	3.0	.00	.00	.00
19	3.8	1.6	1.5	.00	.00	19	28	5.0	2.5	.00	.00	.00
20	3.7	1.6	1.4	.00	.00	17	26	4.9	2.0	.00	.00	.00
21	3.5	1.6	1.3	.00	.00	20	26	4.8	1.8	.00	.00	.00
22	3.3	1.6	1.2	.00	.00	25	23	4.7	1.4	.00	.00	.00
23	3.1	1.6	1.2	.00	.00	35	21	4.6	1.0	.00	.00	.00
24	3.0	1.7	1.1	.00	.00	50	21	4.5	1.0	.00	.00	.00
25	2.8	1.7	.80	.00	.05	65	19	4.5	.90	.00	.00	.00
26	2.6	1.8	.70	.00	.20	90	19	4.4	.80	.00	.00	.00
27	2.4	1.8	.70	.00	2.0	130	18	4.3	.60	.00	.00	.00
28	2.2	1.9	.65	.00	10	150	17	4.6	.40	.00	.00	.00
29	2.1	1.9	.60	.00	23	60	17	4.5	.25	.00	.00	.00
30	2.0	2.0	.55	.00	---	58	16	4.0	.15	.00	.00	.00
31	2.0	---	.50	.00	---	56	---	3.8	---	.00	.00	---
TOTAL	130.1	51.8	56.10	3.03	35.25	1153	931	263.3	78.30	0.05	0.00	0.00
MEAN	4.20	1.73	1.81	.098	1.22	37.2	31.0	8.49	2.61	.002	.00	.00
MAX	6.8	2.0	3.0	.45	23	150	53	17	4.4	.05	.00	.00
MIN	2.0	1.6	.50	.00	.00	12	16	3.8	.15	.00	.00	.00
AC-FT	258	103	111	6.0	70	2290	1850	522	155	.1	.0	.0

CAL YR 1987 TOTAL 21431.31 MEAN 58.7 MAX 1400 MIN .08 AC-FT 42510
WTR YR 1988 TOTAL 2701.93 MEAN 7.38 MAX 150 MIN .00 AC-FT 5360

Table 10.--Water-quality records for James River above Arrowwood Lake near Kensal, ND (06468250)

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
NOV												
18...	1230	1.6	960	8.35	2.0	2.5	5.3	10.8	78	--	360	65
JAN												
07...	1000	0.24	1570	7.88	-15.0	0.5	4.7	--	--	--	600	110
APR												
13...	1100	31	440	8.58	7.0	9.0	6.0	11.4	97	5.6	160	33
MAY												
16...	1700	6.7	860	8.48	22.0	16.0	8.4	13.0	130	6.8	300	59
AUG												
24...	1000	0.0	1210	8.65	20.0	17.0	--	7.1	73	--	--	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV												
18...	48	83	32	2	14	374	140	20	627	595	0.85	2.71
JAN												
07...	79	150	34	3	21	570	240	35	1040	978	1.41	0.67
APR												
13...	18	38	33	1	7.7	160	70	11	280	274	0.38	23.8
MAY												
16...	37	80	36	2	9.6	334	130	20	558	536	0.76	10.1

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)
NOV												
18...	14	--	<0.010	--	<0.100	--	0.020	--	1.1	--	0.020	--
JAN												
07...	15	--	0.010	--	<0.100	--	0.360	--	1.8	--	0.080	--
APR												
13...	38	<0.010	<0.010	<0.100	<0.100	0.020	0.020	1.8	0.60	0.120	0.020	0.018
MAY												
16...	16	<0.010	<0.010	<0.100	<0.100	0.020	0.040	1.1	0.90	0.120	0.030	0.037

DATE	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
NOV												
18...	<0.001	--	2	150	--	<1	<1	--	55	<5	--	44
JAN												
07...	0.037	--	2	210	--	<1	2	--	49	<5	--	220
APR												
13...	0.002	2	1	70	1	<1	1	280	40	<5	120	26
MAY												
16...	0.009	3	3	170	<1	<1	<1	460	10	<5	480	93

Table 10.--Water-quality records for James River above Arrowwood Lake near Kensal, ND (06468250)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
18...	0.2	--	<1	9	--	--	--	--	--	--	--	56
JAN												
07...	0.2	--	<1	14	--	--	--	--	--	--	--	208
APR												
13...	0.1	<1	<1	11	11	<0.010	<0.01	11.0	0.600	22	1200	12
MAY												
16...	0.1	1	<1	6	20	<0.010	<0.01	19.0	2.70	28	1200	27
AUG												
24...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALDRIN, DIS-SOLVED (UG/L) (39331)	ALDRIN, TOTAL (UG/L) (39330)	AME-TRYNE TOTAL (82184)	ATRA-ZINE, TOTAL (UG/L) (39630)	GUTHION TOTAL (UG/L) (39580)	SEVIN, TOTAL (UG/L) (39750)	CHLOR-DANE, DIS-SOLVED (UG/L) (39352)	CHLOR-DANE, TOTAL (UG/L) (39350)	CYAN-AZINE TOTAL (UG/L) (81757)	DDD, DIS-SOLVED (UG/L) (39361)
NOV												
18...	0.24	73	--	--	--	--	--	--	--	--	--	--
JAN												
07...	0.13	96	--	--	--	--	--	--	--	--	--	--
APR												
13...	1.0	100	--	--	--	--	--	--	--	--	--	--
MAY												
16...	0.50	99	<0.01	<0.010	<0.10	<0.10	<0.10	<0.50	<0.1	<0.1	<0.10	<0.01
AUG												
24...	--	--	<0.01	<0.010	<0.10	<0.10	<0.10	<0.50	<0.1	<0.1	<0.10	<0.01

DATE	DDD, TOTAL (UG/L) (39360)	DDE, DIS-SOLVED (UG/L) (39366)	DDE, TOTAL (UG/L) (39365)	DDT, DIS-SOLVED (UG/L) (39371)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DI-ELDRIN TOTAL (UG/L) (39380)	DYPHO-NATE TOTAL (UG/L) a(LC1336)	ENDO-SULFAN DISSOLV (UG/L) (82354)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, DIS-SOLVED (UG/L) (39391)
MAY													
16...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01
AUG													
24...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01

DATE	ETHION DISSOLV (UG/L) (82346)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, DIS-SOLVED (UG/L) (39411)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L) (39421)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE DIS-SOLVED (UG/L) (39341)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MALA-THION, TOTAL (UG/L) (39530)
MAY											
16...	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
AUG											
24...	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	METHO-MYL TOTAL (UG/L) (39051)	METH-OXY-CHLOR DISSOLV (UG/L) (82350)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, DIS-SOLVED (UG/L) (39602)	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, DIS-SOLVED (UG/L) (39756)	MIREX, TOTAL (UG/L) (39755)	METHYL TRI-THION, TOTAL (UG/L) (39790)	METHYL-TRI-THION DISSOLV (UG/L) (82344)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	PARA-THION, DIS-SOLVED (UG/L) (39542)
MAY											
16...	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01
AUG											
24...	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01

a - Lab Code. WATSTORE parameter code unavailable.

Table 10.--Water-quality records for James River above Arrowwood Lake near Kensal, ND (06468250)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCB, DIS-SOLVED (UG/L) (39517)	PCB, TOTAL (UG/L) (39516)	PCN DISSOLV (UG/L) (82360)	PER-THANE DISSOLV (UG/L) (82348)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROME-TONE TOTAL (UG/L) (39056)	PROME-TRYNE TOTAL (UG/L) (39057)	PROPHAM TOTAL (UG/L) (39052)	PRO-PAZINE TOTAL (UG/L) (39024)
MAY											
16...	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.01	<0.1	<0.1	<0.5	<0.10
AUG											
24...	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.01	<0.1	<0.1	<0.5	<0.10

DATE	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	2,4-D, TOTAL (UG/L) (39730)	2,4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, DIS-SOLVED (UG/L) (39401)	TOX-APHENE, TOTAL (UG/L) (39400)	TREF-LAN TOTAL (UG/L) a(LC1337)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)	TRI-THION DISSOLV (UG/L) (82342)	TOTAL TRI-THION (UG/L) (39786)
MAY												
16...	<0.10	<0.1	0.05	<0.01	<0.01	<0.01	<1.0	<1	<0.50	<0.10	<0.01	<0.01
AUG												
24...	<0.10	<0.1	<0.01	<0.01	<0.01	<0.01	<1.0	<1	<0.05	<0.10	<0.01	<0.01

a - Lab Code. WATSTORE parameter code unavailable.

Table 11.--Water-discharge records for Kelly Creek below Niccum Reservoir near Bordulac, ND (06468300)

LOCATION.--Lat 47°24'01", long 98°49'43", in SW¼SW¼SE¼ sec.4, T.145 N., R.64 W., Foster County, Hydrologic Unit 10160001, on right bank 300 ft upstream from culvert on county road 6.5 mi east of Bordulac.

DRAINAGE AREA.--188 mi^2, approximately, of which about 77 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year, seasonal records only.

GAGE.--Water-stage recorder. Elevation of gage is 1,460.00 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 25 to Mar. 28 and Mar. 31 to Apr. 6. Records fair except those for periods of estimated daily discharge, which are poor. Slight amount of regulation by Niccum Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 350 ft^3/s, Apr. 1, 1987, gage height, 4.52 ft, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft^3/s, Mar. 5, gage height, 2.25 ft, backwater from ice; no flow, Feb. 1-24 and June 6 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	12	12	.60	.04	.00	.00	.00
2					.00	10	10	.78	.06	.00	.00	.00
3					.00	12	9.5	.75	.06	.00	.00	.00
4					.00	15	9.0	.73	.04	.00	.00	.00
5					.00	25	8.0	.68	.01	.00	.00	.00
6					.00	10	7.0	.40	.00	.00	.00	.00
7					.00	8.0	6.1	.88	.00	.00	.00	.00
8					.00	7.0	5.6	2.0	.00	.00	.00	.00
9					.00	9.0	4.8	1.7	.00	.00	.00	.00
10					.00	10	3.9	1.4	.00	.00	.00	.00
11					.00	7.0	3.5	1.1	.00	.00	.00	.00
12					.00	6.0	3.5	1.1	.00	.00	.00	.00
13					.00	5.0	3.3	.61	.00	.00	.00	.00
14					.00	4.5	2.6	.55	.00	.00	.00	.00
15					.00	4.0	2.4	.54	.00	.00	.00	.00
16					.00	3.8	2.1	.31	.00	.00	.00	.00
17					.00	3.5	1.7	.16	.00	.00	.00	.00
18					.00	3.8	1.5	.15	.00	.00	.00	.00
19					.00	4.0	1.6	.47	.00	.00	.00	.00
20					.00	4.5	1.4	.52	.00	.00	.00	.00
21					.00	5.0	1.3	.43	.00	.00	.00	.00
22					.00	7.0	1.1	.30	.00	.00	.00	.00
23					.00	8.5	1.1	.26	.00	.00	.00	.00
24					.00	10	.99	.20	.00	.00	.00	.00
25					.10	12	.76	.09	.00	.00	.00	.00
26					1.0	15	.71	.08	.00	.00	.00	.00
27					5.0	20	.69	.08	.00	.00	.00	.00
28					20	22	.67	.08	.00	.00	.00	.00
29					14	24	.48	.07	.00	.00	.00	.00
30					---	19	.60	.03	.00	.00	.00	.00
31					---	15	---	.02	---	.00	.00	---
TOTAL					40.10	321.6	107.90	17.07	0.21	0.00	0.00	0.00
MEAN					1.38	10.4	3.60	.55	.007	.00	.00	.00
MAX					20	25	12	2.0	.06	.00	.00	.00
MIN					.00	3.5	.48	.02	.00	.00	.00	.00
AC-FT					80	638	214	34	.4	.0	.0	.0

Table 12.--Water-quality records for Kelly Creek below Niccum Reservoir near Bordulac, ND (06468300)

PERIOD OF RECORD.--Water years 1986 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAR											
29...	0900	21	530	--	-4.0	0.5	--	--	--	--	--
APR											
06...	1330	6.3	480	8.65	20.0	5.0	1.5	14.7	114	4.0	170
13...	1225	3.7	570	--	7.0	9.0	--	--	--	--	--
MAY											
17...	1200	0.10	670	8.77	22.0	14.0	4.0	10.0	96	4.6	280

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
APR											
06...	37	20	32	27	1	7.0	134	100	11	308	288
MAY											
17...	58	32	49	27	1	6.5	273	100	12	444	422

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
APR										
06...	0.42	5.27	1	0.010	0.010	<0.100	<0.100	0.040	0.040	1.0
MAY										
17...	0.60	0.12	81	<0.010	<0.010	<0.100	<0.100	0.020	0.080	0.80

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
APR										
06...	0.70	0.140	0.070	0.065	0.039	1	2	50	<1	<1
MAY										
17...	0.50	0.080	0.040	0.037	0.042	3	2	90	<1	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR										
06...	<1	190	63	<5	140	120	0.3	<1	<1	<3
MAY										
17...	3	200	12	<5	150	13	0.1	<1	<1	5

Table 12.--Water-quality records for Kelly Creek below Niccum Reservoir near Bordulac, ND (06468300)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR										
06...	12	<0.010	<0.01	11.0	1.30	16	1100	4	0.07	100
MAY										
17...	15	<0.010	<0.01	12.0	0.600	23	1200	12	0.00	84

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)

LOCATION.--Lat 47°19'14", long 98°49'51", in NE¼NE¼ sec. 6, T.144 N., R.64 W., Stutsman County, Hydrologic Unit 10160001, near center of Arrowwood Lake inflow channel about 1,000 feet downstream from highway bridge on county line, 4 mi upstream from Arrowwood Lake spillway and 5 mi northwest of Kensal.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1987 to September 1988 (discontinued).

PERIOD OF DAILY RECORD.--
Specific conductance, pH, water temperature, dissolved oxygen, air temperature, wind speed, wind direction, and relative humidity; November 1987 to September 1988.

INSTRUMENTATION.--Water-quality and climatological data are collected using a water-quality monitor and various meteorological sensors that are located on a raft anchored in the lake. All parameters are sampled at one-hour intervals and data are stored in an electronic data logger.

REMARKS.--The station name and identification number for this site were changed from Arrowwood Lake Inflow Site (471924098495100) to Arrowwood Lake Inflow Site near Kensal, ND (06468340) on Oct. 1, 1989. The water-quality data for this site and time were previously published in U.S. Geological Survey Water Data Report ND-88-1. Minor corrections have been required for some of the measurements taken on Aug. 9 and 10. Those values that have been corrected are footnoted in the data tables. The appropriate updates have been made to the Water-Quality File in the U.S. Geological Survey's computerized data system.

Raft and recording instruments were removed on Feb. 29 in order to prevent damage to the equipment during ice breakup. The equipment was reinstalled on May 10. No records were collected during this period.

Other interruptions in record were due to malfunction of the recording instruments.

Records for solar radiation also were collected at this location. Because of problems with the calibration of the instruments collecting the data, and verification of the data, the accuracy of these data is unknown and these records are not included in this report. However, these records are available in files at the District office. Records of light penetration were not collected at this site.

EXTREMES FOR CURRENT PERIOD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 2,830 microsiemens, Feb. 20; minimum recorded, 712 microsiemens, July 12.
pH: Maximum recorded, 9.6 units, Aug. 7 and 11; minimum recorded, 6.6 units, Feb. 21,22.
WATER TEMPERATURE: Maximum, 33.2°C, Aug. 15; minimum recorded, -0.3°C, Jan. 27-29.
DISSOLVED OXYGEN: Maximum recorded, 24.5 mg/L, Dec. 1; minimum, 0.0 mg/L most of the time from Jan. 31 to Feb. 28.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
DEC								
03...	1030	-2.0	773	920	8.30	2.0	18.7	133
17...	1230	-4.0	774	1200	8.00	1.5	25.0	177
28...	1130	-7.5	782	1290	7.90	1.0	19.2	133
JAN								
19...	1530	-13.0	--	2000	7.30	0.5	4.0	--
FEB								
03...	1100	-24.0	--	2420	7.60	0.5	0.1	--
17...	1030	-0.5	--	2740	6.80	1.0	0.0	--
29...	1030	3.0	--	870	7.80	1.0	11.1	--
MAY								
10...	1600	--	--	786	8.50	17.0	12.0	--
JUN								
02...	1700	32.0	--	850	8.50	29.5	--	--
15...	1300	21.5	--	850	8.65	19.5	7.7	--
JUL								
05...	1645	--	--	750	8.80	29.0	10.7	--
28...	1130	33.0	769	783	9.30	26.0	7.4	91
AUG								
09...	a0845	16.5	--	780	9.30	18.5	9.0	--
09...	1000	23.0	--	a --	9.40	19.0	10.7	--
09...	1230	27.0	--	775	9.50	21.5	10.6	--
09...	1400	29.0	--	776	9.60	23.0	12.0	--
09...	1520	30.0	--	777	9.60	24.5	12.8	--
09...	1600	30.5	--	769	9.30	24.5	a12.8	--
09...	1730	31.0	--	766	9.60	25.5	14.0	--
09...	1800	30.5	--	767	9.60	25.5	14.2	--
09...	2025	26.0	--	754	9.70	25.0	12.9	--
09...	2100	24.0	--	763	a9.50	24.5	12.4	--
09...	2200	22.0	--	757	9.70	24.0	12.1	--
10...	0001	--	--	--	--	--	--	--
10...	0145	16.5	--	772	a9.60	22.5	10.0	--
10...	0306	20.0	--	771	9.60	22.5	9.4	--
10...	0404	21.5	--	762	9.60	22.0	8.7	--

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
AUG								
10...	0504	18.5	--	776	9.60	22.0	8.2	--
10...	0603	18.0	--	758	9.50	21.5	7.7	--
10...	0715	18.0	--	756	9.50	21.5	7.3	--
10...	0806	22.5	--	765	9.50	22.5	6.7	--
10...	0930	26.0	--	760	a9.50	21.5	a7.7	--
10...	1000	26.5	--	757	9.60	22.0	7.9	--
25...	1050	--	775	860	9.50	17.5	9.4	96
SEP								
08...	1000	14.0	770	840	8.90	13.0	6.7	63
20...	1000	6.5	--	840	8.70	8.0	10.1	--

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
DEC								
03...	<0.010	<0.100	0.250	2.1	0.110	0.010	--	--
17...	<0.010	<0.100	0.410	2.6	0.340	0.010	--	--
28...	<0.010	<0.100	0.580	2.5	0.250	0.020	--	--
JAN								
19...	0.020	0.100	1.10	4.3	0.310	<0.010	--	--
FEB								
03...	<0.010	<0.100	1.80	4.1	0.140	0.030	--	--
17...	<0.010	<0.100	2.60	6.0	0.290	0.300	--	--
29...	<0.010	0.800	1.30	2.9	0.340	0.260	--	--
MAY								
10...	<0.010	<0.100	0.040	1.9	0.080	<0.010	43.0	3.30
JUN								
02...	<0.010	<0.100	0.050	1.1	0.210	0.130	62.0	6.60
15...	<0.010	<0.100	0.020	1.7	0.200	0.110	32.0	3.70
JUL								
05...	<0.010	<0.100	0.020	2.2	0.160	0.060	48.0	3.80
28...	<0.010	<0.100	0.070	3.1	0.320	0.130	40.0	4.00
AUG								
09...	0.010	<0.100	<0.010	4.1	0.290	0.180	42.0	2.30
09...	0.010	<0.100	<0.010	3.7	0.250	0.150	99.0	3.90
09...	0.010	<0.100	0.010	4.5	0.300	0.180	52.0	3.10
09...	0.010	<0.100	0.030	4.3	0.360	0.170	78.0	4.30
09...	0.010	<0.100	0.010	3.9	0.320	0.160	52.0	3.10
09...	0.010	<0.100	<0.010	3.9	0.280	0.160	37.0	2.00
09...	0.010	<0.100	0.010	3.7	0.250	0.150	37.0	2.30
09...	0.010	<0.100	<0.010	3.4	0.300	0.150	31.0	1.90
09...	0.010	<0.100	0.010	3.7	0.280	0.150	51.0	2.80
09...	0.010	<0.100	<0.010	3.4	0.240	0.140	36.0	2.00
09...	0.010	<0.100	<0.010	3.1	0.240	0.150	39.0	2.10
10...	0.010	<0.100	0.040	3.6	0.240	0.150	20.0	1.00
10...	0.010	<0.100	0.050	3.4	0.280	0.150	12.0	0.70
10...	0.020	<0.100	<0.010	3.7	0.310	0.150	59.0	2.70
10...	0.010	<0.100	<0.010	3.7	0.230	0.150	54.0	2.50
10...	0.010	<0.100	<0.010	3.5	0.300	0.150	46.0	1.80
10...	0.010	<0.100	<0.010	4.1	0.310	0.150	61.0	2.80
10...	0.010	<0.100	<0.010	3.7	0.270	0.150	87.0	3.60
10...	0.010	<0.100	<0.010	3.7	0.250	0.150	24.0	1.60
10...	<0.010	<0.100	<0.010	3.7	0.270	0.150	55.0	3.20
10...	0.010	<0.100	0.010	4.6	0.380	0.180	53.0	2.50
25...	<0.010	<0.100	0.070	6.0	0.450	0.110	130	4.20
SEP								
08...	0.010	<0.100	<0.010	3.9	0.470	0.140	110	4.10
20...	0.010	<0.100	0.050	6.0	0.850	0.200	550	17.0

a - Corrected value.

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1				---	---	---	1070	1020	1050	1460	1400	1430
2				---	---	---	1090	1040	1060	1480	1430	1460
3				---	---	---	1090	1040	1060	1500	1440	1460
4				---	---	---	1080	1050	1060	1590	1470	1520
5				---	---	---	1090	1050	1070	1660	1570	1620
6				---	---	---	1100	1060	1080	1750	1650	1700
7				---	---	---	1100	1030	1080	1820	1730	1770
8				---	---	---	1120	1070	1090	1890	1820	1850
9				---	---	---	1120	1080	1100	1950	1800	1910
10				---	---	---	1130	1080	1110	2000	1930	1960
11				---	---	---	1170	1080	1110	2070	1980	2020
12				---	---	---	1150	1070	1120	2090	2050	2070
13				---	---	---	1170	1120	1140	2100	2070	2080
14				966	818	875	1180	1130	1150	2130	2080	2100
15				950	876	914	1200	1130	1160	2160	2110	2130
16				940	798	883	1220	1140	1180	2190	2140	2170
17				908	802	856	1260	1180	1200	2210	2050	2150
18				927	833	876	1220	1180	1200	2050	1970	2000
19				---	---	---	1220	1190	1210	2040	1990	2000
20				929	831	878	1240	1190	1220	2080	2020	2040
21				965	889	927	1240	1200	1220	2130	2070	2100
22				979	914	943	1230	1200	1220	2200	2120	2160
23				993	925	960	1260	1210	1230	2320	2180	2250
24				1030	956	988	1260	1220	1240	2390	2310	2350
25				1030	981	999	1290	1230	1270	2420	2380	2390
26				1020	971	994	1300	1260	1280	2470	2400	2440
27				1020	976	997	1300	1260	1280	2490	2360	2470
28				1060	990	1010	1310	1250	1280	2510	2400	2490
29				1060	1000	1020	1330	1270	1310	2510	2240	2470
30				1070	998	1040	1350	1290	1330	2500	2430	2460
31				---	---	---	1410	1330	1370	2440	2330	2400

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1	2380	2350	2370							---	---	---
2	2410	2330	2380							---	---	---
3	2460	2400	2430							---	---	---
4	2500	2400	2470							---	---	---
5	2520	2310	2480							---	---	---
6	2540	2500	2520							---	---	---
7	2560	2380	2540							---	---	---
8	2580	2540	2550							---	---	---
9	2620	2560	2600							---	---	---
10	2640	2610	2620							---	---	---
11	2660	2290	2580							---	---	---
12	2670	2630	2650							---	---	---
13	2690	2460	2660							---	---	---
14	2720	2670	2690							---	---	---
15	2730	2710	2720							---	---	---
16	2750	2710	2730							---	---	---
17	2770	2730	2750							---	---	---
18	2790	2760	2770							---	---	---
19	2810	2770	2790							---	---	---
20	2830	2780	2800							---	---	---
21	2820	2780	2800							---	---	---
22	2810	2740	2780							---	---	---
23	2780	2750	2770							---	---	---
24	2790	2690	2770							859	794	837
25	2800	2770	2780							856	751	808
26	2810	2780	2800							864	832	846
27	2790	2400	2710							891	846	865
28	2370	785	1660							868	842	856
29	---	---	---							871	819	843
30	---	---	---							877	784	827
31	---	---	---							859	786	827

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	890	848	871	799	767	784	828	720	775	870	760	837
2	939	860	877	799	764	782	776	735	751	---	---	---
3	896	865	878	806	770	784	767	717	747	---	---	---
4	888	863	876	799	767	785	767	743	757	---	---	---
5	881	813	846	813	745	781	757	733	745	---	---	---
6	874	811	847	772	745	760	754	726	743	---	---	---
7	887	848	868	763	713	746	---	---	---	---	---	---
8	888	859	876	807	724	760	823	770	777	---	---	---
9	850	776	815	771	739	754	794	758	777	880	840	860
10	846	784	815	768	720	755	775	731	757	918	878	894
11	875	792	817	773	747	759	797	732	767	947	913	929
12	---	---	---	765	712	745	796	683	751	932	897	918
13	---	---	---	757	732	744	774	732	758	934	872	914
14	---	---	---	760	731	746	793	757	771	918	884	902
15	---	---	---	763	738	746	795	731	759	---	---	---
16	845	812	829	760	732	743	834	772	801	880	842	864
17	849	813	833	755	730	743	813	778	802	881	849	861
18	848	814	832	822	740	766	824	795	805	941	867	899
19	851	823	837	839	768	805	809	730	765	929	878	908
20	853	801	827	837	781	806	772	734	750	939	916	929
21	843	814	826	895	831	861	795	738	756	929	835	900
22	848	813	832	893	736	804	828	786	805	---	---	---
23	831	742	787	---	---	---	850	797	820	853	822	841
24	814	773	796	---	---	---	879	826	850	874	826	842
25	854	786	813	800	722	765	895	862	873	864	832	848
26	845	800	818	---	---	---	887	802	858	874	841	853
27	865	775	803	---	---	---	935	817	871	903	870	879
28	825	788	804	---	---	---	939	841	888	896	869	878
29	814	749	784	813	781	797	921	823	879	912	870	894
30	817	759	778	820	793	804	852	767	806	879	857	863
31	---	---	---	831	780	805	853	793	823	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1			---	---	8.5	8.3	6.9	6.7	7.6	7.6		
2			---	---	---	---	7.4	6.7	7.6	7.5		
3			---	---	8.3	8.1	7.4	7.3	7.6	7.5		
4			---	---	8.1	8.0	7.4	7.3	7.6	7.5		
5			---	---	8.0	7.9	7.3	7.1	7.5	7.1		
6			---	---	7.9	7.8	7.1	6.9	7.1	7.0		
7			---	---	7.8	7.7	7.2	6.8	7.0	6.9		
8			---	---	7.8	7.6	7.8	7.2	6.9	6.9		
9			---	---	7.7	7.6	7.7	7.7	6.9	6.9		
10			---	---	7.7	7.6	7.7	7.6	6.9	6.8		
11			---	---	7.8	7.6	7.7	7.6	6.8	6.8		
12			---	---	7.8	7.7	7.6	7.5	6.8	6.8		
13			---	---	7.8	7.7	7.5	7.5	6.8	6.8		
14			8.7	8.5	7.8	7.6	7.5	7.4	6.8	6.8		
15			8.6	8.5	7.7	7.6	7.5	7.4	6.8	6.7		
16			8.6	8.4	7.7	7.6	7.4	7.4	6.8	6.7		
17			8.6	8.5	7.8	7.7	7.4	7.3	6.8	6.7		
18			8.7	8.6	7.8	7.6	7.4	7.3	6.8	6.7		
19			---	---	8.1	7.6	7.4	7.3	6.7	6.7		
20			8.7	8.5	8.1	7.9	7.4	7.3	6.7	6.7		
21			8.6	8.6	8.1	8.0	7.3	7.3	6.7	6.6		
22			8.7	8.6	8.1	7.9	7.6	7.3	6.7	6.6		
23			8.7	8.6	8.0	7.9	7.6	7.6	6.7	6.6		
24			8.7	8.6	7.9	7.7	7.6	7.6	7.0	6.7		
25			8.6	8.5	7.9	7.7	7.6	7.6	7.4	6.7		
26			8.5	8.4	7.8	7.7	7.6	7.6	7.7	7.2		
27			8.4	8.3	7.8	7.7	7.6	7.6	7.9	7.6		
28			8.5	8.3	7.7	7.6	7.6	7.6	8.0	7.9		
29			8.5	8.4	7.7	7.6	7.6	7.6	---	---		
30			8.5	8.4	7.6	7.1	7.6	7.6	---	---		
31			---	---	7.1	6.8	7.6	7.6	---	---		

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	APRIL MAX	APRIL MIN	MAY MAX	MAY MIN	JUNE MAX	JUNE MIN	JULY MAX	JULY MIN	AUGUST MAX	AUGUST MIN	SEPTEMBER MAX	SEPTEMBER MIN
1			---	---	8.3	8.0	9.4	9.1	9.5	9.2	9.4	9.0
2			---	---	8.4	7.9	9.3	9.2	9.3	9.0	9.5	9.1
3			---	---	8.4	8.2	9.3	9.1	9.3	9.1	9.5	9.2
4			---	---	8.4	8.2	9.2	9.1	9.4	9.1	9.4	9.3
5			---	---	8.4	8.1	---	---	9.5	9.2	9.3	9.2
6			---	---	8.5	8.3	9.0	8.9	9.5	9.4	9.3	9.0
7			---	---	8.4	8.4	9.1	8.9	---	---	9.4	9.1
8			---	---	8.4	8.2	9.1	8.9	9.6	9.5	9.2	9.0
9			---	---	8.5	8.4	9.1	8.9	9.5	9.3	9.2	9.1
10			---	---	8.6	8.4	9.1	9.0	9.5	9.2	9.2	9.0
11			---	---	8.6	8.4	9.2	9.1	9.6	9.1	9.2	8.9
12			---	---	8.6	8.4	9.2	9.1	9.5	9.2	9.0	8.8
13			---	---	8.7	8.2	9.2	9.0	9.4	9.1	9.2	9.0
14			---	---	8.8	8.7	9.2	9.1	9.3	9.0	9.2	9.1
15			---	---	---	---	9.4	9.1	9.4	9.2	9.2	9.1
16			---	---	9.1	9.0	9.3	9.1	9.3	9.2	9.1	9.0
17			---	---	9.1	8.9	9.3	9.2	9.3	9.1	9.1	8.9
18			---	---	9.2	8.9	9.3	9.2	9.2	9.0	9.0	8.7
19			---	---	9.3	9.0	9.3	9.2	9.3	9.0	8.9	8.5
20			---	---	9.2	9.0	9.2	9.1	9.3	9.1	---	---
21			---	---	9.3	9.0	9.4	9.2	9.3	9.2	9.0	8.8
22			---	---	9.2	9.0	9.4	9.2	9.2	9.1	---	---
23			---	---	9.2	9.0	9.6	9.2	9.3	9.1	9.0	8.8
24			---	---	9.3	9.0	9.6	9.5	9.4	9.2	9.1	9.0
25			8.4	8.1	9.3	9.1	9.6	9.4	9.4	9.2	9.0	8.9
26			8.4	8.1	9.2	9.1	9.4	9.2	9.3	8.7	9.0	8.9
27			8.3	8.2	9.3	9.0	9.4	9.2	9.3	8.6	9.0	8.8
28			8.3	8.1	9.4	9.2	9.4	9.2	9.2	8.9	9.0	8.8
29			8.2	8.1	9.4	9.2	9.6	9.1	9.0	8.8	9.0	8.7
30			8.2	8.0	9.3	9.2	9.5	9.3	9.4	8.8	8.9	8.8
31			8.3	8.1	---	---	9.5	9.4	9.3	9.0	---	---

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1				---	---	---	-3.4	-6.8	-5.2	-9.5	-21.9	-16.4
2				---	---	---	---	---	---	-5.6	-14.4	-8.8
3				---	---	---	-1.2	-18.2	-7.0	-10.3	-25.4	-16.6
4				---	---	---	.1	-14.2	-5.5	-21.9	-27.4	-25.3
5				---	---	---	-1.9	-8.3	-5.0	-19.7	-30.3	-26.2
6				---	---	---	.4	-2.1	-1.1	-14.2	-33.1	-23.9
7				---	---	---	.8	-.8	.2	-11.0	-22.7	-18.0
8				---	---	---	4.3	-4.5	.9	-17.3	-29.3	-22.3
9				---	---	---	2.2	-7.8	-1.5	-11.9	-28.5	-20.1
10				---	---	---	7.2	-8.4	.1	-6.2	-21.8	-14.5
11				---	---	---	3.9	-3.6	-.2	-14.5	-22.8	-17.7
12				---	---	---	-2.3	-5.3	-3.5	-17.2	-26.6	-21.0
13				---	---	---	-4.4	-11.2	-6.2	-15.1	-25.0	-19.3
14				10.7	-1.1	5.8	-4.5	-8.9	-6.5	-1.3	-18.2	-12.1
15				7.0	.9	4.5	-6.4	-10.0	-8.4	.4	-17.1	-6.2
16				4.1	-7.9	-.5	1.2	-15.5	-9.4	4.0	-5.3	.5
17				3.7	-9.5	-4.6	-2.2	-11.3	-7.2	2.0	-14.5	-7.6
18				6.6	-9.5	-.4	-.8	-11.1	-6.0	-4.2	-11.7	-7.2
19				1.6	---	---	3.1	-9.4	-3.8	-6.0	-12.8	-7.4
20				.2	-17.0	-9.0	.0	-8.5	-3.9	-8.6	-23.0	-14.2
21				10.3	-9.0	-1.9	3.0	-10.9	-5.4	1.2	-22.5	-8.9
22				2.7	-6.3	-.9	3.3	-8.6	-3.3	-2.5	-16.9	-11.5
23				3.5	-10.5	-3.6	.4	-12.7	-7.2	-1.5	-17.3	-12.2
24				2.6	-10.4	-3.9	-6.6	-17.8	-10.0	-1.5	-23.0	-12.0
25				.5	-1.5	-.5	-.4	-18.9	-11.9	-14.8	-31.2	-24.2
26				1.2	-1.6	-.1	5.2	-11.3	-4.9	-6.6	-31.0	-14.4
27				1.0	-1.5	.1	-3.5	-13.8	-7.9	-.2	-15.4	-8.6
28				3.0	-7.4	-1.6	2.0	-12.7	-7.3	2.8	-15.8	-6.5
29				3.7	-6.5	-2.6	-3.7	-14.1	-8.4	7.3	-7.8	-1.2
30				-2.4	-6.8	-3.8	-7.0	-15.0	-9.3	-7.9	-16.0	-10.6
31				---	---	---	-14.9	-23.0	-18.8	-15.8	-26.3	-21.0

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	-21.4	-36.0	-28.6							---	---	---
2	-13.8	-35.4	-23.6							---	---	---
3	-15.6	-31.5	-23.6							---	---	---
4	-19.4	-26.6	-22.8							---	---	---
5	-16.5	-28.7	-23.8							---	---	---
6	-9.1	-27.6	-18.2							---	---	---
7	-15.3	-24.4	-19.2							---	---	---
8	-8.5	-19.7	-14.4							---	---	---
9	-17.7	-28.0	-23.3							---	---	---
10	-18.7	-32.4	-25.7							---	---	---
11	-15.8	-35.6	-24.8							---	---	---
12	-5.4	-19.7	-12.5							---	---	---
13	-2.8	-8.9	-6.1							---	---	---
14	-5.0	-25.4	-12.5							---	---	---
15	.4	-27.4	-12.8							---	---	---
16	1.0	-6.2	-1.7							---	---	---
17	3.1	-12.3	-1.9							---	---	---
18	3.6	-8.3	-1.0							---	---	---
19	2.3	-15.6	-3.3							---	---	---
20	-5.8	-25.3	-13.8							---	---	---
21	6.1	-5.7	1.7							---	---	---
22	1.7	-10.2	-5.2							---	---	---
23	-6.5	-13.2	-10.3							---	---	---
24	-4.8	-15.3	-11.4							---	---	---
25	7.4	-18.4	-3.7							30.5	13.9	21.6
26	10.2	-4.8	2.6							28.9	9.8	18.3
27	12.8	-5.8	2.8							28.7	9.7	20.1
28	7.6	.1	3.2							---	---	---
29	---	---	---							31.6	18.6	18.6
30	---	---	---							28.6	19.2	23.7
31	---	---	---							30.7	21.3	25.8
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.6	18.2	22.2	23.7	12.4	18.2	24.4	15.2	18.6	27.3	7.5	18.3
2	31.9	15.9	22.5	28.7	10.2	19.8	31.1	17.8	22.6	22.4	13.6	18.0
3	34.8	14.9	25.2	30.6	15.4	23.6	26.1	14.2	20.6	27.0	10.2	18.4
4	34.4	17.8	26.6	30.7	17.9	25.3	26.9	11.1	18.7	22.8	5.4	15.5
5	33.4	17.1	25.9	39.6	19.9	31.9	32.2	14.4	23.1	21.6	2.8	11.8
6	33.2	16.8	25.6	37.1	23.4	30.6	33.4	16.8	26.2	26.7	.7	14.8
7	35.5	16.0	26.5	29.5	14.5	21.7	---	---	---	26.8	11.5	18.7
8	31.3	15.9	23.4	31.8	8.9	22.1	25.2	9.1	16.1	20.5	9.6	15.0
9	26.9	10.2	19.1	30.3	13.9	23.3	30.8	9.2	20.4	22.9	4.4	13.9
10	31.7	12.9	23.1	24.1	9.4	16.7	35.1	16.6	25.6	23.0	4.3	14.0
11	35.3	18.2	26.1	27.2	4.6	17.6	32.7	16.4	25.0	14.9	9.3	12.4
12	23.3	14.8	19.8	28.7	12.6	20.0	33.3	18.7	24.8	17.1	5.1	10.6
13	29.6	13.6	22.0	29.3	14.1	22.8	24.0	17.7	20.4	25.5	5.6	14.8
14	19.3	11.4	15.2	30.9	12.3	22.8	31.0	14.4	22.9	24.7	-.3	12.5
15	23.4	8.5	17.4	28.8	13.3	23.1	35.4	18.2	27.0	---	---	---
16	25.2	6.5	17.3	31.5	8.4	21.0	37.1	21.7	27.7	24.3	10.9	16.0
17	31.8	13.7	23.3	31.4	8.5	21.6	26.2	17.4	21.5	27.5	8.0	17.4
18	36.2	20.2	27.3	27.3	13.9	20.7	27.7	16.4	20.7	14.8	7.8	11.1
19	34.2	16.4	26.1	27.1	9.2	17.4	27.6	11.5	20.3	10.7	6.2	8.3
20	34.2	10.6	24.9	27.6	10.0	18.7	30.7	13.4	23.5	11.8	4.3	7.5
21	37.5	19.8	28.0	34.3	9.2	22.0	29.3	14.3	23.3	9.8	6.4	8.2
22	30.5	11.5	22.0	32.4	12.5	23.4	28.1	8.5	17.7	---	---	---
23	30.9	15.4	22.7	32.0	12.3	23.6	26.1	11.5	18.8	22.3	2.2	12.4
24	35.7	18.1	27.3	29.4	9.7	20.0	31.2	9.4	20.4	25.8	4.7	14.7
25	29.4	14.3	21.8	35.2	11.2	23.1	24.4	8.5	17.4	17.8	1.4	9.2
26	29.2	11.8	21.4	35.5	11.1	25.3	24.6	3.6	14.8	24.8	4.1	13.2
27	34.5	17.2	25.7	38.7	14.3	28.8	20.4	6.0	13.3	14.7	3.7	9.0
28	30.4	19.0	24.4	41.4	12.8	31.2	21.6	3.1	11.9	9.1	7.7	8.4
29	24.2	13.9	18.3	31.8	15.7	25.2	25.2	.9	13.8	15.1	6.7	9.7
30	26.6	15.3	19.8	33.4	8.9	23.3	27.0	4.4	17.1	25.3	6.1	14.9
31	---	---	---	34.8	22.1	27.7	24.8	9.7	18.0	---	---	---

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1				---	---	---	3.0	1.9	2.5	1.0	.7	.9
2				---	---	---	2.6	1.2	2.0	1.0	.6	.8
3				---	---	---	3.0	1.4	1.9	.9	.5	.8
4				---	---	---	2.0	1.3	1.7	.8	.3	.5
5				---	---	---	2.1	1.5	1.9	.4	.1	.3
6				---	---	---	1.9	1.6	1.8	.3	.1	.2
7				---	---	---	1.9	1.4	1.7	.2	.0	.1
8				---	---	---	2.8	1.5	2.1	.2	.0	.1
9				---	---	---	3.1	1.8	2.5	.2	-.1	.1
10				---	---	---	2.9	2.4	2.7	.3	.1	.1
11				---	---	---	2.8	1.8	2.4	.2	.1	.2
12				---	---	---	2.1	1.5	1.8	.2	-.1	.0
13				---	---	---	2.7	1.7	2.1	.1	-.1	.0
14				5.0	2.8	3.9	2.6	2.1	2.4	.1	.0	.1
15				5.1	4.1	4.7	2.5	2.0	2.3	.1	-.1	.0
16				4.1	1.7	2.9	2.4	1.8	2.2	.2	-.1	.0
17				2.1	.7	1.5	2.4	1.8	2.0	.2	-.1	.1
18				3.1	1.6	2.1	2.3	1.5	2.0	.1	-.1	.0
19				---	---	---	2.2	1.5	1.9	.2	-.1	.0
20				2.4	.5	1.2	2.3	1.4	2.0	.2	-.1	.0
21				3.2	1.7	2.3	2.0	1.7	1.9	.1	-.1	.0
22				3.6	2.5	3.0	1.9	1.6	1.8	.2	-.1	.0
23				3.6	2.9	3.2	1.8	1.3	1.7	.1	-.1	.0
24				3.5	2.3	2.9	1.8	1.6	1.7	.1	-.1	.0
25				3.4	2.5	2.9	1.7	1.3	1.6	.0	-.1	-.1
26				2.9	1.6	2.4	1.8	1.2	1.5	-.1	-.2	-.2
27				2.6	1.8	2.2	1.8	1.1	1.5	-.1	-.3	-.2
28				3.3	1.9	2.5	1.8	1.3	1.5	-.1	-.3	-.2
29				3.5	2.3	2.9	1.8	.7	1.4	-.1	-.3	-.2
30				3.2	2.0	2.7	1.3	.7	1.0	-.1	-.2	-.1
31				---	---	---	1.3	.8	1.0	-.1	-.2	-.1

	FEBRUARY			MARCH			APRIL			MAY		
1	.0	-.2	-.1							---	---	---
2	.0	-.2	-.1							---	---	---
3	.1	-.2	-.1							---	---	---
4	.0	-.2	-.1							---	---	---
5	.0	-.2	-.1							---	---	---
6	.0	-.1	.0							---	---	---
7	.1	-.2	.0							---	---	---
8	.1	-.2	.0							---	---	---
9	.1	-.2	-.1							---	---	---
10	.2	-.1	.1							---	---	---
11	.2	-.1	.1							---	---	---
12	.2	.0	.1							---	---	---
13	.4	.1	.2							---	---	---
14	.4	.1	.2							---	---	---
15	.4	.1	.2							---	---	---
16	.4	.1	.2							---	---	---
17	.3	.0	.2							---	---	---
18	.3	-.1	.2							---	---	---
19	.2	.0	.1							---	---	---
20	.3	.0	.1							---	---	---
21	.3	-.1	.2							---	---	---
22	.5	-.2	.3							---	---	---
23	.5	.0	.4							---	---	---
24	.5	.2	.4							---	---	---
25	.5	.2	.4							21.6	17.0	19.6
26	.4	.0	.3							23.4	18.6	20.5
27	.8	.1	.4							26.1	18.5	22.0
28	.4	-.1	.0							---	---	---
29	---	---	---							28.0	22.0	24.9
30	---	---	---							24.7	22.2	23.3
31	---	---	---							26.4	21.0	23.7

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.3	22.0	24.5	24.6	19.7	21.6	24.9	19.3	21.4	21.9	15.6	18.6
2	32.3	21.7	25.4	23.9	19.5	21.4	26.6	19.1	22.1	19.9	16.0	18.0
3	31.5	23.7	27.1	25.3	20.5	22.7	25.1	22.0	23.7	21.6	14.6	17.8
4	29.0	25.1	27.2	25.4	21.7	23.6	23.8	20.8	22.4	20.6	15.4	18.0
5	28.3	23.8	26.2	29.6	23.5	26.2	28.7	19.7	23.9	20.4	13.9	16.9
6	27.2	22.5	25.0	30.7	24.6	27.5	27.0	20.9	24.0	21.5	13.4	17.2
7	28.8	23.1	25.8	27.6	23.4	25.2	24.6	21.8	23.3	19.0	12.4	15.9
8	29.2	24.2	26.4	28.2	22.7	25.3	25.0	19.7	21.8	17.1	12.6	15.0
9	23.5	18.6	20.5	27.4	22.9	24.9	25.6	18.7	22.2	17.1	12.6	14.7
10	24.2	18.9	21.6	25.3	22.1	23.5	27.9	21.2	24.2	15.1	12.8	13.9
11	25.5	19.7	22.4	27.1	19.2	23.2	27.5	20.3	24.1	13.5	12.0	12.8
12	23.8	20.2	21.8	23.5	20.0	22.0	29.5	20.0	24.7	13.5	10.5	11.9
13	27.2	19.7	22.8	24.7	20.5	22.5	26.2	21.9	23.6	17.2	11.4	13.8
14	22.9	18.4	20.2	26.3	21.5	23.6	28.7	20.7	23.8	17.9	12.7	15.1
15	20.6	16.6	18.8	26.3	21.5	24.1	33.2	21.4	26.3	---	---	---
16	22.5	18.3	20.2	26.6	20.4	22.9	29.7	22.3	25.8	17.0	14.6	15.3
17	26.1	19.3	22.3	26.8	20.4	22.9	26.7	23.0	24.5	19.4	14.6	17.0
18	26.9	21.2	23.6	24.9	20.8	22.4	25.2	21.4	23.0	18.1	11.0	14.3
19	26.5	23.3	24.8	23.8	19.9	21.7	26.5	20.2	22.8	10.8	8.6	9.8
20	26.9	23.3	24.9	24.6	18.8	21.7	26.2	21.5	24.1	11.5	8.0	9.6
21	26.7	21.9	24.4	31.6	21.0	25.7	25.1	19.7	22.6	11.6	11.0	11.0
22	26.7	23.1	24.7	27.1	21.1	24.3	24.8	17.8	20.5	---	---	---
23	23.9	20.1	22.1	26.9	21.0	23.0	21.4	17.3	19.1	14.7	8.8	11.5
24	28.3	21.1	24.0	25.8	20.0	22.6	22.8	16.9	19.7	15.0	10.8	12.8
25	27.7	21.3	24.6	27.4	20.6	23.7	21.5	16.8	19.1	14.5	11.1	12.6
26	26.6	23.2	24.9	29.9	20.8	25.2	18.8	15.3	17.4	15.3	11.2	12.8
27	26.3	20.9	23.8	31.3	23.5	27.2	18.7	12.7	15.5	12.8	10.2	11.3
28	28.4	23.0	25.1	31.0	23.4	26.6	18.2	12.1	15.3	11.6	9.9	10.6
29	24.3	19.7	21.0	27.8	23.0	25.6	24.2	13.2	18.0	12.2	9.4	10.4
30	22.7	18.1	20.0	28.8	21.4	24.9	22.2	14.6	18.3	17.6	8.9	12.6
31	---	---	---	27.7	21.7	24.6	19.1	15.2	17.5	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				---	---	---	24.5	20.7	22.6	17.7	14.9	16.1
2				---	---	---	---	---	---	15.8	13.9	14.8
3				---	---	---	21.3	16.4	19.8	14.8	12.5	13.4
4				---	---	---	19.2	16.2	17.4	14.1	12.4	12.9
5				---	---	---	16.6	12.8	14.5	13.2	11.5	12.3
6				---	---	---	13.1	10.2	11.5	12.5	10.6	11.8
7				---	---	---	11.6	8.0	9.4	12.2	11.0	11.6
8				---	---	---	11.4	6.1	8.2	11.6	10.7	11.3
9				---	---	---	11.4	5.3	8.1	11.4	10.0	10.7
10				---	---	---	11.7	6.6	9.2	11.2	10.0	10.7
11				---	---	---	13.8	7.5	10.8	11.0	9.5	10.3
12				---	---	---	15.9	11.1	13.0	9.5	7.9	8.7
13				---	---	---	---	---	---	7.8	7.1	7.4
14				23.1	15.3	18.1	16.6	11.8	14.0	7.5	5.6	6.8
15				16.2	13.3	15.0	19.1	12.5	15.1	7.0	5.8	6.3
16				16.7	12.8	14.2	20.6	13.9	16.8	5.9	4.2	4.9
17				18.1	13.5	15.0	22.2	16.0	18.5	5.3	1.9	3.7
18				20.9	14.1	16.4	---	---	---	5.7	4.0	4.8
19				---	---	---	---	---	---	4.4	3.3	3.8
20				19.5	14.7	17.0	---	---	---	4.0	2.3	3.1
21				21.5	16.8	18.7	---	---	---	3.6	1.5	2.5
22				22.8	18.6	20.3	---	---	---	4.4	1.8	3.0
23				---	---	---	---	---	---	3.8	1.7	2.7
24				---	---	---	---	---	---	1.7	.4	1.1
25				---	---	---	---	---	---	1.2	.0	.5
26				22.7	20.0	21.3	---	---	---	1.5	.2	1.0
27				21.8	19.0	20.2	---	---	---	1.5	.0	.9
28				22.9	18.6	20.5	22.2	18.6	20.6	.9	.0	.5
29				23.7	20.0	21.8	22.0	18.8	20.2	.2	.0	.0
30				23.7	20.4	22.2	21.2	16.7	18.5	.3	.0	.0
31				---	---	---	17.8	16.3	17.0	.0	.0	.0

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0							---	---	---
2	.0	.0	.0							---	---	---
3	.0	.0	.0							---	---	---
4	.0	.0	.0							---	---	---
5	.0	.0	.0							---	---	---
6	.0	.0	.0							---	---	---
7	.0	.0	.0							---	---	---
8	.0	.0	.0							---	---	---
9	.0	.0	.0							---	---	---
10	.0	.0	.0							---	---	---
11	.0	.0	.0							---	---	---
12	.0	.0	.0							---	---	---
13	.0	.0	.0							---	---	---
14	.0	.0	.0							---	---	---
15	.0	.0	.0							---	---	---
16	.0	.0	.0							---	---	---
17	.0	.0	.0							---	---	---
18	.0	.0	.0							---	---	---
19	.0	.0	.0							---	---	---
20	.0	.0	.0							---	---	---
21	.0	.0	.0							---	---	---
22	.0	.0	.0							---	---	---
23	.0	.0	.0							---	---	---
24	.0	.0	.0							---	---	---
25	.0	.0	.0							14.6	8.3	12.0
26	1.2	.0	.0							12.8	6.9	10.2
27	8.9	.0	3.6							9.7	5.6	7.6
28	11.1	8.8	10.0							7.6	5.8	7.4
29	---	---	---							8.2	5.7	7.0
30	---	---	---							8.0	4.8	6.7
31	---	---	---							8.4	5.7	6.8
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.1	2.7	5.1	10.5	4.6	7.4	13.0	4.8	8.5	19.3	9.3	13.7
2	10.6	2.2	6.1	11.0	3.3	7.2	17.4	1.7	8.7	---	---	---
3	11.1	5.2	7.8	9.8	4.7	7.3	13.5	7.9	11.4	---	---	---
4	8.1	5.1	6.7	8.9	2.8	6.2	15.6	7.5	11.3	---	---	---
5	7.9	4.0	6.4	9.8	3.1	7.3	15.7	6.8	11.3	---	---	---
6	9.3	4.1	6.9	11.7	2.3	6.9	12.5	7.9	10.3	---	---	---
7	9.8	4.2	6.9	11.8	2.5	7.1	---	---	---	---	---	---
8	9.8	4.1	6.9	14.0	5.7	10.0	14.6	7.4	10.8	---	---	---
9	9.3	1.2	7.0	12.8	3.4	7.9	14.3	7.2	11.0	12.1	6.7	8.6
10	8.6	6.4	7.6	12.0	5.4	8.9	12.7	6.8	9.7	11.9	6.7	8.9
11	9.3	5.7	7.4	15.0	6.4	10.6	18.1	4.6	9.8	11.3	6.1	8.7
12	8.2	4.4	6.4	12.3	4.7	9.7	16.7	6.3	10.9	17.0	8.3	11.4
13	11.6	5.8	8.1	11.1	2.4	6.7	9.1	3.0	6.9	14.7	7.9	11.7
14	8.8	6.0	7.3	12.1	6.9	9.6	20.2	4.0	10.3	16.7	8.0	11.4
15	---	---	---	15.4	1.7	9.0	21.4	4.8	12.1	---	---	---
16	9.9	7.5	8.7	13.1	5.5	8.6	18.7	2.2	9.3	8.5	2.8	5.6
17	10.2	6.3	8.1	15.6	5.0	8.8	12.5	4.7	8.3	12.7	4.3	7.4
18	11.0	3.1	6.8	12.2	6.9	9.7	17.6	4.1	9.8	10.3	4.4	8.0
19	10.4	4.8	7.7	11.5	5.8	9.0	12.0	6.0	9.0	12.7	8.7	10.6
20	9.1	5.2	7.2	13.6	7.5	10.0	11.7	5.9	9.1	16.7	8.0	10.7
21	9.2	4.1	6.6	16.2	6.8	11.5	13.0	6.1	9.1	14.1	9.3	11.1
22	10.0	3.3	6.3	13.5	9.4	11.3	13.1	2.4	7.4	12.7	---	---
23	9.6	4.8	7.2	13.3	6.8	9.5	12.2	7.4	9.7	12.2	5.0	8.4
24	13.3	2.2	7.0	11.6	9.0	10.5	12.7	6.8	9.6	10.9	3.3	7.8
25	13.0	4.1	7.8	14.1	7.8	11.1	13.8	6.2	9.7	10.9	5.6	7.9
26	10.1	5.0	7.6	---	---	---	9.4	3.4	5.3	11.2	5.6	7.8
27	8.8	4.7	7.0	---	---	---	14.6	5.3	9.8	12.5	5.5	8.1
28	13.0	2.3	7.1	14.1	7.6	10.6	16.4	7.1	11.3	10.1	7.6	8.8
29	10.1	4.6	7.2	15.4	3.5	10.1	---	---	---	13.7	6.5	8.9
30	10.5	5.4	7.5	15.2	6.6	10.9	11.9	4.4	8.1	10.9	5.9	8.7
31	---	---	---	17.4	6.4	11.3	17.7	3.0	10.1	---	---	---

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	95.7	93.5	94.7	75.9	57.7	70.0
2				---	---	---	---	---	---	79.2	67.5	72.3
3				---	---	---	95.7	77.5	89.2	75.4	57.6	65.3
4				---	---	---	95.4	76.8	88.5	63.3	58.5	60.8
5				---	---	---	94.8	87.2	91.4	66.0	55.6	62.0
6				---	---	---	96.9	92.0	94.7	74.1	54.9	64.9
7				---	---	---	97.8	95.3	96.4	76.6	63.1	72.1
8				---	---	---	98.4	79.2	91.6	74.1	59.3	68.6
9				---	---	---	95.6	76.3	89.0	76.0	56.1	68.3
10				---	---	---	94.5	69.6	82.6	83.9	63.2	75.9
11				---	---	---	90.5	70.1	79.0	82.1	78.2	80.5
12				---	---	---	87.7	78.4	82.7	80.8	66.3	74.0
13				---	---	---	91.7	77.1	85.2	78.2	64.2	73.1
14				86.2	58.9	73.1	93.1	75.0	84.0	87.2	66.8	78.3
15				93.5	78.7	88.7	93.0	72.5	86.3	92.4	78.5	86.4
16				93.8	58.9	85.2	91.6	48.9	81.9	91.2	77.6	84.6
17				95.2	57.2	85.7	90.2	69.5	82.3	91.8	51.9	80.8
18				93.4	42.7	67.4	91.9	58.1	80.1	94.1	88.7	91.6
19				---	---	---	91.7	49.7	76.5	94.3	88.8	91.3
20				84.4	31.3	69.3	79.4	51.4	68.5	89.1	69.6	81.1
21				93.5	43.5	73.3	92.7	48.0	78.0	87.4	66.2	80.0
22				95.5	62.5	79.6	93.0	51.6	77.9	83.4	60.7	74.1
23				90.2	39.0	71.0	92.7	54.2	79.3	90.1	67.1	79.2
24				95.8	56.2	83.7	92.6	69.7	81.7	91.9	73.5	82.4
25				97.6	91.7	95.1	89.5	49.6	77.6	74.4	49.3	66.4
26				97.2	92.1	94.7	93.0	51.4	77.7	85.9	62.7	76.9
27				97.1	89.4	93.1	94.5	89.4	92.7	88.6	53.0	80.7
28				96.2	69.0	86.6	94.2	84.4	92.3	91.9	76.2	86.5
29				96.7	72.8	92.6	92.2	85.4	89.4	92.4	65.0	84.6
30				96.4	95.0	95.7	92.9	80.4	88.6	91.1	82.5	87.3
31				---	---	---	81.7	63.5	71.6	82.2	65.8	72.2
		FEBRUARY			MARCH			APRIL			MAY	
1	66.4	58.8	63.5							---	---	---
2	78.2	62.7	68.6							---	---	---
3	73.2	44.6	65.8							---	---	---
4	75.8	64.9	71.4							---	---	---
5	74.5	66.1	69.2							---	---	---
6	86.3	61.6	71.6							---	---	---
7	82.5	63.1	73.8							---	---	---
8	81.6	54.5	75.1							---	---	---
9	77.3	58.8	67.4							---	---	---
10	71.9	57.2	65.3							---	---	---
11	74.8	57.1	65.7							---	---	---
12	93.1	62.0	77.1							---	---	---
13	93.4	83.9	90.8							---	---	---
14	93.5	63.8	80.2							---	---	---
15	90.8	70.9	77.4							---	---	---
16	90.4	75.4	83.0							---	---	---
17	92.4	72.8	82.2							---	---	---
18	95.8	72.3	85.3							---	---	---
19	94.7	57.8	79.9							---	---	---
20	85.2	52.1	69.3							---	---	---
21	92.5	68.2	79.6							---	---	---
22	78.9	53.2	65.1							---	---	---
23	74.2	53.9	61.5							---	---	---
24	84.0	47.7	66.7							---	---	---
25	83.7	55.0	71.4							80.8	28.3	43.1
26	96.7	57.0	77.5							90.6	30.7	64.4
27	97.5	56.4	82.6							93.9	22.7	62.6
28	94.7	49.4	76.3							---	---	---
29	---	---	---							78.2	40.5	61.0
30	---	---	---							84.9	59.4	71.8
31	---	---	---							80.1	50.0	67.4

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	90.4	61.2	81.2	92.0	46.3	74.6	90.7	36.7	79.2	92.3	13.3	51.6
2	92.7	36.7	73.4	92.9	45.6	72.1	91.1	49.1	78.4	69.5	36.5	43.3
3	92.2	22.1	58.3	90.5	47.7	70.5	89.5	43.3	74.3	91.7	28.3	60.4
4	84.7	26.5	52.7	90.2	60.1	75.6	92.6	33.6	66.9	89.9	27.1	58.6
5	85.9	35.7	56.0	89.2	34.4	62.1	88.7	16.4	57.5	92.4	19.1	61.3
6	78.9	32.7	52.7	84.6	33.2	60.0	89.6	20.6	58.4	93.5	18.9	51.4
7	85.8	32.2	55.9	89.5	31.6	60.2	---	---	---	57.6	19.0	41.7
8	89.5	40.6	62.1	92.9	23.0	56.1	91.4	31.0	68.0	87.2	17.1	46.9
9	55.7	20.3	37.5	89.8	24.5	54.8	93.0	19.7	61.9	74.5	15.0	38.3
10	62.4	28.4	43.0	93.4	41.5	68.7	89.3	27.5	58.0	75.7	14.6	38.1
11	60.3	26.2	45.2	94.7	27.8	58.9	87.5	27.0	52.7	91.4	62.3	82.6
12	90.3	47.9	67.7	91.1	50.4	72.6	88.6	43.7	71.7	91.0	42.7	75.5
13	90.1	25.5	57.5	92.3	17.8	56.8	90.1	79.3	87.0	89.2	21.6	57.3
14	92.0	57.1	82.8	91.3	32.5	59.6	92.6	43.7	71.1	94.1	17.8	54.6
15	92.8	39.7	69.4	88.8	18.7	55.7	89.8	50.5	71.1	---	---	---
16	95.2	45.1	69.5	91.5	22.5	55.0	86.3	41.5	69.1	93.8	45.5	81.8
17	90.2	41.1	67.8	91.7	15.1	47.9	90.2	67.9	81.7	92.9	30.3	66.4
18	89.8	37.1	66.3	85.9	34.7	54.6	89.1	46.5	75.2	91.6	73.4	87.9
19	90.4	11.0	49.2	91.1	26.7	67.1	92.7	57.1	76.0	92.2	79.8	87.7
20	92.9	21.8	54.0	91.6	33.6	66.2	89.1	41.7	65.0	92.3	64.7	83.8
21	86.1	38.2	63.1	93.2	14.5	53.3	82.8	19.5	60.0	90.8	82.9	89.8
22	90.6	25.5	53.0	85.5	20.0	48.7	91.9	21.2	62.5	---	---	---
23	88.7	43.5	65.5	71.5	17.2	47.5	76.7	24.8	52.6	87.2	15.5	49.6
24	90.3	34.4	57.0	86.2	16.0	49.2	84.9	13.0	44.7	92.6	15.3	53.7
25	87.7	31.9	58.2	88.4	14.0	47.6	85.7	20.2	48.1	93.9	39.2	72.1
26	92.9	38.4	61.2	86.7	14.5	43.5	92.6	24.2	60.3	92.0	18.7	59.3
27	71.0	35.2	52.7	82.8	15.7	36.6	88.9	20.3	52.7	88.2	46.7	69.9
28	86.0	48.0	66.9	69.6	11.4	43.1	90.7	26.6	52.5	91.6	77.4	88.5
29	80.4	50.4	63.6	84.7	23.6	47.3	94.4	20.6	57.6	91.9	61.9	84.2
30	89.3	36.8	54.5	89.9	19.4	44.9	93.7	19.7	52.7	92.5	27.8	62.1
31	---	---	---	57.3	11.8	32.8	89.3	37.6	57.1	---	---	---

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	5.1	163	3.0	12	235	8.4
2	---	---	---	---	---	---	7.7	152	5.6	18	304	11
3	---	---	---	---	---	---	5.1	344	3.4	22	305	16
4	---	---	---	---	---	---	9.0	187	5.7	17	314	13
5	---	---	---	---	---	---	12	127	7.8	12	304	6.4
6	---	---	---	---	---	---	9.0	157	4.5	9.8	186	4.8
7	---	---	---	---	---	---	15	159	8.7	11	305	6.8
8	---	---	---	---	---	---	11	305	5.0	11	327	6.6
9	---	---	---	---	---	---	9.8	324	5.9	16	216	7.0
10	---	---	---	---	---	---	12	293	7.7	5.9	180	4.0
11	---	---	---	---	---	---	20	317	15	19	48	8.2
12	---	---	---	---	---	---	15	334	12	17	25	9.7
13	---	---	---	---	---	---	8.9	322	6.0	9.5	163	4.5
14	---	---	---	13	146	9.5	5.4	311	3.2	14	173	7.2
15	---	---	---	11	313	7.2	6.4	37	3.1	8.6	177	4.6
16	---	---	---	9.9	344	6.5	5.9	170	2.7	17	312	11
17	---	---	---	8.0	335	4.2	14	148	7.2	6.2	274	3.5
18	---	---	---	14	247	9.1	13	309	7.5	9.6	308	4.6
19	---	---	---	18	333	14	11	307	5.7	8.9	4	6.6
20	---	---	---	8.5	156	4.5	21	307	11	9.2	345	6.1
21	---	---	---	9.1	172	6.0	5.3	245	2.9	18	318	9.3
22	---	---	---	9.6	342	5.8	10	279	5.8	15	318	9.6
23	---	---	---	8.8	352	4.9	7.2	337	3.9	15	145	9.7
24	---	---	---	7.5	166	5.7	8.2	316	4.7	21	344	16
25	---	---	---	8.5	184	5.7	7.0	272	2.7	9.4	322	3.9
26	---	---	---	8.6	180	5.9	8.9	224	5.1	6.7	322	4.1
27	---	---	---	6.2	218	4.1	5.7	46	3.1	7.9	144	4.0
28	---	---	---	6.2	350	4.1	5.0	328	2.0	14	169	8.2
29	---	---	---	9.1	336	6.6	15	167	6.5	9.8	16	5.2
30	---	---	---	5.4	338	4.0	12	346	8.6	15	339	8.0
31	---	---	---	---	---	---	13	342	11	20	334	14
		FEBRUARY			MARCH			APRIL			MAY	
1	11	330	5.3	---	---	---	---	---	---	---	---	---
2	11	182	6.0	---	---	---	---	---	---	---	---	---
3	9.0	316	4.9	---	---	---	---	---	---	---	---	---
4	17	310	9.7	---	---	---	---	---	---	---	---	---
5	26	305	19	---	---	---	---	---	---	---	---	---
6	18	331	10	---	---	---	---	---	---	---	---	---
7	16	327	10	---	---	---	---	---	---	---	---	---
8	10	325	5.8	---	---	---	---	---	---	---	---	---
9	11	342	6.9	---	---	---	---	---	---	---	---	---
10	10	324	4.8	---	---	---	---	---	---	---	---	---
11	16	173	7.7	---	---	---	---	---	---	---	---	---
12	13	177	5.8	---	---	---	---	---	---	---	---	---
13	17	170	11	---	---	---	---	---	---	---	---	---
14	19	347	12	---	---	---	---	---	---	---	---	---
15	21	182	9.4	---	---	---	---	---	---	---	---	---
16	13	310	8.5	---	---	---	---	---	---	---	---	---
17	14	233	8.9	---	---	---	---	---	---	---	---	---
18	9.4	323	5.6	---	---	---	---	---	---	---	---	---
19	19	333	12	---	---	---	---	---	---	---	---	---
20	11	201	5.7	---	---	---	---	---	---	---	---	---
21	22	299	12	---	---	---	---	---	---	---	---	---
22	20	322	16	---	---	---	---	---	---	---	---	---
23	24	318	18	---	---	---	---	---	---	---	---	---
24	16	310	10	---	---	---	---	---	---	---	---	---
25	9.9	220	6.2	---	---	---	---	---	---	19	234	13
26	11	309	6.7	---	---	---	---	---	---	18	162	7.8
27	11	306	5.5	---	---	---	---	---	---	7.7	170	4.1
28	15	306	11	---	---	---	---	---	---	7.1	158	4.9
29	---	---	---	---	---	---	---	---	---	18	164	13
30	---	---	---	---	---	---	---	---	---	23	206	17
31	---	---	---	---	---	---	---	---	---	21	235	15

Table 13.--Water-quality records for Arrowwood Lake Inflow Site near Kensal, ND (06468340)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10	65	5.8	12	190	5.7	20	---	9.9	11	---	6.4
2	7.3	336	3.4	8.3	208	6.1	8.7	---	5.0	14	---	8.9
3	5.1	325	2.9	14	176	8.0	12	---	5.2	15	---	9.4
4	11	180	6.0	15	134	7.1	8.3	---	4.0	14	---	7.6
5	16	178	12	17	191	11	9.6	---	6.5	8.1	---	4.4
6	15	183	10	18	200	11	15	---	9.5	9.8	---	5.7
7	9.6	96	7.0	15	312	7.7	12	---	10	17	---	9.6
8	15	91	8.6	9.6	208	5.0	5.4	---	3.2	22	---	13
9	15	151	9.0	10	360	6.2	11	---	5.5	13	---	7.2
10	15	172	9.5	9.6	47	5.5	15	---	7.8	22	---	12
11	14	177	10	7.0	88	4.3	15	---	8.8	20	---	11
12	15	40	7.7	17	151	9.4	18	---	7.3	11	---	7.9
13	11	55	5.4	16	299	8.1	10	---	5.2	13	---	6.5
14	11	334	8.5	17	133	8.5	9.0	---	4.1	6.4	---	3.4
15	12	321	7.8	13	347	8.0	12	---	7.3	---	---	---
16	11	158	6.3	11	245	6.0	16	---	9.6	5.9	308	3.6
17	11	186	6.0	8.2	349	3.6	11	---	6.2	8.9	48	5.1
18	11	190	5.5	9.1	332	5.9	9.1	---	6.4	16	95	12
19	13	296	6.5	9.1	294	4.8	11	---	6.1	18	33	15
20	16	169	9.1	9.1	352	5.5	13	---	6.9	11	33	8.0
21	15	11	8.8	4.9	104	2.4	16	---	11	7.9	177	5.5
22	11	100	5.0	14	166	7.9	16	---	6.0	---	---	---
23	16	162	11	14	347	8.5	20	---	12	11	321	6.1
24	12	181	7.0	7.6	7	4.4	15	---	8.0	14	360	7.0
25	9.6	359	5.9	12	203	6.1	15	---	9.1	13	182	6.9
26	11	151	6.3	7.8	224	4.3	12	---	4.6	18	350	9.0
27	18	178	11	12	178	5.0	15	---	10	11	160	7.8
28	16	73	8.9	12	177	6.2	8.7	---	4.8	13	134	8.5
29	15	132	12	12	331	8.2	5.5	---	2.8	7.5	244	4.5
30	12	133	9.1	14	144	4.7	15	---	8.7	14	268	8.5
31	---	---	---	14	---	8.7	9.8	---	5.6	---	---	---

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site near Kensal, ND (06468360)

LOCATION.--Lat 47°16'46", long 98°50'05", in SW¼NE¼ sec.19, T.144 N., R.64 W., Stutsman County, Hydrologic Unit 10160001, 2.0 mi upstream from Arrowwood Lake spillway, 1.4 mi northeast of Arrowwood National Wildlife Refuge headquarters and 5.3 mi southwest of Kensal.

DRAINAGE AREA.--1,480 mi^2, approximately, of which about 860 mi^2 is probably noncontributing.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1988 to September 1988.

PERIOD OF DAILY RECORD.--
Specific conductance, pH, water temperature, dissolved oxygen, air temperature, wind speed, wind direction, and relative humidity; January 1988 to September 1988.

INSTRUMENTATION.--Water-quality and climatological data are collected using a water-quality monitor and various meteorological sensors that are located on a raft anchored in the lake. All parameters are sampled at one-hour intervals and data are stored in an electronic data logger.

REMARKS.--The station name and identification number for this site were changed from Arrowwood Lake Open-Water Site (471646098500500) to Arrowwood Lake Open-Water Site near Kensal, ND (06468360) on Oct. 1, 1989. The water-quality data for this site for water year 1988 and the data for Arrowwood Lake Outflow Site were erroneously transposed as published in U.S. Geological Survey Water Data Report ND-88-1. The corrected data are presented in this report. In addition, some incorrect values for Aug. 9, 10 and Sept. 8 were published in U.S. Geological Survey Water Data Report ND-88-1. These values have been corrected and are footnoted in the data tables. The appropriate updates have been made to the Water-Quality File in the U.S. Geological Survey's computerized data system.

Rafts and recording instruments were removed from the lake on Feb. 29, prior to spring breakup. The equipment was reinstalled on Apr. 21. No records were collected during this period. Other interruptions in record were due to malfunction of the recording instruments.

Records for light penetration and solar radiation were also collected at this location. Because of problems with the calibration of the instruments collecting the data, and verification of the data, the accuracy of these data is unknown and these records are not included in this report. However, these records are available in files at the District office.

EXTREMES FOR CURRENT PERIOD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,740 microsiemens, Feb. 17-19; minimum recorded, 701 microsiemens, Apr. 22.
pH: Maximum recorded, 10.0 units, Aug. 17; minimum recorded, 7.6 units, Feb. 3.
WATER TEMPERATURE: Maximum, 30.2°C, June 21; minimum recorded, -0.4°C, Feb. 13.
DISSOLVED OXYGEN: Maximum recorded, 18.7 mg/L, Aug. 12; minimum recorded, 0.0 mg/L, Feb. 1-22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
JAN								
20...	1100	-12.0	--	1390	7.80	1.0	6.4	--
FEB								
03...	1300	-24.0	--	1490	7.70	0.5	0.0	--
17...	1145	-0.5	--	1710	7.60	0.5	0.0	--
29...	1400	3.0	--	1480	7.50	1.0	3.5	--
MAY								
10...	1200	13.5	--	730	8.60	13.0	10.5	--
JUN								
02...	1400	25.0	--	770	8.50	24.5	--	--
15...	1200	20.0	--	800	8.68	19.0	6.9	--
JUL								
05...	1430	36.0	--	770	8.60	26.0	9.5	--
28...	1030	29.5	769	770	8.90	22.5	5.6	64
AUG								
09...	0820	a16.5	--	750	8.90	18.0	5.6	--
09...	1030	22.5	--	750	a8.87	18.5	7.6	--
09...	1205	26.0	--	750	9.10	19.5	6.7	--
09...	1420	27.5	--	755	9.14	20.5	8.4	--
09...	1505	2 .5	--	756	9.22	20.5	8.7	--
09...	1630	29.5	--	740	9.10	21.0	a9.6	--
09...	1715	30.0	--	765	9.18	21.0	9.4	--
09...	1830	30.5	--	767	9.24	21.0	9.0	--
09...	1935	29.5	--	755	9.41	21.0	9.5	--
09...	2005	29.0	--	751	9.31	21.0	9.2	--
09...	2205	23.5	--	758	9.24	20.5	9.0	--
10...	0001	19.5	--	757	9.18	20.0	8.4	--
10...	0200	--	--	760	9.22	20.0	8.7	--
10...	0405	22.5	--	776	9.24	a20.0	7.6	--
10...	0505	21.0	--	764	9.18	19.5	7.2	--
10...	0600	21.5	--	763	9.13	19.5	6.8	--
10...	0710	22.5	--	756	8.90	19.5	6.4	--

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
AUG								
10...	0800	23.0	--	756	8.95	19.5	5.9	--
10...	0900	25.5	--	758	9.01	19.5	6.4	--
10...	1000	27.0	--	759	9.05	19.5	6.8	--
25...	1150	19.8	775	760	9.50	17.5	9.3	95
SEP								
08...	1215	16.0	770	780	9.70	14.0	a10.6	102
20...	1100	6.5	--	--	--	--	--	--

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
JAN								
20...	0.020	<0.100	0.980	4.9	0.280	<0.010	--	--
FEB								
03...	0.020	<0.100	1.00	3.5	0.120	<0.010	--	--
17...	<0.010	<0.100	1.40	4.8	0.270	0.140	--	--
29...	<0.010	<0.100	1.80	4.0	0.280	0.150	--	--
MAY								
10...	<0.010	<0.100	0.040	1.8	0.080	0.020	42.0	1.50
JUN								
02...	0.020	<0.100	0.280	1.3	0.100	0.060	3.40	0.50
15...	0.010	<0.100	0.150	1.4	0.060	0.030	9.90	3.40
JUL								
05...	<0.010	<0.100	<0.010	2.0	0.100	0.010	67.0	6.20
28...	<0.010	<0.100	0.020	2.5	0.430	0.210	46.0	4.80
AUG								
09...	0.010	<0.100	0.060	3.0	0.400	0.260	52.0	2.30
09...	0.010	<0.100	0.020	3.0	0.420	0.250	95.0	5.50
09...	0.010	<0.100	0.030	3.0	0.350	0.240	52.0	2.70
09...	0.010	<0.100	0.030	2.8	0.390	0.250	58.0	2.60
09...	0.010	<0.100	0.020	3.0	0.350	0.250	45.0	2.30
09...	0.010	<0.100	0.010	3.5	0.390	0.240	82.0	3.00
09...	0.010	<0.100	0.020	3.0	0.390	0.240	47.0	2.30
09...	0.010	<0.100	<0.010	3.5	0.340	0.240	55.0	3.10
09...	0.010	<0.100	0.060	2.8	0.340	0.250	64.0	1.90
09...	0.010	<0.100	0.030	2.7	0.330	0.240	58.0	3.10
09...	0.010	<0.100	0.210	2.8	0.330	0.260	23.0	1.30
10...	0.020	<0.100	0.040	2.8	0.320	0.230	62.0	2.30
10...	0.010	<0.100	0.040	2.9	0.270	0.240	78.0	4.30
10...	0.010	<0.100	0.050	2.7	0.340	0.260	49.0	2.30
10...	0.010	<0.100	0.050	3.0	0.300	0.220	54.0	2.60
10...	0.010	<0.100	0.050	2.7	0.330	0.240	51.0	2.60
10...	0.010	<0.100	0.030	2.6	0.340	0.230	71.0	3.50
10...	0.010	<0.100	0.050	3.2	0.330	0.240	75.0	3.50
10...	0.010	<0.100	0.040	3.3	0.420	0.240	88.0	5.50
10...	0.010	<0.100	<0.010	3.2	0.330	0.230	130	7.00
25...	0.010	<0.100	0.050	3.9	0.490	0.240	93.0	3.40
SEP								
08...	<0.010	<0.100	<0.010	3.7	0.530	0.280	62.0	0.80
20...	0.010	<0.100	0.040	2.7	0.680	0.350	160	2.20

a - Corrected value.

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										1410	1380	1390
21										1400	1360	1380
22										1390	1360	1370
23										1390	1350	1370
24										1390	1350	1370
25										1380	1360	1370
26										1390	1360	1380
27										1400	1370	1390
28										1420	1380	1400
29										1430	1400	1410
30										1440	1410	1420
31										1450	1420	1430
		FEBRUARY			MARCH			APRIL			MAY	
1	1460	1420	1440				---	---	---	---	---	---
2	1480	1440	1450				---	---	---	---	---	---
3	1510	1480	1490				---	---	---	---	---	---
4	1520	1490	1500				---	---	---	---	---	---
5	1540	1500	1520				---	---	---	---	---	---
6	1560	1520	1540				---	---	---	---	---	---
7	1590	1540	1570				---	---	---	---	---	---
8	1610	1580	1590				---	---	---	---	---	---
9	1630	1600	1620				---	---	---	---	---	---
10	1650	1620	1630				---	---	---	---	---	---
11	1680	1630	1650				---	---	---	734	709	721
12	1680	1640	1660				---	---	---	737	702	720
13	1700	1630	1670				---	---	---	731	694	713
14	1720	1650	1690				---	---	---	728	690	710
15	1730	1660	1710				---	---	---	749	697	720
16	1720	1700	1710				---	---	---	746	708	720
17	1740	1680	1710				---	---	---	730	706	720
18	1740	1700	1720				---	---	---	739	710	722
19	1740	1700	1710				---	---	---	732	705	715
20	1730	1690	1710				---	---	---	724	704	713
21	1730	1630	1700				---	---	---	734	710	722
22	1710	1670	1690				731	706	718	736	704	717
23	1700	1670	1680				746	701	723	735	706	720
24	1700	1660	1680				---	---	---	739	703	720
25	1690	1650	1670				---	---	---	742	709	722
26	1680	1640	1660				---	---	---	746	717	728
27	1660	1550	1600				---	---	---	746	715	728
28	1590	1500	1550				---	---	---	742	712	726
29	1630	1480	1560				---	---	---	748	720	733
30	---	---	---				---	---	---	756	730	740
31	---	---	---				---	---	---	767	737	749

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	776	746	758	781	751	769	---	---	---	790	760	775
2	774	746	761	785	755	769	---	---	---	795	761	775
3	787	754	769	790	708	758	---	---	---	793	768	780
4	788	752	770	782	722	758	---	---	---	791	771	782
5	790	760	775	---	---	---	---	---	---	798	772	784
6	809	754	776	781	742	760	---	---	---	802	776	785
7	808	760	780	772	741	756	---	---	---	803	778	788
8	807	760	787	766	740	752	---	---	---	794	767	780
9	810	749	780	---	---	---	776	745	759	---	---	---
10	812	770	790	---	---	---	775	741	759	---	---	---
11	828	785	800	---	---	---	774	752	761	---	---	---
12	817	781	800	---	---	---	775	744	756	---	---	---
13	819	789	802	---	---	---	766	741	751	---	---	---
14	820	788	800	---	---	---	762	720	747	---	---	---
15	834	800	815	---	---	---	770	742	753	---	---	---
16	833	802	817	---	---	---	770	739	751	---	---	---
17	831	796	815	---	---	---	765	732	744	---	---	---
18	825	796	811	---	---	---	756	729	741	---	---	---
19	830	801	814	---	---	---	758	730	742	---	---	---
20	835	803	818	---	---	---	752	728	739	---	---	---
21	869	810	828	---	---	---	758	720	739	---	---	---
22	829	807	818	---	---	---	748	721	733	---	---	---
23	827	796	810	---	---	---	749	723	734	---	---	---
24	821	790	802	---	---	---	753	730	739	---	---	---
25	812	786	796	---	---	---	766	737	746	---	---	---
26	809	774	794	---	---	---	765	741	753	---	---	---
27	813	758	796	---	---	---	774	749	760	---	---	---
28	836	772	798	---	---	---	773	749	760	---	---	---
29	835	756	789	---	---	---	777	741	759	---	---	---
30	822	736	776	---	---	---	779	755	766	---	---	---
31	---	---	---	---	---	---	787	761	770	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1									---	---		
2									---	---		
3									7.8	7.6		
4									7.9	7.7		
5									8.2	7.7		
6									---	---		
7									---	---		
8									---	---		
9									---	---		
10									---	---		
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27									---	---		
28									---	---		
29									---	---		
30									---	---		
31									---	---		

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	8.7	8.5	---	---	9.1	8.9	9.5	9.0
2	---	---	---	---	8.6	8.5	---	---	9.0	8.8	9.6	9.1
3	---	---	---	---	8.6	8.5	---	---	9.1	8.9	9.6	9.1
4	---	---	---	---	8.6	8.5	---	---	9.3	8.9	9.6	9.0
5	---	---	---	---	8.6	8.5	---	---	9.4	9.0	9.3	8.9
6	---	---	---	---	8.6	8.4	8.2	8.0	9.4	8.8	9.5	8.9
7	---	---	---	---	8.6	8.3	8.5	8.0	9.1	8.9	9.7	9.1
8	---	---	---	---	8.6	8.3	8.4	8.0	9.1	8.6	9.7	8.5
9	---	---	---	---	8.6	8.4	8.5	8.0	9.6	8.6	---	---
10	---	---	8.9	8.7	8.4	8.3	8.5	8.1	9.7	9.1	---	---
11	---	---	8.9	8.7	8.5	8.2	8.4	7.9	9.5	8.7	---	---
12	---	---	8.9	8.6	8.3	8.1	8.4	7.9	9.7	8.9	---	---
13	---	---	8.7	8.7	8.3	8.0	8.5	8.0	9.6	9.3	---	---
14	---	---	8.7	---	8.2	8.1	8.5	8.3	9.2	8.8	---	---
15	---	---	---	---	8.2	8.1	8.7	8.2	9.8	9.1	---	---
16	---	---	---	---	8.4	8.0	8.8	8.5	9.9	9.7	---	---
17	---	---	8.9	8.8	8.5	8.0	8.9	8.5	10.0	9.8	---	---
18	---	---	8.8	8.7	8.5	8.0	8.9	8.7	9.9	9.6	---	---
19	---	---	8.9	8.8	8.3	8.2	8.9	8.7	9.7	9.3	---	---
20	---	---	9.0	8.9	8.4	8.0	8.9	8.5	9.7	8.9	---	---
21	8.7	8.6	9.0	8.9	---	---	9.0	8.3	9.8	9.0	---	---
22	8.8	8.6	9.1	9.0	---	---	9.0	8.5	9.5	8.9	---	---
23	8.8	8.7	9.0	9.0	---	---	9.0	8.6	9.8	9.2	---	---
24	9.0	8.8	9.1	9.0	---	---	9.0	8.5	9.6	8.8	---	---
25	---	---	9.1	9.0	---	---	9.0	8.6	9.6	8.5	---	---
26	---	---	9.0	9.0	---	---	9.0	8.5	9.3	8.3	---	---
27	---	---	9.0	8.9	---	---	9.0	8.6	9.5	9.0	---	---
28	---	---	9.1	9.0	---	---	9.0	8.9	9.3	8.8	---	---
29	---	---	9.0	8.9	---	---	9.1	9.0	8.9	8.4	---	---
30	---	---	8.9	8.8	---	---	9.2	9.0	9.5	8.5	---	---
31	---	---	8.8	8.7	---	---	9.2	9.0	9.4	9.0	---	---

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										.9	-20.5	-8.9
22										-2.7	-17.0	-12.1
23										-1.5	-17.9	-12.6
24										-1.7	-23.7	-12.3
25										-13.9	-29.6	-23.7
26										-5.2	-28.5	-14.3
27										2.2	-14.4	-8.3
28										2.8	-15.2	-6.2
29										5.6	-7.9	-.8
30										-7.9	-16.3	-10.8
31										-16.0	-26.2	-21.2

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	-22.0	-32.0	-28.1				---	---	---	22.9	15.9	18.4
2	-13.9	-31.6	-23.0				---	---	---	21.0	6.4	14.5
3	-18.6	-29.1	-22.1				---	---	---	12.6	4.7	7.8
4	-20.2	-26.7	-24.1				---	---	---	15.9	1.5	8.1
5	-18.3	-28.5	-23.9				---	---	---	23.1	.7	11.3
6	-9.3	-26.1	-18.2				---	---	---	25.6	9.5	18.1
7	-15.7	-23.0	-19.1				---	---	---	19.7	9.6	14.6
8	-7.3	-19.4	-14.5				---	---	---	12.5	8.8	10.2
9	-18.2	-26.5	-23.5				---	---	---	20.5	5.2	12.7
10	-20.4	-29.6	-25.4				---	---	---	21.4	8.1	14.2
11	-16.4	-33.4	-24.4				---	---	---	22.1	12.3	16.9
12	-5.3	-20.1	-12.7				---	---	---	24.3	2.2	13.8
13	-3.2	-9.2	-6.2				---	---	---	20.5	-6.1	8.6
14	-4.1	-24.2	-12.5				---	---	---	20.6	8.3	15.0
15	1.1	-25.7	-12.2				---	---	---	14.9	6.9	11.6
16	1.0	-6.6	-2.1				---	---	---	24.0	-.5	11.5
17	3.5	-10.4	-1.1				---	---	---	25.1	5.0	16.7
18	2.9	-5.6	-.7				---	---	---	27.5	15.1	20.3
19	1.6	-15.4	-3.4				---	---	---	18.9	13.4	16.0
20	-6.0	-23.9	-13.5				---	---	---	19.5	13.9	16.4
21	7.4	-5.9	1.6				---	---	---	16.7	11.2	13.3
22	1.6	-10.6	-5.6				5.8	-3.0	2.3	21.9	9.6	15.3
23	-7.2	-13.2	-10.6				12.5	-4.2	4.1	28.5	9.8	19.5
24	-5.6	-16.1	-11.3				10.9	1.9	6.4	25.8	11.3	19.4
25	8.9	-17.1	-3.4				8.6	-1.5	3.7	29.7	14.0	21.2
26	8.1	-2.7	2.6				7.2	1.1	4.0	27.6	13.0	19.2
27	11.5	-3.4	3.3				14.7	.9	7.6	27.2	12.4	20.7
28	6.6	.7	2.9				21.9	3.2	12.7	30.5	18.2	24.1
29	---	---	---				24.4	2.2	14.9	30.6	18.6	25.1
30	---	---	---				24.0	11.3	18.1	28.3	19.0	23.4
31	---	---	---				---	---	---	30.3	21.2	25.5
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.7	18.3	22.1	22.4	15.1	18.3	24.6	15.8	19.2	26.7	10.8	18.9
2	31.5	17.3	24.0	27.6	12.7	19.9	29.7	17.9	22.4	20.2	15.4	17.8
3	35.0	18.1	25.8	30.3	15.7	23.5	24.7	16.1	20.9	23.8	11.7	18.0
4	32.3	19.4	26.2	29.8	18.7	24.9	24.6	14.4	19.5	20.3	11.4	16.0
5	32.3	17.8	25.8	36.7	21.2	29.7	32.1	15.9	23.6	19.5	7.4	13.5
6	32.6	17.5	25.5	37.6	24.6	30.9	33.4	17.5	26.3	25.5	5.7	16.0
7	34.3	17.0	26.1	29.5	16.4	22.2	26.0	16.5	23.3	26.3	14.0	18.9
8	28.5	16.8	23.6	31.2	13.9	23.8	23.0	13.2	17.4	---	---	---
9	26.7	11.5	19.2	27.9	18.6	23.7	30.5	12.6	21.6	---	---	---
10	30.8	13.2	22.9	21.6	13.2	17.8	35.0	18.8	27.3	---	---	---
11	34.1	18.6	25.9	25.8	10.6	18.5	31.3	18.9	25.0	---	---	---
12	23.9	16.1	20.6	28.4	15.1	20.6	30.3	19.5	24.5	---	---	---
13	27.2	15.9	21.4	28.3	17.6	23.3	24.1	18.5	20.8	---	---	---
14	19.7	12.3	15.6	30.3	15.7	23.5	29.6	16.3	23.4	---	---	---
15	21.9	11.0	16.8	26.7	18.1	23.2	32.6	18.4	26.3	---	---	---
16	24.5	9.8	18.1	31.8	13.4	22.8	35.6	22.5	27.4	---	---	---
17	30.9	15.1	23.3	30.0	13.9	22.7	24.9	18.8	21.7	---	---	---
18	34.9	20.7	26.6	25.3	16.3	21.4	27.8	17.7	20.9	---	---	---
19	32.6	20.9	27.2	25.6	13.3	18.8	27.7	13.7	20.8	---	---	---
20	34.4	16.3	26.2	25.5	10.9	18.7	29.7	16.2	24.0	---	---	---
21	33.9	20.2	27.2	32.2	13.9	23.4	28.8	17.2	23.7	---	---	---
22	27.6	16.7	22.7	31.8	14.0	24.1	29.7	11.6	19.4	---	---	---
23	30.8	16.2	23.0	31.3	17.2	24.0	24.7	14.6	19.5	---	---	---
24	35.0	19.6	26.8	27.2	12.8	20.7	29.6	13.8	21.5	---	---	---
25	26.7	16.7	21.8	32.3	13.8	24.0	22.8	11.2	17.4	---	---	---
26	27.5	14.4	21.9	35.8	16.1	26.9	23.7	8.2	16.9	---	---	---
27	34.6	18.4	26.1	38.6	19.3	29.9	18.6	8.4	13.7	---	---	---
28	27.7	19.4	24.2	38.8	23.6	30.4	19.1	5.2	13.0	---	---	---
29	22.7	14.4	18.2	29.7	20.1	25.5	25.0	5.8	15.5	---	---	---
30	25.0	15.6	19.2	32.6	15.7	25.2	26.2	6.4	17.1	---	---	---
31	---	---	---	31.6	22.3	27.1	22.2	12.5	18.3	---	---	---

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										1.1	.8	.8
21										1.1	.5	.9
22										1.0	.7	.8
23										.9	.7	.8
24										1.0	.6	.8
25										.9	.6	.7
26										.7	.4	.6
27										.7	.5	.6
28										.7	.5	.6
29										.7	.4	.5
30										.6	.4	.5
31										.6	.4	.5
		FEBRUARY			MARCH			APRIL			MAY	
1	.6	.2	.4				---	---	---	21.0	14.3	16.0
2	.6	.2	.4				---	---	---	15.3	14.1	14.5
3	.5	.2	.3				---	---	---	14.2	12.4	13.0
4	.2	.0	.1				---	---	---	12.9	11.0	11.9
5	.4	.0	.2				---	---	---	13.5	11.2	12.3
6	.3	-.2	.1				---	---	---	14.5	12.5	13.5
7	.1	-.3	-.1				---	---	---	14.5	13.5	14.0
8	.0	-.2	-.1				---	---	---	14.1	11.9	13.1
9	.0	-.3	-.1				---	---	---	---	---	---
10	.1	-.2	-.1				---	---	---	---	---	---
11	.2	-.2	.0				---	---	---	16.4	13.9	15.1
12	.2	-.1	.0				---	---	---	18.7	14.3	16.3
13	.2	-.4	.0				---	---	---	---	---	---
14	.2	-.2	-.1				---	---	---	---	---	---
15	.3	-.2	.0				---	---	---	---	---	---
16	.1	-.1	.0				---	---	---	---	---	---
17	.1	-.2	.0				---	---	---	---	---	---
18	.1	-.1	.0				---	---	---	17.2	14.3	15.8
19	.2	-.1	.0				---	---	---	17.3	16.0	16.6
20	.3	.0	.1				---	---	---	17.5	16.4	16.9
21	.5	.0	.2				---	---	---	17.0	15.7	16.3
22	.5	.1	.3				8.4	7.2	7.7	17.1	14.7	15.9
23	.6	.3	.4				8.2	6.1	7.2	21.3	16.3	18.0
24	.7	.4	.5				13.4	2.0	7.7	20.0	18.2	19.1
25	.7	.4	.5				9.6	.0	4.2	19.6	17.4	18.6
26	.8	.4	.5				7.8	1.5	4.4	20.6	18.3	19.2
27	1.0	-.1	.6				18.8	.9	8.3	22.3	18.8	20.3
28	1.0	-.2	.7				26.4	2.9	13.4	23.3	20.3	21.6
29	---	---	---				26.2	1.9	15.1	24.2	21.7	22.9
30	---	---	---				26.1	11.0	18.2	23.6	22.4	22.9
31	---	---	---				---	---	---	24.3	21.8	23.0

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.7	23.1	23.9	22.5	20.0	20.9	22.4	19.1	20.4	18.5	15.8	17.0
2	27.0	23.2	24.9	23.5	19.4	20.9	24.7	18.8	20.6	17.5	15.4	16.6
3	28.7	25.5	26.6	23.2	20.4	21.9	22.8	19.4	21.3	18.1	15.6	17.0
4	28.1	26.1	27.1	24.4	22.0	23.3	21.3	19.3	20.2	18.0	14.8	16.5
5	27.6	25.6	26.6	26.5	23.5	25.0	22.5	18.3	20.0	18.1	15.0	16.5
6	26.6	24.5	25.6	27.7	24.9	26.3	22.1	19.6	21.1	17.8	14.6	16.1
7	27.7	24.5	26.0	26.7	23.7	25.1	21.5	20.1	21.0	16.2	13.1	15.0
8	27.9	25.8	26.9	26.2	23.3	24.7	22.0	18.5	19.6	---	---	---
9	25.2	22.1	23.3	26.3	23.5	24.6	21.1	18.2	19.6	---	---	---
10	24.2	21.3	22.7	24.3	22.0	23.3	23.2	19.6	21.1	---	---	---
11	25.0	21.7	23.3	26.3	21.1	23.2	23.7	20.7	22.2	---	---	---
12	24.6	21.9	22.9	22.7	19.8	21.3	27.0	20.7	23.4	---	---	---
13	24.5	21.0	22.5	23.4	21.0	22.2	25.0	21.1	22.0	---	---	---
14	23.2	19.8	21.3	23.6	20.1	22.3	25.5	20.4	22.3	---	---	---
15	20.6	18.3	19.5	24.1	22.2	23.0	27.8	21.2	24.3	---	---	---
16	21.8	19.2	20.4	24.6	21.3	23.0	28.0	22.7	25.0	---	---	---
17	24.1	20.2	22.1	25.8	21.5	23.1	27.1	23.0	23.9	---	---	---
18	26.5	22.1	24.1	23.7	20.8	22.1	23.8	21.3	22.4	---	---	---
19	25.9	23.9	25.1	23.0	18.7	20.0	---	---	---	---	---	---
20	25.8	24.2	25.0	23.0	19.0	21.0	---	---	---	---	---	---
21	30.2	23.7	26.2	25.4	19.7	21.5	---	---	---	---	---	---
22	27.1	24.4	25.5	23.2	20.3	21.8	---	---	---	---	---	---
23	24.2	21.7	23.2	22.2	19.5	20.8	---	---	---	---	---	---
24	27.8	22.8	24.9	23.6	19.1	21.3	---	---	---	---	---	---
25	26.8	23.0	24.9	22.4	18.2	21.1	---	---	---	---	---	---
26	25.8	23.6	24.7	24.3	16.2	21.6	17.8	16.7	17.4	---	---	---
27	25.0	22.5	23.9	25.6	20.7	22.7	16.6	14.7	15.7	---	---	---
28	26.6	24.0	25.1	25.6	21.0	23.0	16.3	13.5	14.8	---	---	---
29	24.4	20.9	22.0	24.2	22.0	23.1	20.3	14.1	16.9	---	---	---
30	21.7	18.8	20.4	25.8	21.3	23.1	18.2	15.5	16.8	---	---	---
31	---	---	---	24.4	21.2	22.6	17.4	16.2	16.8	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										7.1	4.8	6.1
21										7.6	5.3	6.3
22										6.1	4.5	5.4
23										5.6	3.8	4.8
24										4.7	2.4	3.7
25										3.6	2.3	2.7
26										2.8	2.2	2.5
27										2.5	1.7	2.0
28										1.8	1.2	1.5
29										1.5	.9	1.2
30										1.0	.3	.6
31										.5	.1	.3

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.3	.0	.1				---	---	---	10.5	8.7	9.3
2	.2	.0	.0				---	---	---	13.0	8.6	10.3
3	.1	.0	.0				---	---	---	13.7	8.8	12.0
4	.2	.0	.0				---	---	---	14.9	8.8	11.3
5	.2	.0	.0				---	---	---	15.0	8.5	10.9
6	.1	.0	.0				---	---	---	11.5	8.4	9.6
7	.2	.0	.0				---	---	---	11.9	7.6	10.0
8	.1	.0	.0				---	---	---	12.5	11.4	12.0
9	.1	.0	.0				---	---	---	---	---	---
10	.1	.0	.0				---	---	---	---	---	---
11	.1	.0	.0				---	---	---	12.1	10.3	10.3
12	.1	.0	.0				---	---	---	11.0	10.2	10.2
13	.1	.0	.0				---	---	---	---	---	---
14	.1	.0	.0				---	---	---	---	---	---
15	.1	.0	.0				---	---	---	---	---	---
16	.1	.0	.0				---	---	---	---	---	---
17	.1	.0	.0				---	---	---	18.0	8.7	11.5
18	.1	.0	.0				---	---	---	10.6	9.7	10.1
19	.1	.0	.0				---	---	---	11.0	9.2	10.0
20	.2	.0	.0				---	---	---	11.2	9.2	10.3
21	.5	.0	.1				---	---	---	11.0	9.8	10.4
22	1.0	.0	.4				13.0	11.9	12.5	11.0	9.6	10.4
23	2.3	.1	1.1				12.7	10.9	11.9	12.8	8.9	10.6
24	2.8	.4	1.6				13.0	7.5	11.0	12.3	10.4	11.4
25	3.8	.9	2.1				15.3	9.6	12.0	10.2	9.6	10.0
26	3.1	.9	2.0				13.7	10.5	12.2	9.8	8.7	9.3
27	9.8	.2	2.9				13.9	9.5	11.4	10.2	8.0	8.8
28	2.1	.2	1.5				13.5	8.1	9.9	10.2	8.8	9.6
29	---	---	---				14.0	8.2	9.9	9.3	8.0	8.6
30	---	---	---				11.7	8.1	9.4	8.6	7.3	8.0
31	---	---	---				---	---	---	8.7	7.3	8.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.6	6.2	7.0	---	---	---	8.0	5.0	7.1	6.5	2.7	5.3
2	7.3	5.5	6.2	---	---	---	13.4	5.5	8.3	8.7	3.5	7.3
3	6.2	4.9	5.6	---	---	---	10.7	5.4	8.1	9.4	4.3	8.0
4	8.4	6.2	7.1	---	---	---	10.6	4.9	7.4	9.4	7.4	8.6
5	9.1	5.6	7.3	---	---	---	11.8	7.0	8.8	12.6	8.9	10.7
6	9.7	5.6	7.5	10.5	5.3	7.7	9.8	7.3	8.5	12.2	10.1	11.3
7	9.1	5.0	7.0	13.2	5.2	8.9	8.7	4.5	7.0	12.2	10.4	11.4
8	9.4	5.2	7.3	9.9	5.7	8.1	---	---	---	---	---	---
9	8.9	5.6	7.2	11.5	6.2	8.4	9.9	6.7	8.5	---	---	---
10	8.4	5.5	7.2	10.2	4.9	7.3	11.8	5.3	8.9	---	---	---
11	10.5	5.6	7.7	10.3	3.7	6.9	12.8	6.3	9.6	---	---	---
12	7.8	6.4	7.0	9.2	5.3	7.2	18.7	6.8	11.8	---	---	---
13	9.6	5.2	7.2	9.8	4.2	6.9	14.6	6.7	8.7	---	---	---
14	7.6	6.4	7.2	10.6	5.1	8.1	15.5	4.5	8.6	---	---	---
15	9.9	6.6	7.9	13.2	4.0	8.5	18.5	7.3	12.3	---	---	---
16	10.3	5.6	8.0	11.4	5.4	8.0	10.3	6.7	8.9	---	---	---
17	12.7	4.6	8.6	12.3	4.4	8.1	10.2	7.3	8.5	---	---	---
18	9.3	5.0	6.9	10.5	5.2	7.4	9.4	5.8	7.6	---	---	---
19	8.4	3.5	6.3	9.6	3.5	6.4	9.5	6.0	8.1	---	---	---
20	8.5	3.0	5.6	10.0	4.0	7.1	9.7	6.7	8.4	---	---	---
21	10.4	4.4	7.0	12.1	5.5	8.2	9.1	4.6	7.6	---	---	---
22	6.4	2.7	4.6	8.5	5.4	7.5	8.9	6.8	8.1	---	---	---
23	7.1	3.7	5.8	10.0	4.9	6.9	10.6	7.0	8.9	---	---	---
24	8.9	3.4	5.8	10.6	3.6	7.4	10.4	8.1	9.5	---	---	---
25	9.5	3.4	6.2	7.9	5.7	7.0	10.2	9.0	9.6	---	---	---
26	7.4	3.3	5.1	9.5	3.1	6.8	9.7	6.8	7.9	---	---	---
27	7.4	3.5	5.4	11.9	6.2	8.0	10.2	6.8	8.7	---	---	---
28	7.9	2.3	5.4	10.1	5.0	7.3	9.4	6.1	7.3	---	---	---
29	5.9	3.8	4.5	8.7	4.9	7.1	9.7	2.9	6.5	---	---	---
30	---	---	---	10.9	3.0	7.2	10.2	6.6	7.9	---	---	---
31	---	---	---	10.7	5.1	7.6	7.5	5.1	6.3	---	---	---

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										84.7	66.3	78.1
22										81.1	68.1	74.6
23										88.6	66.0	78.0
24										91.9	71.4	81.3
25										71.4	42.1	64.1
26										84.2	61.4	75.0
27										88.0	45.4	78.5
28										88.8	70.6	83.3
29										89.9	66.7	81.9
30										91.5	80.2	87.1
31										80.0	63.2	69.9
		FEBRUARY			MARCH			APRIL			MAY	
1	66.0	57.6	62.3				---	---	---	---	---	---
2	74.7	59.4	67.0				---	---	---	---	---	---
3	71.0	52.4	64.9				---	---	---	---	---	---
4	73.1	64.3	69.2				---	---	---	---	---	---
5	70.8	62.5	65.1				---	---	---	---	---	---
6	85.0	56.3	67.7				---	---	---	---	---	---
7	79.5	62.2	71.8				---	---	---	---	---	---
8	79.0	48.3	72.3				---	---	---	---	---	---
9	74.0	61.2	66.2				---	---	---	---	---	---
10	68.9	58.3	64.2				---	---	---	---	---	---
11	72.5	56.9	64.2				---	---	---	61.4	28.7	50.9
12	93.4	68.1	76.8				---	---	---	64.1	34.1	55.2
13	94.0	82.3	90.7				---	---	---	69.2	14.1	36.3
14	92.7	64.5	79.7				---	---	---	63.0	27.7	38.2
15	84.5	68.3	74.6				---	---	---	62.2	42.9	56.6
16	89.8	73.6	80.6				---	---	---	67.8	17.1	42.9
17	92.3	68.0	76.5				---	---	---	54.9	18.0	34.2
18	97.3	68.4	82.0				---	---	---	63.2	33.5	46.0
19	94.7	55.5	78.9				---	---	---	63.5	54.4	60.7
20	83.7	49.1	65.8				---	---	---	63.6	38.9	55.4
21	91.6	64.6	77.5				---	---	---	64.1	56.5	61.8
22	81.2	50.7	63.1				68.4	45.5	54.6	64.4	27.5	51.2
23	66.8	51.2	58.0				67.8	19.8	43.4	63.4	17.1	40.4
24	76.3	44.6	62.9				53.5	26.1	39.0	65.6	24.3	39.2
25	78.8	56.9	66.5				79.4	51.6	62.9	60.4	28.7	43.5
26	98.9	60.7	76.0				69.8	40.3	55.7	83.8	34.0	61.0
27	98.8	60.5	81.0				62.5	17.4	39.7	90.6	28.1	61.4
28	94.6	47.1	73.4				46.9	14.1	28.0	87.5	41.7	65.4
29	---	---	---				52.9	17.3	31.4	78.5	42.4	61.9
30	---	---	---				84.6	48.1	63.0	84.2	59.6	72.6
31	---	---	---				---	---	---	78.6	49.9	66.4

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	87.1	56.0	78.6	88.9	45.5	71.9	88.0	39.2	74.9	86.8	15.6	51.6
2	83.4	34.3	68.7	88.1	41.4	69.7	89.5	54.0	77.7	64.2	36.5	45.7
3	87.0	24.0	57.2	87.9	43.3	67.5	85.7	47.1	72.4	88.3	40.5	66.3
4	81.2	30.0	52.6	86.8	63.9	75.8	83.8	38.3	63.6	84.4	40.1	63.2
5	85.1	38.4	57.7	86.3	33.2	59.4	81.7	14.4	54.8	83.2	25.7	58.5
6	77.0	32.5	52.8	80.1	28.5	56.7	86.7	16.0	54.1	82.9	18.3	46.8
7	82.5	32.3	56.0	84.4	33.1	59.3	80.4	37.2	53.8	54.0	20.8	41.8
8	81.2	47.8	64.1	84.6	22.0	50.4	87.2	35.2	63.6	---	---	---
9	58.2	22.1	42.9	86.5	32.4	54.7	87.8	18.4	55.1	---	---	---
10	64.6	29.7	44.5	86.7	51.3	69.2	78.4	18.7	47.8	---	---	---
11	59.2	27.2	44.7	90.4	30.8	57.9	80.8	30.0	54.0	---	---	---
12	85.5	49.7	67.1	88.4	48.5	69.3	84.6	54.0	72.1	---	---	---
13	82.1	33.4	58.5	89.7	20.3	56.0	86.9	76.3	83.8	---	---	---
14	88.9	58.9	80.8	85.0	34.8	57.0	89.2	45.7	68.8	---	---	---
15	89.5	42.9	68.2	85.3	25.1	55.7	87.6	57.5	72.0	---	---	---
16	91.5	46.8	68.5	85.1	24.7	49.6	83.6	39.5	70.0	---	---	---
17	87.5	36.9	64.5	82.4	15.1	44.9	86.8	72.9	81.2	---	---	---
18	86.7	39.5	67.1	78.7	37.1	51.2	86.2	46.1	74.4	---	---	---
19	85.8	13.8	46.1	78.2	31.1	59.8	89.9	58.6	74.7	---	---	---
20	86.9	22.0	46.4	86.8	36.4	65.6	85.8	40.2	63.0	---	---	---
21	83.8	49.6	66.7	87.6	14.8	48.3	80.5	22.0	60.4	---	---	---
22	76.4	29.4	49.6	80.6	18.9	44.3	84.3	25.6	56.7	---	---	---
23	84.7	40.0	61.4	63.0	28.6	46.8	64.4	30.5	48.5	---	---	---
24	86.1	33.1	57.0	77.1	20.8	46.1	64.0	16.7	41.0	---	---	---
25	78.4	37.3	57.1	77.0	16.5	41.8	66.5	26.8	46.7	---	---	---
26	86.1	40.0	60.0	81.3	13.1	40.1	86.3	24.9	53.4	---	---	---
27	68.8	31.7	50.4	65.4	11.1	31.8	85.4	27.4	55.3	---	---	---
28	81.1	57.4	67.2	63.3	11.2	38.9	86.2	34.4	50.1	---	---	---
29	80.5	52.0	6 .5	80.9	29.2	48.9	90.4	23.3	55.0	---	---	---
30	85.8	37.7	56.2	63.3	15.0	35.0	91.5	21.1	52.6	---	---	---
31	---	---	---	57.1	19.0	37.0	82.0	44.1	57.9	---	---	---

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	24	312	13
22	---	---	---	---	---	---	---	---	---	23	314	15
23	---	---	---	---	---	---	---	---	---	19	144	13
24	---	---	---	---	---	---	---	---	---	31	346	22
25	---	---	---	---	---	---	---	---	---	14	318	5.7
26	---	---	---	---	---	---	---	---	---	10	313	5.0
27	---	---	---	---	---	---	---	---	---	8.0	127	5.6
28	---	---	---	---	---	---	---	---	---	19	176	11
29	---	---	---	---	---	---	---	---	---	16	12	8.7
30	---	---	---	---	---	---	---	---	---	19	335	13
31	---	---	---	---	---	---	---	---	---	27	326	21
		FEBRUARY			MARCH			APRIL			MAY	
1	14	316	7.2	---	---	---	---	---	---	29	255	18
2	13	309	7.7	---	---	---	---	---	---	25	8	15
3	16	---	7.2	---	---	---	---	---	---	20	151	14
4	24	312	13	---	---	---	---	---	---	15	156	12
5	31	297	24	---	---	---	---	---	---	15	182	11
6	26	324	13	---	---	---	---	---	---	26	305	18
7	24	321	14	---	---	---	---	---	---	22	340	12
8	15	316	7.3	---	---	---	---	---	---	26	255	19
9	16	343	11	---	---	---	---	---	---	21	219	14
10	15	317	8.0	---	---	---	---	---	---	17	---	8.6
11	21	169	9.5	---	---	---	---	---	---	18	187	12
12	16	174	7.2	---	---	---	---	---	---	28	206	13
13	18	170	12	---	---	---	---	---	---	7.6	21	4.8
14	29	349	19	---	---	---	---	---	---	23	126	12
15	24	167	12	---	---	---	---	---	---	27	134	19
16	18	329	11	---	---	---	---	---	---	5.5	321	3.9
17	22	---	12	---	---	---	---	---	---	27	171	15
18	14	318	9.2	---	---	---	---	---	---	24	213	18
19	25	327	18	---	---	---	---	---	---	14	333	9.5
20	13	200	7.5	---	---	---	---	---	---	12	356	6.5
21	28	289	16	---	---	---	---	---	---	18	3	14
22	29	312	23	---	---	---	15	16	9.1	14	79	9.4
23	31	302	24	---	---	---	13	8	7.7	9.2	72	3.8
24	20	305	14	---	---	---	23	290	16	18	133	10
25	17	258	10	---	---	---	21	306	16	25	230	16
26	16	294	10	---	---	---	18	1	11	21	30	9.4
27	17	245	8.3	---	---	---	13	273	9.6	8.7	127	5.4
28	22	343	17	---	---	---	12	229	6.5	19	160	9.2
29	---	---	---	---	---	---	20	136	12	19	120	16
30	---	---	---	---	---	---	19	150	15	26	183	19
31	---	---	---	---	---	---	---	---	---	25	195	19

Table 14.--Water-quality records for Arrowwood Lake Open-Water Site (06468360)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16	6	8.2	17	132	9.0	26	117	14	18	334	10
2	14	353	6.8	12	166	9.0	11	84	6.2	23	10	15
3	7.5	335	4.0	19	126	11	19	335	8.2	23	11	16
4	15	188	9.1	21	92	10	13	321	6.3	22	30	13
5	21	200	14	26	143	16	16	255	11	12	30	7.1
6	20	205	14	25	149	15	22	170	13	15	166	8.8
7	14	202	8.6	26	322	13	20	323	13	25	197	15
8	21	103	12	14	209	7.9	9.1	4	5.6	---	---	---
9	18	179	15	17	354	11	16	203	9.1	---	---	---
10	20	191	14	16	11	10	23	192	12	---	---	---
11	18	196	13	10	83	6.2	18	51	12	---	---	---
12	21	59	13	22	117	13	25	165	10	---	---	---
13	14	72	8.4	22	277	13	17	254	9.3	---	---	---
14	17	356	14	23	109	12	12	176	5.8	---	---	---
15	18	339	11	24	329	14	17	34	9.3	---	---	---
16	14	179	8.4	20	324	9.7	26	349	13	---	---	---
17	16	224	11	14	338	6.2	15	66	9.9	---	---	---
18	14	37	8.7	15	300	10	11	57	9.3	---	---	---
19	19	323	11	16	313	8.5	17	177	8.9	---	---	---
20	22	179	12	15	325	10	18	170	9.5	---	---	---
21	23	346	14	6.3	114	3.2	24	342	16	---	---	---
22	14	53	8.1	20	139	11	25	318	9.6	---	---	---
23	21	115	17	23	333	14	31	318	19	---	---	---
24	18	301	9.3	11	2	7.5	24	319	15	---	---	---
25	17	321	11	16	178	9.2	23	354	14	---	---	---
26	15	95	9.2	12	211	6.4	22	348	7.5	---	---	---
27	26	127	17	18	146	7.3	25	334	17	---	---	---
28	20	27	13	16	---	8.8	13	332	8.5	---	---	---
29	21	88	17	19	319	14	9.7	143	3.5	---	---	---
30	17	86	13	18	123	7.0	20	210	12	---	---	---
31	---	---	---	21	327	14	16	356	8.8	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)

LOCATION.--Lat 47°15'55", long 98°50'52", in SE¼NE¼ sec.25, T.144 N., R.65 W., Stutsman County, Hydrologic Unit 10160001, 0.7 mi upstream from Arrowwood Lake spillway, 0.3 mi east of Arrowwood National Wildlife Refuge Headquarters, and 6 mi southwest of Kensal.

DRAINAGE AREA.--1,480 mi^2, approximately, of which about 860 mi^2 is probably noncontributing.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1987 to September 1988.

PERIOD OF DAILY RECORD.--
Specific conductance, pH, water temperature, dissolved oxygen, air temperature, wind speed, wind direction, and relative humidity; November 1987 to September 1988.

INSTRUMENTATION.--Water-quality and climatological data are collected using a water-quality monitor and various meteorological sensors that are located on a raft anchored in the lake. All parameters are sampled at one-hour intervals and data are stored in an electronic data logger.

REMARKS.--The station name and identification number for this site were changed from Arrowwood Lake Outflow Site (471555098505200) to Arrowwood Lake Outflow Site near Kensal, ND (06468380) on Oct. 1, 1989. The water-quality data for water year 1988 and the data for Arrowwood Lake Open-Water Site were erroneously transposed as published in U.S. Geological Survey Water Data Report ND-88-1. The corrected data are presented in this report. In addition, some incorrect values for Aug. 9 in U.S. Geological Survey Water Data Report ND-88-1. These values have been corrected and are footnoted in the data tables. The appropriate updates have been made to the Water-Quality File in the U.S. Geological Survey's computerized data system.

Raft and recording instruments were removed Feb. 29 in order to prevent damage to the equipment during ice breakup. The equipment was reinstalled on Apr. 20. No records were collected during this period. Other interruptions in record were due to malfunction of the recording instruments.

Records for light penetration and solar radiation were also collected at this location. Because of problems with the calibration of the instruments collecting the data, and verification of the data, the accuracy of these data is unknown and these records are not included in this report. However, these records are available in files at the District office.

EXTREMES FOR CURRENT PERIOD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,770 microsiemens, June 12; minimum recorded, 626 microsiemens, Aug. 1.
pH: Maximum recorded, 9.6 units, Aug. 10; minimum recorded, 7.1 units, Feb. 25.
WATER TEMPERATURE: Maximum, 29.9°C, Aug. 16; minimum recorded, -0.5°C, Jan. 31, Feb. 1, 27.
DISSOLVED OXYGEN: Maximum recorded, 20.8 mg/L, Dec. 9; minimum recorded, 0.1 mg/L, Feb. 18.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
DEC								
03...	1130	-2.0	773	1040	8.10	2.0	19.5	139
17...	1000	-6.0	774	970	8.40	1.5	25.5	180
28...	1030	-8.0	782	1090	8.20	1.0	15.9	109
JAN								
20...	1530	-12.0	--	1520	7.80	0.5	7.7	--
FEB								
03...	1200	-24.0	--	1750	7.50	0.5	0.1	--
17...	1100	-0.5	--	2140	7.60	0.5	0.0	--
29...	1200	3.0	--	1050	7.80	0.5	--	--
MAY								
10...	1000	--	--	740	8.70	12.5	10.8	--
JUN								
02...	1100	--	--	750	8.50	24.5	6.3	--
15...	1100	19.5	--	700	8.77	18.0	6.3	--
JUL								
05...	1230	--	--	850	8.80	22.0	5.0	--
28...	1010	28.0	769	770	9.30	22.0	2.1	24
AUG								
09...	a0805	a16.0	--	686	9.20	17.0	2.0	--
09...	1020	22.5	--	695	a9.25	17.5	4.7	--
09...	1155	25.5	--	690	9.30	a18.5	a5.6	--
09...	1410	27.0	--	681	9.33	18.5	7.5	--
09...	1500	28.5	--	700	9.30	19.0	6.8	--
09...	1615	30.0	--	690	9.45	22.5	5.2	--
09...	1705	31.0	--	680	9.35	23.0	6.9	--
09...	1820	31.0	--	670	9.42	24.0	7.5	--
09...	a1910	30.5	--	671	9.41	--	8.5	--
09...	2010	29.0	--	674	9.31	22.5	6.6	--
09...	2200	22.0	--	708	9.34	22.0	7.3	--
10...	0020	19.0	--	715	9.34	21.5	6.0	--
10...	0200	18.0	--	691	9.38	21.0	5.1	--

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
AUG								
10...	0400	22.0	--	685	9.40	20.5	4.9	--
10...	0500	21.0	--	687	9.38	20.5	3.7	--
10...	0600	20.0	--	705	9.32	20.5	2.1	--
10...	0700	22.0	--	709	9.26	20.5	2.2	--
10...	0800	23.5	--	681	9.34	20.5	2.0	--
10...	0900	25.5	--	695	9.25	20.5	1.8	--
10...	1000	27.0	--	671	9.37	20.5	3.2	--
25...	1130	--	775	770	9.10	17.0	8.6	88
SEP								
08...	1150	15.5	770	870	9.10	14.5	10.3	100
20...	1200	5.0	--	881	8.70	8.0	10.0	--

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
DEC								
03...	<0.010	<0.100	0.170	2.1	0.260	0.010	--	--
17...	<0.010	<0.100	0.350	2.2	0.150	0.020	--	--
28...	<0.010	<0.100	0.260	2.1	0.110	0.020	--	--
JAN								
20...	0.020	<0.100	0.780	4.6	0.390	<0.010	--	--
FEB								
03...	<0.010	<0.100	1.40	4.4	0.340	0.010	--	--
17...	<0.010	<0.100	2.50	7.0	0.820	0.360	--	--
29...	<0.010	0.300	1.00	3.5	0.280	0.140	--	--
MAY								
10...	<0.010	<0.100	0.030	1.4	0.090	0.020	13.0	0.700
JUN								
02...	<0.010	<0.100	0.050	1.1	0.070	0.020	16.0	2.20
15...	<0.010	<0.100	0.010	1.1	0.080	0.030	12.0	1.60
JUL								
05...	<0.010	<0.100	0.030	3.4	0.310	0.130	23.0	1.00
28...	0.010	<0.100	0.090	2.1	0.370	0.280	1.90	<0.200
AUG								
09...	0.010	<0.100	0.090	2.1	0.330	0.250	6.00	0.400
09...	0.010	<0.100	0.060	8.0	0.330	0.240	9.20	0.800
09...	0.010	<0.100	0.040	2.3	0.330	0.230	6.20	0.400
09...	0.010	<0.100	0.020	2.4	0.280	0.200	12.0	0.600
09...	0.010	<0.100	0.030	2.4	0.340	0.200	13.0	0.800
09...	0.010	<0.100	0.030	2.6	0.290	0.180	21.0	1.60
09...	0.010	<0.100	0.060	2.5	0.320	0.180	9.40	0.500
09...	0.010	<0.100	0.030	2.1	0.260	0.170	11.0	0.800
09...	0.010	<0.100	0.060	2.6	0.340	0.210	9.50	<0.400
09...	0.010	<0.100	0.030	1.9	0.260	0.170	6.20	<0.400
09...	0.010	<0.100	0.040	2.2	0.280	0.200	1.30	<0.400
10...	0.020	<0.100	<0.010	2.0	0.300	0.200	3.00	<0.400
10...	0.010	<0.100	0.060	2.3	0.300	0.210	1.60	<0.400
10...	0.010	0.200	0.050	1.9	0.290	0.190	4.30	<0.400
10...	0.020	<0.100	0.030	2.5	0.280	0.210	3.90	<0.400
10...	0.010	<0.100	0.090	2.3	0.330	0.220	4.60	<0.400
10...	0.010	<0.100	0.070	2.0	0.330	0.230	3.30	<0.400
10...	0.020	<0.100	0.080	2.2	0.320	0.230	3.60	<0.400
10...	0.010	<0.100	0.060	2.3	0.330	0.240	2.90	<0.400
10...	0.010	<0.100	0.040	1.9	0.310	0.230	4.90	<0.400
25...	<0.010	<0.100	0.070	5.0	0.470	0.150	110	6.30
SEP								
08...	0.010	<0.100	<0.010	5.6	0.740	0.190	110	4.10
20...	0.010	<0.100	0.040	2.7	0.590	0.100	180	7.20

a - Corrected value.

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	1010	970	985	---	---	---
2				---	---	---	1020	976	998	---	---	---
3				---	---	---	1020	943	996	---	---	---
4				---	---	---	983	938	961	---	---	---
5				---	---	---	987	956	970	---	---	---
6				---	---	---	985	954	969	1530	1460	1490
7				---	---	---	992	944	974	1570	1510	1540
8				---	---	---	998	960	980	1650	1560	1600
9				---	---	---	995	956	977	1700	1640	1670
10				---	---	---	983	943	962	1740	1680	1710
11				---	---	---	981	943	964	1760	1640	1740
12				---	---	---	983	953	970	1770	1300	1590
13				---	---	---	992	960	975	---	---	---
14				866	833	849	996	962	978	---	---	---
15				868	839	855	1010	969	989	1580	1090	1420
16				866	839	848	1030	986	1010	1570	1460	1520
17				873	840	855	1040	1010	1030	1580	1550	1560
18				920	854	888	1070	1030	1050	1580	1540	1560
19				907	867	883	1100	1050	1080	1580	1550	1570
20				962	879	931	1100	1060	1080	---	---	---
21				988	939	961	1100	1060	1080	---	---	---
22				961	930	946	1110	1070	1090	---	---	---
23				969	932	950	1110	1080	1100	---	---	---
24				1010	951	987	1140	1090	1110	---	---	---
25				1000	977	990	1150	1110	1130	---	---	---
26				1000	966	987	1170	1130	1150	---	---	---
27				992	964	973	1180	1140	1160	---	---	---
28				984	946	967	---	---	---	---	---	---
29				975	943	960	---	---	---	1690	1640	1660
30				991	944	966	---	---	---	1690	1320	1660
31				---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										722	695	710
11										731	698	711
12										717	651	700
13										701	652	667
14										709	654	676
15										---	---	---
16										---	---	---
17										---	---	---
18										723	688	707
19										713	684	701
20										726	684	702
21										723	681	702
22										717	685	701
23										717	685	700
24										718	696	706
25										726	690	703
26										723	685	706
27										731	697	710
28										731	703	714
29										726	704	712
30										736	701	714
31										739	706	724

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	745	720	729	700	667	683	709	626	660	851	791	822
2	750	711	730	701	667	680	696	635	659	873	805	841
3	742	700	722	713	677	693	712	688	700	935	797	842
4	731	707	717	710	674	693	707	686	700	919	821	848
5	735	710	721	719	676	696	702	669	685	1030	811	844
6	749	719	730	737	693	706	702	671	685	1080	796	838
7	747	709	730	733	710	720	707	682	694	1040	793	832
8	736	704	717	734	706	716	705	683	692	901	816	864
9	722	691	708	732	700	715	734	675	697	858	799	830
10	726	695	708	732	698	710	712	659	683	852	791	821
11	731	705	717	732	694	717	677	642	661	868	797	834
12	727	686	705	717	677	698	733	649	693	871	807	843
13	708	681	694	700	674	685	729	711	718	876	809	840
14	713	672	691	700	670	682	753	684	714	861	798	820
15	723	671	692	693	665	680	724	683	699	879	795	828
16	710	674	693	689	664	673	751	719	736	868	834	848
17	705	679	687	691	665	674	775	742	758	969	852	884
18	716	679	693	688	667	676	795	767	779	890	851	863
19	708	679	693	685	659	673	793	761	777	871	840	854
20	705	678	692	687	662	674	786	753	772	---	---	---
21	708	675	692	696	666	675	804	728	760	---	---	---
22	703	673	686	683	659	672	821	750	779	---	---	---
23	701	671	681	688	662	675	823	709	770	---	---	---
24	706	677	690	687	661	673	857	750	792	---	---	---
25	702	665	684	686	661	670	830	749	803	---	---	---
26	711	669	683	693	666	677	836	765	790	---	---	---
27	704	675	686	691	668	678	835	778	817	---	---	---
28	706	680	694	705	674	692	850	798	817	---	---	---
29	718	690	703	708	684	695	893	793	832	---	---	---
30	716	684	699	707	648	688	930	782	823	---	---	---
31	---	---	---	714	639	691	856	804	833	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1			---	---	8.7	8.6	---	---	---	---		
2			---	---	8.7	8.5	---	---	---	---		
3			---	---	8.5	8.5	---	---	---	---		
4			---	---	8.5	8.4	---	---	---	---		
5			---	---	8.4	8.4	---	---	---	---		
6			---	---	8.4	8.3	---	---	---	---		
7			---	---	8.3	8.2	---	---	---	---		
8			---	---	8.2	8.0	---	---	---	---		
9			---	---	8.1	8.0	---	---	---	---		
10			---	---	8.1	8.0	---	---	---	---		
11			---	---	8.1	8.0	---	---	---	---		
12			---	---	8.1	8.0	---	---	---	---		
13			---	---	8.0	8.0	---	---	---	---		
14			8.5	8.4	8.0	8.0	---	---	---	---		
15			8.5	8.5	8.0	8.0	---	---	---	---		
16			8.5	8.5	8.0	8.0	---	---	---	---		
17			8.5	8.5	8.1	8.0	---	---	7.5	7.5		
18			8.6	8.5	8.0	8.0	---	---	7.6	7.5		
19			8.6	8.5	8.0	8.0	---	---	7.6	7.4		
20			8.6	8.5	8.0	7.9	---	---	7.5	7.3		
21			8.6	8.5	7.9	7.9	---	---	7.5	7.3		
22			8.6	8.5	7.9	7.8	---	---	7.5	7.4		
23			8.6	8.5	7.9	7.8	---	---	7.4	7.3		
24			8.6	8.5	7.8	7.7	---	---	7.4	7.2		
25			8.6	8.5	7.8	7.7	---	---	7.5	7.1		
26			8.6	8.5	7.8	7.7	---	---	7.5	7.3		
27			8.6	8.5	7.7	7.7	---	---	7.8	7.3		
28			8.7	8.5	7.7	7.7	---	---	7.8	7.4		
29			8.7	8.6	---	---	7.9	7.7	---	---		
30			8.7	8.6	---	---	7.8	7.7	---	---		
31			---	---	---	---	---	---	---	---		

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1			---	---	8.5	8.1	---	---	9.4	9.1	9.3	9.1
2			---	---	8.6	8.1	---	---	9.1	8.8	9.3	9.1
3			---	---	8.6	8.3	---	---	9.2	8.9	9.3	9.2
4			---	---	8.7	8.5	---	---	9.3	9.0	9.3	9.1
5			---	---	8.6	8.3	---	---	9.4	9.1	9.3	9.1
6			9.0	8.8	8.7	8.3	9.3	9.0	9.4	9.2	9.4	9.1
7			9.0	8.9	8.6	8.4	9.2	8.9	9.4	9.3	9.3	9.2
8			8.9	8.6	8.8	8.5	9.2	8.9	9.5	9.2	9.3	9.1
9			9.0	8.9	9.0	8.5	9.2	8.8	9.5	9.2	9.3	9.2
10			9.0	8.7	9.0	8.6	9.1	8.9	9.6	9.2	9.2	9.0
11			8.8	8.7	8.9	8.4	9.1	8.7	9.5	9.3	9.3	9.0
12			8.8	8.7	8.8	8.5	9.0	8.9	9.5	9.3	9.1	8.9
13			---	---	8.9	8.6	9.2	8.8	9.4	9.2	9.2	8.9
14			---	---	9.2	8.8	9.1	8.9	9.5	9.1	9.2	8.9
15			---	---	---	---	9.2	9.0	9.4	9.3	9.1	9.0
16			---	---	---	---	9.2	9.0	9.4	9.2	9.1	8.9
17			---	---	---	---	9.2	9.0	9.2	9.1	9.2	8.9
18			8.7	8.6	---	---	9.2	9.0	9.1	8.9	9.2	8.9
19			8.7	8.6	---	---	9.1	9.0	9.3	8.9	9.0	8.7
20			8.7	8.6	---	---	9.1	9.0	9.4	9.0	---	---
21			8.7	8.6	---	---	9.2	9.0	9.3	9.1	---	---
22			8.7	8.6	---	---	9.3	9.1	9.2	9.1	---	---
23			8.7	8.6	---	---	9.2	9.0	9.2	9.1	---	---
24			8.8	8.7	---	---	9.2	9.0	9.3	9.0	---	---
25			8.8	8.7	---	---	9.2	9.1	9.2	9.0	---	---
26			8.7	8.7	---	---	9.3	9.1	9.2	9.1	---	---
27			8.7	8.6	---	---	9.3	9.1	9.2	9.0	---	---
28			8.7	8.5	---	---	9.3	9.1	9.3	9.1	---	---
29			8.6	8.5	---	---	9.4	9.2	9.3	9.1	---	---
30			8.5	8.3	---	---	9.4	9.2	9.4	9.2	---	---
31			8.4	8.1	---	---	9.4	9.2	9.3	9.1	---	---

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				---	---	---	-4.0	-7.3	-5.6	---	---	---
2				---	---	---	-3.4	-5.9	-4.8	---	---	---
3				---	---	---	-1.4	-16.8	-5.6	---	---	---
4				---	---	---	-.3	-14.8	-6.0	---	---	---
5				---	---	---	-2.2	-8.5	-5.1	---	---	---
6				---	---	---	.1	-2.3	-1.2	-16.0	-32.4	-24.0
7				---	---	---	1.6	-.9	.1	-11.2	-22.9	-18.0
8				---	---	---	11.9	-3.4	1.6	-16.2	-27.4	-21.8
9				---	---	---	2.2	-5.9	-1.1	-12.0	-27.3	-19.6
10				---	---	---	7.8	-7.7	.3	-7.0	-19.8	-14.2
11				---	---	---	2.8	-3.8	-.3	-15.2	-21.2	-17.3
12				---	---	---	-1.9	-5.8	-3.8	-15.7	-25.4	-19.2
13				---	---	---	-2.8	-11.7	-6.2	---	---	---
14				10.6	.5	5.8	-3.8	-8.2	-6.4	---	---	---
15				6.9	1.3	4.5	-5.2	-10.2	-8.6	1.4	-14.7	-3.5
16				4.0	-7.3	-.3	-.7	-13.5	-8.9	5.4	-4.3	1.1
17				5.1	-9.2	-4.0	-2.3	-11.1	-7.0	2.9	-11.7	-6.2
18				6.8	-8.4	-.3	.0	-10.1	-5.8	-3.4	-11.6	-7.2
19				2.7	-10.9	-2.1	5.6	-8.9	-3.0	-5.9	-13.0	-8.3
20				.0	-15.4	-7.9	1.2	-7.9	-3.8	---	---	---
21				10.2	-8.7	-1.4	5.3	-9.3	-4.2	---	---	---
22				2.9	-4.1	-.3	5.7	-8.9	-3.0	---	---	---
23				3.9	-9.6	-3.2	.0	-10.4	-6.9	---	---	---
24				2.3	-9.9	-4.2	-5.4	-15.9	-9.9	---	---	---
25				.0	-1.5	-.7	-1.5	-17.3	-10.9	---	---	---
26				1.5	-3.2	-.2	5.3	-8.9	-4.3	---	---	---
27				.8	-1.6	-.2	-3.7	-12.0	-7.5	---	---	---
28				3.5	-5.8	-1.5	---	---	---	---	---	---
29				3.8	-6.2	-2.4	---	---	---	6.1	-7.9	-.3
30				-2.5	-6.3	-3.9	---	---	---	-7.9	-15.7	-10.8
31				---	---	---	---	---	---	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---							---	---	---
2	---	---	---							---	---	---
3	---	---	---							---	---	---
4	---	---	---							---	---	---
5	---	---	---							---	---	---
6	---	---	---							26.1	10.0	18.0
7	---	---	---							18.4	9.9	14.4
8	---	---	---							11.7	8.2	9.9
9	---	---	---							21.9	4.6	11.8
10	---	---	---							21.4	7.7	14.0
11	---	---	---							22.6	12.2	17.0
12	---	---	---							23.7	4.8	14.3
13	---	---	---							21.0	-2.0	9.5
14	---	---	---							20.8	8.2	15.1
15	---	---	---							15.0	9.2	12.0
16	---	---	---							---	---	---
17	---	---	---							25.3	5.9	16.6
18	5.1	-5.0	.0							28.3	15.0	20.4
19	2.8	-15.4	-3.1							19.6	13.2	16.0
20	-5.9	-23.6	-13.7							19.5	14.1	16.7
21	6.2	-5.8	1.7							17.3	11.5	13.7
22	1.8	-10.6	-5.2							22.1	9.4	15.3
23	-6.4	-13.3	-10.4							28.5	8.3	19.0
24	-4.6	-15.5	-10.9							25.4	11.1	19.2
25	7.6	-16.2	-3.1							29.6	13.3	21.0
26	10.4	-3.6	3.3							27.4	13.8	19.0
27	11.7	-4.1	3.5							27.4	11.4	19.9
28	8.2	.3	3.3							29.9	17.5	23.9
29	---	---	---							31.5	18.4	25.1
30	---	---	---							28.8	19.2	23.6
31	---	---	---							31.0	21.2	25.7
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.0	18.7	22.0	42.7	14.0	19.0	24.3	15.4	19.1	27.2	10.8	18.8
2	30.9	16.9	23.4	28.9	12.6	19.9	29.2	17.8	21.9	20.8	15.0	17.9
3	32.6	17.4	25.2	32.0	15.3	23.9	24.7	15.6	20.4	24.5	11.4	18.3
4	32.9	19.4	26.5	30.7	18.8	25.1	25.2	13.9	19.0	20.7	10.6	15.8
5	32.9	17.8	26.0	38.2	20.8	28.4	32.1	15.9	23.3	19.2	6.6	12.6
6	33.3	17.4	25.7	38.7	24.7	31.2	34.0	17.7	26.4	26.6	4.9	16.1
7	34.9	16.9	26.5	29.5	16.1	21.8	26.6	16.1	23.2	27.0	13.5	19.1
8	28.6	16.6	23.8	31.7	13.3	23.3	22.2	12.1	16.7	20.1	10.5	15.2
9	27.0	11.9	19.2	28.2	17.1	23.2	31.2	12.1	21.4	21.9	7.0	14.5
10	31.4	13.3	22.7	21.2	12.0	17.2	35.6	17.8	27.5	21.0	8.5	14.7
11	34.5	18.5	26.1	27.5	8.7	18.4	31.7	18.3	24.8	14.9	9.4	12.3
12	23.5	15.3	20.3	28.5	14.6	20.5	31.0	19.6	24.6	16.4	8.5	10.7
13	26.9	15.4	21.7	28.9	16.7	23.0	24.1	18.5	20.7	23.6	8.8	15.4
14	20.0	11.8	15.3	31.1	14.4	23.2	29.6	15.6	23.2	21.7	3.3	13.6
15	21.8	10.4	16.9	27.1	16.3	23.2	33.3	18.3	26.2	18.5	12.4	14.0
16	24.9	9.9	18.0	32.4	12.3	22.5	35.2	23.1	27.6	23.8	12.9	16.0
17	31.7	15.0	23.6	30.4	12.5	22.0	27.0	18.1	21.7	24.3	11.2	17.7
18	34.9	21.6	26.6	25.8	15.6	21.0	26.4	17.9	20.8	15.6	8.2	11.6
19	33.4	19.1	27.1	26.0	12.1	18.6	27.8	12.9	20.6	10.5	6.7	8.3
20	34.9	14.2	25.8	25.7	10.6	18.4	30.2	15.7	23.7	---	---	---
21	33.7	20.5	27.4	32.1	12.0	22.5	30.0	17.5	23.9	---	---	---
22	28.1	15.4	22.3	32.3	13.8	24.1	26.8	11.2	18.9	---	---	---
23	31.8	16.1	23.2	30.8	15.5	23.7	25.6	14.0	19.6	---	---	---
24	34.6	20.0	26.9	27.3	11.7	20.0	30.4	12.9	21.7	---	---	---
25	26.7	16.2	21.4	32.8	13.7	23.8	23.3	11.1	18.0	---	---	---
26	28.2	14.2	21.3	36.0	14.0	26.5	22.8	7.0	16.3	---	---	---
27	35.6	18.2	26.3	39.2	17.2	29.7	18.6	8.0	13.7	---	---	---
28	27.9	19.4	24.1	39.3	23.2	30.3	19.3	5.7	12.8	---	---	---
29	23.2	14.0	18.2	30.4	18.5	25.3	24.9	4.2	14.4	---	---	---
30	26.1	15.6	19.5	33.3	13.5	24.7	26.5	6.9	17.2	---	---	---
31	---	---	---	31.6	22.5	27.1	22.3	12.1	18.3	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1				---	---	---	2.9	2.5	2.7	---	---	---
2				---	---	---	2.7	2.2	2.5	---	---	---
3				---	---	---	2.5	2.3	2.4	---	---	---
4				---	---	---	2.6	2.0	2.4	---	---	---
5				---	---	---	2.5	2.1	2.3	---	---	---
6				---	---	---	2.9	2.1	2.2	.5	.2	.3
7				---	---	---	2.4	2.1	2.2	.5	.1	.3
8				---	---	---	2.5	2.1	2.3	.6	.2	.4
9				---	---	---	2.7	2.3	2.4	.5	.2	.3
10				---	---	---	3.0	2.6	2.8	.6	.3	.4
11				---	---	---	3.0	2.8	2.9	.5	.2	.3
12				---	---	---	3.1	2.8	3.0	.4	-.1	.2
13				---	---	---	3.0	2.1	2.8	.3	-.3	.1
14				4.9	2.6	3.8	2.8	2.6	2.7	.2	-.4	.0
15				4.6	3.9	4.2	2.8	2.5	2.6	.2	-.4	.0
16				3.8	2.2	3.2	2.7	2.2	2.4	.2	.0	.1
17				2.2	.2	1.1	2.4	2.0	2.2	.1	.0	.0
18				2.5	.8	1.7	2.2	1.7	2.0	.1	.0	.0
19				2.4	1.0	1.7	1.8	1.3	1.6	.1	.0	.0
20				1.9	.6	1.3	2.0	1.6	1.8	---	---	---
21				2.3	1.0	1.7	2.0	1.7	1.9	---	---	---
22				2.8	2.0	2.4	1.9	1.6	1.8	---	---	---
23				3.5	2.7	3.0	2.0	1.7	1.8	---	---	---
24				3.2	2.5	2.8	1.9	1.6	1.7	---	---	---
25				2.9	2.6	2.8	1.8	1.5	1.6	---	---	---
26				2.8	2.4	2.6	1.7	1.2	1.5	---	---	---
27				2.8	2.5	2.6	1.5	1.0	1.4	---	---	---
28				3.0	2.4	2.7	---	---	---	---	---	---
29				3.2	2.6	2.9	---	---	---	---	---	---
30				3.1	2.6	2.9	---	---	---	.0	-.2	-.1
31				---	---	---	---	---	---	.0	-.5	-.2

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1	.0	-.5	-.2							---	---	---
2	.0	-.3	-.2							---	---	---
3	---	---	---							---	---	---
4	---	---	---							---	---	---
5	---	---	---							---	---	---
6	---	---	---							27.1	13.3	18.0
7	---	---	---							21.8	10.0	15.9
8	---	---	---							12.6	8.1	10.2
9	---	---	---							19.3	3.6	11.8
10	---	---	---							17.4	13.0	15.0
11	---	---	---							19.0	15.0	16.9
12	---	---	---							19.8	14.0	17.7
13	---	---	---							19.6	11.5	15.2
14	---	---	---							17.7	12.6	15.0
15	---	---	---							14.2	12.9	13.3
16	---	---	---							16.3	11.3	13.5
17	---	---	---							16.2	10.9	14.0
18	-.2	-.4	-.3							19.7	15.0	17.2
19	-.2	-.4	-.3							19.3	17.6	18.4
20	-.2	-.3	-.2							19.3	17.7	18.6
21	-.1	-.4	-.2							18.7	16.2	17.2
22	.0	-.3	-.2							18.4	14.9	16.6
23	.0	-.2	-.1							25.3	16.6	20.2
24	.0	-.2	-.1							22.5	19.3	20.9
25	.2	-.2	.0							21.9	18.2	20.2
26	.3	-.1	.1							22.8	19.6	20.9
27	.4	-.5	.1							25.8	19.4	22.4
28	.9	-.1	.7							25.9	22.3	24.1
29	---	---	---							26.4	22.9	24.7
30	---	---	---							24.7	23.1	23.9
31	---	---	---							26.0	22.1	24.0

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	23.6	24.8	20.2	19.4	19.7	21.6	18.6	19.6	20.7	15.0	17.8
2	29.3	23.1	25.6	20.1	19.2	19.5	20.0	18.4	19.1	---	---	---
3	31.1	24.3	27.3	20.3	19.5	19.8	21.1	18.7	20.0	---	---	---
4	28.7	25.3	27.1	22.1	20.3	20.8	20.7	19.6	20.0	---	---	---
5	27.6	24.9	26.3	23.3	21.3	22.1	19.9	17.7	18.7	19.8	14.7	17.1
6	27.2	23.9	25.5	24.8	23.1	23.8	20.6	17.0	19.3	19.7	14.3	16.7
7	30.2	23.8	26.6	24.8	22.3	23.2	21.7	19.9	21.1	16.8	12.6	14.9
8	28.5	24.7	26.7	23.1	21.6	22.1	19.6	17.5	18.6	16.3	13.7	15.0
9	24.3	21.2	22.8	22.9	21.7	22.3	23.8	14.4	19.2	16.7	11.4	14.0
10	24.9	20.6	22.5	22.8	21.1	21.9	24.8	20.2	22.2	14.5	12.5	13.6
11	26.4	20.6	23.1	22.0	20.3	20.8	25.8	21.2	23.1	13.4	12.2	12.8
12	24.5	20.5	21.9	21.1	19.6	20.3	27.0	21.4	24.0	15.0	10.7	12.3
13	26.7	19.7	22.5	21.7	20.1	20.7	26.0	22.5	23.6	18.1	10.2	13.7
14	22.9	18.6	20.2	21.8	20.3	21.0	27.3	21.2	23.6	17.3	12.4	14.9
15	20.5	17.1	18.5	21.8	20.9	21.4	28.2	21.9	24.7	15.7	14.4	15.0
16	20.7	18.7	19.8	21.4	20.0	20.5	29.9	23.8	26.6	18.7	14.3	15.7
17	22.9	19.7	20.6	20.7	19.5	19.9	27.0	23.9	25.1	20.4	14.7	17.3
18	22.7	21.4	22.1	20.9	19.5	20.1	25.1	21.6	23.0	17.5	11.9	14.5
19	25.2	22.7	23.7	20.2	18.8	19.4	26.0	20.8	23.0	11.6	9.3	10.2
20	25.9	23.0	24.5	19.3	17.8	18.5	25.4	21.4	23.3	---	---	---
21	25.0	23.2	24.0	19.2	18.5	18.9	24.3	20.9	22.6	---	---	---
22	25.0	23.2	23.9	20.2	19.2	19.5	23.1	19.7	21.2	---	---	---
23	23.3	21.3	22.3	20.4	19.0	19.5	20.7	17.2	19.0	---	---	---
24	24.0	22.1	22.7	19.5	18.0	18.7	22.1	16.3	19.0	---	---	---
25	23.7	21.8	22.7	19.5	18.4	18.9	19.8	16.0	17.9	---	---	---
26	24.0	22.3	23.1	19.7	18.8	19.3	18.3	1 .9	17.2	---	---	---
27	24.6	21.5	23.0	20.5	19.7	20.1	17.4	13.9	15.6	---	---	---
28	25.2	23.4	24.1	21.4	20.5	20.9	17.8	12.7	14.9	---	---	---
29	23.9	20.5	21.8	22.6	21.2	21.8	20.2	13.5	16.4	---	---	---
30	20.4	19.1	19.7	22.0	19.9	20.9	19.6	14.8	17.1	---	---	---
31	---	---	---	21.3	20.4	20.8	18.3	16.0	17.2	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	20.9	19.0	19.8	---	---	---
2				---	---	---	20.7	19.1	19.5	---	---	---
3				---	---	---	19.2	17.9	18.5	---	---	---
4				---	---	---	17.9	17.1	17.6	---	---	---
5				---	---	---	17.5	17.0	17.3	14.4	13.8	14.0
6				---	---	---	17.6	16.8	17.0	15.9	14.3	14.9
7				---	---	---	17.2	16.6	16.8	15.2	12.5	14.0
8				---	---	---	18.6	16.4	17.4	---	---	---
9				---	---	---	20.8	18.0	19.2	---	---	---
10				---	---	---	---	---	---	---	---	---
11				---	---	---	---	---	---	---	---	---
12				---	---	---	---	---	---	---	---	---
13				---	---	---	---	---	---	---	---	---
14				12.8	11.7	12.3	---	---	---	---	---	---
15				12.4	11.4	11.9	---	---	---	---	---	---
16				12.8	11.5	12.1	---	---	---	---	---	---
17				13.3	12.1	12.8	---	---	---	---	---	---
18				15.1	12.9	13.9	---	---	---	---	---	---
19				14.8	13.6	14.1	---	---	---	---	---	---
20				15.7	13.9	14.9	---	---	---	---	---	---
21				16.1	15.1	15.6	20.7	19.6	20.1	---	---	---
22				15.8	14.7	15.3	19.6	18.7	19.1	---	---	---
23				16.6	14.8	15.7	19.0	18.2	18.6	---	---	---
24				17.2	15.5	16.4	18.5	17.4	17.8	---	---	---
25				16.5	15.6	16.0	17.4	16.5	17.0	---	---	---
26				16.2	15.3	15.7	17.6	16.9	17.2	---	---	---
27				16.6	15.4	15.9	17.3	16.2	16.8	---	---	---
28				19.9	16.0	17.6	---	---	---	---	---	---
29				19.5	18.1	18.9	---	---	---	1.5	.7	1.0
30				20.0	18.4	19.2	---	---	---	1.1	.5	.7
31				---	---	---	---	---	---	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---							---	---	---
2	---	---	---							---	---	---
3	---	---	---							---	---	---
4	---	---	---							---	---	---
5	---	---	---							---	---	---
6	---	---	---							14.7	9.5	12.5
7	---	---	---							12.2	9.8	10.9
8	---	---	---							12.9	11.5	12.1
9	---	---	---							---	---	---
10	---	---	---							18.5	10.9	14.5
11	---	---	---							14.8	10.8	12.7
12	---	---	---							12.6	9.1	10.5
13	---	---	---							11.1	9.2	9.8
14	---	---	---							14.0	8.7	10.2
15	---	---	---							---	---	---
16	---	---	---							---	---	---
17	---	---	---							---	---	---
18	.5	.1	.3							---	---	---
19	.9	.2	.4							---	---	---
20	1.3	.3	.8							---	---	---
21	2.6	.7	1.6							---	---	---
22	5.1	1.8	3.2							---	---	---
23	6.6	4.0	5.2							---	---	---
24	10.1	5.6	7.5							---	---	---
25	13.9	8.2	10.3							---	---	---
26	19.3	12.1	15.4							---	---	---
27	---	---	---							---	---	---
28	---	---	---							---	---	---
29	---	---	---							---	---	---
30	---	---	---							---	---	---
31	---	---	---							---	---	---
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	15.9	3.2	9.0	5.3	2.4	3.8	13.3	2.3	7.7
2	---	---	---	16.4	2.9	8.7	10.9	1.4	4.8	13.1	5.4	9.5
3	---	---	---	14.5	3.7	9.7	9.9	2.3	5.0	14.0	5.9	10.2
4	---	---	---	10.0	5.7	8.0	12.5	1.6	5.0	15.4	5.6	10.7
5	---	---	---	12.2	5.2	9.9	12.8	3.0	7.3	15.9	4.6	10.6
6	---	---	---	11.4	4.8	7.4	10.0	2.1	5.8	16.5	4.9	11.0
7	---	---	---	10.1	3.2	5.6	7.3	2.0	4.0	12.9	7.3	10.3
8	---	---	---	15.3	3.2	9.1	13.0	2.0	5.6	12.2	8.7	10.0
9	---	---	---	9.5	2.7	6.0	12.4	1.3	6.1	11.0	6.2	8.8
10	---	---	---	8.0	3.4	5.6	13.0	1.8	6.7	9.5	3.9	7.5
11	---	---	---	12.1	2.3	5.8	10.4	1.2	5.7	10.0	7.0	8.6
12	---	---	---	7.0	3.0	4.5	10.6	3.7	7.0	13.8	7.8	10.2
13	---	---	---	10.0	1.9	4.3	7.8	2.0	4.7	14.6	8.4	11.6
14	---	---	---	6.9	2.5	4.8	12.9	.4	4.9	12.0	3.6	8.8
15	---	---	---	8.9	2.2	5.0	11.2	1.6	6.1	11.3	2.9	7.8
16	17.4	6.1	12.2	10.7	3.1	6.1	12.5	2.8	7.0	12.7	.8	6.5
17	16.7	9.1	13.2	9.4	1.9	4.6	8.7	1.3	5.5	15.3	.9	8.7
18	16.8	8.5	12.1	6.3	2.2	3.6	13.9	1.6	6.2	9.8	6.6	8.4
19	14.0	7.9	11.0	9.0	2.1	4.0	---	---	---	10.8	9.0	10.2
20	13.5	7.2	10.5	9.3	1.3	3.8	15.7	3.1	8.4	---	---	---
21	13.6	4.3	9.1	13.7	2.3	6.5	14.0	4.6	8.9	---	---	---
22	10.7	4.3	7.8	13.7	2.1	7.4	10.1	1.5	6.0	---	---	---
23	14.4	4.4	8.3	7.1	2.4	4.4	14.0	4.7	8.9	---	---	---
24	16.5	3.4	8.9	11.7	1.9	4.9	14.8	5.4	9.6	---	---	---
25	15.1	4.1	8.9	12.6	1.8	7.0	13.1	7.8	9.8	---	---	---
26	14.1	6.5	10.6	11.9	2.2	5.8	9.3	4.7	7.0	---	---	---
27	13.6	5.8	9.4	11.9	2.1	6.1	13.1	4.9	8.9	---	---	---
28	12.2	6.3	9.2	---	---	---	16.2	6.5	10.9	---	---	---
29	7.8	3.7	6.1	7.0	1.4	3.3	15.0	7.6	10.7	---	---	---
30	14.0	3.3	7.2	10.9	1.8	5.2	15.4	9.2	12.1	---	---	---
31	---	---	---	10.0	1.9	4.6	10.4	3.8	7.7	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	75.9	74.1	75.1	---	---	---
2				---	---	---	75.6	73.9	74.9	---	---	---
3				---	---	---	78.1	70.2	74.3	---	---	---
4				---	---	---	77.8	70.1	74.4	---	---	---
5				---	---	---	76.4	73.0	74.5	---	---	---
6				---	---	---	74.3	70.7	72.4	70.5	55.4	62.9
7				---	---	---	72.3	70.3	71.2	73.4	55.1	68.5
8				---	---	---	72.3	58.7	67.6	73.1	54.9	66.5
9				---	---	---	72.9	62.6	68.6	71.9	53.5	65.5
10				---	---	---	74.5	56.3	66.2	78.9	61.7	71.8
11				---	---	---	69.6	60.6	65.0	78.4	75.7	77.5
12				---	---	---	72.3	66.9	69.5	---	---	---
13				65.0	32.2	47.1	76.5	63.9	71.3	---	---	---
14				65.8	54.2	61.3	76.1	63.0	71.1	---	---	---
15				68.0	63.8	66.8	77.1	64.6	74.0	---	---	---
16				72.8	50.4	66.3	78.7	45.5	71.5	71.9	58.5	66.9
17				75.8	49.4	68.9	78.0	64.4	72.2	78.6	49.0	69.1
18				74.8	37.7	58.1	77.4	51.3	68.9	78.7	73.5	77.1
19				70.1	34.7	51.3	76.7	40.3	63.8	79.4	76.3	78.0
20				72.6	34.2	56.6	68.2	44.8	60.5	---	---	---
21				72.4	42.2	61.2	76.4	42.9	63.5	---	---	---
22				71.8	54.2	64.1	76.3	45.8	64.9	---	---	---
23				74.1	36.3	59.9	77.4	52.2	68.5	---	---	---
24				75.7	54.5	69.8	77.5	58.9	72.1	---	---	---
25				72.3	69.8	71.0	77.7	50.3	69.6	---	---	---
26				71.8	68.8	70.3	76.2	47.8	66.0	---	---	---
27				69.9	68.6	69.2	78.7	75.5	77.2	---	---	---
28				72.9	60.2	68.7	---	---	---	---	---	---
29				74.3	62.9	71.6	---	---	---	90.0	67.1	80.5
30				75.0	73.3	74.2	---	---	---	89.5	81.8	86.0
31				---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---							---	---	---
2	---	---	---							---	---	---
3	---	---	---							---	---	---
4	---	---	---							---	---	---
5	---	---	---							---	---	---
6	---	---	---							59.3	35.4	46.9
7	---	---	---							91.3	27.5	68.1
8	---	---	---							98.5	81.6	93.6
9	---	---	---							85.4	18.7	61.3
10	---	---	---							91.3	16.1	47.5
11	---	---	---							83.6	25.0	62.1
12	---	---	---							93.5	33.6	71.9
13	---	---	---							78.6	13.9	41.6
14	---	---	---							57.6	28.1	39.4
15	---	---	---							---	---	---
16	---	---	---							---	---	---
17	---	---	---							60.6	18.2	37.0
18	93.1	68.1	79.9							93.0	14.4	50.7
19	91.4	55.6	76.9							92.6	64.9	82.8
20	83.2	51.0	67.4							94.6	40.7	73.7
21	88.9	64.9	76.4							92.2	69.5	84.4
22	77.9	50.0	62.2							92.1	28.9	65.6
23	67.2	51.0	57.8							94.5	13.8	48.3
24	76.2	42.7	62.8							55.0	21.1	36.0
25	79.2	55.7	66.1							56.8	23.2	40.5
26	93.9	58.3	72.9							89.1	32.3	60.1
27	94.0	61.0	78.9							95.5	27.6	64.0
28	89.5	47.2	72.1							92.6	37.2	66.1
29	---	---	---							80.7	39.7	61.9
30	---	---	---							87.0	56.1	72.9
31	---	---	---							81.1	44.4	65.2

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

RELATIVE HUMIDITY (PERCENT), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	92.5	53.6	81.3	95.1	41.5	74.9	93.6	43.1	77.3	91.9	13.0	51.5
2	94.8	33.1	69.5	93.0	39.2	72.5	94.8	53.6	82.1	58.8	37.1	40.8
3	91.8	28.5	57.9	94.6	38.9	68.2	91.7	46.0	74.8	93.8	33.2	60.1
4	82.8	25.2	50.2	92.2	61.1	78.1	90.8	36.5	66.0	88.0	32.7	58.2
5	88.9	33.7	56.0	92.9	27.1	59.3	85.4	16.2	55.9	91.3	23.4	60.8
6	77.7	25.1	49.9	83.6	22.9	55.9	92.1	13.8	53.5	89.4	14.4	47.5
7	86.8	26.5	53.9	89.9	30.2	58.5	85.7	31.0	50.9	53.3	16.8	37.7
8	83.1	45.7	63.2	92.3	20.2	50.8	92.5	36.7	65.2	80.9	17.9	41.2
9	55.1	19.2	39.6	93.4	22.5	53.1	94.7	15.8	54.8	68.7	14.9	34.8
10	64.4	24.2	42.2	93.1	48.4	70.2	85.8	15.7	45.2	85.4	18.7	39.8
11	58.2	22.0	41.4	96.0	23.2	58.5	84.8	28.9	55.7	96.0	60.6	86.1
12	92.8	46.6	66.5	94.7	45.8	69.7	90.4	51.7	74.6	94.4	42.9	77.5
13	87.3	34.0	57.9	95.9	15.6	56.6	92.9	78.1	89.0	83.6	22.2	52.7
14	93.1	60.0	84.2	91.6	31.0	57.7	95.9	43.2	71.7	97.0	20.1	54.5
15	93.6	37.7	70.0	91.2	17.0	53.1	93.9	56.7	75.8	95.7	43.0	78.0
16	97.7	43.9	69.2	90.2	19.3	48.1	88.7	39.7	73.1	96.6	41.3	84.0
17	93.9	33.9	64.7	91.9	14.0	44.6	93.4	78.1	86.5	93.9	38.7	68.8
18	92.9	36.6	67.2	81.4	33.5	49.5	92.0	47.1	77.4	96.2	69.6	91.3
19	92.3	11.0	44.3	86.5	29.0	57.9	96.6	54.3	77.2	96.2	82.9	91.2
20	94.0	18.4	46.5	90.9	33.5	65.7	91.2	38.4	65.6	---	---	---
21	89.0	48.1	65.8	94.0	15.3	52.2	84.6	14.3	58.1	---	---	---
22	80.6	29.2	47.8	88.0	15.8	43.8	90.7	20.6	57.1	---	---	---
23	89.0	36.8	59.7	64.4	16.0	43.1	63.7	23.0	44.3	---	---	---
24	91.5	31.5	57.7	85.7	19.9	47.9	64.1	12.2	34.7	---	---	---
25	87.3	35.1	56.6	89.0	12.1	42.5	53.1	19.5	38.6	---	---	---
26	95.8	37.5	59.8	82.9	10.7	36.1	93.0	23.1	51.8	---	---	---
27	66.6	26.4	47.5	65.4	9.8	29.7	88.2	20.8	50.6	---	---	---
28	82.1	59.1	67.4	62.2	10.6	36.5	89.3	27.7	47.5	---	---	---
29	82.9	48.2	65-1	83.8	22.7	43.7	98.2	22.5	59.8	---	---	---
30	89.7	34.6	53.8	82.5	14.0	36.4	97.1	18.0	51.7	---	---	---
31	---	---	---	53.7	18.3	34.5	87.8	39.3	54.9	---	---	---

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	5.8	157	3.7	---	---	---
2	---	---	---	---	---	---	7.4	150	5.2	---	---	---
3	---	---	---	---	---	---	5.5	356	3.7	---	---	---
4	---	---	---	---	---	---	12	187	6.4	---	---	---
5	---	---	---	---	---	---	9.9	132	6.9	5.9	290	3.8
6	---	---	---	---	---	---	9.0	141	4.6	12	185	6.0
7	---	---	---	---	---	---	16	154	10	9.4	203	4.7
8	---	---	---	---	---	---	5.1	268	3.5	8.3	343	4.0
9	---	---	---	---	---	---	9.7	352	5.0	13	225	7.5
10	---	---	---	---	---	---	11	183	7.1	8.0	175	4.7
11	---	---	---	---	---	---	10	343	8.8	16	17	6.9
12	---	---	---	---	---	---	9.2	342	6.3	7.9	349	8.2
13	---	---	---	5.7	172	2.8	7.2	355	4.0	11	162	4.8
14	---	---	---	17	153	12	3.0	---	2.0	6.7	226	6.5
15	---	---	---	9.7	153	5.1	6.7	357	3.8	9.0	180	4.9
16	---	---	---	12	353	7.2	7.0	187	2.8	11	243	7.2
17	---	---	---	8.4	352	2.7	20	148	8.9	8.2	247	3.7
18	---	---	---	13	243	7.1	6.6	195	4.6	4.5	303	2.8
19	---	---	---	14	349	6.4	8.9	243	5.1	9.9	1	7.0
20	---	---	---	8.8	152	3.4	9.7	244	7.9	---	---	---
21	---	---	---	11	188	5.2	8.9	246	4.2	---	---	---
22	---	---	---	10	355	5.6	9.0	250	4.9	---	---	---
23	---	---	---	9.0	358	5.5	9.0	354	4.0	---	---	---
24	---	---	---	9.5	163	6.4	5.1	10	3.5	---	---	---
25	---	---	---	9.5	153	7.4	6.9	233	3.4	---	---	---
26	---	---	---	9.5	182	6.4	9.7	248	5.5	---	---	---
27	---	---	---	9.2	227	4.7	6.0	14	3.4	---	---	---
28	---	---	---	7.6	358	4.2	---	---	---	17	186	11
29	---	---	---	8.8	354	5.9	---	---	---	13	16	7.5
30	---	---	---	6.4	355	4.7	---	---	---	13	20	10
31	---	---	---	---	---	---	---	---	---	17	307	14
	FEBRUARY			MARCH			APRIL			MAY		
1	9.8	305	6.1	---	---	---	---	---	---	---	---	---
2	13	183	10	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	27	243	18
7	---	---	---	---	---	---	---	---	---	23	251	12
8	---	---	---	---	---	---	---	---	---	22	67	17
9	---	---	---	---	---	---	---	---	---	18	33	12
10	---	---	---	---	---	---	---	---	---	22	26	9.4
11	---	---	---	---	---	---	---	---	---	15	216	10
12	---	---	---	---	---	---	---	---	---	29	67	14
13	---	---	---	---	---	---	---	---	---	7.6	139	3.8
14	---	---	---	---	---	---	---	---	---	23	354	11
15	---	---	---	---	---	---	---	---	---	25	347	18
16	---	---	---	---	---	---	---	---	---	9.2	90	3.6
17	---	---	---	---	---	---	---	---	---	24	169	13
18	14	254	8.2	---	---	---	---	---	---	22	334	16
19	20	331	15	---	---	---	---	---	---	12	355	8.1
20	13	205	7.4	---	---	---	---	---	---	12	38	6.2
21	24	238	14	---	---	---	---	---	---	18	38	12
22	21	313	17	---	---	---	---	---	---	14	84	9.1
23	23	305	17	---	---	---	---	---	---	9.5	89	3.8
24	15	303	11	---	---	---	---	---	---	15	153	8.6
25	16	258	9.9	---	---	---	---	---	---	26	219	15
26	12	292	7.4	---	---	---	---	---	---	18	15	9.0
27	16	244	8.1	---	---	---	---	---	---	8.0	103	4.8
28	18	351	12	---	---	---	---	---	---	16	161	8.4
29	---	---	---	---	---	---	---	---	---	19	164	14
30	---	---	---	---	---	---	---	---	---	24	166	17
31	---	---	---	---	---	---	---	---	---	23	164	17

Table 15.--Water-quality records for Arrowwood Lake Outflow Site near Kensal, ND (06468380)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	MEAN WIND SPEED (MPH)
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14	13	7.2	14	175	7.8	21	139	13	15	321	8.4
2	14	355	5.2	12	205	7.8	11	66	6.5	20	347	12
3	6.7	43	4.2	17	161	9.3	13	314	6.2	22	356	14
4	15	168	8.7	18	76	8.9	10	294	5.4	20	1	12
5	20	173	13	24	180	11	16	233	11	12	9	6.2
6	19	172	13	25	193	14	21	172	11	13	163	7.1
7	15	171	8.3	19	314	9.7	15	318	9.9	24	172	13
8	19	95	12	14	199	7.2	7.6	255	4.7	23	277	15
9	17	161	12	15	343	9.1	16	191	8.4	14	297	9.3
10	18	160	12	15	7	9.4	21	186	12	28	63	15
11	18	165	12	9.7	52	5.9	20	62	12	22	53	15
12	22	43	13	19	137	11	21	179	9.6	16	328	11
13	17	58	8.1	18	278	11	16	230	7.4	13	214	9.5
14	17	47	12	20	115	11	12	181	5.8	8.2	138	4.5
15	14	317	9.5	19	329	11	19	50	9.2	14	118	7.7
16	14	138	7.7	17	233	8.6	23	352	12	10	218	5.0
17	15	179	9.8	11	330	5.5	17	21	9.7	13	330	7.4
18	17	193	8.1	12	314	8.2	12	6	9.7	22	13	18
19	15	289	8.5	13	307	7.4	16	143	8.0	24	322	20
20	20	162	11	13	320	8.5	16	136	8.4	---	---	---
21	22	48	12	5.1	199	3.4	20	154	13	---	---	---
22	15	76	7.2	19	158	9.7	19	284	8.4	---	---	---
23	19	144	14	19	321	12	22	297	14	---	---	---
24	15	20	8.3	10	2	6.5	18	305	11	---	---	---
25	14	333	8.5	17	211	9.3	20	325	12	---	---	---
26	13	137	7.7	12	217	6.3	15	317	6.9	---	---	---
27	24	162	14	15	177	7.0	19	317	12	---	---	---
28	23	47	13	14	164	7.8	11	317	7.6	---	---	---
29	18	75	16	16	325	11	6.0	52	3.3	---	---	---
30	14	145	10	14	134	6.2	19	159	11	---	---	---
31	---		---	17	219	12	13	326	7.2	---	---	---

Table 16.--Water-quality records for James River near Pingree, ND (06468500)

LOCATION.--Lat 47°08'30", long 98°47'00", in SW¼SW¼ sec.3, T.142 N., R.64 W., Stutsman County, Hydrologic Unit 10160001, on right bank 500 ft upstream from dam at outlet of DePuy Marsh, 6.5 mi southeast of Pingree, and 6.25 mi northeast of Buchanan.

DRAINAGE AREA.--1,670 mi^2, approximately, of which about 900 mi^2 is probably noncontributing.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1979 to current year.

REMARKS.--Current sampling site is located at bridge 2 mi upstream from former stream-gaging station.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	TURBIDITY (FTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT												
05...	1200	670	8.55	8.0	10.0	17	100	11.4	100	--	250	47
NOV												
18...	0900	750	8.81	-10.0	1.0	10	4.3	14.4	100	--	290	57
APR												
13...	0900	700	8.30	5.0	8.0	19	13	12.5	104	7.0	270	51
MAY												
17...	1330	740	8.60	23.0	15.0	17	22	11.0	108	5.9	260	49

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)
OCT												
05...	31	49	29	1	14	266	91	11	0.20	428	403	0.58
NOV												
18...	36	56	28	1	14	290	110	15	0.20	497	462	0.68
APR												
13...	35	56	30	2	10	263	120	14	0.20	454	444	0.62
MAY												
17...	34	58	32	2	8.6	271	130	15	0.30	500	458	0.68

DATE	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS TOTAL (MG/L AS P) (00665)
OCT										
05...	332	--	<0.010	--	<0.100	--	0.030	--	0.70	--
NOV										
18...	5	--	<0.010	--	<0.100	--	0.020	--	1.1	--
APR										
13...	31	<0.010	<0.010	<0.100	<0.100	0.020	0.020	2.3	1.0	0.150
MAY										
17...	37	<0.010	<0.010	<0.100	<0.100	0.030	0.040	1.1	0.70	0.080

DATE	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOROUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT											
05...	0.060	--	0.027	--	4	--	140	--	<1	--	1
NOV											
18...	0.020	--	0.001	--	2	--	140	--	<1	--	<1
APR											
13...	0.020	0.024	0.002	2	1	100	100	2	<1	1	1
MAY											
17...	0.030	0.029	0.018	2	3	--	120	1	<1	--	<1

Table 16.--Water-quality records for James River near Pingree, ND (06468500)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
OCT											
05...	--	13	<5	--	--	18	0.3	--	--	1	--
NOV											
18...	--	5	<5	--	--	11	0.1	--	--	1	--
APR											
13...	470	6	<5	40	300	7	0.1	1	<1	<1	240
MAY											
17...	900	6	<5	--	250	16	0.2	--	<1	<1	--

DATE	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
05...	<3	--	--	<0.01	--	--	--	--	461	94
NOV										
18...	<3	--	--	--	--	--	--	--	17	92
APR										
13...	<3	16	<0.010	<0.01	30.0	1.60	18	1200	26	96
MAY										
17...	3	16	<0.010	<0.01	30.0	1.10	27	1200	46	98

Table 17.--Reservoir-elevation and contents records for Jamestown Reservoir near Jamestown, ND (06469000)

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 north of Jamestown Post Office, and 3.3 mi upstream from Pipestem Creek.

DRAINAGE AREA.--1,760 mi^2, approximately, of which about 1,010 mi^2 is probably noncontributing.

RESERVOIR-ELEVATION AND CONTENTS RECORDS

PERIOD OF RECORD.--November 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. June 22, 1959, to June 3, 1971 at site 0.2 mi 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 between elevations 1,400 ft, sill of outlet and 1,454 ft, crest of spillway. Dead storage below elevation 1,400 ft, 820 acre-ft. Maximum design pool, 389,000 acre-ft, elevation, 1,464.6 ft. Figures given herein represent total contents based on capacity table dated Oct. 1, 1965. Reservoir is used for flood control and municipal supply. Elevations are adjusted for wind effect.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,100 acre-ft, May 1, 1969, elevation, 1,443.60 ft; minimum since initial filling of reservoir, 18,220 acre-ft, Mar. 4, 5, 1965, elevation, 1,423.66 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,020 acre-ft, Oct. 1, elevation, 1,432.86 ft; minimum, 25,430 acre-ft, Sept. 30, elevation, 1,428.04 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,432.86	36,020	--
Oct. 31	1,430.76	30,980	-5,040
Nov. 30	1,429.95	29,220	-1,760
Dec. 31	a1,430.04	29,410	+190
CAL YR 1987	-	-	+110
Jan. 31	a1,430.10	29,540	+130
Feb. 29	1,430.23	29,820	+280
Mar. 31	1,430.83	31,140	+1,320
Apr. 30	1,431.46	32,590	+1,450
May 31	1,431.89	33,600	+1,010
June 30	1,431.03	31,580	-2,020
July 31	1,429.60	28,500	-3,080
Aug. 31	1,428.43	26,180	-2,320
Sept. 30	1,428.12	25,590	-590
WTR YR 1988	-	-	-10,430

a - End-of-month elevation not recorded. Value shown was observed at 8:00 a.m. on last day of the month.

Table 18.--Water-quality records for Jamestown Reservoir near Jamestown, ND (06469000)

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	RESERVOIR DEPTH (FEET) (72025)	TEMPERATURE AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND SPEED (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)	ICE THICKNESS (FEET) (82130)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)
OCT												
20...	1310	3.30	30.0	3.5	100	330	15	780	--	510	8.30	7.5
FEB												
01...	1415	0.0	22.0	-22.0	10	315	<5.0	783	2.00	655	7.90	1.5
APR												
25...	1135	0.0	E27.0	7.0	5	0	15	768	--	600	8.70	8.5
JUL												
27...	1030	1.60	53.0	29.0	0	--	5.0	770	--	654	8.30	22.5

DATE	COLOR (PLATINUM-COBALT UNITS) (00080)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)
OCT											
20...	9	30.0	10.2	83	190	38	22	39	29	1	14
FEB											
01...	8	55.2	12.3	85	230	47	27	47	29	1	18
APR											
25...	13	E48.0	11.6	99	210	42	26	44	30	1	7.0
JUL											
27...	14	27.0	8.3	95	220	44	27	49	32	1	8.0

DATE	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHOROUS DISSOLVED (MG/L AS P) (00666)	BORON, DISSOLVED (UG/L AS B) (01020)
OCT											
20...	204	75	7.1	0.20	19	343	339	0.47	0.440	0.110	100
FEB											
01...	255	88	11	0.20	34	410	426	0.56	0.240	0.150	100
APR											
25...	233	80	10	0.20	16	378	365	0.51	<0.100	0.090	100
JUL											
27...	239	87	11	0.20	18	409	389	0.56	0.280	0.110	110

Table 18.--Water-quality records for Jamestown Reservoir near Jamestown, ND (06469000)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT							
20...	1300	0.0	510	8.30	7.5	10.2	83
20...	1304	1.60	510	8.30	7.5	10.2	83
20...	1310	3.30	510	8.30	7.5	10.2	83
20...	1314	6.60	510	8.30	7.5	10.2	83
20...	1318	13.2	510	8.30	7.5	10.2	83
20...	1322	19.8	510	8.30	7.5	10.2	83
20...	1326	26.4	510	8.30	7.5	10.2	83
20...	1330	29.7	510	8.30	7.5	10.2	83
FEB							
01...	1415	0.0	655	7.90	1.5	12.3	85
01...	1417	1.60	640	8.00	1.0	12.1	83
01...	1419	3.30	632	8.10	2.0	11.6	82
01...	1421	6.60	633	8.20	2.5	11.0	79
01...	1423	13.2	637	8.10	3.0	9.5	69
01...	1425	19.8	641	8.10	3.0	7.6	55
APR							
25...	1135	0.0	600	8.70	8.5	11.6	99
25...	1137	1.60	600	8.70	8.5	11.6	98
25...	1139	3.30	600	8.60	8.5	11.6	98
25...	1141	6.60	600	8.60	8.5	11.5	97
25...	1143	13.2	600	8.60	8.5	11.5	97
25...	1145	19.8	600	8.60	8.5	11.5	97
25...	1147	26.4	600	8.60	8.5	11.5	97
JUL							
27...	1030	1.60	654	8.30	22.5	8.3	95
27...	1032	3.30	655	8.20	23.0	8.2	94
27...	1033	6.60	655	8.20	22.5	8.0	91
27...	1034	13.2	657	8.20	22.5	7.8	89
27...	1035	19.8	656	8.20	22.5	7.7	88
27...	1036	26.4	655	8.20	22.5	7.7	88
27...	1037	33.0	655	8.20	22.5	7.5	85
27...	1038	39.6	654	8.20	22.5	7.1	81
27...	1039	46.2	654	8.20	22.0	7.3	83
27...	1040	52.8	653	8.20	22.0	6.9	78

Table 19.--Water-discharge records for James River at Jamestown, ND (06470000)

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 upstream from Interstate 94 bridge at southeast corner of Jamestown, and 3 mi downstream from Pipestem Creek.

DRAINAGE AREA.--2,820 mi^2, approximately, of which about 1,650 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1928 to September 1933, March to May 1935, August 1937 to September 1939, April 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 above National Geodetic Vertical Datum of 1929. Oct. 1, 1949 to Sept. 30, 1965, at former bridge 0.5 mi upstream at datum 2.00 ft higher. See WSP 1729 or 1917 for history of changes prior to Oct. 1, 1949.

REMARKS.--Estimated daily discharges: Dec. 30 to Feb. 27. Records good except those for period of estimated daily discharges, which are fair. Flow regulated by Arrowwood, Jim, and Pipestem Lakes, and Jamestown Reservoir, combined capacity, 393,000 acre-ft. Regulation by Jamestown Reservoir (station 06469000) 6 mi since 1953 and by Pipestem Lake, capacity 147,000 acre-ft, since 1973.

AVERAGE DISCHARGE.--52 years (water years 1929-33, 1938-39, 1944-88), 66.1 ft^3/s, 47,890 acre-ft/yr; median of yearly mean discharges, 40 ft^3/s, 29,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,390 ft^3/s, May 13, 1950, gage height, 15.82 ft, site and datum then in use; no flow at times in 1933.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 251 ft^3/s, Oct. 4, gage height, 5.01 ft; minimum daily, 0.02 ft^3/s, Sept. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	241	13	6.5	3.4	106	101	12	1.5	34	25	9.9
2	249	241	13	6.0	3.3	141	110	11	3.3	34	27	9.2
3	250	241	13	5.7	3.3	163	111	8.9	7.1	27	24	5.8
4	251	240	12	5.5	3.3	172	113	8.1	23	22	22	2.8
5	251	237	12	5.3	3.3	176	113	6.8	31	20	20	2.0
6	251	236	12	5.2	3.3	169	131	6.0	33	20	19	1.6
7	250	235	12	5.1	3.2	154	211	6.5	34	19	19	1.4
8	250	233	13	5.0	3.2	188	213	6.8	34	19	19	1.0
9	248	233	13	4.7	3.1	179	213	5.9	33	19	18	.70
10	246	223	12	4.5	3.1	133	212	5.7	20	19	18	.60
11	245	194	12	4.5	3.0	109	213	5.4	12	19	18	.42
12	245	174	11	4.4	3.0	196	213	4.7	28	24	18	.36
13	246	156	10	4.4	3.0	142	207	4.2	19	29	21	.14
14	246	78	10	4.3	3.2	94	195	3.9	20	27	19	.03
15	245	45	10	4.3	3.4	46	180	3.6	9.4	26	18	.27
16	246	43	10	4.2	3.7	37	154	3.2	5.1	26	17	.25
17	244	25	9.6	4.2	4.4	34	71	3.8	4.1	26	17	.02
18	243	6.4	9.6	4.1	4.6	34	66	3.9	4.3	25	17	4.0
19	244	17	9.5	4.1	5.0	33	65	5.1	6.9	24	15	16
20	234	20	9.1	4.0	5.5	32	63	4.8	8.6	23	16	4.8
21	207	19	8.9	4.0	6.2	32	62	4.8	9.3	21	14	1.9
22	241	18	8.7	3.9	6.8	34	36	4.8	15	21	14	1.3
23	242	17	8.4	3.8	6.3	35	17	4.7	24	20	13	.97
24	242	16	8.4	3.7	6.0	34	11	17	15	20	12	.56
25	242	15	8.5	3.5	15	34	9.1	8.0	11	21	11	.42
26	241	15	8.5	3.5	30	31	8.1	3.5	12	21	10	.56
27	238	15	8.4	3.4	100	31	7.8	2.9	12	20	11	.70
28	243	14	8.1	3.4	170	32	8.0	2.2	29	21	10	.81
29	243	13	7.8	3.4	132	31	8.4	1.6	37	23	11	.85
30	242	13	7.4	3.4	---	31	15	1.6	36	23	10	.84
31	241	---	7.0	3.4	---	36	---	1.3	---	22	9.9	---
TOTAL	7556	3273.4	315.9	135.4	543.6	2699	3137.4	172.7	537.6	715	512.9	70.20
MEAN	244	109	10.2	4.37	18.7	87.1	105	5.57	17.9	23.1	16.5	2.34
MAX	251	241	13	6.5	170	196	213	17	37	34	27	16
MIN	207	6.4	7.0	3.4	3.0	31	7.8	1.3	1.5	19	9.9	.02
AC-FT	14990	6490	627	269	1080	5350	6220	343	1070	1420	1020	139

CAL YR 1987 TOTAL 73032.1 MEAN 200 MAX 537 MIN 4.0 AC-FT 144900
WTR YR 1988 TOTAL 19669.10 MEAN 53.7 MAX 251 MIN .02 AC-FT 39010

Table 20.--Water-quality records for James River at Jamestown, ND (0647000)

PERIOD OF RECORD.--Water years 1950-51, 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (FTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS TOTAL (MG/L AS CACO3) (00900)
OCT											
05...	1430	251	550	8.00	9.0	12.0	11	10.4	95	--	200
NOV											
17...	1500	15	740	8.32	0.0	3.5	3.8	13.4	100	--	290
JAN											
07...	1540	5.1	1140	7.75	-14.0	1.0	4.1	9.4	65	--	450
FEB											
23...	1300	6.3	1150	7.81	-10.0	2.0	4.0	8.2	59	--	430
MAR											
29...	1510	30	--	--	3.0	4.5	--	--	--	--	--
APR											
07...	1200	216	610	8.75	18.0	6.5	4.3	13.8	112	7.8	260
MAY											
17...	1700	4.6	950	8.31	28.0	20.0	11	13.4	146	4.6	340
JUN											
28...	1400	33	620	8.20	30.0	26.5	17	9.0	111	--	220
AUG											
22...	1100	14	700	8.33	25.0	20.0	20	7.6	83	4.4	250

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT											
05...	44	23	36	26	1	16	202	97	9.1	346	350
NOV											
17...	68	30	50	26	1	12	248	140	16	478	467
JAN											
07...	110	42	91	30	2	12	387	230	30	771	750
FEB											
23...	110	37	90	31	2	8.9	366	230	34	747	734
APR											
07...	56	28	40	25	1	7.4	218	120	10	418	393
MAY											
17...	78	35	82	34	2	7.5	303	190	28	637	603
JUN											
28...	47	25	51	33	2	8.0	228	86	12	400	366
AUG											
22...	53	29	56	31	2	12	257	110	13	439	428

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT										
05...	0.47	234	25	--	0.030	--	0.380	--	0.110	--
NOV										
17...	0.65	19.5	11	--	<0.010	--	0.300	--	0.110	--
JAN										
07...	1.05	10.6	2	--	0.020	--	0.220	--	0.270	--
FEB										
23...	1.02	12.7	13	--	<0.010	--	0.310	--	0.500	--
APR										
07...	0.57	244	20	<0.010	<0.010	<0.100	<0.100	0.040	0.040	1.8
MAY										
17...	0.87	7.91	45	<0.010	<0.010	<0.100	<0.100	0.050	0.060	0.50
JUN										
28...	0.54	35.6	60	--	<0.010	--	<0.100	--	0.090	--
AUG										
22...	0.60	16.6	42	<0.010	<0.010	<0.100	<0.100	0.040	0.040	1.3

Table 20.--Water-quality records for James River at Jamestown, ND (0647000)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	PHOSPHOROUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
OCT 05...	0.50	--	0.080	--	0.429	--	3	80	--	<1
NOV 17...	0.90	--	0.030	--	0.017	--	2	150	--	<1
JAN 07...	0.70	--	0.040	--	0.013	--	2	290	--	<1
FEB 23...	0.90	--	0.030	--	0.025	--	2	310	--	<1
APR 07...	0.90	0.190	0.040	0.034	0.013	2	2	70	<1	<1
MAY 17...	0.50	0.110	0.030	0.044	0.053	4	2	310	1	<1
JUN 28...	0.70	--	0.060	--	0.031	--	3	130	--	1
AUG 22...	0.50	0.150	0.050	<0.001	0.035	4	3	150	<1	<1

DATE	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 05...	1	--	10	<5	--	310	0.2	--	<1	<3
NOV 17...	<1	--	17	<5	--	820	0.2	--	<1	<3
JAN 07...	2	--	110	<5	--	1100	0.1	--	<1	6
FEB 23...	1	--	81	<5	--	1900	0.2	--	<1	6
APR 07...	<1	460	9	<5	890	590	0.2	<1	<1	5
MAY 17...	<1	1400	17	<5	1100	630	0.2	<1	<2	3
JUN 28...	<1	--	23	<5	--	240	0.8	--	<1	35
AUG 22...	2	120	8	7	500	140	82	<1	<1	14

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DISSOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	PLANKTON BIOMASS ASH WT (MG/L) (81353)	PLANKTON BIOMASS DRY WT (MG/L) (81354)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 05...	--	--	<0.01	--	--	--	--	31	21	91
NOV 17...	--	--	--	--	--	--	--	33	1.3	86
FEB 23...	--	--	<0.01	--	--	--	--	80	1.4	22
APR 07...	16	<0.010	<0.01	66.0	1.80	21	1200	24	14	89
MAY 17...	13	<0.010	<0.01	28.0	1.00	21	1100	57	0.71	84
JUN 28...	--	--	<0.01	--	--	--	--	59	5.3	99
AUG 22...	13	<0.010	<0.01	1.60	<0.200	9.4	1200	50	1.9	99

Table 21.--Water-discharge records for James River at LaMoure, ND (06470500)

LOCATION.--Lat 46°21'20", long 98°18'15", in NE¼NE¼ sec.11, T.133 N., R.61 W., LaMoure County, Hydrologic Unit 10160003, on left bank 80 ft downstream from bridge on State Highway 13, 0.5 mi west of LaMoure, and 12 mi upstream from Cottonwood Creek.

DRAINAGE AREA.--4,390 mi^2, approximately, of which about 2,600 mi^2 is probably noncontributing.

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 National Oceanic and Atmospheric Administration.

REVISED RECORDS.--WSP 1917: Drainage area.

GAGE.--Water-stage recorder and rubble-masonry control. Datum of gage is 1,290.00 ft above National Geodetic Vertical Datum of 1929. See WSP 1729 or 1917 for history of changes prior to Apr. 19, 1950.

REMARKS.-Estimated daily discharges: Feb. 2-24 and May 21-24. Records good. Flow regulated by Arrowwood, Jim, and Pipestem Lakes and Jamestown Reservoir, combined capacity, 393,000 acre-ft. Regulation by Jamestown Reservoir (station 06469000) 85 mi upstream since 1953 and by Pipestem Lake, capacity 147,000 acre-ft, since 1973.

AVERAGE DISCHARGE.--38 years (water years 1951-88), 102 ft^3/s, 73,900 acre-ft/yr; median of yearly mean discharges, 72 ft^3/s, 52,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft^3/s, Apr. 14, 1969, gage height, 16.17 ft; 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, 356 ft^3/s, Oct. 8, gage height, 7.87 ft; minimum daily, 2.6 ft^3/s, Sept. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	262	43	25	23	31	88	27	30	14	17	15
2	168	272	47	24	20	32	82	51	24	20	32	18
3	187	266	48	24	19	32	89	58	20	31	37	17
4	209	275	39	22	18	38	129	35	15	41	36	15
5	233	254	40	19	17	46	136	34	10	26	34	14
6	242	260	45	17	16	65	125	18	11	30	25	14
7	248	260	45	17	15	89	125	50	14	49	36	14
8	265	255	45	17	14	105	151	62	14	30	25	23
9	246	252	45	16	13	110	141	31	17	30	18	9.8
10	246	248	40	15	12	125	188	19	27	29	17	4.5
11	250	257	43	17	11	143	196	29	32	22	23	16
12	249	254	42	18	10	127	218	40	56	22	21	9.3
13	257	241	38	16	9.0	135	230	8.2	50	49	24	5.4
14	249	216	35	15	9.5	177	223	8.9	62	28	21	4.9
15	252	214	36	16	10	148	220	9.9	70	43	59	6.6
16	257	182	39	18	11	135	199	10	53	30	55	9.4
17	252	128	38	18	12	136	187	5.3	44	36	37	8.6
18	255	89	36	19	13	122	187	14	39	33	23	13
19	252	90	35	19	22	99	182	38	36	31	19	31
20	256	56	34	20	25	83	126	25	15	31	16	2.6
21	242	55	32	20	26	77	104	22	16	28	18	8.0
22	258	57	33	20	25	75	104	20	20	27	24	22
23	240	58	32	20	24	77	100	22	12	20	24	20
24	227	55	32	20	23	86	97	25	20	19	14	18
25	238	55	30	22	19	96	87	17	14	19	17	12
26	272	53	28	19	20	84	64	33	9.8	18	10	15
27	256	53	27	18	25	88	56	24	12	18	20	6.3
28	262	52	27	18	31	107	46	27	25	19	12	9.6
29	263	50	27	19	31	92	37	31	12	22	12	12
30	261	41	28	20	---	92	38	24	14	14	10	5.4
31	264	---	27	22	---	90	---	24	---	18	18	---
TOTAL	7499	4860	1136	590	523.5	2942	3955	842.3	793.8	847	754	379.4
MEAN	242	162	36.6	19.0	18.1	94.9	132	27.2	26.5	27.3	24.3	12.6
MAX	272	275	48	25	31	177	230	62	70	49	59	31
MIN	143	41	27	15	9.0	31	37	5.3	9.8	14	10	2.6
AC-FT	14870	9640	2250	1170	1040	5840	7840	1670	1570	1680	1500	753

CAL YR 1987 TOTAL 105818 MEAN 290 MAX 2470 MIN 17 AC-FT 209900
WTR YR 1988 TOTAL 25122.0 MEAN 68.6 MAX 275 MIN 2.6 AC-FT 49830

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)

PERIOD OF RECORD.--Water years 1957 to current year.

PERIOD OF DAILY RECORDS.--
WATER TEMPERATURE: June 1953 to September 1975, October 1976 to current year.
SPECIFIC CONDUCTANCE: October 1976 to current year.

INSTRUMENTATION.--Temperature recorder from June 1953 to September 1978. Water-quality monitor since October 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 33.0°C, July 12, 13, 1957; July 23, 1977; minimum, 0.0°C on many days during winter months.
SPECIFIC CONDUCTANCE: Maximum daily, 1,880 microsiemens, Jan. 31, 1979; minimum daily, 200 microsiemens, Mar. 24-26, 1978.
EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 29.5°C, June 3; minimum, 0.0°C on many days during winter months.
SPECIFIC CONDUCTANCE: Maximum recorded, 1,560 microsiemens, Jan. 16-18; minimum, 540 microsiemens, Oct. 5.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)
OCT											
07...	1000	241	580	8.35	-2.0	7.5	28	--	11.0	90	--
NOV											
17...	1200	138	670	8.58	-5.0	1.0	13	--	15.0	104	--
JAN											
13...	1000	16	1530	8.04	-20.0	0.5	14	2.6	20.0	135	--
FEB											
24...	1000	23	1120	7.50	-18.0	0.5	27	--	15.2	103	--
MAR											
30...	0930	89	640	--	-5.0	0.5	--	--	--	--	--
APR											
12...	1500	228	670	9.25	20.0	10.5	28	--	17.5	154	13
MAY											
24...	1300	25	900	8.55	25.0	20.0	25	21	14.4	155	7.4
JUN											
30...	1330	14	1080	8.78	25.0	20.0	40	22	9.6	104	--
AUG											
22...	1300	26	870	8.40	26.0	22.5	25	17	6.0	69	5.0

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT											
07...	--	--	--	--	--	--	15	212	90	9.9	0.20
NOV											
17...	--	--	--	--	--	--	12	233	110	16	0.20
JAN											
13...	480	140	31	140	39	3	6.0	281	290	69	0.30
FEB											
24...	--	--	--	--	--	--	9.0	360	190	39	0.20
APR											
12...	--	--	--	--	--	--	11	194	150	17	0.20
MAY											
24...	320	67	37	76	34	2	3.0	288	150	35	0.30
JUN											
30...	380	81	42	110	38	3	10	361	180	52	0.30
AUG											
22...	300	66	32	75	34	2	12	295	130	28	0.20

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
JAN											
13...	758	846	1.03	33.6	16	--	--	--	<0.100	--	--
APR											
12...	--	--	--	--	--	<0.010	--	<0.100	--	0.020	--
MAY											
24...	588	542	0.80	39.7	42	0.010	<0.010	<0.100	<0.100	0.020	0.020
JUN											
30...	730	695	0.99	27.6	78	--	<0.010	--	<0.100	--	0.040
AUG											
22...	545	522	0.74	38.0	59	<0.010	<0.010	<0.100	<0.100	0.100	0.090

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT											
07...	--	--	--	--	--	--	--	3	--	--	<1
NOV											
17...	--	--	--	--	--	--	--	2	--	--	<1
JAN											
13...	--	--	--	<0.010	--	--	--	1	420	--	<1
FEB											
24...	--	--	--	--	--	--	--	1	--	--	--
APR											
12...	1.1	--	0.270	--	0.046	--	2	2	--	1	--
MAY											
24...	1.3	0.90	0.300	0.030	0.054	0.005	4	3	240	1	<1
JUN											
30...	--	0.90	--	0.580	--	0.410	--	16	370	--	1
AUG											
22...	2.1	0.40	0.310	0.100	<0.001	0.081	6	5	230	<1	<1

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT											
07...	<0	1	--	--	0	--	--	0.2	--	--	--
NOV											
17...	<0	1	--	--	<0	--	--	0.1	--	--	--
JAN											
13...	--	1	--	10	<5	--	690	<0.1	--	<1	3
FEB											
24...	--	--	--	--	--	--	--	<0.1	--	--	--
APR											
12...	--	--	1100	--	--	600	--	0.1	<1	--	--
MAY											
24...	--	1	1100	8	<5	1800	830	0.2	<1	<1	<3
JUN											
30...	--	<1	--	32	<5	--	1400	0.4	--	<1	39
AUG											
22...	--	1	120	6	16	1700	840	0.7	<1	<1	6

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
07...	--	--	--	--	--	--	--	27	17	98
NOV										
17...	--	--	--	--	--	--	--	10	3.9	100
JAN										
13...	--	--	--	--	--	--	--	234	10	13
FEB										
24...	--	--	--	--	--	--	--	77	4.7	30
APR										
12...	19	<0.010	--	52.0	1.90	32	1200	84	52	98
MAY										
24...	15	<0.010	<0.01	69.0	8.20	23	1200	53	3.6	95
JUN										
30...	--	--	<0.01	--	--	--	--	64	2.4	99
AUG										
22...	14	<0.010	0.01	32.0	5.90	18	1300	51	3.6	99

DATE	TIME	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH TO TOP OF SAMPLE INTER-VAL (FT) (72015)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
APR								
12...	1500	--	--	10.5	670	9.25	17.5	154
12...	1600	0.0	--	10.5	670	--	--	--
12...	1602	20.0	2.0	10.5	670	--	--	--
12...	1604	40.0	2.0	10.5	670	--	--	--
12...	1606	60.0	2.0	10.5	670	--	--	--
12...	1608	80.0	2.0	10.5	670	--	--	--
12...	1610	100	2.0	10.5	670	--	--	--
12...	1612	120	2.0	10.5	670	--	--	--
12...	1615	140	2.0	10.5	670	--	--	--

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	11.0	12.9	6.3	5.3	5.5	.7	.5	.6	.2	.2	.2
2	11.0	9.5	10.3	7.6	6.4	7.0	.5	.0	.4	.5	.0	.3
3	11.5	8.5	9.9	7.8	7.2	7.5	.2	.0	.2	.5	.0	.2
4	12.5	10.0	11.2	7.4	6.1	7.0	.2	.2	.2	.5	.0	.1
5	11.4	9.5	10.4	6.0	4.8	5.5	.2	.0	.2	.2	.0	.1
6	9.4	8.5	8.9	5.5	4.2	5.0	.5	.0	.2	.2	.0	.2
7	9.4	7.5	8.0	4.8	3.9	4.5	.5	.0	.3	.2	.0	.0
8	9.2	7.6	8.5	3.9	2.0	3.0	.7	.0	.4	.0	.0	.0
9	7.6	5.3	6.5	2.1	1.0	1.5	.7	.5	.7	.0	.0	.0
10	6.5	4.4	5.5	1.5	.6	1.0	.7	.5	.7	.0	.0	.0
11	7.1	5.0	6.0	2.0	.4	1.0	.7	.7	.7	.0	.0	.0
12	8.1	5.5	7.0	3.1	1.5	2.5	.7	.7	.7	.0	.0	.0
13	8.0	6.6	7.5	3.3	1.9	2.5	.7	.5	.6	.0	.0	.0
14	7.7	6.6	7.0	3.4	2.2	3.0	.5	.5	.5	.0	.0	.0
15	7.4	7.0	7.0	4.1	3.3	3.5	.5	.0	.1	.0	.0	.0
16	7.3	7.0	7.0	3.8	2.5	3.0	.5	.0	.3	.0	.0	.0
17	7.8	6.0	7.0	2.1	1.0	1.5	.5	.0	.3	.0	.0	.0
18	7.2	6.0	6.5	1.7	.5	1.0	.7	.0	.5	.0	.0	.0
19	6.2	5.2	5.5	.5	.0	.3	1.0	.5	.7	.0	.0	.0
20	5.1	4.0	4.5	1.5	.0	.8	1.0	.5	.9	.0	.0	.0
21	3.8	3.0	3.5	1.7	.5	1.2	1.0	.5	.7	.0	.0	.0
22	2.8	1.9	2.5	1.5	1.0	1.2	1.2	.7	.9	.0	.0	.0
23	3.3	2.2	3.0	1.5	.5	1.0	1.0	.5	.9	.0	.0	.0
24	2.7	2.0	2.5	1.2	.5	1.0	1.0	.5	.8	.0	.0	.0
25	3.8	1.5	2.5	1.0	.5	.9	.7	.5	.6	.0	.0	.0
26	5.2	3.6	4.5	.7	.0	.6	1.0	.5	.8	.0	.0	.0
27	4.6	3.2	4.0	.7	.0	.4	1.0	.5	.7	.0	.0	.0
28	4.7	3.4	4.0	.5	.0	.2	.7	.5	.7	.0	.0	.0
29	5.5	3.7	4.5	.5	.0	.3	.5	.0	.3	.0	.0	.0
30	5.8	4.4	5.0	.5	.0	.3	.2	.0	.2	.0	.0	.0
31	5.9	4.5	5.0	---	---	---	.2	.0	.2	.0	.0	.0
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	1.6	.0	.7	17.9	16.8	17.4
2	.0	.0	.0	.0	.0	.0	2.3	.3	1.2	17.7	16.4	17.0
3	.0	.0	.0	.0	.0	.0	3.7	.9	2.3	17.3	14.7	15.9
4	.0	.0	.0	.0	.0	.0	8.7	2.9	5.7	16.1	12.8	14.5
5	.0	.0	.0	.0	.0	.0	9.6	7.8	8.7	17.6	14.1	15.6
6	.0	.0	.0	.2	.0	.0	11.2	7.4	9.2	18.3	15.9	17.2
7	.0	.0	.0	.0	.0	.0	12.2	9.1	10.5	18.3	16.7	17.4
8	.0	.0	.0	.2	.0	.0	12.1	9.7	11.5	17.8	15.7	17.0
9	.0	.0	.0	.0	.0	.0	9.4	7.1	8.1	17.3	13.2	15.3
10	.0	.0	.0	.0	.0	.0	9.3	5.8	7.5	18.6	15.4	16.8
11	.0	.0	.0	.0	.0	.0	10.9	7.4	9.1	20.6	17.0	18.7
12	.0	.0	.0	.0	.0	.0	11.5	8.3	9.9	22.0	18.7	19.8
13	.0	.0	.0	.0	.0	.0	11.6	9.6	10.5	18.9	16.3	17.4
14	.0	.0	.0	.0	.0	.0	10.6	8.0	9.3	19.6	16.0	17.8
15	.0	.0	.0	.0	.0	.0	11.2	7.3	9.2	18.3	15.8	17.2
16	.0	.0	.0	.0	.0	.0	12.4	8.5	10.3	16.8	15.3	16.1
17	.0	.0	.0	.0	.0	.0	11.6	9.0	10.1	19.1	15.2	16.9
18	.0	.0	.0	.0	.0	.0	10.5	7.0	8.7	21.5	18.0	19.6
19	.0	.0	.0	.0	.0	.0	11.6	7.6	9.5	21.2	20.3	20.6
20	.0	.0	.0	.0	.0	.0	10.8	7.7	9.5	20.6	19.4	19.9
21	.0	.0	.0	.2	.0	.0	10.7	8.5	9.5	20.0	18.0	19.0
22	.0	.0	.0	.0	.0	.0	10.1	7.8	9.0	19.3	16.8	17.8
23	.0	.0	.0	.2	.0	.1	11.0	7.0	8.9	22.8	17.9	20.1
24	.0	.0	.0	.2	.0	.0	11.6	8.8	10.2	22.2	19.1	20.6
25	.0	.0	.0	.0	.0	.0	11.4	8.3	9.9	22.7	19.4	21.1
26	.0	.0	.0	.5	.0	.1	10.5	8.3	9.2	24.3	21.7	22.7
27	.0	.0	.0	.2	.0	.1	11.6	7.3	9.3	24.7	21.8	22.9
28	.0	.0	.0	.5	.0	.1	14.5	9.4	11.3	25.4	22.9	24.0
29	.0	.0	.0	1.0	.0	.3	15.8	12.2	13.9	26.6	23.5	25.0
30	---	---	---	1.3	.0	.5	18.4	14.8	16.4	25.7	24.1	25.0
31	---	---	---	1.5	.0	.6	---	---	---	26.8	23.9	25.3

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	24.5	25.6	20.1	19.1	19.6	24.0	22.0	22.9	20.0	17.2	18.5
2	25.9	24.8	25.3	22.4	18.7	20.4	23.0	21.0	21.8	19.2	17.6	18.5
3	29.5	25.8	27.3	23.6	20.9	22.1	22.9	21.7	22.3	18.2	16.3	17.4
4	28.7	26.5	27.6	25.3	22.3	23.6	21.7	20.8	21.3	17.7	15.7	16.8
5	28.4	26.2	27.2	26.8	23.6	25.2	21.8	19.8	20.6	17.4	14.9	16.2
6	27.0	24.9	26.1	26.7	24.6	25.8	24.7	21.6	23.1	17.6	14.7	16.3
7	27.7	24.7	26.1	25.7	22.9	24.1	23.7	22.5	23.3	16.9	15.3	16.2
8	29.4	25.9	27.4	25.2	22.8	23.9	22.3	20.6	21.5	16.5	15.1	15.8
9	26.4	23.2	24.5	25.2	23.6	24.3	22.9	19.7	21.3	16.3	13.8	15.1
10	24.7	22.4	23.5	24.5	22.2	23.4	24.0	21.2	22.6	15.6	14.0	14.9
11	24.8	22.2	23.6	22.6	20.9	21.6	26.7	22.5	24.1	15.2	14.3	15.0
12	24.3	21.5	23.0	22.9	20.9	21.8	24.9	22.8	23.5	14.1	12.3	13.1
13	24.1	20.6	22.1	24.3	21.4	22.8	25.0	22.3	23.1	15.7	11.8	13.6
14	23.2	20.7	22.0	24.8	22.1	23.2	23.4	21.4	22.1	14.9	13.1	14.1
15	23.2	19.3	21.2	24.8	23.4	24.1	25.9	23.2	23.9	14.3	14.1	14.2
16	23.3	20.1	21.6	24.3	21.6	23.0	27.4	24.2	25.9	15.5	14.1	14.5
17	25.6	21.8	23.5	24.0	22.0	23.0	26.5	25.0	25.9	18.3	14.5	16.0
18	26.9	23.7	25.2	24.5	21.8	23.2	25.2	23.3	24.3	17.7	15.2	16.6
19	28.0	25.3	26.6	23.9	21.9	22.9	24.6	22.5	23.6	15.0	10.5	12.3
20	27.3	25.1	26.3	22.9	20.2	21.6	24.2	22.4	23.4	10.7	9.2	10.0
21	27.9	24.7	26.0	22.0	21.0	21.4	23.2	21.8	22.4	10.6	9.9	10.2
22	27.9	25.1	26.3	23.9	20.8	22.2	22.9	20.5	21.5	12.2	10.0	10.9
23	25.4	23.0	24.1	23.9	21.3	22.6	21.1	19.3	20.3	13.0	10.1	11.6
24	27.6	23.0	24.9	24.0	20.6	22.3	21.6	18.2	19.9	14.6	11.7	12.9
25	26.6	23.7	25.2	23.5	21.2	22.4	20.4	18.3	19.4	13.5	12.2	12.9
26	25.3	23.8	24.6	23.8	21.5	22.4	19.0	17.4	18.3	14.8	12.2	13.3
27	25.3	22.9	24.0	25.3	22.3	23.8	17.9	15.6	16.9	13.3	11.7	12.6
28	26.7	23.7	24.8	24.6	22.8	23.7	17.5	14.7	16.2	12.4	10.7	11.6
29	24.3	20.7	22.4	25.6	22.9	24.0	19.0	14.9	16.2	10.6	9.9	10.2
30	20.8	19.1	20.1	24.3	22.6	23.3	18.5	15.8	17.1	11.7	9.2	10.4
31	---	---	---	25.1	22.3	23.7	18.9	16.9	17.9	---	---	---

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM @ 25 DEG C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	640	600	620	630	610	620	880	840	860	1270	1240	1260
2	640	620	630	640	620	630	890	880	880	1310	1270	1290
3	630	560	610	630	620	630	930	890	910	1310	1300	1310
4	610	560	600	640	630	630	960	930	950	1320	1310	1320
5	600	540	580	640	630	630	960	950	960	1320	1310	1320
6	580	580	580	650	640	640	960	950	950	1370	1320	1350
7	580	580	580	650	640	640	990	950	960	1400	1360	1370
8	580	570	580	650	640	640	1020	990	1000	1430	1400	1410
9	580	570	570	650	640	640	1020	1000	1010	1470	1420	1450
10	580	570	580	650	640	640	1010	1000	1000	1470	1460	1460
11	590	580	580	650	650	650	1020	1010	1010	1520	1480	1500
12	590	580	580	660	650	650	1020	1010	1010	1530	1520	1520
13	590	580	580	660	650	650	1020	1000	1010	1540	1520	1530
14	580	580	580	660	650	660	1040	1020	1030	1540	1520	1530
15	580	580	580	660	650	660	1060	1040	1060	1550	1520	1540
16	590	580	590	660	650	660	1080	1060	1070	1560	1550	1560
17	590	580	580	660	660	660	1120	1070	1100	1560	1550	1550
18	590	580	590	660	650	650	1130	1110	1120	1560	1540	1550
19	590	580	580	670	650	660	1130	1120	1120	1550	1500	1530
20	590	580	580	670	670	670	1130	1120	1120	1510	1500	1500
21	590	580	580	710	670	690	1140	1090	1120	1510	1480	1490
22	590	580	580	730	710	720	1130	1090	1120	1480	1460	1470
23	590	590	580	730	720	730	1140	1120	1130	1460	1430	1440
24	600	590	590	770	720	740	1140	1130	1130	1430	1420	1430
25	600	590	590	780	770	770	1150	1130	1140	1430	1410	1420
26	600	590	590	780	770	780	1200	1150	1180	1420	1410	1410
27	600	590	600	780	770	770	1200	1190	1200	1420	1400	1410
28	600	590	600	780	770	780	1210	1200	1210	1410	1400	1400
29	600	590	600	830	810	820	1250	1200	1230	1410	1400	1410
30	610	600	600	850	830	840	1250	1240	1250	1400	1390	1400
31	610	600	600	---	---	---	1250	1240	1240	1400	1370	1390

Table 22.--Water-quality records for James River at LaMoure, ND (06470500)--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1360	1330	1340	990	980	980	710	630	660	770	700	740
2	1350	1340	1340	990	940	970	690	600	640	780	710	750
3	1350	1330	1340	950	940	940	680	580	630	790	730	760
4	1340	1330	1330	960	900	930	650	580	620	790	720	770
5	1360	1330	1340	950	890	910	710	600	660	780	710	750
6	1370	1350	1360	900	850	870	720	650	700	800	730	770
7	1380	1350	1370	860	850	860	720	660	690	810	750	790
8	1370	1350	1360	860	850	850	720	650	690	820	750	800
9	1360	1350	1350	850	850	850	720	650	690	830	750	790
10	1350	1340	1350	800	790	790	700	640	670	880	820	850
11	1350	1340	1350	800	790	790	710	640	680	910	830	880
12	1360	1300	1330	790	790	790	710	660	680	890	870	880
13	1330	1290	1310	790	750	760	690	630	670	890	880	880
14	1330	1290	1310	760	750	750	680	630	650	910	880	890
15	1310	1280	1290	760	750	750	690	620	660	900	880	890
16	1290	1270	1280	760	750	760	690	630	660	900	890	890
17	1280	1270	1270	760	750	750	690	620	660	910	890	900
18	1280	1250	1270	760	750	750	690	640	670	910	890	900
19	1260	1250	1260	760	750	750	690	620	660	910	890	900
20	1250	1190	1220	760	750	750	690	630	670	910	900	900
21	1210	1180	1190	770	750	750	690	620	660	910	900	910
22	1200	1130	1150	770	760	760	680	630	660	920	900	910
23	1160	1100	1120	770	760	760	700	620	660	910	890	900
24	1140	1040	1090	770	760	760	710	630	670	930	900	910
25	1090	1040	1060	710	700	710	710	650	680	930	910	920
26	1140	1040	1070	710	700	700	730	660	700	930	900	910
27	1090	1040	1060	710	660	680	740	670	710	940	900	920
28	1050	940	970	700	660	670	740	670	710	950	920	940
29	990	940	970	710	660	670	750	670	720	960	940	950
30	---	---	---	700	630	670	760	680	740	960	930	950
31	---	---	---	710	630	660	---	---	---	970	940	960
	JUNE			JULY			AUGUST			SEPTEMBER		
1	980	960	970	1060	1020	1050	---	---	---	780	730	750
2	990	960	970	1050	1030	1040	---	---	---	790	710	740
3	---	---	---	1030	990	1020	---	---	---	770	710	720
4	---	---	---	1030	990	1010	---	---	---	780	710	730
5	---	---	---	1000	950	990	---	---	---	760	730	740
6	---	---	---	1030	980	990	---	---	---	---	---	---
7	---	---	---	1020	970	990	---	---	---	---	---	---
8	---	---	---	1030	980	1000	---	---	---	---	---	---
9	---	---	---	1020	990	1010	---	---	---	---	---	---
10	---	---	---	1030	990	1010	---	---	---	---	---	---
11	---	---	---	1030	1000	1010	---	---	---	---	---	---
12	---	---	---	1020	960	1000	---	---	---	---	---	---
13	---	---	---	990	950	970	---	---	---	---	---	---
14	---	---	---	1010	960	990	---	---	---	---	---	---
15	---	---	---	1100	1010	1030	---	---	---	---	---	---
16	---	---	---	1100	1000	1020	---	---	---	---	---	---
17	---	---	---	1020	980	1000	850	800	830	---	---	---
18	---	---	---	970	910	940	870	820	840	---	---	---
19	---	---	---	920	880	900	860	820	840	---	---	---
20	---	---	---	900	870	890	870	830	850	---	---	---
21	---	---	---	900	860	880	880	840	860	---	---	---
22	---	---	---	---	---	---	890	860	870	---	---	---
23	---	---	---	---	---	---	900	860	880	---	---	---
24	---	---	---	---	---	---	900	860	880	---	---	---
25	---	---	---	---	---	---	890	860	870	---	---	---
26	---	---	---	---	---	---	890	880	890	---	---	---
27	---	---	---	---	---	---	890	860	880	---	---	---
28	---	---	---	---	---	---	860	820	850	---	---	---
29	---	---	---	---	---	---	840	820	830	---	---	---
30	---	---	---	---	---	---	830	810	820	---	---	---
31	---	---	---	---	---	---	810	750	780	---	---	---

Table 23.--Water-stage records for James River at Oakes, ND (06470830)

LOCATION.--Lat 46°08'14", long 98°08'09", in NW¼NE¼NE¼ sec.30, T.131 N., R.59 W., Dickey County Hydrologic Unit 10160003, on left bank 300 ft downstream from bridge 1.0 mi west of Oakes.

DRAINAGE AREA.--5,320 mi^2, of which about 3,300 mi^2 is probably noncontributing.

GAGE-HEIGHT RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,280.00 ft above National Vertical Datum of 1929. Flow regulated by Jamestown Reservoir (station 06469000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height, 95.20 ft, Dec. 20, 1984; minimum, 88.11 ft, Sept. 4, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 91.07 ft, Oct. 26; minimum, 88.11 ft, Sept. 4.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	90.56	---	---	---	---	---	90.48	89.80	89.13	88.46	88.50
2	---	90.62	---	---	---	---	---	90.25	89.67	89.19	88.49	88.48
3	90.36	90.55	---	---	---	---	---	89.74	89.63	89.24	88.51	88.27
4	90.38	90.52	---	---	---	---	---	89.62	89.72	89.07	88.54	88.18
5	90.21	90.53	---	---	---	---	---	89.72	89.83	89.38	88.75	88.29
6	90.19	90.51	---	---	---	---	---	90.06	89.84	89.66	88.87	88.52
7	90.30	90.50	---	---	---	---	---	89.99	89.69	89.38	88.97	88.81
8	90.32	90.30	---	---	---	---	---	89.69	89.49	89.06	88.66	88.63
9	---	90.46	---	---	---	---	---	89.32	89.50	89.05	88.69	88.51
10	90.30	90.59	---	---	---	---	---	89.44	89.61	88.93	88.95	88.32
11	90.49	90.60	---	---	---	---	---	89.55	89.71	88.94	88.77	88.51
12	90.46	90.59	---	---	---	---	---	---	---	89.04	88.64	88.35
13	90.51	90.55	---	---	---	---	90.13	---	---	89.10	88.60	88.49
14	90.43	90.61	---	---	---	---	90.15	89.57	89.43	89.04	88.57	88.43
15	90.44	90.54	---	---	---	---	90.22	89.51	89.59	88.96	88.64	88.46
16	90.43	90.36	---	---	---	---	90.48	89.40	89.60	89.01	88.80	88.58
17	90.59	90.34	---	---	---	---	90.03	89.63	89.72	89.10	88.70	88.53
18	90.51	90.34	---	---	---	---	90.19	89.79	89.80	88.96	88.58	88.27
19	90.51	90.30	---	---	---	---	90.28	---	89.63	88.90	88.66	88.34
20	90.42	90.21	---	---	---	---	90.06	---	89.69	88.91	88.82	88.46
21	90.52	90.15	---	---	---	---	90.16	---	89.64	88.90	88.96	88.72
22	90.45	90.12	---	---	---	---	89.99	---	89.42	88.96	88.82	88.82
23	90.52	---	---	---	---	---	89.91	---	89.60	89.08	88.67	88.97
24	90.48	---	---	---	---	---	90.10	---	89.44	88.97	88.55	89.04
25	90.82	---	---	---	---	---	89.85	89.97	---	88.84	88.46	88.83
26	90.71	---	---	---	---	---	89.70	89.65	89.38	88.91	88.61	88.85
27	90.52	---	---	---	---	---	89.84	89.56	89.56	88.95	88.56	88.81
28	90.57	---	---	---	---	---	89.89	89.65	---	89.01	88.49	88.82
29	90.57	---	---	---	---	---	89.99	89.88	---	88.86	88.51	88.86
30	90.51	---	---	---	---	---	90.10	89.95	89.15	88.68	88.62	89.29
31	90.52	---	---	---	---	---	---	89.99	---	88.72	88.58	---
MEAN	---	---	---	---	---	---	---	---	---	89.03	88.66	88.60
MAX	---	---	---	---	---	---	---	---	---	89.66	88.97	89.29
MIN	---	---	---	---	---	---	---	---	---	88.68	88.46	88.18

Table 24.--Water-quality records for James River at Oakes, ND (06470830)

PERIOD OF RECORD.--Water years 1983 to current year.

PERIOD OF DAILY RECORDS.--
SPECIFIC CONDUCTANCE: Water years 1982 to current year.
WATER TEMPERATURE: Water years 1982 to current year.

INSTRUMENTATION.--Water quality monitor since October 1982.

REMARKS.--Long periods of missing record are the result of the monitor probes being frozen in ice or equipment failure. Because of the large percentage of missing or faulty record only daily mean values are presented and all extremes are qualified as observed or recorded.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 2,250 microsiemens, Jan. 7, 1986; minimum recorded, 290 microsiemens, Apr. 1, 1984.
WATER TEMPERATURE: Maximum, 31.7°C, Aug. 15, 1988; minimum, 0.0°C on many days during the winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,230 microsiemens, July 11; minimum recorded, 550 microsiemens, Oct. 1.
WATER TEMPERATURE: Maximum recorded, 31.7°C, Aug. 15; minimum, 0.0°C, on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
OCT											
06...	1500	--	600	8.47	11.0	9.0	23	11.8	100	--	220
NOV											
17...	0900	146	640	8.65	-12.0	0.0	4.3	14.6	99	--	240
JAN											
12...	1330	14	1900	7.95	-18.0	0.0	66	--	--	--	720
FEB											
25...	0900	20	1700	8.10	-15.0	0.5	1.7	20.0	136	--	630
APR											
12...	1000	182	735	8.48	20.0	7.5	15	11.1	91	4.6	280
12...	1003	--	735	--	--	7.5	--	--	--	--	--
12...	1006	--	740	--	--	7.5	--	--	--	--	--
12...	1009	--	740	--	--	7.5	--	--	--	--	--
12...	1012	--	740	--	--	7.5	--	--	--	--	--
12...	1015	--	740	--	--	7.5	--	--	--	--	--
12...	1018	--	740	--	--	7.5	--	--	--	--	--
12...	1020	--	740	--	--	7.5	--	--	--	--	--
MAY											
24...	1600	18	930	8.70	26.0	18.0	23	11.8	122	9.6	310

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT											
06...	48	24	38	26	1	14	217	98	11	0.20	386
NOV											
17...	53	26	49	29	1	13	227	100	16	0.20	415
JAN											
12...	150	83	160	32	3	19	596	410	83	0.30	1230
FEB											
25...	150	61	160	35	3	16	537	390	65	0.30	1180
APR											
12...	63	31	55	29	1	11	231	160	22	0.20	478
MAY											
24...	58	40	84	36	2	14	269	170	39	0.40	591

Table 24.--Water-quality records for James River at Oakes, ND (06470830)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT											
06...	367	0.52	0.0	45	--	<0.010	--	0.470	--	0.010	--
NOV											
17...	394	0.56	164	10	--	<0.010	--	0.200	--	0.010	--
JAN											
12...	1260	1.67	46.5	210	--	<0.010	--	<0.100	--	0.050	--
FEB											
25...	1170	1.60	63.7	11	--	<0.010	--	0.270	--	0.100	--
APR											
12...	481	0.65	235	26	<0.010	<0.010	<0.100	<0.100	0.030	0.020	1.6
MAY											
24...	567	0.80	28.7	52	0.010	<0.010	<0.100	<0.100	0.020	0.030	0.90

DATE	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT										
06...	0.40	--	0.090	--	0.522	--	3	100	--	<1
NOV										
17...	0.80	--	0.020	--	0.016	--	2	120	--	<1
JAN										
12...	1.0	--	0.030	--	0.104	--	1	450	--	<1
FEB										
25...	0.90	--	0.100	--	0.074	--	1	390	--	<1
APR										
12...	0.80	0.160	0.050	0.054	0.026	2	2	140	1	<1
MAY										
24...	0.70	0.170	0.030	0.039	0.002	2	2	230	3	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT										
06...	1	--	7	<5	--	11	0.2	--	<1	<3
NOV										
17...	<1	--	11	<5	--	24	0.1	--	<1	<3
JAN										
12...	2	--	11	5	--	180	<0.1	--	<1	9
FEB										
25...	2	--	10	<5	--	53	1.4	--	<1	17
APR										
12...	1	1100	14	<5	540	410	0.1	<1	<1	<3
MAY										
24...	1	1200	4	<5	980	380	0.2	<1	<1	6

Table 24.--Water-quality records for James River at Oakes, ND (06470830)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 06...	--	--	<0.01	--	--	--	--	--	--	--
NOV 17...	--	--	--	--	--	--	--	13	5.1	97
JAN 12...	--	--	<0.01	--	--	--	--	--	--	--
FEB 25...	--	--	<0.01	--	--	--	--	121	6.5	10
APR 12...	11	<0.010	<0.01	9.30	<0.100	17	1200	46	23	97
MAY 24...	16	<0.010	<0.01	57.0	7.10	54	2400	61	3.0	99

DATE	TIME	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH TO TOP OF SAMPLE INTER-VAL (FT) (72015)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
APR								
12...	1000	0.0	--	7.5	735	8.48	11.1	91
12...	1003	20.0	2.0	7.5	735	--	--	--
12...	1006	40.0	2.0	7.5	740	--	--	--
12...	1009	60.0	2.0	7.5	740	--	--	--
12...	1012	80.0	2.0	7.5	740	--	--	--
12...	1015	100	2.0	7.5	740	--	--	--
12...	1018	120	2.0	7.5	740	--	--	--
12...	1020	130	2.0	7.5	740	--	--	--

Table 24.--Water-quality records for James River at Oakes, ND (06470830)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.2	9.4	12.6	7.3	6.2	6.6	.8	.3	.5	.1	.0	.0
2	10.7	6.6	8.6	8.6	7.3	8.1	.7	.3	.5	.1	.0	.0
3	10.6	7.5	9.2	8.7	8.0	8.4	.6	.3	.5	.1	.0	.0
4	12.8	9.0	10.7	8.3	6.0	7.3	.6	.2	.4	.1	.0	.0
5	11.3	9.0	9.9	6.4	4.4	5.4	.5	.2	.3	.0	.0	.0
6	9.1	7.5	8.3	5.8	3.9	5.0	.5	.2	.3	.0	.0	.0
7	9.2	6.1	7.6	5.1	3.8	4.5	.5	.2	.4	.0	.0	.0
8	9.2	6.9	8.0	4.0	1.2	2.4	.9	.2	.5	.0	.0	.0
9	6.7	4.1	5.2	1.9	.6	1.3	.9	.3	.6	.0	.0	.0
10	6.2	3.5	4.8	1.3	.3	.9	.7	.2	.5	.0	.0	.0
11	6.3	3.2	4.8	2.2	.1	1.0	.6	.2	.4	.0	.0	.0
12	7.9	4.6	6.1	3.3	1.6	2.4	.4	.1	.3	---	---	---
13	8.5	6.5	7.3	3.8	2.1	2.9	.2	.0	.2	---	---	---
14	8.2	6.6	7.4	3.8	2.6	3.2	.2	.0	.1	---	---	---
15	7.8	7.3	7.6	4.6	3.8	4.2	.2	.0	.1	---	---	---
16	7.5	6.6	7.2	4.3	1.6	3.0	.2	.0	.1	---	---	---
17	7.6	5.2	6.4	1.3	.0	.6	.3	.0	.1	---	---	---
18	7.0	5.1	6.1	1.2	.1	.6	.3	.0	.1	---	---	---
19	5.8	4.2	5.1	.8	.0	.3	.3	.0	.1	---	---	---
20	4.4	3.2	3.7	1.3	.2	.6	.3	.0	.1	---	---	---
21	3.0	1.9	2.5	1.2	.2	.7	.2	.0	.1	---	---	---
22	2.2	1.0	1.7	1.5	.3	.8	.3	.0	.1	---	---	---
23	3.5	1.6	2.3	1.7	.3	1.0	.3	.0	.1	---	---	---
24	2.3	1.0	1.6	1.4	.5	.9	.3	.0	.1	---	---	---
25	3.5	1.2	2.2	1.0	.5	.7	.4	.0	.2	---	---	---
26	5.5	3.4	4.3	.9	.4	.7	.5	.0	.2	---	---	---
27	4.8	2.8	3.9	.9	.4	.7	.3	.0	.2	---	---	---
28	5.1	3.1	4.1	.8	.4	.6	.3	.0	.1	---	---	---
29	5.6	3.3	4.5	.7	.2	.5	.3	.0	.1	---	---	---
30	6.2	4.2	5.2	.7	.3	.5	.1	.0	.0	---	---	---
31	6.7	4.5	5.6	---	---	---	.1	.0	.0	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1							---	---	---	16.9	14.9	15.8
2							---	---	---	15.6	14.4	15.0
3							---	---	---	14.9	11.8	13.3
4							---	---	---	14.4	9.3	11.9
5							---	---	---	16.2	10.7	13.4
6							---	---	---	16.5	14.3	15.4
7							---	---	---	15.9	13.8	14.8
8							---	---	---	16.5	13.2	14.5
9							---	---	---	14.6	9.3	12.1
10							---	---	---	16.6	13.1	14.6
11							---	---	---	18.4	14.5	16.3
12							---	---	---	19.1	12.5	16.9
13							11.8	8.9	10.4	15.4	8.4	12.1
14							10.6	7.0	8.8	16.7	12.0	14.3
15							11.3	6.4	8.7	15.1	11.7	13.6
16							11.7	7.5	9.6	17.3	9.9	13.4
17							10.9	7.5	9.1	18.7	13.3	15.8
18							10.1	5.4	7.6	18.8	14.9	16.9
19							10.6	6.2	8.4	17.4	16.2	16.7
20							10.1	6.2	8.5	18.2	15.2	16.6
21							9.3	7.4	8.4	17.2	13.4	15.0
22							9.4	6.1	7.8	15.1	12.0	13.3
23							10.5	4.5	7.4	19.3	13.6	15.7
24							11.8	7.0	9.3	20.7	17.4	18.9
25							10.8	6.1	8.6	19.6	16.1	18.3
26							8.9	6.0	7.1	22.1	17.5	19.2
27							11.4	4.4	7.6	22.7	18.9	20.4
28							14.2	7.3	10.5	24.1	20.4	22.0
29							16.5	10.3	13.3	25.1	20.2	22.6
30							18.2	13.5	15.8	23.8	19.4	22.0
31							---	---	---	25.0	20.6	22.7

Table 24.--Water-quality records for James River at Oakes,ND (06470830)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.7	21.0	22.7	21.4	18.6	20.0	29.7	20.1	22.7	24.7	16.3	19.6
2	27.9	21.1	23.8	25.8	17.8	21.5	29.2	19.0	23.5	21.0	14.2	17.2
3	28.4	23.1	25.6	25.9	19.7	23.0	25.3	18.9	22.7	20.4	12.6	16.0
4	29.1	24.4	26.8	28.8	22.0	25.2	21.1	17.6	19.6	20.9	11.6	15.6
5	27.5	23.9	25.6	29.2	22.8	26.0	26.5	15.7	20.9	21.6	9.2	15.2
6	25.3	21.0	23.3	28.0	24.1	26.0	28.7	19.3	23.6	22.4	10.5	16.0
7	27.2	20.9	23.9	25.4	20.1	23.0	24.8	20.3	22.7	18.3	11.8	15.6
8	28.1	22.8	25.4	27.9	20.7	23.9	25.3	17.1	20.6	18.0	12.4	14.8
9	23.5	18.1	20.9	26.5	22.6	24.3	27.1	17.2	21.8	19.8	9.5	14.6
10	23.6	17.9	20.8	26.1	20.2	22.8	27.6	19.8	23.4	17.7	11.1	14.4
11	23.5	18.3	21.0	27.0	18.4	22.2	30.1	21.7	25.4	17.5	13.3	16.2
12	21.8	18.7	20.7	---	---	---	29.1	20.1	24.6	17.0	10.4	12.9
13	24.0	17.7	20.4	---	---	---	25.6	21.7	23.3	19.7	7.8	13.5
14	22.5	18.9	20.7	27.5	21.3	24.0	29.6	19.8	24.2	17.2	10.7	14.5
15	22.2	16.4	18.9	26.2	22.6	24.5	31.7	22.2	26.5	15.4	14.0	14.4
16	23.5	17.7	20.3	27.1	19.6	23.0	30.3	24.3	27.2	20.2	13.8	16.0
17	26.7	20.4	23.0	25.9	20.3	23.2	29.6	23.2	25.8	22.3	13.3	17.8
18	26.4	22.0	24.3	27.7	19.7	23.8	26.5	21.7	23.9	20.6	13.0	16.8
19	28.0	23.6	25.7	25.7	20.2	22.9	27.3	19.9	23.3	12.4	8.1	9.6
20	27.6	22.9	25.2	24.8	16.8	21.0	25.3	20.0	22.7	14.2	6.7	10.1
21	29.3	23.4	26.0	26.9	18.9	22.2	22.9	20.8	21.8	12.6	9.4	10.9
22	27.2	22.8	25.1	27.0	20.9	24.1	25.4	18.6	21.3	15.1	10.5	12.2
23	24.5	19.9	22.7	26.4	19.5	22.8	22.2	16.3	19.1	16.5	8.4	12.2
24	27.9	21.1	24.2	27.6	19.2	23.3	24.7	15.2	19.4	17.7	11.2	14.0
25	27.3	20.9	24.2	28.4	20.2	24.1	22.1	14.7	18.3	16.1	10.7	13.6
27	26.2	20.6	23.7	29.6	21.5	25.3	20.3	12.1	15.8	13.8	8.7	11.6
28	26.6	22.0	24.1	25.1	21.0	23.1	20.5	10.8	15.7	11.8	9.2	10.1
29	22.3	17.8	19.7	28.6	21.4	24.6	23.0	11.4	17.2	10.9	8.7	9.8
30	22.8	15.6	19.0	29.5	20.7	25.0	22.7	14.5	18.7	14.1	8.5	10.9
31	---	---	---	28.5	21.6	25.0	22.8	16.8	19.4	---	---	---

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	580	550	570	610	600	600	710	690	700			
2	590	560	580	600	590	600	720	700	710			
3	580	570	580	600	590	600	730	710	720			
4	590	570	580	610	590	600	740	720	730			
5	610	580	600	610	600	610	780	740	760			
6	620	600	610	620	610	610	810	780	790			
7	620	600	610	620	610	610	840	810	830			
8	620	610	610	630	610	620	870	840	850			
9	630	610	620	630	620	630	880	870	870			
10	630	620	620	640	620	630	890	880	880			
11	630	620	620	640	620	630	900	890	900			
12	630	610	620	630	620	630	910	900	900			
13	630	610	620	630	620	630	920	910	910			
14	620	610	620	630	620	620	930	920	920			
15	620	610	620	630	620	620	930	920	930			
16	620	610	620	630	620	620	940	930	930			
17	630	610	620	640	630	630	950	930	940			
18	620	620	620	640	630	630	960	940	950			
19	630	620	620	640	630	640	990	960	970			
20	630	620	620	640	630	630	1020	990	1000			
21	630	620	630	650	640	640	1040	1020	1030			
22	640	620	630	650	640	650	1060	1040	1050			
23	640	630	630	660	650	650	1080	1060	1070			
24	640	620	630	660	650	660	1090	1070	1080			
25	640	620	630	670	660	660	1090	1080	1090			
26	630	610	620	670	660	670	1100	1080	1090			
27	640	620	630	680	670	670	1110	1090	1100			
28	640	620	630	690	670	680	1120	1100	1110			
29	630	620	630	700	680	690	1130	1120	1120			
30	620	610	620	700	690	690	1140	1120	1130			
31	620	600	610	---	---	---	1150	1130	1140			

Table 24.--Water-quality records for James River at Oakes,ND (06470830)--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1							---	---	---	680	660	670
2							---	---	---	690	670	680
3							---	---	---	690	670	680
4							---	---	---	700	680	690
5							---	---	---	720	690	710
6							---	---	---	740	700	720
7							---	---	---	730	720	720
8							---	---	---	740	720	730
9							---	---	---	760	720	740
10							---	---	---	760	730	740
11							---	---	---	760	740	750
12							---	---	---	770	740	750
13							730	700	710	770	740	760
14							730	690	710	760	740	750
15							720	680	700	750	730	740
16							700	670	690	760	730	740
17							690	670	680	750	740	750
18							690	660	680	780	750	760
19							690	660	670	810	780	790
20							700	660	680	840	810	820
21							710	680	690	880	840	860
22							720	690	710	900	880	890
23							730	680	700	930	900	910
24							710	680	700	950	920	930
25							720	690	700	970	940	950
26							720	700	710	980	960	970
27							730	690	710	1010	970	990
28							710	670	690	1030	980	1000
29							680	660	670	1020	970	1010
30							680	660	670	990	920	950
31							---	---	---	930	910	920
		JUNE			JULY			AUGUST			SEPTEMBER	
1	920	900	910	1090	1070	1070	1130	1080	1100	990	950	970
2	1000	920	970	1130	1080	1100	1080	1010	1050	1000	960	980
3	960	930	940	1160	1110	1130	1040	1000	1020	1010	970	990
4	960	930	940	1180	1120	1150	1020	990	1010	1040	980	1000
5	960	930	950	1190	1160	1170	1020	980	1000	1050	1000	1020
6	970	930	950	1160	1070	1100	1010	970	990	1070	1010	1040
7	970	940	960	1070	1030	1040	1050	950	1010	1060	1020	1040
8	950	930	940	1110	1030	1050	950	900	930	1040	1030	1030
9	970	940	950	1170	1110	1140	950	900	910	1060	1020	1040
10	990	940	960	1220	1160	1180	980	920	950	1030	1010	1020
11	980	940	960	1230	1180	1200	960	900	940	1050	1010	1040
12	950	930	940	---	---	---	960	890	930	1020	970	1010
13	950	920	940	---	---	---	940	890	910	1010	970	990
14	930	880	900	1070	1030	1050	930	890	910	970	950	960
15	940	890	920	1080	1020	1050	950	900	920	960	940	950
16	980	930	950	1080	1060	1070	960	910	940	990	930	960
17	1000	960	980	1070	1020	1050	940	890	920	960	930	940
18	1010	960	980	1020	970	1010	910	870	890	930	860	910
19	1010	980	1000	970	930	950	900	860	880	860	760	790
20	1000	960	980	980	920	950	910	870	890	820	770	790
21	990	960	980	1010	960	980	930	880	900	840	820	830
22	980	950	970	990	950	970	940	900	910	840	810	830
23	970	940	950	990	950	960	910	890	900	870	840	850
24	970	950	960	1020	960	990	930	880	900	870	850	860
25	1020	950	970	1010	970	990	930	890	910	870	850	860
26	1020	990	1010	1030	980	1000	940	900	920	870	840	860
27	1050	1000	1030	1050	1000	1020	940	910	930	900	860	870
28	1060	1030	1040	1060	1020	1040	950	910	930	910	850	880
29	1070	1040	1050	1080	1030	1060	960	920	930	870	850	860
30	1090	1060	1070	1120	1060	1080	980	920	950	890	870	880
31	---	---	---	1140	1080	1110	970	940	960	---	---	---

Table 25.--Water-discharge records for James River at Dakota Lake Dam near Ludden, ND (06470875)

LOCATION.--Lat 45°56'52", long 98°10'29", in SE¼NE¼NE¼ sec.34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, on left bank, 10 ft upstream from dam, 4.5 mi southwest of Ludden and .8 mi upstream from North Dakota-South Dakota state line.

DRAINAGE AREA.--5,480 mi^2, of which about 3,300 mi^2 are noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 1,280.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7 to Feb. 1. Records good except those below 10 ft^3/s, which are fair. Flow regulated by upstream reservoirs, Jamestown Reservoir (station 06469000), Pipestem Lake, capacity 147,000 acre-ft, and Lake LaMoure.

AVERAGE DISCHARGE.--7 years, 161 ft^3/s, 116,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 2,300 ft^3/s, Mar. 28, 1987, gage height, 13.76 ft, no flow at times during some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 360 ft^3/s, Oct. 5, gage height, 10.22 ft; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	219	70	30	14	32	153	7.5	.00	.00	.00	.00
2	149	211	64	30	15	32	163	.74	2.8	.00	.00	.00
3	89	238	64	30	15	32	155	80	16	.00	.00	.00
4	177	250	62	28	15	35	177	99	5.2	.00	.00	.00
5	266	228	60	28	15	35	180	44	1.2	.00	.00	.00
6	199	225	60	25	15	37	118	10	.00	.00	.00	.00
7	174	231	58	20	15	43	120	.01	.00	.00	.00	.00
8	208	249	57	20	14	56	145	65	4.2	.00	.00	.00
9	245	200	57	16	14	69	184	147	.04	.00	.00	.00
10	177	171	55	14	15	76	119	29	.00	.00	.00	.00
11	159	196	63	12	15	85	81	9.6	.00	.00	.00	.00
12	203	217	65	11	15	91	137	47	3.3	.00	.00	.00
13	208	224	57	11	15	97	196	15	.08	.00	.00	.00
14	228	197	56	11	13	110	173	.02	3.1	.00	.00	.00
15	230	251	54	11	11	120	153	44	3.2	.47	.00	.00
16	235	311	51	11	9.6	120	98	6.1	1.4	.00	.00	.00
17	193	256	46	11	9.6	120	244	.00	.24	.00	.00	.00
18	233	181	45	11	9.6	123	150	.00	.03	.00	.00	.00
19	228	172	45	11	12	131	147	1.1	8.5	.00	.00	23
20	248	154	45	11	14	128	199	15	3.0	.00	.00	.00
21	195	137	44	10	12	132	145	42	1.2	.00	.00	.00
22	230	122	43	10	16	134	180	59	5.9	.00	.00	.00
23	222	110	43	10	17	136	134	7.8	.32	.00	.00	.00
24	224	96	43	10	18	136	76	3.1	1.1	.00	.00	.00
25	109	94	40	10	19	142	140	.00	2.8	.00	.00	.00
26	222	79	38	10	19	149	133	6.5	.00	.00	.00	.00
27	248	79	37	10	20	148	74	9.9	.00	.00	.00	.00
28	214	79	37	10	22	153	54	11	.00	.00	.00	.00
29	216	78	34	10	26	149	25	.00	.00	.00	.00	.00
30	231	75	30	11	---	159	.83	.00	.00	.00	.00	.00
31	230	---	30	12	---	159	---	.00	---	.00	.00	---
TOTAL	6386	5330	1553	465	439.8	3169	4053.83	759.37	63.61	0.47	0.00	23.00
MEAN	206	178	50.1	15.0	15.2	102	135	24.5	2.12	.015	.00	.77
MAX	266	311	70	30	26	159	244	147	16	.47	.00	23
MIN	89	75	30	10	9.6	32	.83	.00	.00	.00	.00	.00

CAL YR 1987 TOTAL 118520 MEAN 325 MAX 2210 MIN 30
WTR YR 1988 TOTAL 22243.08 MEAN 60.8 MAX 311 MIN .00

Table 26.--Water-quality records for James River at Dakota Lake Dam (06470875)

PERIOD OF RECORD.--Water years 1983 to current year.

PERIOD OF DAILY RECORDS.--
WATER TEMPERATURE: October 1982 to current year.
SPECIFIC CONDUCTANCE: October 1982 to current year.
DISSOLVED OXYGEN: October 1982 to current year.
pH: June 1983 to current year.

INSTRUMENTATION.--Water quality monitor since October 1982.

REMARKS.--Unpublished records for dissolved oxygen and pH are available in files at the District office for water years 1983 through 1987. No flow July 1 through Sept. 30.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 31.0°C, July 31, 1987; minimum, 0.0°C, several days during winter months each year.
SPECIFIC CONDUCTANCE: Maximum recorded, 2,620 microsiemens, Feb. 28, 1986; minimum recorded, 217 microsiemens, July 13, 1983.
DISSOLVED OXYGEN: Maximum recorded, greater than 20 mg/L on many days; minimum recorded, 0.5 mg/L, June 5, 1988.
pH: Maximum recorded, 9.7 units, Oct. 10, 1984; minimum recorded, 6.0 units, Nov. 20, 1984.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 29.0°C, June 3,4,8,20; minimum, 0.0°C, several days during winter months.
SPECIFIC CONDUCTANCE: Maximum recorded, 2,170 microsiemens, Feb. 26; minimum recorded, 500 microsiemens, Oct. 21,22.
DISSOLVED OXYGEN: Maximum recorded, greater than 20 mg/L on many days; minimum recorded, 0.5 mg/L, June 5.
pH: Maximum recorded, 9.2 units, Oct. 1,3,4,5; minimum recorded, 8.1 units, Mar. 1-4.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT												
06...	1200	175	600	8.85	10.0	8.0	14	11.3	94	--	230	52
NOV												
16...	1400	311	640	8.88	0.0	3.0	3.0	15.0	110	--	240	52
JAN												
11...	1430	12	1200	8.55	-15.0	2.5	2.5	>20.0	--	--	430	83
FEB												
24...	1300	19	2300	7.88	-15.0	3.0	2.7	20.0	146	--	760	140
MAR												
30...	1250	144	--	--	0.0	2.0	--	--	--	--	--	--
APR												
11...	1600	50	580	8.65	21.0	10.0	35	11.5	100	5.9	210	48
MAY												
23...	1500	11	810	8.80	28.0	18.0	18	13.4	139	5.1	290	61
AUG												
23...	0900	0.0	1140	9.10	20.0	19.0	--	2.2	23	--	--	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
OCT												
06...	25	41	26	1	13	220	94	11	0.20	379	368	0.52
NOV												
16...	26	49	30	1	12	222	110	16	0.20	406	399	0.55
JAN												
11...	53	110	35	2	18	386	240	59	0.30	805	795	1.09
FEB												
24...	100	260	42	4	27	680	570	150	0.30	1630	1660	2.22
APR												
11...	23	45	30	1	9.8	177	110	17	0.20	359	359	0.49
MAY												
23...	33	66	32	2	15	243	170	23	0.30	521	514	0.71

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)
OCT												
06...	179	30	--	<0.010	--	<0.100	--	<0.010	--	0.40	--	0.030
NOV												
16...	341	10	--	<0.010	--	0.150	--	0.010	--	0.40	--	0.020
JAN												
11...	26.5	4	--	<0.010	--	<0.100	--	0.030	--	1.0	--	0.050
FEB												
24...	81.9	9	--	<0.010	--	<0.100	--	0.020	--	1.3	--	0.030
APR												
11...	48.7	40	0.010	<0.010	<0.100	<0.100	0.030	0.020	1.3	0.60	0.220	0.020
MAY												
23...	15.9	11	0.020	<0.010	<0.100	<0.100	0.030	0.030	1.0	0.80	0.160	0.020

DATE	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT												
06...	--	0.016	--	3	100	--	<1	2	--	6	<5	--
NOV												
16...	--	0.002	--	2	120	--	<1	<1	--	7	<5	--
JAN												
11...	--	0.042	--	1	240	--	<1	2	--	7	<5	--
FEB												
24...	--	<0.002	--	1	550	--	<10	1	--	30	<5	--
APR												
11...	0.046	0.003	2	1	100	1	<1	1	2000	5	<5	490
MAY												
23...	0.024	0.001	2	2	160	2	<1	1	840	6	<5	380

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
OCT												
06...	5	<0.1	--	2	<3	--	--	<0.01	--	--	--	--
NOV												
16...	8	0.1	--	<1	4	--	--	--	--	--	--	--
JAN												
11...	70	<0.1	--	<1	<3	--	--	<0.01	--	--	--	--
FEB												
24...	60	<0.1	--	<1	10	--	--	<0.01	--	--	--	--
APR												
11...	140	0.2	<1	<1	<3	13	<0.010	<0.01	30.0	1.50	26	1200
MAY												
23...	11	0.2	<1	<1	6	15	<0.010	<0.01	15.0	2.10	20	1200

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALDRIN, DISSOLVED (UG/L) (39331)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYNE TOTAL (82184)	ATRAZINE, TOTAL (UG/L) (39630)	GUTHION TOTAL (UG/L) (39580)	SEVIN, TOTAL (UG/L) (39750)	CHLORDANE, DISSOLVED (UG/L) (39352)	CHLORDANE, TOTAL (UG/L) (39350)	CYANAZINE TOTAL (UG/L) (81757)
OCT												
06...	29	14	98	--	--	--	--	--	--	--	--	--
NOV												
16...	17	14	97	--	--	--	--	--	--	--	--	--
JAN												
11...	35	1.2	24	--	--	--	--	--	--	--	--	--
FEB												
24...	73	3.7	23	--	--	--	--	--	--	--	--	--
APR												
11...	101	14	100	--	--	--	--	--	--	--	--	--
MAY												
23...	35	1.1	98	<0.01	<0.010	<0.10	0.20	<0.10	<0.50	<0.1	<0.1	0.20
AUG												
23...	--	--	--	<0.01	<0.010	<0.10	0.20	<0.10	<0.50	<0.1	<0.1	0.40

DATE	DDD, DISSOLVED (UG/L) (39361)	DDD, TOTAL (UG/L) (39360)	DDE, DISSOLVED (UG/L) (39366)	DDE, TOTAL (UG/L) (39365)	DDT, DISSOLVED (UG/L) (39371)	DDT, TOTAL (UG/L) (39370)	DIAZINON, DISSOLVED (UG/L) (39572)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN DISSOLVED (UG/L) (39381)	DIELDRIN TOTAL (UG/L) (39380)	DYPHONATE TOTAL (UG/L) a(LC1336)	ENDOSULFAN DISSOLV (UG/L) (82354)	ENDOSULFAN, TOTAL (UG/L) (39388)
MAY													
23...	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.010
AUG													
23...	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.010

DATE	ENDRIN, DISSOLVED (UG/L) (39391)	ETHION DISSOLV (UG/L) (82346)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, DISSOLVED (UG/L) (39411)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE DISSOLVED (UG/L) (39421)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE DISSOLVED (UG/L) (39341)	LINDANE TOTAL (UG/L) (39340)	MALATHION, DISSOLVED (UG/L) (39532)	MALATHION, TOTAL (UG/L) (39530)
MAY												
23...	<0.01	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
AUG												
23...	<0.01	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	METHOMYL TOTAL (UG/L) (39051)	METHOXYCHLOR DISSOLV (UG/L) (82350)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHYL PARATHION, DISSOLVED (UG/L) (39602)	METHYL PARATHION, TOTAL (UG/L) (39600)	MIREX, DISSOLVED (UG/L) (39756)	MIREX, TOTAL (UG/L) (39755)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL-TRITHION DISSOLV (UG/L) (82344)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	PARATHION, DISSOLVED (UG/L) (39542)
MAY											
23...	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01
AUG											
23...	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.01

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, DISSOLVED (UG/L) (39517)	PCB, TOTAL (UG/L) (39516)	PCN DISSOLV (UG/L) (82360)	PERTHANE DISSOLV (UG/L) (82348)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETONE TOTAL (UG/L) (39056)	PROMETRYNE TOTAL (UG/L) (39057)	PROPHAM TOTAL (UG/L) (39052)	PROPAZINE TOTAL (UG/L) (39024)
MAY											
23...	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.01	<0.1	<0.1	<0.5	<0.10
AUG											
23...	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.01	<0.1	<0.1	<0.5	<0.10

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SIMAZINE TOTAL (UG/L) (39055)	SIMETRYNE TOTAL (UG/L) (39054)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)	TOXAPHENE, DISSOLVED (UG/L) (39401)	TOXAPHENE, TOTAL (UG/L) (39400)	TREFLAN TOTAL (UG/L) a(LC1337)	TRIFLURALIN TOTAL RECOVER (UG/L) (39030)	TRITHION DISSOLV (UG/L) (82342)	TOTAL TRITHION (UG/L) (39786)
MAY												
23...	<0.10	<0.1	0.07	<0.01	<0.01	<0.01	<1.0	<1	<0.050	<0.10	<0.01	<0.01
AUG												
23...	<0.10	<0.1	<0.01	<0.01	<0.01	<0.01	<1.0	<1	<0.050	<0.10	<0.01	<0.01

a - Lab Code. WATSTORE parameter code unavailable.

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH TO TOP OF SAMPLE INTERVAL (FT) (72015)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
APR								
11...	1515	0.0	0.50	10.0	585	--	--	--
11...	1516	10.0	0.50	10.0	590	--	--	--
11...	1517	20.0	0.50	10.0	585	--	--	--
11...	1518	30.0	0.50	10.0	580	--	--	--
11...	1519	40.0	0.50	10.0	580	--	--	--
11...	1520	50.0	0.50	10.0	580	--	--	--
11...	1521	60.0	0.50	10.0	585	--	--	--
11...	1522	70.0	0.50	10.0	580	--	--	--
11...	1523	80.0	0.50	10.0	580	--	--	--
11...	1524	90.0	0.50	10.0	580	--	--	--
11...	1525	100	0.50	10.0	580	--	--	--
11...	1600	--	--	10.0	580	8.65	11.5	100

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	---	---	7.5	6.0	6.5	2.5	1.5	2.0	3.0	2.5	2.5
2	11.0	8.5	9.5	8.5	7.0	8.0	2.5	2.0	2.0	3.0	2.5	2.5
3	11.0	8.5	9.5	9.0	8.0	8.5	2.0	1.5	1.5	3.0	2.5	3.0
4	12.5	10.0	11.0	8.5	7.0	8.0	2.5	2.0	2.5	3.0	2.5	2.5
5	11.5	9.5	10.0	7.0	5.5	6.0	3.0	2.5	3.0	3.0	2.5	2.5
6	9.0	8.0	8.5	6.0	5.0	5.5	3.0	2.5	3.0	2.5	2.5	2.5
7	9.0	7.0	7.5	6.0	4.5	5.5	3.0	3.0	3.0	2.5	2.0	2.5
8	9.0	7.5	8.0	5.5	2.5	3.5	3.0	2.5	3.0	3.0	2.5	2.5
9	7.5	5.0	5.5	3.0	2.0	2.5	3.5	2.5	3.0	3.0	2.5	2.5
10	6.0	4.0	5.0	3.0	2.5	3.0	3.5	2.5	3.0	2.5	2.0	2.5
11	6.0	4.0	5.0	3.0	1.0	2.0	2.5	1.5	2.0	2.5	2.0	2.5
12	7.0	5.0	6.0	3.5	2.0	3.0	1.5	.5	1.0	3.0	2.0	2.0
13	8.0	6.5	7.0	3.5	2.5	3.0	1.0	.5	1.0	3.0	2.5	2.5
14	7.5	6.5	7.0	4.0	3.0	3.5	1.5	1.0	1.0	2.5	2.0	2.5
15	7.5	7.0	7.5	5.0	4.0	4.5	2.0	1.5	1.5	3.0	2.5	2.5
16	7.5	7.0	7.5	3.0	2.0	3.0	2.5	2.0	2.0	3.0	2.5	2.5
17	8.0	6.0	7.0	2.0	.0	1.0	3.0	2.5	2.5	3.5	2.5	3.0
18	7.5	6.0	6.5	2.5	1.5	2.0	3.5	2.5	3.0	3.0	3.0	3.0
19	6.5	5.0	5.5	3.0	2.0	2.0	3.5	3.0	3.0	3.0	2.5	3.0
20	---	---	---	3.5	2.5	3.0	3.5	3.0	3.0	3.0	2.5	3.0
21	3.5	2.5	3.0	3.5	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.0
22	3.0	1.5	2.0	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0
23	3.0	2.0	2.5	4.0	3.0	3.5	3.5	3.0	3.5	3.0	2.5	3.0
24	2.5	1.5	2.0	4.0	3.0	3.5	3.5	3.0	3.0	3.0	2.0	2.5
25	3.5	1.5	2.5	4.0	3.0	4.0	3.5	3.0	3.5	3.0	2.0	2.5
26	5.5	3.5	4.5	4.5	3.5	4.0	3.5	3.0	3.5	2.5	2.0	2.5
27	4.5	3.0	4.0	4.5	3.0	3.5	3.5	3.0	3.5	2.5	2.0	2.5
28	4.5	3.5	4.0	3.5	3.0	3.5	3.5	3.0	3.0	2.5	2.0	2.5
29	5.5	4.0	4.5	3.0	1.5	2.0	3.5	3.0	3.5	3.0	2.5	2.5
30	6.0	4.5	5.0	2.0	1.5	1.5	3.5	2.5	3.0	2.5	2.0	2.5
31	6.0	4.5	5.5	---	---	---	3.0	2.0	2.5	2.5	2.0	2.5
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.5	2.5	4.0	3.5	4.0	---	---	---	16.5	15.0	16.0
2	---	---	---	3.5	3.5	3.5	---	---	---	16.0	14.5	15.0
3	2.5	2.0	2.5	3.5	3.0	3.5	---	---	---	15.0	12.5	13.5
4	2.0	2.0	2.0	3.0	3.0	3.0	---	---	---	---	---	---
5	2.0	1.5	1.5	3.0	2.5	3.0	---	---	---	15.5	12.0	13.5
6	1.5	1.5	1.5	3.0	2.5	2.5	---	---	---	---	---	---
7	1.5	1.5	1.5	3.0	2.0	2.5	---	---	---	---	---	---
8	1.5	1.5	1.5	2.0	1.5	1.5	---	---	---	17.0	14.0	15.0
9	1.5	1.5	1.5	2.5	2.0	2.0	10.5	10.5	10.5	---	---	---
10	1.5	1.0	1.5	2.0	1.5	2.0	10.0	10.0	10.0	17.0	13.0	15.0
11	1.0	1.0	1.0	1.5	.5	1.0	---	---	---	19.5	15.0	17.0
12	1.0	1.0	1.0	1.0	.5	.5	12.0	9.5	11.5	---	---	---
13	1.0	1.0	1.0	1.5	.5	1.0	11.5	9.0	10.5	---	---	---
14	1.0	1.0	1.0	1.0	.5	1.0	10.0	7.5	9.0	---	---	---
15	1.5	1.0	1.0	1.0	.5	1.0	---	8.0	---	16.0	13.5	15.0
16	1.5	1.0	1.5	1.5	---	1.0	---	---	---	18.5	12.0	14.5
17	2.0	1.0	1.5	1.5	1.0	1.5	11.0	---	9.5	18.0	14.0	16.0
18	2.0	1.5	1.5	1.5	1.0	1.5	---	---	---	19.0	15.5	17.5
19	2.5	1.5	2.0	1.5	1.0	1.5	---	---	---	18.5	17.0	17.5
20	3.0	1.5	2.0	1.5	1.0	1.0	10.0	7.0	8.5	---	---	---
21	3.0	2.0	2.5	2.0	1.0	1.5	8.5	8.0	8.5	17.5	14.0	16.0
22	3.0	2.5	2.5	1.5	1.0	1.5	---	---	---	14.5	13.0	14.0
23	3.0	2.5	2.5	1.5	1.0	1.5	---	---	---	20.0	16.5	19.0
24	---	2.5	3.0	1.5	1.0	1.5	---	---	---	23.5	17.5	20.0
25	3.5	3.0	3.5	1.5	.5	1.0	---	---	---	21.5	18.0	20.0
26	---	---	---	1.5	.0	1.0	9.0	6.5	7.5	26.0	19.0	21.5
27	---	---	---	---	---	---	10.0	5.5	7.5	25.0	19.0	22.0
28	4.0	3.5	3.5	2.0	.5	1.5	11.0	7.5	9.0	25.0	21.5	23.0
29	4.0	3.5	4.0	2.0	.5	1.0	---	---	---	25.0	22.0	23.5
30	---	---	---	---	---	---	---	---	---	24.0	21.5	22.5
31	---	---	---	---	---	---	---	---	---	25.0	21.5	23.0

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	22.5	23.5									
2	---	---	---									
3	29.0	22.5	25.5									
4	29.0	25.0	27.0									
5	27.5	24.0	26.0									
6	26.0	22.5	24.5									
7	28.0	23.0	25.5									
8	29.0	24.5	26.5									
9	24.5	21.5	23.0									
10	24.0	20.5	22.5									
11	23.5	20.0	22.0									
12	22.5	20.5	22.0									
13	22.0	19.5	20.5									
14	23.0	20.5	21.5									
15	22.5	19.0	21.0									
16	25.0	16.5	22.0									
17	28.0	21.0	24.5									
18	27.5	23.5	25.5									
19	28.5	24.5	26.0									
20	29.0	25.0	27.0									
21	28.5	25.0	26.5									
22	28.0	24.0	26.0									
23	---	---	---									
24	27.5	22.5	24.5									
25	27.0	23.5	25.0									
26	28.5	23.5	26.0									
27	27.5	23.5	25.5									
28	25.5	23.5	24.0									
29	21.0	16.5	19.5									
30	21.5	17.5	19.0									
31	---	---	---									

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	650	550	620	590	580	580	630	620	630	890	850	870
2	590	550	570	590	510	590	640	620	630	920	880	900
3	590	550	570	590	570	590	640	630	630	930	910	920
4	580	550	570	590	580	590	650	630	640	960	920	940
5	580	550	570	590	580	590	660	640	650	990	960	970
6	590	580	580	590	580	590	670	660	660	1010	980	1000
7	590	580	580	620	530	590	670	650	660	1040	1010	1020
8	600	580	590	610	570	600	670	650	660	1070	1030	1060
9	620	590	610	620	570	610	670	650	660	1110	1070	1080
10	620	600	610	640	600	610	660	650	660	1130	1100	1110
11	610	590	600	610	600	610	660	650	650	1140	1120	1130
12	610	600	610	610	600	610	660	650	650	1170	1120	1140
13	600	590	600	620	570	610	680	660	670	1190	1150	1170
14	590	570	580	610	610	610	690	670	680	1200	1180	1190
15	570	560	560	610	610	610	690	680	690	1220	1200	1210
16	560	550	560	610	580	600	720	690	710	1220	1210	1220
17	570	560	560	610	590	600	740	710	720	1230	1210	1220
18	570	560	560	610	560	600	740	720	730	1230	1220	1230
19	570	550	560	620	590	610	760	740	750	1230	1220	1230
20	---	---	---	630	600	620	760	740	750	1230	1210	1220
21	570	500	560	640	600	620	770	760	770	1240	1230	1230
22	570	500	560	640	590	630	780	760	770	1240	1230	1240
23	570	540	560	640	610	630	790	770	780	1240	1230	1240
24	570	560	570	640	590	630	810	790	800	1250	1230	1240
25	580	560	570	640	570	630	820	800	810	1280	1230	1260
26	580	530	570	660	600	630	830	810	820	1290	1250	1270
27	580	570	580	650	620	640	840	820	830	1320	1290	1300
28	580	570	580	650	620	640	850	840	840	1330	1310	1320
29	580	580	580	630	620	630	850	830	840	1350	1320	1330
30	580	570	580	630	620	620	840	830	830	1340	1320	1340
31	590	570	580	---	---	---	850	830	840	1340	1310	1330

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1370	1320	1350	2050	1960	2000	---	---	---	760	740	750
2	---	---	---	1970	1900	1940	---	---	---	760	750	750
3	1430	1390	1410	1900	1750	1830	---	---	---	760	740	750
4	1480	1430	1450	1750	1620	1700	---	---	---	---	---	---
5	1510	1470	1500	1630	1480	1550	---	---	---	760	740	750
6	1560	1510	1530	1480	1380	1420	---	---	---	---	---	---
7	1620	1560	1590	1380	1140	1310	---	---	---	---	---	---
8	1670	1620	1650	1140	1090	1110	---	---	---	760	740	750
9	1700	1660	1680	1120	1070	1100	600	---	---	---	---	---
10	1730	---	1710	1070	890	980	610	---	---	800	760	780
11	1760	1720	1740	910	820	860	---	---	---	800	770	790
12	1830	1760	1800	830	770	790	610	600	600	---	---	---
13	1870	1830	1850	770	730	750	620	600	610	---	---	---
14	1880	1790	1860	740	700	720	650	620	630	---	---	---
15	1910	1870	1890	700	670	690	---	---	---	830	780	800
16	1930	1900	1920	---	---	---	---	---	---	880	740	820
17	1960	1930	1950	670	650	660	700	660	680	860	780	830
18	1980	1950	1960	660	650	650	---	---	---	870	760	840
19	2000	1970	1980	660	650	650	730	700	710	840	820	830
20	2020	1990	2000	660	650	660	730	710	720	---	---	---
21	2020	2000	2010	670	660	660	730	710	720	840	820	830
22	2040	2010	2020	670	650	660	---	---	---	850	830	840
23	2060	2010	2040	660	650	650	---	---	---	---	800	850
24	---	2040	2070	650	590	620	---	---	---	830	790	810
25	2130	2070	2100	610	560	590	---	---	---	840	770	820
26	2170	2130	2140	580	560	570	750	730	740	860	780	840
27	2150	2130	2140	570	540	560	760	730	740	850	820	830
28	2130	2070	2110	550	510	530	760	740	740	920	840	870
29	2110	2040	2090	530	510	520	750	---	---	940	820	900
30	---	---	---	---	---	---	---	---	---	890	840	860
31	---	---	---	---	---	---	---	---	---	880	830	860

	JUNE			JULY			AUGUST			SEPTEMBER		
1	880	800	860									
2	---	---	---									
3	980	910	940									
4	1020	960	---									
5	1040	1010	1020									
6	1050	1020	1030									
7	1060	1030	1040									
8	1060	1030	1050									
9	1040	980	1010									
10	1000	950	980									
11	960	920	940									
12	1000	920	940									
13	990	970	980									
14	980	950	960									
15	960	940	950									
16	960	920	940									
17	980	950	960									
18	980	950	960									
19	970	950	960									
20	960	930	950									
21	940	910	930									
22	940	910	930									
23	---	---	---									
24	910	870	890									
25	950	890	920									
26	970	940	950									
27	950	930	940									
28	950	940	940									
29	970	880	920									
30	910	880	890									
31	---	---	---									

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	9.2	8.8	9.1	9.0	9.0	9.0	8.7	8.6	8.4	8.4	8.2	8.1
2	9.1	9.0	9.0	8.6	9.0	8.9	8.7	8.7	---	---	8.2	8.1
3	9.2	9.1	9.0	8.9	9.0	8.9	8.7	8.7	8.4	8.4	8.2	8.1
4	9.2	9.1	9.0	8.9	9.0	8.9	8.7	8.6	8.4	8.3	8.2	8.1
5	9.2	9.1	9.0	8.9	9.0	8.9	8.7	8.6	8.3	8.3	8.3	8.2
6	9.0	8.9	9.0	8.9	9.0	9.0	8.7	8.6	8.3	8.3	8.3	8.2
7	9.1	8.9	9.0	8.9	9.0	8.9	8.7	8.6	8.3	8.3	8.3	8.2
8	9.1	9.0	9.0	8.9	9.0	8.9	8.6	8.6	8.3	8.3	8.3	8.2
9	9.0	8.8	9.0	8.7	9.0	9.0	8.6	8.6	8.3	8.3	8.4	8.2
10	9.0	8.9	9.0	9.0	9.0	9.0	8.6	8.6	8.3	8.2	8.4	8.4
11	9.0	8.9	9.1	9.0	9.0	9.0	8.7	8.6	8.3	8.2	8.5	8.4
12	9.0	8.9	9.1	9.0	9.0	8.9	8.7	8.6	8.3	8.2	8.5	8.3
13	9.1	8.9	9.1	9.0	8.9	8.9	8.6	8.6	8.3	8.2	8.6	8.4
14	9.1	9.0	9.1	9.0	9.0	8.9	8.6	8.6	8.3	8.2	8.6	8.5
15	9.0	9.0	9.0	9.0	9.0	8.9	8.6	8.6	8.3	8.2	8.7	8.5
16	9.0	9.0	9.0	8.9	9.0	8.9	8.6	8.6	8.3	8.2	---	---
17	9.1	8.9	9.0	8.8	9.0	9.0	8.6	8.6	8.3	8.2	8.8	---
18	9.1	9.0	9.1	8.9	9.0	9.0	8.6	8.6	8.3	8.3	8.8	8.8
19	9.1	9.0	9.1	9.0	9.0	8.9	8.6	8.5	8.3	8.3	8.9	8.8
20	---	---	9.1	9.0	9.0	8.9	8.6	8.5	8.3	8.3	8.9	8.8
21	9.0	8.5	9.1	9.1	8.9	8.9	8.6	8.5	8.3	8.2	8.9	8.8
22	9.0	8.5	9.1	9.1	8.9	8.9	8.5	8.5	8.3	8.2	8.9	8.8
23	9.0	8.8	9.1	9.1	8.9	8.8	8.5	8.5	8.3	8.2	8.8	8.8
24	9.0	8.9	9.1	9.0	8.8	8.8	8.5	8.5	8.3	---	8.8	8.8
25	9.0	8.8	9.1	9.0	8.8	8.8	8.5	8.5	8.3	8.2	8.8	8.7
26	9.0	8.7	9.0	9.0	8.8	8.7	8.5	8.5	---	---	8.8	8.7
27	9.0	8.9	9.0	9.0	8.8	8.7	8.5	8.4	---	---	8.8	8.7
28	9.0	8.9	9.0	9.0	8.8	8.7	8.5	8.5	8.2	8.2	8.8	8.8
29	9.1	8.9	9.0	8.9	---	8.7	8.5	8.5	8.2	8.2	8.9	8.8
30	9.1	9.0	9.0	8.9	8.7	8.7	8.5	8.4	---	---	---	---
31	9.1	9.0	---	---	8.7	8.6	8.5	8.4	---	---	---	---
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	8.8	8.4	8.8	8.4	---	---	---	---	---	---
2	---	---	8.7	8.3	---	---	---	---	---	---	---	---
3	---	---	8.8	8.6	8.9	8.4	---	---	---	---	---	---
4	---	---	---	---	8.8	8.6	---	---	---	---	---	---
5	---	---	8.9	8.7	8.6	8.4	---	---	---	---	---	---
6	---	---	---	---	8.7	8.3	---	---	---	---	---	---
7	---	---	---	---	8.9	8.4	---	---	---	---	---	---
8	---	---	9.0	8.7	9.0	8.6	---	---	---	---	---	---
9	8.9	---	---	---	8.9	8.7	---	---	---	---	---	---
10	8.9	---	9.0	8.7	8.9	8.6	---	---	---	---	---	---
11	---	---	9.1	8.7	8.9	8.7	---	---	---	---	---	---
12	9.0	8.9	---	---	---	8.6	---	---	---	---	---	---
13	9.0	8.9	---	---	8.8	8.6	---	---	---	---	---	---
14	8.9	8.8	---	---	9.0	8.6	---	---	---	---	---	---
15	---	---	8.9	8.7	8.9	8.6	---	---	---	---	---	---
16	---	---	9.0	8.7	8.8	8.7	---	---	---	---	---	---
17	9.0	---	9.0	8.7	8.9	8.7	---	---	---	---	---	---
18	---	8.7	8.9	8.8	8.8	8.6	---	---	---	---	---	---
19	---	8.7	8.8	8.5	8.9	8.6	---	---	---	---	---	---
20	8.9	8.7	---	---	8.8	8.7	---	---	---	---	---	---
21	8.9	8.8	8.9	8.8	8.7	8.6	---	---	---	---	---	---
22	---	---	8.9	8.8	8.7	8.6	---	---	---	---	---	---
23	---	---	9.1	---	---	---	---	---	---	---	---	---
24	---	---	9.0	8.8	8.6	8.4	---	---	---	---	---	---
25	---	---	8.9	8.8	8.7	8.5	---	---	---	---	---	---
26	8.9	8.8	8.9	8.6	8.7	8.6	---	---	---	---	---	---
27	8.9	8.7	8.9	8.6	8.7	8.6	---	---	---	---	---	---
28	8.9	8.7	8.9	8.7	8.7	8.5	---	---	---	---	---	---
29	---	---	8.8	8.4	8.4	8.4	---	---	---	---	---	---
30	---	---	8.7	8.4	8.6	8.2	---	---	---	---	---	---
31	---	---	8.8	8.5	---	---	---	---	---	---	---	---

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	14.0	12.0	13.1	11.6	10.7	11.1	---	---	---
2	---	---	---	12.1	10.2	10.8	11.6	10.9	11.2	---	---	---
3	---	---	---	10.3	9.1	9.7	11.1	10.5	10.7	---	---	---
4	---	---	---	9.9	8.8	9.4	11.2	10.5	10.8	---	---	---
5	---	---	---	10.7	8.9	9.7	11.6	10.3	10.9	---	---	---
6	12.1	11.0	11.6	11.4	9.8	10.6	11.7	10.9	11.3	---	---	---
7	13.3	10.5	11.8	12.2	10.4	11.2	11.3	10.5	10.9	---	---	---
8	13.1	11.6	12.2	12.0	10.0	11.1	11.0	10.3	10.6	---	---	---
9	13.9	11.4	12.6	12.7	10.7	11.7	11.0	10.1	10.5	---	---	---
10	15.0	12.3	13.6	13.2	11.7	12.3	10.7	9.5	10.0	---	---	---
11	15.0	13.3	14.2	13.0	11.4	12.2	9.4	8.5	9.4	>20.0	---	---
12	16.8	13.9	15.3	13.0	11.4	12.2	8.3	7.8	8.3	>20.0	18.9	>20.0
13	16.6	13.4	14.7	13.1	11.3	12.2	8.5	7.6	8.0	>20.0	>20.0	>20.0
14	16.2	12.6	14.3	12.5	10.4	11.5	8.5	7.6	8.1	>20.0	>20.0	>20.0
15	15.7	14.4	14.9	10.7	9.1	9.8	8.9	8.1	8.6	>20.0	>20.0	>20.0
16	14.6	12.7	13.5	15.0	9.0	10.2	9.5	8.4	8.8	>20.0	>20.0	>20.0
17	14.5	11.9	12.9	10.8	9.0	9.9	10.1	8.9	9.5	>20.0	>20.0	>20.0
18	14.0	11.3	12.6	12.3	10.0	11.1	10.4	9.5	9.8	>20.0	>20.0	>20.0
19	14.7	12.3	13.4	13.3	11.5	12.3	10.3	9.4	9.9	>20.0	>20.0	>20.0
20	---	---	---	14.6	12.3	13.5	10.4	9.5	10.0	>20.0	>20.0	>20.0
21	14.2	12.4	13.4	14.8	13.2	14.0	10.4	9.4	9.9	>20.0	>20.0	>20.0
22	14.1	12.6	13.4	14.7	13.5	14.1	10.2	8.8	9.6	>20.0	>20.0	>20.0
23	14.2	12.7	13.4	14.9	13.5	14.2	10.2	9.2	9.7	>20.0	>20.0	>20.0
24	14.3	12.2	13.1	14.9	14.0	14.4	10.1	9.2	9.7	>20.0	>20.0	>20.0
25	13.8	12.0	12.9	14.6	13.4	14.1	10.1	8.7	9.7	>20.0	>20.0	>20.0
26	13.4	10.7	11.4	14.1	12.9	13.4	10.1	9.0	9.4	>20.0	>20.0	>20.0
27	12.6	10.3	11.4	13.9	12.5	13.2	10.0	9.1	9.6	>20.0	>20.0	>20.0
28	13.6	11.2	12.4	13.3	12.2	12.9	9.7	8.8	9.2	>20.0	>20.0	>20.0
29	14.8	12.5	13.5	12.4	11.2	11.6	9.6	8.6	9.2	>20.0	>20.0	>20.0
30	14.9	13.3	14.1	11.5	10.7	11.0	8.9	7.9	8.4	>20.0	>20.0	>20.0
31	15.1	13.3	14.0	---	---	---	8.6	7.8	8.2	>20.0	>20.0	>20.0
		FEBRUARY			MARCH			APRIL			MAY	
1	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	10.0	7.0	9.2
2	---	---	---	>20.0	>20.0	>20.0	---	---	---	10.9	8.5	9.6
3	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	11.1	9.5	10.3
4	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	---	---	---
5	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	13.2	10.6	11.7
6	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	---	---	---
7	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	---	---	---
8	>20.0	>20.0	>20.0	>20.0	>20.0	---	---	---	---	12.7	9.4	10.6
9	>20.0	>20.0	>20.0	>20.0	>20.0	---	11.2	11.1	11.1	---	---	---
10	>20.0	>20.0	>20.0	>20.0	>20.0	>20.0	10.7	10.6	10.6	12.7	9.2	11.0
11	---	---	---	>20.0	18.1	>20.0	---	---	---	12.6	10.1	11.3
12	---	---	---	>20.0	18.0	19.9	11.4	10.4	10.8	---	---	---
13	---	---	---	>20.0	20.0	>20.0	11.2	10.0	10.5	---	---	---
14	---	---	---	>20.0	>20.0	>20.0	12.1	9.6	10.8	---	---	---
15	---	---	---	>20.0	>20.0	>20.0	---	---	---	11.1	8.3	10.0
16	---	---	---	---	---	---	---	---	---	14.3	9.3	11.3
17	---	---	---	>20.0	>20.0	>20.0	11.7	10.4	11.1	12.8	9.7	11.0
18	---	---	---	>20.0	>20.0	>20.0	---	---	---	10.6	8.0	9.5
19	---	---	---	>20.0	20.0	>20.0	---	---	---	11.4	6.7	8.4
20	---	---	---	>20.0	19.9	>20.0	13.4	11.2	12.3	---	---	---
21	---	---	---	>20.0	19.2	19.9	13.4	11.9	12.5	11.3	9.5	10.4
22	---	---	---	20.0	18.4	19.3	---	---	---	10.9	8.8	11.3
23	---	---	---	19.6	18.7	19.0	---	---	---	15.3	6.6	13.2
24	>20.0	---	---	18.8	16.3	17.5	---	---	---	12.8	8.6	11.2
25	>20.0	>20.0	>20.0	17.5	14.6	15.7	---	---	---	9.4	6.3	8.2
26	---	---	---	16.0	14.5	15.2	12.7	11.0	11.8	9.8	3.7	6.6
27	---	---	---	16.1	14.9	15.4	12.8	11.4	12.2	9.5	4.3	7.1
28	>20.0	>20.0	>20.0	15.3	13.3	14.2	12.5	10.4	11.6	8.2	4.3	7.2
29	>20.0	>20.0	>20.0	14.4	12.8	13.6	---	---	---	7.0	1.4	5.2
30	---	---	---	---	---	---	---	---	---	6.8	1.5	4.6
31	---	---	---	---	---	---	---	---	---	7.9	5.3	6.4

> Actual value is known to be greater than the value shown

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	3.0	5.2	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	5.8	2.5	4.3	---	---	---	---	---	---	---	---	---
4	4.6	.8	2.7	---	---	---	---	---	---	---	---	---
5	3.4	.5	1.7	---	---	---	---	---	---	---	---	---
6	7.6	1.7	4.5	---	---	---	---	---	---	---	---	---
7	9.4	1.6	5.1	---	---	---	---	---	---	---	---	---
8	6.7	1.1	4.2	---	---	---	---	---	---	---	---	---
9	5.2	.0	2.5	---	---	---	---	---	---	---	---	---
10	8.1	2.0	5.4	---	---	---	---	---	---	---	---	---
11	8.3	4.9	6.6	---	---	---	---	---	---	---	---	---
12	8.0	3.3	5.7	---	---	---	---	---	---	---	---	---
13	7.6	4.0	5.4	---	---	---	---	---	---	---	---	---
14	9.0	4.0	6.8	---	---	---	---	---	---	---	---	---
15	8.9	4.5	6.5	---	---	---	---	---	---	---	---	---
16	11.4	5.7	7.0	---	---	---	---	---	---	---	---	---
17	12.6	7.1	9.2	---	---	---	---	---	---	---	---	---
18	8.9	4.1	6.0	---	---	---	---	---	---	---	---	---
19	9.5	4.9	7.3	---	---	---	---	---	---	---	---	---
20	8.2	5.1	6.8	---	---	---	---	---	---	---	---	---
21	7.6	3.6	4.7	---	---	---	---	---	---	---	---	---
22	9.0	5.9	7.6	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	9.0	3.7	5.9	---	---	---	---	---	---	---	---	---
25	9.9	5.0	7.7	---	---	---	---	---	---	---	---	---
26	11.8	4.2	7.4	---	---	---	---	---	---	---	---	---
27	9.4	5.4	7.5	---	---	---	---	---	---	---	---	---
28	7.1	4.4	5.7	---	---	---	---	---	---	---	---	---
29	9.7	5.3	6.3	---	---	---	---	---	---	---	---	---
30	11.1	5.7	8.4	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 27.--Water-stage records for James River at ND-SD State Line (06470878)

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 south, and 1 mi west from Ludden.

DRAINAGE AREA.--5,480 mi^2, approximately, revised, of which about 3,300 mi^2 is probably noncontributing.

GAGE HEIGHT RECORDS

PERIOD OF RECORD.--October 1981 to current year (gage heights only).

GAGE.--Water-stage recordar. Datum of gage is 1,200 ft above National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed, 93.60 ft, Mar. 28, 1987; minimum observed, 87.10 ft, Aug. 23, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum observed, 89.59 ft, May 1; minimum observed, 87.10 ft, Aug. 23, falling stage, was lower during period of missing record, Aug. 24 to Sept. 30.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.70	89.08	---	---	---	---	---	89.29	88.68	87.80	---	---
2	88.72	89.09	---	---	---	---	---	88.94	88.54	87.83	---	---
3	88.68	89.13	---	---	---	---	---	88.52	88.50	87.78	---	---
4	88.68	89.15	---	---	---	---	---	88.56	88.53	87.80	---	---
5	88.90	89.14	---	---	---	---	---	88.66	88.61	87.97	---	---
6	88.82	89.10	---	---	---	---	---	89.00	88.60	88.12	---	---
7	88.79	89.08	---	---	---	---	---	88.83	88.48	87.80	---	---
8	88.81	89.13	---	---	---	---	---	88.56	88.33	---	---	---
9	88.92	89.03	---	---	---	---	---	88.50	88.36	---	---	---
10	88.81	89.10	---	---	---	---	---	88.55	88.42	---	---	---
11	88.85	89.03	---	---	---	---	---	88.60	88.49	---	---	---
12	88.90	89.07	---	---	---	---	---	88.53	88.16	---	---	---
13	88.96	89.10	---	---	---	---	---	88.58	88.11	---	---	---
14	88.98	89.08	---	---	---	---	---	88.64	88.18	---	---	---
15	88.98	89.09	---	---	---	---	---	88.48	88.22	---	---	---
16	89.02	89.20	---	---	---	---	---	88.49	88.21	---	---	---
17	89.02	89.15	---	---	---	---	---	88.73	88.22	---	---	---
18	89.03	89.07	---	---	---	---	---	88.88	88.27	---	---	---
19	89.06	88.91	---	---	---	---	89.04	88.44	88.12	---	---	---
20	89.08	88.87	---	---	---	---	89.06	88.40	88.14	---	---	---
21	89.08	88.78	---	---	---	---	88.98	88.46	88.14	---	---	---
22	89.06	88.63	---	---	---	---	88.96	88.48	87.97	---	---	---
23	89.06	---	---	---	---	---	88.89	88.60	88.09	---	---	---
24	89.09	---	---	---	---	---	88.92	88.70	87.97	---	---	---
25	89.13	---	---	---	---	---	88.78	88.94	87.84	---	---	---
26	89.12	---	---	---	---	---	88.75	88.70	87.89	---	---	---
27	89.17	---	---	---	---	---	88.73	88.60	88.02	---	---	---
28	89.10	---	---	---	---	---	88.77	88.66	87.91	---	---	---
29	89.09	---	---	---	---	---	88.86	88.86	87.76	---	---	---
30	89.10	---	---	---	---	---	88.98	88.91	87.83	---	---	---
31	89.08	---	---	---	---	---	---	88.90	---	---	---	---
MEAN	88.96	---	---	---	---	---	---	88.68	88.22	---	---	---
MAX	89.17	---	---	---	---	---	---	89.29	88.68	---	---	---
MIN	88.68	---	---	---	---	---	---	88.40	87.76	---	---	---

Table 26.--Water-quality records for James River at Dakota Lake Dam near Ludden, ND (06470875)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	3.0	5.2	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	5.8	2.5	4.3	---	---	---	---	---	---	---	---	---
4	4.6	.8	2.7	---	---	---	---	---	---	---	---	---
5	3.4	.5	1.7	---	---	---	---	---	---	---	---	---
6	7.6	1.7	4.5	---	---	---	---	---	---	---	---	---
7	9.4	1.6	5.1	---	---	---	---	---	---	---	---	---
8	6.7	1.1	4.2	---	---	---	---	---	---	---	---	---
9	5.2	.0	2.5	---	---	---	---	---	---	---	---	---
10	8.1	2.0	5.4	---	---	---	---	---	---	---	---	---
11	8.3	4.9	6.6	---	---	---	---	---	---	---	---	---
12	8.0	3.3	5.7	---	---	---	---	---	---	---	---	---
13	7.6	4.0	5.4	---	---	---	---	---	---	---	---	---
14	9.0	4.0	6.8	---	---	---	---	---	---	---	---	---
15	8.9	4.5	6.5	---	---	---	---	---	---	---	---	---
16	11.4	5.7	7.0	---	---	---	---	---	---	---	---	---
17	12.6	7.1	9.2	---	---	---	---	---	---	---	---	---
18	8.9	4.1	6.0	---	---	---	---	---	---	---	---	---
19	9.5	4.9	7.3	---	---	---	---	---	---	---	---	---
20	8.2	5.1	6.8	---	---	---	---	---	---	---	---	---
21	7.6	3.6	4.7	---	---	---	---	---	---	---	---	---
22	9.0	5.9	7.6	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	9.0	3.7	5.9	---	---	---	---	---	---	---	---	---
25	9.9	5.0	7.7	---	---	---	---	---	---	---	---	---
26	11.8	4.2	7.4	---	---	---	---	---	---	---	---	---
27	9.4	5.4	7.5	---	---	---	---	---	---	---	---	---
28	7.1	4.4	5.7	---	---	---	---	---	---	---	---	---
29	9.7	5.3	8.3	---	---	---	---	---	---	---	---	---
30	11.1	5.7	8.4	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 27.--Water-stage records for James River at ND-SD State Line (06470878)

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 south, and 1 mi west from Ludden.

DRAINAGE AREA.--5,480 mi^2, approximately, revised, of which about 3,300 mi^2 is probably noncontributing.

GAGE HEIGHT RECORDS

PERIOD OF RECORD.--October 1981 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1,200 ft above National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed, 93.60 ft, Mar. 28, 1987; minimum observed, 87.10 ft, Aug. 23, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum observed, 89.59 ft, May 1; minimum observed, 87.10 ft, Aug. 23, falling stage, was lower during period of missing record, Aug. 24 to Sept. 30.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.70	89.08	---	---	---	---	---	89.29	88.68	87.80	---	---
2	88.72	89.09	---	---	---	---	---	88.94	88.54	87.83	---	---
3	88.68	89.13	---	---	---	---	---	88.52	88.50	87.78	---	---
4	88.68	89.15	---	---	---	---	---	88.56	88.53	87.80	---	---
5	88.90	89.14	---	---	---	---	---	88.66	88.61	87.97	---	---
6	88.82	89.10	---	---	---	---	---	89.00	88.60	88.12	---	---
7	88.79	89.08	---	---	---	---	---	88.83	88.48	87.80	---	---
8	88.81	89.13	---	---	---	---	---	88.56	88.33	---	---	---
9	88.92	89.03	---	---	---	---	---	88.50	88.36	---	---	---
10	88.81	89.10	---	---	---	---	---	88.55	88.42	---	---	---
11	88.85	89.03	---	---	---	---	---	88.60	88.49	---	---	---
12	88.90	89.07	---	---	---	---	---	88.53	88.16	---	---	---
13	88.96	89.10	---	---	---	---	---	88.58	88.11	---	---	---
14	88.98	89.08	---	---	---	---	---	88.64	88.18	---	---	---
15	88.98	89.09	---	---	---	---	---	88.48	88.22	---	---	---
16	89.02	89.20	---	---	---	---	---	88.49	88.21	---	---	---
17	89.02	89.15	---	---	---	---	---	88.73	88.22	---	---	---
18	89.03	89.07	---	---	---	---	---	88.88	88.27	---	---	---
19	89.06	88.91	---	---	---	---	89.04	88.44	88.12	---	---	---
20	89.08	88.87	---	---	---	---	89.06	88.40	88.14	---	---	---
21	89.08	88.78	---	---	---	---	88.98	88.46	88.14	---	---	---
22	89.06	88.63	---	---	---	---	88.96	88.48	87.97	---	---	---
23	89.06	---	---	---	---	---	88.89	88.60	88.09	---	---	---
24	89.09	---	---	---	---	---	88.92	88.70	87.97	---	---	---
25	89.13	---	---	---	---	---	88.78	88.94	87.84	---	---	---
26	89.12	---	---	---	---	---	88.75	88.70	87.89	---	---	---
27	89.17	---	---	---	---	---	88.73	88.60	88.02	---	---	---
28	89.10	---	---	---	---	---	88.77	88.66	87.91	---	---	---
29	89.09	---	---	---	---	---	88.86	88.86	87.76	---	---	---
30	89.10	---	---	---	---	---	88.98	88.91	87.83	---	---	---
31	89.08	---	---	---	---	---	---	88.90	---	---	---	---
MEAN	88.96	---	---	---	---	---	---	88.68	88.22	---	---	---
MAX	89.17	---	---	---	---	---	---	89.29	88.68	---	---	---
MIN	88.68	---	---	---	---	---	---	88.40	87.76	---	---	---

SOUTH DAKOTA STATIONS

Table 28.--Water-stage records for James River near Hecla, SD (06470980)

LOCATION.--Lat 45°53'34", long 98°10'13", in SW¼SE¼SE¼ sec. 16, T.128 N., R.61 W., Brown County, SD, Hydrologic Unit 10160003, on left bank 30 ft upstream from bridge on county road 1.0 mi northwest of Hecla, South Dakota and 3.0 mi downstream from the North Dakota-South Dakota border.

DRAINAGE AREA.--5,520 mi^2 approximately, of which about 3,300 mi^2 is probably noncontributing.

GAGE HEIGHT RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1200.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records of stream velocity and discharge are also collected at this location. These records which have been used to supplement the discharge record for station 06740875, James River at Dakota Lake Dam near Ludden, ND are available in the files of the District office.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 92.72 ft, Apr. 1, 1987; minimum, 86.15 ft, Sept. 18, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 89.16, May 1; minimum, 86.15 ft, Sept. 18.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.62	88.79	87.92	87.67	87.64	87.60	88.54	88.91	88.51	87.66	87.01	86.62
2	88.55	88.81	87.88	87.67	87.65	87.62	88.58	88.73	88.42	87.68	87.09	86.62
3	88.48	88.85	87.85	87.66	87.66	87.63	88.62	88.47	88.39	87.68	87.13	86.45
4	88.51	88.90	87.82	87.66	87.64	87.65	88.65	88.49	88.39	87.64	87.13	86.30
5	88.75	88.86	87.78	87.64	87.62	87.66	88.68	88.55	88.42	87.66	87.22	86.28
6	88.60	88.84	87.74	87.64	87.62	87.68	88.71	88.66	88.41	87.74	87.22	86.40
7	88.54	88.83	87.72	87.63	87.60	87.69	88.72	88.68	88.32	87.69	87.26	86.60
8	88.60	88.88	87.69	87.62	87.59	87.71	88.74	88.53	88.22	87.50	87.04	86.63
9	88.69	88.78	87.66	87.61	87.58	87.73	88.75	88.53	88.21	87.48	87.06	86.47
10	88.58	88.81	87.66	87.61	87.57	87.75	88.76	88.48	88.23	87.43	87.20	86.35
11	88.59	88.78	87.71	87.60	87.56	87.78	88.77	88.51	88.25	87.39	87.09	86.46
12	88.62	88.81	87.64	87.61	87.55	87.80	88.78	88.48	88.10	87.40	87.03	86.35
13	88.68	88.82	87.71	87.59	87.55	87.83	88.79	88.56	88.03	87.58	87.01	86.30
14	88.69	88.81	87.70	87.59	87.54	87.86	88.80	88.57	88.10	87.50	86.99	86.31
15	88.70	88.83	87.70	87.58	87.54	87.89	88.81	88.37	88.12	87.48	87.01	86.34
16	88.75	88.94	87.71	87.59	87.54	87.92	88.81	88.44	88.08	87.40	87.10	86.42
17	88.76	88.89	87.71	87.59	87.53	87.97	88.83	88.63	88.08	87.40	86.94	86.41
18	88.78	88.81	87.71	87.59	87.53	88.01	88.84	88.46	88.09	87.37	86.80	86.28
19	88.80	88.71	87.71	87.59	87.52	88.05	88.84	88.35	88.02	87.37	86.88	86.47
20	88.84	88.64	87.71	87.58	87.53	88.10	88.85	88.40	87.98	87.33	86.97	86.43
21	88.80	88.55	87.71	87.57	87.53	88.15	88.85	88.41	87.99	87.31	87.10	86.61
22	88.80	88.43	87.70	87.57	87.54	88.19	88.85	88.55	87.87	87.32	86.96	86.70
23	88.81	88.32	87.70	87.59	87.55	88.23	88.85	88.54	87.88	87.37	86.87	86.79
24	88.82	88.26	87.70	87.60	87.55	88.27	88.84	88.57	87.86	87.34	86.75	86.89
25	88.82	88.20	87.70	87.58	87.55	88.32	88.83	88.71	87.76	87.28	86.68	86.71
26	88.88	88.15	87.69	87.58	87.55	88.35	88.75	88.56	87.76	87.30	86.64	86.69
27	88.89	88.08	87.69	87.58	87.56	88.39	88.66	88.50	87.79	87.29	86.70	86.59
28	88.83	88.01	87.68	87.60	87.57	88.43	88.66	88.51	87.78	87.31	86.63	86.62
29	88.81	87.94	87.68	87.61	87.58	88.47	88.70	88.63	87.63	87.25	86.64	86.57
30	88.81	87.96	87.68	87.62	---	88.50	88.75	88.65	87.66	87.13	86.66	86.83
31	88.80	---	87.68	87.63	---	88.52	---	88.65	---	87.14	86.71	---
MEAN	88.72	88.61	87.72	87.61	87.57	87.99	88.75	88.55	88.08	87.43	86.95	86.52
MAX	88.89	88.94	87.92	87.67	87.66	88.52	88.85	88.91	88.51	87.74	87.26	86.89
MIN	88.48	87.94	87.64	87.57	87.52	87.60	88.54	88.35	87.63	87.13	86.63	86.28

Table 29.--Water-quality records for James River near Hecla, SD (06470980)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
OCT											
06...	1000	193	600	8.72	3.0	8.0	17	10.0	83	--	220
NOV											
16...	1700	301	650	8.95	1.0	3.0	3.9	15.5	114	--	240
FEB											
24...	1200	19	1800	8.25	-15.0	0.5	3.1	20.0	136	--	620
APR											
11...	1330	50	570	8.91	18.0	9.0	14	12.7	108	5.9	210
MAY											
23...	1300	11	800	8.48	25.0	17.5	19	10.5	107	4.4	290

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT											
06...	49	24	40	27	1	15	217	95	11	379	364
NOV											
16...	52	26	49	30	1	13	225	100	16	404	391
FEB											
24...	100	89	190	39	3	24	501	450	91	1260	1240
APR											
11...	47	23	44	30	1	9.8	180	120	17	372	369
MAY											
23...	61	33	63	31	2	17	246	160	22	532	504

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT										
06...	0.52	197	36	--	<0.010	--	<0.100	--	<0.010	--
NOV										
16...	0.55	328	12	--	<0.010	--	<0.100	--	0.010	--
FEB										
24...	1.71	64.6	13	--	<0.010	--	<0.100	--	0.020	--
APR										
11...	0.51	50.2	40	<0.010	<0.010	<0.100	<0.100	0.020	0.020	1.1
MAY										
23...	0.72	15.8	26	0.010	<0.010	<0.100	<0.100	0.030	<0.010	1.0

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT										
06...	0.40	--	0.030	--	0.007	--	3	100	--	<1
NOV										
16...	0.80	--	0.010	--	<0.001	--	2	120	--	<1
FEB										
24...	1.0	--	0.030	--	<0.002	--	1	470	--	<1
APR										
11...	0.60	0.140	0.030	0.028	0.008	1	2	100	1	<1
MAY										
23...	0.70	0.140	0.030	0.045	0.008	2	2	160	1	<1

Table 29.--Water-quality records for James River near Hecla, SD (06470980)--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT										
06...	1	--	6	<5	--	9	0.2	--	<1	<3
NOV										
16...	<1	--	5	<5	--	6	0.1	--	<1	<3
FEB										
24...	1	--	7	<5	--	18	<0.1	--	<1	14
APR										
11...	1	260	10	<5	230	60	0.2	<1	<1	<3
MAY										
23...	1	950	6	<5	630	130	0.2	<1	<1	<3

DATE	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
06...	--	--	<0.01	--	--	--	--	35	18	99
NOV										
16...	--	--	--	--	--	--	--	17	14	91
FEB										
24...	--	--	<0.01	--	--	--	--	48	2.5	33
APR										
11...	10	<0.010	<0.01	10.0	0.600	18	1200	29	3.9	90
MAY										
23...	15	<0.010	<0.01	42.0	5.20	23	1200	37	1.1	97

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)

LOCATION.--Lat 45°46'36", long 98°14'45", in NW¼NW¼ sec.36, T.127 N., R.62 W., Brown County, Hydrologic Unit 10160003, 1.5 mi northwest of Houghton.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1985 to September 1987 (seasonal records only), October 1987 to September 1988 (discontinued).
pH: June to September 1985 (seasonal records only), October 1987 to September 1988 (discontinued).
WATER TEMPERATURE: June 1985 to September 1987 (seasonal records only), October 1987 to September 1988 (discontinued).
DISSOLVED OXYGEN: June to September 1985, October 1987 to September 1988 (discontinued).

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen were determined at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from November 18 to November 30 during ice formation. Other interruptions in record were due to malfunction of the sensors or recording instruments.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 1,260 microsiemens, Nov. 11, 1986; minimum observed, 310 microsiemens, Mar. 10, 1988.
WATER TEMPERATURE: Maximum observed, 34.0°C, August 15, 1988; minimum observed, 0.0°C on several days in 1985-87.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	720	630	700	---	---	---	660	640	650	960	930	950
2	740	630	680	---	---	---	670	650	660	980	950	960
3	720	620	680	---	---	---	670	650	660	1010	970	980
4	750	640	700	620	600	610	680	650	670	1040	1000	1020
5	760	630	680	620	610	610	690	680	690	1100	1040	1080
6	690	640	670	620	600	610	690	680	690	1150	1040	1120
7	730	620	680	620	600	610	700	680	690	---	---	---
8	700	660	680	620	600	610	700	690	690	---	---	---
9	730	650	680	640	610	620	710	690	700	---	---	---
10	780	670	710	620	610	620	720	710	710	---	---	---
11	730	640	690	620	600	610	720	700	710	---	---	---
12	730	670	700	620	610	610	720	710	710	---	---	---
13	730	670	690	610	600	610	720	710	720	---	---	---
14	740	650	700	610	600	610	740	710	720	---	---	---
15	710	670	690	610	600	610	760	730	750	---	---	---
16	770	650	690	610	600	610	780	760	770	---	---	---
17	720	650	680	610	600	600	780	760	770	---	---	---
18	780	670	710	---	---	---	790	770	780	---	---	---
19	720	630	680	---	---	---	790	770	780	---	---	---
20	700	670	690	---	---	---	800	780	790	---	---	---
21	800	670	710	---	---	---	810	800	800	---	---	---
22	750	640	720	---	---	---	810	800	800	---	---	---
23	740	670	710	---	---	---	820	800	810	---	---	---
24	740	700	720	---	---	---	830	810	810	---	---	---
25	720	700	710	---	---	---	830	810	820	---	---	---
26	730	620	700	---	---	---	870	820	850	---	---	---
27	740	690	720	---	---	---	900	860	880	---	---	---
28	770	700	730	---	---	---	890	880	880	---	---	---
29	---	---	---	---	---	---	900	880	890	---	---	---
30	---	---	---	---	---	---	900	880	890	---	---	---
31	---	---	---	---	---	---	950	900	930	---	---	---

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	680	670	680	790	760	770
2	---	---	---	---	---	---	680	640	660	800	770	790
3	---	---	---	---	---	---	650	520	630	980	760	780
4	---	---	---	---	---	---	640	520	610	760	750	760
5	---	---	---	---	---	---	630	520	610	760	740	750
6	---	---	---	---	---	---	640	510	600	750	720	730
7	---	---	---	---	---	---	650	530	610	730	720	720
8	---	---	---	---	---	---	640	500	580	730	700	720
9	---	---	---	---	---	---	610	500	550	740	700	720
10	---	---	---	380	310	350	610	500	580	810	740	780
11	---	---	---	1020	350	600	630	500	550	820	800	810
12	---	---	---	1170	1010	1140	630	500	510	820	800	810
13	---	---	---	1150	1130	1140	670	660	660	---	---	---
14	---	---	---	1140	1120	1130	670	650	660	---	---	---
15	---	---	---	1180	1090	1140	660	640	650	---	---	---
16	---	---	---	1060	1000	1030	670	650	660	---	---	---
17	---	---	---	1050	1000	1030	670	650	660	---	---	---
18	---	---	---	1070	1010	1050	670	640	660	840	800	810
19	---	---	---	1070	1020	1050	670	650	660	850	820	830
20	---	---	---	1060	1000	1030	670	650	660	840	820	830
21	---	---	---	1030	1000	1020	670	660	670	840	830	840
22	---	---	---	1010	990	1000	670	650	660	860	830	850
23	---	---	---	1000	800	880	680	650	670	880	850	870
24	---	---	---	890	790	830	690	670	680	890	860	880
25	---	---	---	850	560	680	700	670	680	890	830	860
26	---	---	---	810	580	760	700	670	680	880	840	860
27	---	---	---	750	570	660	700	670	690	890	850	870
28	---	---	---	740	700	710	730	690	700	890	860	870
29	---	---	---	710	620	690	740	700	720	890	860	870
30	---	---	---	680	630	660	760	730	750	900	880	890
31	---	---	---	680	570	660	---	---	---	910	840	880
		JUNE			JULY			AUGUST			SEPTEMBER	
1	860	820	840	---	---	---	800	770	780	---	---	---
2	850	830	840	---	---	---	770	730	750	---	---	---
3	870	830	840	---	---	---	760	730	740	---	---	---
4	---	---	---	---	---	---	740	730	740	---	---	---
5	---	---	---	---	---	---	770	740	750	---	---	---
6	---	---	---	---	---	---	760	720	740	---	---	---
7	---	---	---	---	---	---	740	710	720	---	---	---
8	---	---	---	---	---	---	770	730	750	1200	1000	1090
9	---	---	---	---	---	---	770	750	760	1120	1100	1110
10	---	---	---	---	---	---	780	750	760	1120	1100	1110
11	---	---	---	---	---	---	790	740	760	1160	1000	1120
12	---	---	---	---	---	---	790	750	770	1160	1130	1150
13	---	---	---	---	---	---	780	750	770	1170	1100	1140
14	---	---	---	720	680	700	790	770	780	1160	1130	1150
15	850	840	840	750	690	730	800	770	780	1140	1010	1120
16	870	840	850	760	740	750	820	750	790	1120	1010	1090
17	850	820	830	780	740	760	810	780	790	1110	900	1020
18	840	810	830	780	740	760	820	740	790	1140	1000	1100
19	850	820	830	770	740	750	780	740	760	940	710	840
20	860	810	830	760	730	750	820	770	800	970	810	920
21	840	780	810	790	740	760	870	810	840	910	800	850
22	850	800	820	760	740	750	860	820	850	960	910	940
23	820	780	800	730	700	720	870	780	840	910	800	880
24	860	780	820	740	700	720	910	780	860	900	800	820
25	870	800	840	750	710	730	950	850	920	910	800	850
26	880	810	840	---	---	---	---	---	---	960	810	910
27	840	770	810	---	---	---	---	---	---	940	800	910
28	850	800	820	710	680	700	---	---	---	940	800	880
29	890	800	840	750	710	730	---	---	---	920	800	880
30	840	770	800	770	730	750	---	---	---	910	800	850
31	---	---	---	780	740	760	---	---	---	---	---	---

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	9.2	9.1	---	---	---	---
2	---	---	---	---	---	---	9.2	9.1	---	---	---	---
3	---	---	---	---	---	---	9.2	9.0	---	---	---	---
4	---	---	---	---	8.7	8.5	9.3	9.0	---	---	---	---
5	---	---	---	---	8.4	8.3	9.4	9.2	---	---	---	---
6	---	---	---	---	8.4	8.2	9.4	9.2	---	---	---	---
7	---	---	---	---	8.5	8.2	---	---	---	---	---	---
8	---	---	---	---	8.5	8.3	---	---	---	---	---	---
9	---	---	---	---	8.3	8.1	---	---	---	---	---	---
10	---	---	---	---	8.3	8.2	---	---	---	---	8.7	8.6
11	---	---	---	---	9.2	8.2	---	---	---	---	9.1	8.6
12	---	---	---	---	9.2	9.0	---	---	---	---	9.1	9.0
13	---	---	---	---	9.2	9.0	---	---	---	---	9.0	8.8
14	---	---	---	---	9.1	9.0	---	---	---	---	8.9	8.8
15	---	---	---	---	9.1	9.0	---	---	---	---	9.0	8.8
16	---	---	---	---	9.2	9.0	---	---	---	---	9.1	8.8
17	---	---	---	---	9.2	9.0	---	---	---	---	8.9	8.6
18	---	---	---	---	9.1	9.0	---	---	---	---	8.7	8.6
19	---	---	---	---	9.1	8.9	---	---	---	---	8.9	8.7
20	---	---	---	---	9.0	8.9	---	---	---	---	8.8	8.7
21	---	---	---	---	8.9	8.9	---	---	---	---	8.8	8.7
22	---	---	---	---	8.9	8.8	---	---	---	---	9.2	8.8
23	---	---	---	---	8.9	8.8	---	---	---	---	9.2	8.9
24	---	---	---	---	8.9	8.8	---	---	---	---	9.4	8.9
25	---	---	---	---	8.9	8.8	---	---	---	---	9.6	9.1
26	---	---	---	---	8.9	8.8	---	---	---	---	9.4	9.2
27	---	---	---	---	9.2	8.9	---	---	---	---	9.5	9.2
28	---	---	---	---	9.1	9.0	---	---	---	---	9.5	9.4
29	---	---	---	---	9.4	9.1	---	---	---	---	9.6	9.3
30	---	---	---	---	9.2	9.1	---	---	---	---	9.6	9.5
31	---	---	---	---	9.2	9.1	---	---	---	---	9.6	9.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	9.6	9.4	8.3	8.0	8.5	8.3	---	---	8.8	8.7	---	---
2	9.7	9.3	8.1	7.9	8.6	8.3	---	---	8.8	8.6	---	---
3	9.6	9.5	8.9	8.0	8.7	8.4	---	---	8.9	8.7	---	---
4	9.7	9.5	9.1	8.7	---	---	---	---	8.8	8.7	---	---
5	9.7	9.5	9.0	8.3	---	---	---	---	8.9	8.7	---	---
6	9.5	9.3	8.8	8.2	---	---	---	---	8.8	8.7	---	---
7	9.5	9.3	8.0	7.5	---	---	---	---	8.7	8.6	---	---
8	9.6	9.3	7.6	7.4	---	---	---	---	8.8	8.6	9.0	8.7
9	9.6	9.3	---	---	---	---	---	---	8.7	8.6	9.0	8.8
10	9.4	9.2	---	---	---	---	---	---	8.7	8.5	9.0	8.9
11	9.2	9.1	---	---	---	---	---	---	8.5	8.4	9.2	8.8
12	9.2	9.1	---	---	---	---	---	---	8.7	8.5	9.0	8.8
13	8.7	8.6	---	---	---	---	---	---	8.7	8.6	9.1	8.9
14	8.8	8.6	---	---	---	---	8.7	8.1	8.7	8.5	9.2	8.8
15	8.8	8.6	---	---	---	---	8.1	8.0	8.7	8.4	9.2	8.9
16	8.8	8.5	---	---	8.0	7.5	8.0	7.9	8.6	8.4	9.2	8.9
17	8.7	8.6	---	---	7.5	7.2	8.0	7.8	8.5	8.4	9.2	9.0
18	8.8	8.5	8.8	8.5	7.2	7.1	8.4	7.7	8.9	8.5	9.2	8.8
19	8.7	8.5	8.9	8.5	7.1	7.0	8.4	7.9	8.9	8.2	9.2	8.8
20	8.7	8.6	8.8	8.3	7.1	7.0	8.4	7.9	8.5	7.6	8.9	8.7
21	8.7	8.5	8.8	8.2	7.0	6.8	8.7	8.0	8.5	7.7	8.8	8.5
22	8.8	8.6	8.5	7.8	9.4	6.9	8.7	8.2	8.9	7.6	9.1	8.8
23	8.8	8.6	7.7	7.4	9.6	9.0	9.0	8.3	9.0	8.2	9.1	8.7
24	8.7	8.5	7.5	7.4	9.4	8.5	8.9	8.5	9.0	8.2	9.2	8.5
25	8.8	8.6	7.7	7.4	9.2	8.6	9.3	8.6	8.9	8.4	9.2	8.9
26	8.8	8.6	8.7	7.4	9.3	8.8	9.3	9.0	8.5	8.1	9.2	8.8
27	8.7	8.5	8.4	8.1	9.4	9.1	9.3	9.0	8.5	8.2	9.2	8.8
28	8.6	8.3	8.5	8.2	9.5	9.2	8.9	8.7	8.6	8.2	8.9	8.7
29	8.5	8.3	8.5	8.2	9.4	8.9	8.9	8.7	---	---	8.9	8.6
30	8.4	8.2	8.5	8.3	9.2	8.3	8.9	8.7	---	---	9.0	8.7
31	---	---	8.6	8.4	---	---	8.8	8.7	---	---	---	---

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.0	11.0	13.5	---	---	---	4.0	2.5	3.5	2.0	1.0	1.5
2	11.5	8.5	10.0	---	---	---	3.5	3.5	3.5	2.0	1.0	1.5
3	10.5	8.5	10.0	---	---	---	3.5	2.5	3.5	2.0	1.0	1.5
4	13.0	10.0	11.5	8.5	6.5	8.0	4.0	2.5	3.5	2.0	1.0	1.5
5	11.5	9.0	10.0	6.5	5.5	6.0	3.5	3.0	3.5	1.5	.5	1.0
6	9.5	7.5	8.5	7.0	4.5	6.0	3.5	2.5	3.0	1.0	.0	.5
7	9.0	6.5	7.5	7.0	5.0	6.0	4.0	3.0	3.5	---	---	---
8	9.5	7.5	8.5	5.5	3.0	4.0	4.5	3.5	4.0	---	---	---
9	7.5	5.0	6.0	3.0	2.0	2.5	4.5	4.0	4.0	---	---	---
10	6.5	4.0	5.0	3.5	2.0	3.0	4.5	3.5	4.0	---	---	---
11	7.0	4.0	5.5	3.0	1.0	2.0	4.0	3.0	3.5	---	---	---
12	7.5	5.0	6.0	4.0	2.0	3.0	2.5	1.5	2.5	---	---	---
13	8.5	7.0	7.5	4.5	2.5	3.5	2.0	1.0	1.5	---	---	---
14	8.5	6.5	7.5	5.0	3.5	4.0	1.0	.5	1.0	---	---	---
15	8.5	8.0	8.0	5.5	4.5	5.0	1.5	1.0	1.0	---	---	---
16	8.0	7.5	8.0	5.0	2.5	3.5	1.5	1.0	1.0	---	---	---
17	8.0	6.0	7.0	2.5	.5	1.5	2.0	1.0	1.5	---	---	---
18	8.0	6.0	7.0	---	---	---	2.5	1.5	2.0	---	---	---
19	6.5	4.5	5.5	---	---	---	3.0	2.0	2.5	---	---	---
20	5.0	3.5	4.0	---	---	---	3.5	3.0	3.5	---	---	---
21	3.5	3.0	3.0	---	---	---	3.5	2.5	3.5	---	---	---
22	2.5	1.5	2.0	---	---	---	3.5	2.0	3.0	---	---	---
23	3.5	2.0	2.5	---	---	---	3.5	1.5	2.5	---	---	---
24	3.0	1.0	2.0	---	---	---	3.0	2.5	3.0	---	---	---
25	4.0	1.5	2.5	---	---	---	2.5	1.5	2.0	---	---	---
26	6.0	4.0	5.0	---	---	---	2.5	1.0	1.5	---	---	---
27	5.0	3.5	4.5	---	---	---	2.0	1.0	1.5	---	---	---
28	4.5	3.5	4.0	---	---	---	1.5	1.0	1.5	---	---	---
29	---	---	---	---	---	---	1.5	1.0	1.5	---	---	---
30	---	---	---	---	---	---	1.5	1.0	1.0	---	---	---
31	---	---	---	---	---	---	1.5	1.0	1.0	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	5.0	3.5	4.5	17.5	16.0	17.0
2	---	---	---	---	---	---	5.0	3.5	4.5	17.0	15.5	16.0
3	---	---	---	---	---	---	7.5	4.5	6.0	15.5	13.5	14.5
4	---	---	---	---	---	---	11.5	7.0	9.0	16.0	11.0	13.0
5	---	---	---	---	---	---	11.0	9.5	10.0	16.5	13.0	15.0
6	---	---	---	---	---	---	11.5	8.5	10.0	17.5	15.0	16.0
7	---	---	---	---	---	---	14.5	10.5	12.0	17.0	15.5	16.5
8	---	---	---	---	---	---	14.0	11.0	13.0	17.5	14.5	16.0
9	---	---	---	---	---	---	11.0	8.5	10.0	16.0	12.0	14.0
10	---	---	---	2.5	1.0	2.0	10.5	7.0	9.0	18.0	14.0	15.5
11	---	---	---	2.0	.5	1.5	11.0	7.5	9.0	20.5	16.0	18.0
12	---	---	---	1.0	1.0	1.0	10.5	9.0	9.5	21.5	16.5	19.0
13	---	---	---	1.5	1.0	1.0	12.5	10.5	12.0	16.5	13.5	15.5
14	---	---	---	2.0	1.0	1.5	11.5	8.0	9.5	18.5	14.0	16.0
15	---	---	---	2.5	2.0	2.0	12.5	7.5	9.5	17.0	14.5	15.5
16	---	---	---	3.0	2.0	2.5	13.0	9.0	10.5	20.5	13.0	15.5
17	---	---	---	3.5	3.0	3.0	12.0	9.0	10.5	18.5	15.5	17.0
18	---	---	---	3.5	2.5	3.0	11.0	7.0	9.0	20.0	17.0	18.5
19	---	---	---	3.0	2.5	3.0	11.5	7.5	9.5	19.0	18.0	19.0
20	---	---	---	2.5	2.0	2.0	11.0	7.0	9.5	18.5	17.0	18.0
21	---	---	---	2.0	1.5	2.0	9.5	8.0	8.5	18.0	14.5	16.0
22	---	---	---	2.0	1.5	1.5	9.5	6.0	8.0	14.5	13.5	14.0
23	---	---	---	1.5	1.0	1.0	11.0	6.0	8.0	22.0	14.0	17.5
24	---	---	---	2.0	1.0	1.5	12.0	8.0	10.0	20.0	18.5	19.0
25	---	---	---	3.0	1.0	2.0	11.0	7.5	9.5	21.5	17.0	19.0
26	---	---	---	2.0	1.0	1.5	9.5	7.5	8.0	22.0	20.0	21.0
27	---	---	---	2.5	1.5	2.0	11.5	6.0	8.5	27.5	20.5	23.5
28	---	---	---	2.5	1.5	2.0	12.0	8.5	10.0	26.0	23.5	25.0
29	---	---	---	3.0	.5	1.5	15.5	10.5	12.5	26.0	23.0	24.5
30	---	---	---	3.0	1.0	2.0	17.0	15.0	16.0	24.5	22.5	23.5
31	---	---	---	4.0	2.5	3.0	---	---	---	26.0	22.5	24.0

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.5	23.0	24.0	---	---	---	28.0	23.5	25.5	---	---	---
2	26.0	22.5	24.5	---	---	---	29.5	22.0	25.5	---	---	---
3	30.0	23.5	26.5	---	---	---	27.0	22.0	25.0	---	---	---
4	---	---	---	---	---	---	22.5	20.5	22.0	---	---	---
5	---	---	---	---	---	---	24.5	19.0	21.5	---	---	---
6	---	---	---	---	---	---	26.5	21.5	24.0	---	---	---
7	---	---	---	---	---	---	26.0	23.5	24.5	---	---	---
8	---	---	---	---	---	---	26.5	20.5	23.0	18.5	14.5	17.0
9	---	---	---	---	---	---	27.0	21.5	23.5	22.0	12.0	16.5
10	---	---	---	---	---	---	28.0	22.0	25.0	19.5	14.5	17.0
11	---	---	---	---	---	---	33.0	24.5	28.0	19.5	14.0	18.0
12	---	---	---	---	---	---	32.5	22.5	26.5	16.5	10.0	13.5
13	---	---	---	---	---	---	27.0	24.0	25.0	22.0	10.5	15.5
14	---	---	---	27.5	23.5	25.5	32.0	23.0	26.5	18.0	13.5	15.5
15	---	---	---	27.5	25.0	26.5	34.0	25.0	28.5	16.0	14.5	15.0
16	24.0	20.5	22.0	28.5	23.0	25.0	32.0	26.0	28.5	21.5	14.0	17.0
17	25.0	22.0	23.0	25.5	23.0	24.0	31.0	26.0	28.0	25.0	16.0	19.5
18	26.0	23.0	24.5	28.5	22.0	24.5	27.5	24.0	25.5	21.0	14.5	18.0
19	29.5	25.0	27.0	26.0	22.5	24.0	26.5	23.0	24.5	13.5	9.0	10.5
20	28.0	25.5	27.0	24.5	20.0	22.5	26.0	22.0	24.0	14.0	7.5	10.5
21	32.0	25.0	27.5	31.5	21.5	25.5	25.0	22.0	23.0	14.5	9.5	11.5
22	29.0	26.0	27.5	26.5	22.5	24.5	26.5	21.0	24.0	16.0	11.5	13.5
23	26.0	22.5	24.0	26.5	21.5	23.5	23.5	19.0	21.0	15.5	10.0	13.0
24	29.5	23.0	25.5	28.5	21.0	24.5	25.5	17.0	21.5	18.0	11.5	14.5
25	28.0	24.0	26.0	29.0	23.0	26.0	22.0	16.5	20.0	15.5	12.0	14.0
26	27.5	24.0	25.5	29.0	23.0	25.5	---	---	---	20.0	10.5	14.5
27	25.5	23.0	24.0	28.5	23.0	26.0	---	---	---	14.0	9.0	12.0
28	25.5	23.5	24.5	29.5	23.5	25.5	---	---	---	12.0	9.5	10.5
29	24.0	19.5	21.5	30.0	24.5	27.0	---	---	---	11.0	8.5	10.0
30	20.5	18.5	19.5	30.5	24.5	27.5	---	---	---	14.0	10.0	11.5
31	---	---	---	31.0	25.5	28.0	---	---	---	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	17.0	14.2	15.6
2	---	---	---	---	---	---	---	---	---	17.4	14.8	16.4
3	---	---	---	---	---	---	---	---	---	16.0	13.9	15.1
4	---	---	---	---	---	---	---	---	---	18.9	14.2	15.6
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	13.9	12.1	13.1	---	---	---
12	---	---	---	---	---	---	12.5	8.8	10.5	---	---	---
13	---	---	---	---	---	---	11.1	6.8	8.4	---	---	---
14	---	---	---	---	---	---	8.7	6.6	7.4	---	---	---
15	---	---	---	---	---	---	7.7	6.7	7.2	---	---	---
16	---	---	---	---	---	---	9.3	7.2	8.5	---	---	---
17	---	---	---	---	---	---	10.8	8.0	9.1	---	---	---
18	---	---	---	---	---	---	8.2	6.5	7.5	---	---	---
19	---	---	---	---	---	---	9.4	7.5	8.7	---	---	---
20	---	---	---	---	---	---	9.3	6.4	7.9	---	---	---
21	---	---	---	---	---	---	8.0	5.3	6.4	---	---	---
22	---	---	---	---	---	---	9.4	6.2	7.8	---	---	---
23	---	---	---	---	---	---	7.7	3.0	5.0	---	---	---
24	---	---	---	---	---	---	7.9	3.2	5.5	---	---	---
25	---	---	---	---	---	---	6.7	4.1	5.7	---	---	---
26	---	---	---	---	---	---	9.2	1.8	4.1	---	---	---
27	---	---	---	---	---	---	12.3	3.8	9.3	---	---	---
28	---	---	---	---	---	---	13.1	11.0	11.7	---	---	---
29	---	---	---	---	---	---	16.3	11.7	15.0	---	---	---
30	---	---	---	---	---	---	16.0	14.6	15.3	---	---	---
31	---	---	---	---	---	---	15.4	13.0	14.3	---	---	---

Table 30.--Water-quality records for Mud Lake Near Houghton, SD (06470985)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	12.8	9.4	11.7
4	---	---	---	---	---	---	---	---	---	15.3	10.5	12.8
5	---	---	---	---	---	---	---	---	---	14.7	9.9	11.7
6	---	---	---	---	---	---	---	---	---	11.3	7.9	9.7
7	---	---	---	---	---	---	---	---	---	10.1	6.4	7.9
8	---	---	---	---	---	---	---	---	---	12.7	4.9	8.3
9	---	---	---	---	---	---	---	---	---	12.7	9.1	11.6
10	---	---	---	16.4	12.9	15.2	---	---	---	10.9	7.0	9.4
11	---	---	---	18.5	13.2	14.1	---	---	---	10.1	5.3	7.8
12	---	---	---	---	---	---	---	---	---	10.9	3.2	7.3
13	---	---	---	---	---	---	10.0	8.5	9.4	10.5	6.6	8.3
14	---	---	---	---	---	---	9.8	8.1	8.9	11.5	6.7	9.2
15	---	---	---	---	---	---	10.3	8.3	9.3	12.2	6.3	10.3
16	---	---	---	---	---	---	9.8	8.3	8.8	11.8	6.8	9.0
17	---	---	---	---	---	---	10.4	9.1	9.7	11.6	3.7	8.1
18	---	---	---	---	---	---	10.5	8.2	9.2	9.7	5.5	7.5
19	---	---	---	---	---	---	9.8	7.5	8.5	7.9	5.9	6.6
20	---	---	---	---	---	---	10.2	8.7	9.5	8.8	5.6	7.1
21	---	---	---	---	---	---	9.4	7.3	8.5	9.0	5.2	7.3
22	---	---	---	---	---	---	10.4	8.4	9.4	9.3	6.7	8.6
23	---	---	---	---	---	---	---	---	---	11.7	5.3	8.6
24	---	---	---	---	---	---	---	---	---	9.5	3.2	5.8
25	---	---	---	---	---	---	---	---	---	9.0	2.9	6.1
26	---	---	---	---	---	---	---	---	---	7.4	1.5	3.3
27	---	---	---	---	---	---	---	---	---	10.3	2.4	6.0
28	---	---	---	---	---	---	---	---	---	5.9	2.9	4.2
29	---	---	---	---	---	---	---	---	---	6.2	1.3	3.4
30	---	---	---	---	---	---	---	---	---	5.0	1.8	3.5
31	---	---	---	---	---	---	---	---	---	7.3	1.2	4.1
		JUNE			JULY			AUGUST			SEPTEMBER	
1	4.3	.9	2.1	---	---	---	---	---	---	9.5	7.6	8.4
2	7.9	.9	3.3	---	---	---	---	---	---	9.8	7.8	8.9
3	8.7	1.3	4.6	---	---	---	---	---	---	9.3	7.4	8.6
4	---	---	---	---	---	---	---	---	---	10.3	7.7	8.9
5	---	---	---	---	---	---	---	---	---	11.5	7.9	9.6
6	---	---	---	---	---	---	---	---	---	11.0	7.5	9.0
7	---	---	---	---	---	---	---	---	---	9.4	7.7	8.5
8	---	---	---	---	---	---	---	---	---	11.6	8.0	9.6
9	---	---	---	---	---	---	---	---	---	13.2	6.3	9.2
10	---	---	---	---	---	---	---	---	---	9.9	6.5	7.9
11	---	---	---	---	---	---	---	---	---	10.6	5.6	7.7
12	---	---	---	---	---	---	---	---	---	11.6	7.9	10.0
13	---	---	---	---	---	---	---	---	---	13.3	8.0	9.8
14	---	---	---	7.3	4.4	6.0	---	---	---	12.2	4.3	7.8
15	---	---	---	8.7	3.5	6.3	---	---	---	10.1	6.0	8.0
16	11.5	2.6	7.2	8.6	4.3	6.5	---	---	---	14.4	5.2	8.9
17	8.3	3.9	6.4	8.1	4.5	6.1	---	---	---	13.2	6.6	9.2
18	8.0	1.6	4.6	10.3	4.5	7.0	---	---	---	8.5	6.0	7.8
19	9.3	2.7	6.1	6.7	4.9	6.0	8.9	3.5	5.8	10.1	8.7	9.4
20	6.5	1.6	3.7	7.6	4.9	6.4	8.3	1.7	4.9	11.2	9.0	10.0
21	10.0	2.4	5.1	---	---	---	8.4	3.3	5.9	11.1	7.6	9.0
22	9.6	1.7	5.8	---	---	---	10.9	3.1	6.4	10.3	5.6	8.2
23	10.2	3.0	5.8	---	---	---	8.2	2.4	5.5	9.5	5.6	7.5
24	12.2	3.0	6.3	---	---	---	8.9	4.0	6.4	12.2	6.8	9.0
25	---	---	---	---	---	---	8.8	4.8	7.2	9.6	5.8	8.2
26	---	---	---	---	---	---	8.9	6.0	7.8	9.1	6.1	7.6
27	---	---	---	---	---	---	9.5	7.1	8.6	9.8	7.0	8.5
28	---	---	---	7.4	2.6	3.9	9.7	8.7	9.1	10.1	7.6	9.1
29	---	---	---	7.5	2.1	4.5	10.5	7.8	9.1	11.1	7.9	9.7
30	---	---	---	---	---	---	9.7	4.1	7.4	10.8	6.9	8.6
31	---	---	---	---	---	---	8.2	4.4	6.2	---	---	---

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)

LOCATION.--Lat 45°44'54", long 98°16'30", in SW¼SE¼SE¼ sec.4, T.126 N., R.62 W., Brown County, Hydrologic Unit 10160003, on floating platform 9.4 mi north of Columbia, SD.

PERIOD OF RECORD.--April to September 1988, seasonal records only.

PERIOD OF DAILY RECORD.--
AIR TEMPERATURE: April 1988 to current year, seasonal records only.
WATER TEMPERATURE: April 1988 to current year, seasonal records only.
TURBIDITY: April 1988 to current year, seasonal records only.
DISSOLVED OXYGEN: August 1988 to current year, seasonal records only.
WIND SPEED: April 1988 to current year, seasonal records only.
WIND DIRECTION: April 1988 to current year, seasonal records only.
INCIDENT LIGHT INTENSITY: April 1988 to current year, seasonal records only.

REMARKS.--Water-quality and climatological data were collected using a water-quality monitor and meteorological sensors located on a platform anchored in the lake. The platform was installed April 13, 1988. Instantaneous values of air temperature, water temperature, turbidity, dissolved oxygen, wind speed and wind direction were recorded at hourly intervals. Instantaneous values of incident light intensity were measured at 15-minute intervals during daylight hours. Each hour, the maximum, minimum and mean incident light intensity values of the four 15-minute values of the previous hour were recorded. Following installation, interruptions in record were due to malfunction of the sensors or recording instruments. Numerous problems were encountered in collection of dissolved oxygen data, and no records are published.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
APR										
11...	1530	637	8.20	16.5	10.5	727	9.3	88	<0.010	<0.100
18...	1105	706	8.10	3.5	8.0	726	8.1	72	0.010	<0.100
MAY										
02...	1515	760	8.10	18.5	15.5	722	6.9	73	0.010	<0.100
18...	1640	820	8.20	26.0	19.5	718	7.4	86	0.020	<0.100
JUN										
09...	1205	850	8.10	21.5	23.0	733	5.0	61	0.020	<0.100
15...	0920	858	8.20	17.0	20.0	735	5.4	62	0.010	<0.100
30...	1045	946	8.00	20.5	19.0	726	5.6	64	--	--
JUL										
13...	1040	853	8.20	28.5	23.5	718	4.6	58	<0.010	<0.100
28...	1010	925	8.10	26.0	24.5	722	6.0	76	<0.010	<0.100
AUG										
18...	1420	900	8.09	24.0	24.5	728	6.8	86	0.030	<0.100
25...	1230	1060	8.40	19.0	18.5	726	5.9	66	0.040	<0.100
SEP										
07...	1930	994	8.70	20.0	16.0	715	8.4	91	0.330	0.420
20...	1450	910	8.70	11.0	11.5	727	9.8	95	0.170	0.430

DATE	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	PHOSPHOROUS DISSOLVED (MG/L AS P)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L)
APR										
11...	--	0.020	0.020	0.03	1.3	0.140	0.060	0.030	19.0	0.900
18...	--	0.090	0.130	0.12	1.7	0.280	0.070	0.030	7.30	0.300
MAY										
02...	--	0.060	0.060	0.08	1.6	0.140	0.080	0.040	22.0	0.800
18...	--	0.140	0.150	0.18	2.7	0.150	0.110	0.070	5.50	0.800
JUN										
09...	--	0.260	0.250	0.33	2.1	0.350	0.270	0.210	13.0	3.10
15...	--	0.080	0.120	0.10	1.7	0.290	0.230	0.180	6.50	1.20
30...	--	--	--	--	--	--	--	--	--	--
JUL										
13...	--	0.090	0.110	0.12	2.8	0.220	0.160	0.090	38.0	1.00
28...	--	0.040	0.040	0.05	1.3	0.240	0.240	0.160	12.0	2.70
AUG										
18...	--	0.650	0.610	0.84	3.1	0.610	0.500	0.380	38.0	0.400
25...	--	0.570	0.520	0.73	3.1	0.500	0.500	0.360	67.0	<0.400
SEP										
07...	0.090	0.950	0.860	1.2	2.8	0.580	0.490	0.370	70.0	0.600
20...	0.260	0.660	0.490	0.85	4.2	0.400	0.330	0.250	47.0	<0.400

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	22.0	16.0	19.5
2	---	---	---	---	---	---	---	---	---	19.0	9.5	15.5
3	---	---	---	---	---	---	---	---	---	16.5	6.5	10.5
4	---	---	---	---	---	---	---	---	---	22.0	3.0	11.0
5	---	---	---	---	---	---	---	---	---	23.5	4.0	13.5
6	---	---	---	---	---	---	---	---	---	24.0	12.0	18.5
7	---	---	---	---	---	---	---	---	---	22.5	12.5	16.5
8	---	---	---	---	---	---	---	---	---	21.0	7.5	13.0
9	---	---	---	---	---	---	---	---	---	23.0	7.0	14.5
10	---	---	---	---	---	---	---	---	---	23.5	9.5	15.5
11	---	---	---	---	---	---	---	---	---	25.0	10.0	17.5
12	---	---	---	---	---	---	---	---	---	29.0	7.5	18.5
13	---	---	---	---	---	---	12.0	1.0	8.5	19.5	-1.5	10.5
14	---	---	---	---	---	---	10.5	-6.5	3.0	24.5	13.0	18.5
15	---	---	---	---	---	---	20.5	-6.5	4.5	21.5	8.0	15.5
16	---	---	---	---	---	---	26.5	-.5	13.0	22.0	.5	12.0
17	---	---	---	---	---	---	14.0	-5.0	4.5	25.5	10.0	18.0
18	---	---	---	---	---	---	11.5	-9.5	1.5	27.0	15.5	20.5
19	---	---	---	---	---	---	18.5	-8.0	6.0	17.5	14.5	15.5
20	---	---	---	---	---	---	10.0	-1.5	4.0	18.5	12.5	15.0
21	---	---	---	---	---	---	8.5	2.5	4.5	12.5	11.0	11.5
22	---	---	---	---	---	---	10.5	-2.5	4.5	16.0	10.0	12.0
23	---	---	---	---	---	---	16.0	-3.5	5.5	28.5	9.0	18.0
24	---	---	---	---	---	---	19.0	.0	8.5	27.5	11.0	20.5
25	---	---	---	---	---	---	11.5	-1.5	5.0	26.5	14.0	20.5
26	---	---	---	---	---	---	6.0	-.5	2.5	30.0	14.5	22.0
27	---	---	---	---	---	---	16.0	-3.0	6.5	31.5	13.0	22.0
28	---	---	---	---	---	---	26.0	-2.0	11.0	32.0	19.5	26.0
29	---	---	---	---	---	---	23.5	6.5	16.5	29.0	20.5	25.0
30	---	---	---	---	---	---	25.0	13.5	18.0	28.0	18.0	23.5
31	---	---	---	---	---	---	---	---	---	29.0	21.0	25.0

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.5	17.0	22.5	19.5	13.5	16.5	35.5	19.5	25.0	28.5	12.5	20.5
2	34.0	16.0	23.5	27.5	13.0	20.5	30.5	18.5	23.5	24.0	10.5	17.5
3	38.0	16.5	26.0	31.0	17.5	23.5	25.5	16.5	20.5	23.5	12.0	17.5
4	33.0	20.0	27.0	39.0	21.5	28.0	22.0	14.0	17.5	21.5	8.5	15.5
5	30.5	21.0	26.0	36.5	25.0	31.0	30.5	12.0	21.0	22.0	5.0	13.5
6	30.5	18.0	24.5	36.0	27.5	31.5	33.0	19.0	25.5	27.5	2.5	16.0
7	33.5	20.0	26.0	30.5	18.0	23.0	27.5	18.0	24.5	23.5	15.0	18.5
8	32.0	16.5	24.0	35.0	15.5	23.5	24.5	12.5	18.5	22.5	8.0	15.5
9	27.5	12.5	19.5	28.5	16.0	21.5	32.5	11.0	22.0	27.5	5.0	15.5
10	29.0	13.5	21.5	25.0	14.5	20.0	33.5	20.5	26.5	30.0	11.0	20.0
11	31.0	19.5	25.0	30.5	13.5	20.5	37.5	23.0	27.5	27.0	11.0	20.0
12	25.0	17.0	20.5	30.0	17.5	23.0	36.0	21.0	27.0	18.5	4.0	10.5
13	28.0	16.5	21.0	32.5	17.0	25.0	24.5	19.0	21.0	27.0	2.5	14.5
14	22.0	12.5	18.0	34.5	17.5	26.5	35.5	15.5	23.5	22.0	6.5	14.5
15	26.0	9.5	18.0	28.5	20.0	26.0	43.0	19.5	29.0	14.0	11.5	13.0
16	30.0	12.5	21.0	33.0	13.0	23.0	39.5	24.5	30.5	24.5	12.5	17.0
17	32.0	16.5	24.0	29.0	17.5	23.0	30.0	19.5	24.5	31.5	10.5	20.0
18	36.0	20.5	28.0	31.0	16.0	21.5	25.0	18.0	21.5	24.5	10.0	17.5
19	36.0	18.5	28.0	29.0	15.0	21.0	33.5	17.5	22.0	12.0	6.5	8.5
20	35.5	18.5	28.0	27.0	10.0	18.5	29.5	17.0	23.5	13.0	5.5	7.5
21	40.0	24.5	30.5	35.5	13.0	23.0	27.5	19.5	24.0	16.0	5.5	10.0
22	33.5	19.5	25.5	31.5	17.0	24.5	32.0	12.5	21.0	20.0	6.0	12.0
23	29.5	19.5	24.0	32.0	18.5	24.0	27.5	10.5	19.0	21.5	1.5	12.0
24	41.0	20.5	28.0	33.0	12.5	22.0	32.0	10.5	21.5	26.5	10.5	16.5
25	28.0	16.5	22.5	31.5	13.5	24.0	24.0	11.0	17.5	20.0	7.0	12.5
26	32.0	15.0	23.5	34.0	16.5	26.0	24.0	7.5	16.0	26.0	6.0	15.0
27	33.5	18.5	26.0	35.5	20.5	28.0	21.0	8.5	14.0	16.5	4.5	10.0
28	30.0	20.5	26.0	33.5	23.5	28.0	22.0	4.0	13.5	10.5	7.5	8.0
29	20.5	16.5	18.0	32.5	21.5	27.0	29.5	4.0	15.0	10.0	7.5	8.5
30	24.5	15.5	19.5	36.0	16.5	26.5	28.0	10.0	19.0	16.5	7.5	11.0
31	---	---	---	33.5	24.5	29.0	33.5	17.0	22.5	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	17.0	15.0	16.0
2	---	---	---	---	---	---	---	---	---	16.5	15.0	15.5
3	---	---	---	---	---	---	---	---	---	15.5	13.5	14.5
4	---	---	---	---	---	---	---	---	---	15.5	11.5	13.5
5	---	---	---	---	---	---	---	---	---	16.5	12.5	14.5
6	---	---	---	---	---	---	---	---	---	17.0	15.0	16.0
7	---	---	---	---	---	---	---	---	---	17.0	15.0	16.0
8	---	---	---	---	---	---	---	---	---	17.0	14.0	15.5
9	---	---	---	---	---	---	---	---	---	15.5	12.5	14.0
10	---	---	---	---	---	---	---	---	---	17.5	14.0	15.5
11	---	---	---	---	---	---	---	---	---	19.0	15.5	17.5
12	---	---	---	---	---	---	---	---	---	20.5	17.0	18.5
13	---	---	---	---	---	---	13.0	11.0	11.5	17.5	14.0	16.0
14	---	---	---	---	---	---	11.0	8.5	10.0	18.0	14.5	16.0
15	---	---	---	---	---	---	11.5	8.0	9.5	16.5	14.5	15.5
16	---	---	---	---	---	---	12.5	8.5	10.5	19.0	13.5	16.0
17	---	---	---	---	---	---	12.0	9.0	10.5	19.0	15.0	17.0
18	---	---	---	---	---	---	10.5	7.0	9.0	20.0	16.5	18.0
19	---	---	---	---	---	---	11.0	8.0	9.5	19.5	18.0	18.5
20	---	---	---	---	---	---	11.0	8.0	9.5	18.5	17.0	17.5
21	---	---	---	---	---	---	9.5	8.5	8.5	17.5	15.0	16.0
22	---	---	---	---	---	---	9.5	7.0	8.0	14.5	13.5	14.0
23	---	---	---	---	---	---	10.5	6.5	8.5	20.0	14.0	16.5
24	---	---	---	---	---	---	12.0	8.0	10.0	22.5	17.5	20.0
25	---	---	---	---	---	---	11.0	8.5	9.5	21.5	18.5	20.0
26	---	---	---	---	---	---	9.5	7.5	8.5	25.0	20.0	22.0
27	---	---	---	---	---	---	10.5	6.0	8.0	26.0	22.0	24.0
28	---	---	---	---	---	---	13.0	8.5	10.5	26.0	23.5	24.5
29	---	---	---	---	---	---	16.0	11.5	13.5	26.0	23.0	24.0
30	---	---	---	---	---	---	17.5	14.5	15.5	24.5	22.0	23.5
31	---	---	---	---	---	---	---	---	---	25.5	22.0	23.5
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	23.0	24.0	20.5	19.0	20.0	27.0	24.0	25.5	---	---	---
2	27.5	23.5	25.0	23.5	19.0	21.0	26.5	22.5	24.0	---	---	---
3	28.5	24.5	26.5	25.5	21.0	23.0	25.5	22.5	24.0	---	---	---
4	29.5	26.0	27.5	28.0	23.5	25.5	22.0	20.5	21.5	---	---	---
5	28.0	25.5	27.0	28.5	25.0	27.0	24.0	19.0	21.5	---	---	---
6	26.5	23.0	25.0	28.5	25.5	27.0	26.0	21.5	24.0	---	---	---
7	27.5	23.0	25.0	27.5	24.0	25.0	25.0	23.0	24.0	---	---	---
8	29.0	25.5	26.5	28.0	23.0	25.0	24.5	20.5	22.5	18.0	15.5	17.0
9	25.0	22.5	24.0	27.0	24.5	25.5	25.5	21.0	23.0	19.0	13.5	16.0
10	24.0	21.0	22.5	26.5	23.0	24.5	26.5	22.0	24.0	19.5	15.0	17.5
11	24.0	20.5	22.5	25.5	21.5	24.0	28.0	24.0	26.0	19.0	17.0	18.5
12	23.5	22.0	23.0	25.5	22.5	24.0	27.0	23.0	25.0	16.5	13.5	15.0
13	24.5	21.0	22.5	26.0	22.5	24.5	26.0	23.5	24.5	18.0	12.0	15.0
14	23.5	22.0	22.5	28.0	24.0	26.0	27.0	22.5	24.5	17.5	14.5	16.5
15	23.5	20.5	22.0	27.5	26.0	27.0	30.0	24.0	26.5	16.5	15.0	15.5
16	25.0	21.0	23.0	28.5	23.5	25.5	29.0	25.0	27.0	19.0	15.0	16.5
17	27.0	22.5	24.5	26.5	24.5	25.5	28.0	25.5	27.0	21.5	16.5	19.0
18	28.0	24.5	26.0	27.0	23.0	25.0	26.5	24.0	25.0	20.5	17.0	19.0
19	28.5	26.0	27.5	26.0	23.0	24.5	26.5	23.0	24.5	16.5	10.5	12.0
20	29.0	25.5	27.5	24.5	21.0	23.0	25.0	22.0	23.5	13.0	9.5	11.0
21	30.5	26.0	28.0	27.0	22.0	24.0	23.5	21.5	22.5	13.5	10.5	12.0
22	29.0	26.0	27.5	27.0	23.5	25.5	24.5	21.0	22.5	14.5	12.0	13.0
23	27.0	24.0	25.0	26.0	22.5	24.0	22.0	19.0	21.0	15.0	11.0	13.0
24	29.0	23.5	26.0	27.0	21.5	24.0	23.0	18.0	20.5	17.0	12.5	14.5
25	27.5	24.5	26.0	28.0	23.5	25.5	21.5	18.0	20.0	16.0	13.5	15.0
26	28.5	24.5	26.5	28.0	23.0	25.5	19.5	17.5	18.5	17.0	13.0	15.0
27	27.0	23.5	25.5	28.0	23.5	26.0	19.5	16.0	18.0	15.0	12.0	13.5
28	25.5	24.0	25.0	27.0	24.0	25.5	---	---	---	13.0	10.5	12.0
29	24.5	20.0	21.5	28.5	24.5	26.5	---	---	---	11.0	10.0	10.5
30	21.0	19.0	20.0	29.0	25.5	27.0	---	---	---	13.5	10.0	11.5
31	---	---	---	29.0	25.0	27.0	---	---	---	---	---	---

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	15	32	21
2	---	---	---	---	---	---	---	---	---	8.5	30	25
3	---	---	---	---	---	---	---	9.6	---	26	30	41
4	---	---	---	---	---	---	---	8.8	---	16	26	30
5	---	---	---	---	---	---	---	9.4	---	29	22	17
6	---	---	---	---	---	---	---	16	---	31	21	29
7	---	---	---	---	---	---	---	21	---	19	21	32
8	---	---	---	---	---	---	---	18	---	17	16	31
9	---	---	---	---	---	---	---	34	---	13	28	18
10	---	---	---	---	---	---	---	18	12	20	11	32
11	---	---	---	---	---	---	---	27	11	11	16	59
12	---	---	---	---	---	---	---	35	13	15	---	40
13	---	---	---	---	---	---	---	37	9.8	12	---	30
14	---	---	---	---	---	---	---	26	5.8	24	---	38
15	---	---	---	---	---	---	---	13	3.8	16	---	27
16	---	---	---	---	---	---	---	13	5.2	14	---	19
17	---	---	---	---	---	---	---	8.0	3.2	12	---	15
18	---	---	---	---	---	---	---	4.2	3.6	20	---	50
19	---	---	---	---	---	---	---	13	8.1	7.4	28	76
20	---	---	---	---	---	---	---	12	8.8	8.6	27	29
21	---	---	---	---	---	---	---	12	7.2	13	52	13
22	---	---	---	---	---	---	---	11	5.8	28	51	15
23	---	---	---	---	---	---	---	12	6.3	46	40	20
24	---	---	---	---	---	---	---	7.0	13	21	29	32
25	---	---	---	---	---	---	---	18	5.4	15	28	31
26	---	---	---	---	---	---	---	---	16	28	28	38
27	---	---	---	---	---	---	---	---	14	12	25	53
28	---	---	---	---	---	---	---	---	7.8	14	18	49
29	---	---	---	---	---	---	---	---	---	16	16	32
30	---	---	---	---	---	---	---	---	6.5	13	27	28
31	---	---	---	---	---	---	---	---	---	22	33	---

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	30	178	22
2	---	---	---	---	---	---	---	---	---	23	266	15
3	---	---	---	---	---	---	---	---	---	18	323	13
4	---	---	---	---	---	---	---	---	---	16	5	9.5
5	---	---	---	---	---	---	---	---	---	13	177	7.3
6	---	---	---	---	---	---	---	---	---	26	---	16
7	---	---	---	---	---	---	---	---	---	19	---	12
8	---	---	---	---	---	---	---	---	---	27	---	12
9	---	---	---	---	---	---	---	---	---	24	---	17
10	---	---	---	---	---	---	---	---	---	16	---	7.3
11	---	---	---	---	---	---	---	---	---	12	---	7.4
12	---	---	---	---	---	---	---	---	---	25	---	12
13	---	---	---	---	---	---	20	335	14	14	---	8.0
14	---	---	---	---	---	---	13	7	8.9	18	---	13
15	---	---	---	---	---	---	6.7	75	4.7	26	---	16
16	---	---	---	---	---	---	16	203	10	11	---	4.6
17	---	---	---	---	---	---	20	325	14	21	---	14
18	---	---	---	---	---	---	10	1	5.9	34	243	19
19	---	---	---	---	---	---	9.2	304	5.3	12	339	8.7
20	---	---	---	---	---	---	16	35	9.8	11	18	7.8
21	---	---	---	---	---	---	6.4	62	4.6	14	19	10
22	---	---	---	---	---	---	14	14	9.6	14	33	10
23	---	---	---	---	---	---	12	11	7.6	6.4	67	4.3
24	---	---	---	---	---	---	17	321	11	10	146	5.3
25	---	---	---	---	---	---	15	352	10	20	202	14
26	---	---	---	---	---	---	14	25	9.7	21	121	6.8
27	---	---	---	---	---	---	11	309	6.6	7.1	71	4.8
28	---	---	---	---	---	---	6.6	194	4.5	17	206	12
29	---	---	---	---	---	---	17	178	11	21	182	17
30	---	---	---	---	---	---	20	201	15	24	188	18
31	---	---	---	---	---	---	---	---	---	22	177	18

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15	160	10	7.5	161	4.7	20	346	11	12	318	6.5
2	7.6	205	3.5	10	184	7.2	12	107	6.9	18	321	9.8
3	6.2	310	3.9	18	194	12	21	355	8.1	21	335	12
4	9.2	156	6.0	15	174	8.2	6.4	220	3.8	16	355	10
5	18	154	14	22	184	18	11	209	7.1	7.8	328	4.0
6	16	171	13	25	177	20	19	189	11	16	179	5.9
7	12	186	9.2	22	190	9.9	20	171	12	20	177	13
8	13	100	6.0	7.2	156	4.7	9.2	354	6.3	16	295	8.4
9	12	114	8.9	12	313	5.7	16	202	7.1	7.4	186	4.4
10	17	180	13	8.0	33	5.9	17	183	13	14	133	8.3
11	23	188	15	8.2	49	5.0	13	189	7.2	25	182	14
12	22	10	9.7	21	184	13	12	101	7.1	15	13	10
13	10	24	6.9	16	301	7.0	15	238	7.9	8.4	289	5.2
14	14	326	8.6	14	157	7.4	5.4	121	3.4	9.4	156	4.9
15	13	334	6.4	22	4	11	17	193	5.8	7.2	110	5.2
16	8.9	156	6.0	7.1	244	4.3	18	199	11	8.3	198	5.3
17	8.9	173	6.7	8.2	39	5.4	13	313	8.2	7.1	192	4.7
18	19	198	11	8.5	11	5.3	8.5	58	6.8	22	345	13
19	11	295	5.1	9.7	27	5.8	10	174	4.3	27	333	19
20	15	172	7.7	12	347	7.2	15	156	12	14	333	8.5
21	16	188	8.9	4.3	171	2.5	23	186	16	8.3	55	6.7
22	11	20	7.0	13	162	7.1	15	16	4.9	13	318	7.2
23	19	183	12	15	175	11	15	301	8.6	11	163	6.7
24	13	47	7.1	6.4	325	4.0	12	308	7.2	13	188	8.7
25	14	22	7.7	11	175	4.9	17	343	10	12	116	7.3
26	9.4	153	4.8	11	198	8.4	14	198	5.9	13	300	6.7
27	20	180	14	15	185	11	14	338	9.7	11	349	7.6
28	18	210	9.4	17	178	11	12	326	6.0	12	81	8.1
29	12	83	9.4	13	210	7.8	4.1	63	2.9	11	7	6.9
30	11	127	6.7	11	179	4.8	12	170	7.5	15	202	9.7
31	---	---	---	16	189	8.5	9.6	155	6.1	---	---	---

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 13, 1988							
12:00:00	1590	14:00:00	1730	16:00:00	1560	18:00:00	976	20:00:00	238
13:00:00	1710	15:00:00	1680	17:00:00	1330	19:00:00	580		
		APRIL 14, 1988							
09:00:00	570	12:00:00	1580	15:00:00	1710	18:00:00	1050		
10:00:00	1050	13:00:00	1700	16:00:00	1580	19:00:00	665		
11:00:00	1360	14:00:00	1730	17:00:00	1360	20:00:00	274		
		APRIL 15, 1988							
09:00:00	676	12:00:00	1600	15:00:00	1700	18:00:00	1070		
10:00:00	1050	13:00:00	1730	16:00:00	1610	19:00:00	678		
11:00:00	1360	14:00:00	1750	17:00:00	1390	20:00:00	196		
		APRIL 16, 1988							
09:00:00	716	12:00:00	1640	15:00:00	1730	18:00:00	1010		
10:00:00	880	13:00:00	2000	16:00:00	1540	19:00:00	629		
11:00:00	1340	14:00:00	1690	17:00:00	1330	20:00:00	284		
		APRIL 17, 1988							
09:00:00	363	12:00:00	1690	15:00:00	1650	18:00:00	1010		
10:00:00	632	13:00:00	1650	16:00:00	1560	19:00:00	649		
11:00:00	1350	14:00:00	1670	17:00:00	1300	20:00:00	262		
		APRIL 18, 1988							
09:00:00	719	12:00:00	1630	15:00:00	1740	18:00:00	1070		
10:00:00	1090	13:00:00	1750	16:00:00	1610	19:00:00	696		
11:00:00	1330	14:00:00	1760	17:00:00	1390	20:00:00	300		
		APRIL 19, 1988							
11:00:00	1400	13:00:00	1730	15:00:00	1730	17:00:00	1380	19:00:00	631
12:00:00	1620	14:00:00	1760	16:00:00	1560	18:00:00	1050	20:00:00	167
		APRIL 20, 1988							
09:00:00	639	12:00:00	1640	15:00:00	1760	18:00:00	1090		
10:00:00	1130	13:00:00	1760	16:00:00	1630	19:00:00	416		
11:00:00	977	14:00:00	1780	17:00:00	1400	20:00:00	192		
		APRIL 21, 1988							
09:00:00	199	12:00:00	488	15:00:00	659	18:00:00	505		
10:00:00	520	13:00:00	561	16:00:00	729	19:00:00	344		
11:00:00	375	14:00:00	782	17:00:00	556	20:00:00	157		
		APRIL 22, 1988							
09:00:00	763	12:00:00	1270	15:00:00	1740	18:00:00	592		
10:00:00	873	13:00:00	1780	16:00:00	1530	19:00:00	281		
11:00:00	999	14:00:00	1970	17:00:00	691	20:00:00	101		
		APRIL 23, 1988							
09:00:00	763	12:00:00	1690	15:00:00	1750	18:00:00	1100		
10:00:00	1130	13:00:00	1780	16:00:00	1610	19:00:00	727		
11:00:00	1440	14:00:00	1780	17:00:00	1410	20:00:00	336		
		APRIL 24, 1988							
09:00:00	822	12:00:00	1870	15:00:00	1090	18:00:00	1100		
10:00:00	1300	13:00:00	1780	16:00:00	1710	19:00:00	713		
11:00:00	1460	14:00:00	2200	17:00:00	1410	20:00:00	237		
		APRIL 25, 1988							
09:00:00	678	12:00:00	1350	15:00:00	1770	18:00:00	639		
10:00:00	721	13:00:00	1740	16:00:00	1680	19:00:00	418		
11:00:00	1020	14:00:00	1840	17:00:00	1220	20:00:00	129		
		APRIL 26, 1988							
09:00:00	223	12:00:00	400	15:00:00	921	18:00:00	876		
10:00:00	321	13:00:00	584	16:00:00	1010	19:00:00	650		
11:00:00	277	14:00:00	665	17:00:00	1110	20:00:00	97.0		
		APRIL 27, 1988							
09:00:00	780	12:00:00	1700	15:00:00	1820	18:00:00	1140		
10:00:00	1140	13:00:00	1790	16:00:00	1650	19:00:00	745		
11:00:00	1450	14:00:00	1860	17:00:00	1440	20:00:00	353		
		APRIL 28, 1988							
09:00:00	805	12:00:00	1680	15:00:00	1790	18:00:00	1130		
10:00:00	1170	13:00:00	1790	16:00:00	1660	19:00:00	752		
11:00:00	1470	14:00:00	1810	17:00:00	1440	20:00:00	362		
		APRIL 29, 1988							
09:00:00	790	12:00:00	1660	15:00:00	1770	18:00:00	1140		
10:00:00	1150	13:00:00	1770	16:00:00	1600	19:00:00	698		
11:00:00	1450	14:00:00	1860	17:00:00	1470	20:00:00	284		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (05470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 30, 1988							
09:00:00	768	12:00:00	693	15:00:00	1360	18:00:00	1130		
10:00:00	1430	13:00:00	925	16:00:00	1810	19:00:00	765		
11:00:00	572	14:00:00	1490	17:00:00	1280	20:00:00	376		
		MAY 01, 1988							
09:00:00	462	12:00:00	1370	15:00:00	1520	18:00:00	168		
10:00:00	966	13:00:00	1480	16:00:00	1650	19:00:00	118		
11:00:00	1130	14:00:00	1410	17:00:00	456	20:00:00	69.0		
		MAY 02, 1988							
09:00:00	585	11:00:00	927	17:05:00	693	19:05:00	246		
10:00:00	439	16:05:00	1010	18:05:00	392	20:05:00	64.0		
		MAY 03, 1988							
09:05:00	680	12:05:00	1060	15:05:00	1480	18:05:00	616		
10:05:00	761	13:05:00	890	16:05:00	1700	19:05:00	646		
11:05:00	1010	14:05:00	891	17:05:00	1180	20:05:00	161		
		MAY 04, 1988							
09:05:00	823	12:05:00	1620	15:05:00	1670	18:05:00	1040		
10:05:00	1180	13:05:00	1770	16:05:00	1570	19:05:00	667		
11:05:00	1450	14:05:00	1790	17:05:00	1340	20:05:00	316		
		MAY 05, 1988							
09:05:00	758	12:05:00	1760	15:05:00	1730	18:05:00	1120		
10:05:00	1200	13:05:00	1820	16:05:00	1560	19:05:00	674		
11:05:00	1500	14:05:00	1870	17:05:00	1390	20:05:00	256		
		MAY 06, 1988							
09:05:00	865	12:05:00	1560	15:05:00	1540	18:05:00	676		
10:05:00	1100	13:05:00	869	16:05:00	1680	19:05:00	419		
11:05:00	1540	14:05:00	720	17:05:00	795	20:05:00	171		
		MAY 07, 1988							
09:05:00	946	12:05:00	596	15:05:00	2010	18:05:00	1380		
10:05:00	612	13:05:00	694	16:05:00	1790	19:05:00	456		
11:05:00	855	14:05:00	2020	17:05:00	1420	20:05:00	196		
		MAY 08, 1988							
09:05:00	967	12:05:00	761	15:05:00	2190	18:05:00	961		
10:05:00	1390	13:05:00	1990	16:05:00	819	19:05:00	629		
11:05:00	2150	14:05:00	1920	17:05:00	2050	20:05:00	110		
		MAY 09, 1988							
09:05:00	989	12:05:00	1830	15:05:00	1930	18:05:00	1140		
10:05:00	1330	13:05:00	1880	16:05:00	1680	19:05:00	366		
11:05:00	1570	14:05:00	1890	17:05:00	1460	20:05:00	184		
		MAY 10, 1988							
09:05:00	926	12:05:00	1780	15:05:00	1850	18:05:00	1160		
10:05:00	1290	13:05:00	1880	16:05:00	1720	19:05:00	784		
11:05:00	1580	14:05:00	1880	17:05:00	1480	20:05:00	398		
		MAY 11, 1988							
09:05:00	979	12:05:00	1170	15:05:00	1980	18:05:00	1180		
10:05:00	1350	13:05:00	1890	16:05:00	1840	19:05:00	448		
11:05:00	1680	14:05:00	2050	17:05:00	520	20:05:00	372		
		MAY 12, 1988							
09:05:00	977	12:05:00	1790	15:05:00	1930	18:05:00	262		
10:05:00	1330	13:05:00	1880	16:05:00	1800	19:05:00	179		
11:05:00	1590	14:05:00	1910	17:05:00	545	20:05:00	118		
		MAY 13, 1988							
09:05:00	998	12:05:00	1810	15:05:00	1890	18:05:00	1150		
10:05:00	1350	13:05:00	1890	16:05:00	1710	19:05:00	777		
11:05:00	1620	14:05:00	1950	17:05:00	1430	20:05:00	404		
		MAY 14, 1988							
09:05:00	963	12:05:00	1930	15:05:00	1810	18:05:00	1360		
10:05:00	1410	13:05:00	1830	16:05:00	1670	19:05:00	789		
11:05:00	1500	14:05:00	1880	17:05:00	1490	20:05:00	399		
		MAY 15, 1988							
09:05:00	919	12:05:00	1460	15:05:00	1710	18:05:00	1290		
10:05:00	1290	13:05:00	1700	16:05:00	1730	19:05:00	1070		
11:05:00	1370	14:05:00	1780	17:05:00	1520	20:05:00	416		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 16, 1988						
09:05:00	993	12:05:00	1800	15:05:00	1850	18:05:00	1170		
10:05:00	1300	13:05:00	1890	16:05:00	1720	19:05:00	803		
11:05:00	1620	14:05:00	1900	17:05:00	1480	20:05:00	419		
			MAY 17, 1988						
09:05:00	993	12:05:00	1790	15:05:00	1750	18:05:00	974		
10:05:00	1330	13:05:00	1860	16:05:00	1680	19:05:00	787		
11:05:00	1600	14:05:00	1870	17:05:00	1450	20:05:00	365		
			MAY 18, 1988						
09:05:00	815	11:05:00	1590	13:05:00	1860	19:00:00	115		
10:05:00	1260	12:05:00	1740	14:05:00	1220	20:00:00	131		
			MAY 19, 1988						
09:00:00	450	12:00:00	252	15:00:00	730	18:00:00	489		
10:00:00	349	13:00:00	333	16:00:00	1010	19:00:00	366		
11:00:00	421	14:00:00	500	17:00:00	575	20:00:00	389		
			MAY 20, 1988						
09:00:00	195	12:00:00	733	15:00:00	2040	18:00:00	350		
10:00:00	508	13:00:00	1140	16:00:00	693	19:00:00	114		
11:00:00	1060	14:00:00	1890	17:00:00	366	20:00:00	140		
			MAY 21, 1988						
09:00:00	159	12:00:00	417	15:00:00	398	18:00:00	123		
10:00:00	237	13:00:00	367	16:00:00	176	19:00:00	108		
11:00:00	257	14:00:00	354	17:00:00	159	20:00:00	48.0		
			MAY 22, 1988						
09:00:00	143	12:00:00	396	15:00:00	944	18:00:00	266		
10:00:00	174	13:00:00	657	16:00:00	1090	19:00:00	227		
11:00:00	270	14:00:00	876	17:00:00	611	20:00:00	295		
			MAY 23, 1988						
09:00:00	967	12:00:00	1800	15:00:00	1900	18:00:00	1270		
10:00:00	1310	13:00:00	1910	16:00:00	1780	19:00:00	917		
11:00:00	1600	14:00:00	1930	17:00:00	1570	20:00:00	529		
			MAY 24, 1988						
09:00:00	1060	12:00:00	1800	15:00:00	1910	18:00:00	1160		
10:00:00	1260	13:00:00	1880	16:00:00	1900	19:00:00	910		
11:00:00	1610	14:00:00	1900	17:00:00	1620	20:00:00	506		
			MAY 25, 1988						
09:00:00	712	12:00:00	1790	15:00:00	1530	18:00:00	1370		
10:00:00	1280	13:00:00	1920	16:00:00	1930	19:00:00	596		
11:00:00	1460	14:00:00	2010	17:00:00	1600	20:00:00	569		
			MAY 26, 1988						
09:00:00	913	12:00:00	1720	15:00:00	1850	18:00:00	1270		
10:00:00	1290	13:00:00	1850	16:00:00	1800	19:00:00	220		
11:00:00	1570	14:00:00	1910	17:00:00	1550	20:00:00	29.0		
			MAY 27, 1988						
09:00:00	959	12:00:00	1840	15:00:00	2010	18:00:00	1230		
10:00:00	1400	13:00:00	1920	16:00:00	1690	19:00:00	820		
11:00:00	1590	14:00:00	2010	17:00:00	1570	20:00:00	443		
			MAY 28, 1988						
09:00:00	919	12:00:00	1770	15:00:00	1740	18:00:00	1170		
10:00:00	1120	13:00:00	1720	16:00:00	1680	19:00:00	924		
11:00:00	1610	14:00:00	1860	17:00:00	1350	20:00:00	475		
			MAY 29, 1988						
09:00:00	921	12:00:00	1750	15:00:00	1840	18:00:00	1260		
10:00:00	1260	13:00:00	1790	16:00:00	1730	19:00:00	876		
11:00:00	1540	14:00:00	1900	17:00:00	1520	20:00:00	508		
			MAY 30, 1988						
09:00:00	775	12:00:00	2060	15:00:00	2100	18:00:00	1270		
10:00:00	1210	13:00:00	1400	16:00:00	761	19:00:00	964		
11:00:00	1690	14:00:00	1960	17:00:00	1590	20:00:00	454		
			MAY 31, 1988						
09:00:00	945	12:00:00	1730	15:00:00	1830	18:00:00	1230		
10:00:00	1220	13:00:00	1850	16:00:00	1960	19:00:00	857		
11:00:00	1530	14:00:00	1870	17:00:00	1590	20:00:00	503		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 01, 1988							
09:00:00	944	12:00:00	1080	15:00:00	1760	18:00:00	1280		
10:00:00	1280	13:00:00	1930	16:00:00	1740	19:00:00	902		
11:00:00	463	14:00:00	1970	17:00:00	1550	20:00:00	621		
		JUNE 02, 1988							
09:00:00	565	12:00:00	1710	15:00:00	1820	18:00:00	1190		
10:00:00	1230	13:00:00	1820	16:00:00	1700	19:00:00	852		
11:00:00	1520	14:00:00	1840	17:00:00	1480	20:00:00	461		
		JUNE 03, 1988							
09:00:00	926	12:00:00	1790	15:00:00	1930	18:00:00	1190		
10:00:00	1280	13:00:00	1880	16:00:00	1840	19:00:00	1010		
11:00:00	1560	14:00:00	1950	17:00:00	1600	20:00:00	575		
		JUNE 04, 1988							
09:00:00	946	12:00:00	1780	15:00:00	2100	18:00:00	1320		
10:00:00	1290	13:00:00	1990	16:00:00	1960	19:00:00	957		
11:00:00	1580	14:00:00	2100	17:00:00	1600	20:00:00	576		
		JUNE 05, 1988							
09:00:00	934	12:00:00	1770	15:00:00	1980	18:00:00	1310		
10:00:00	1270	13:00:00	1860	16:00:00	1880	19:00:00	963		
11:00:00	1560	14:00:00	1990	17:00:00	1590	20:00:00	581		
		JUNE 06, 1988							
09:00:00	985	12:00:00	1800	15:00:00	1900	18:00:00	1310		
10:00:00	1320	13:00:00	1890	16:00:00	1780	19:00:00	961		
11:00:00	1600	14:00:00	1920	17:00:00	1580	20:00:00	586		
		JUNE 07, 1988							
09:00:00	940	12:00:00	1760	15:00:00	1880	18:00:00	1300		
10:00:00	1280	13:00:00	1870	16:00:00	1770	19:00:00	948		
11:00:00	1560	14:00:00	1890	17:00:00	1570	20:00:00	578		
		JUNE 08, 1988							
09:00:00	962	12:00:00	1740	15:00:00	1850	18:00:00	1290		
10:00:00	1280	13:00:00	1880	16:00:00	1750	19:00:00	922		
11:00:00	1550	14:00:00	1940	17:00:00	1500	20:00:00	568		
		JUNE 09, 1988							
09:00:00	903	15:05:00	1880	17:05:00	1580	19:05:00	929		
14:05:00	1910	16:05:00	1760	18:05:00	1280	20:05:00	565		
		JUNE 10, 1988							
09:05:00	906	12:05:00	1770	15:05:00	1880	18:05:00	1190		
10:05:00	1280	13:05:00	1930	16:05:00	1790	19:05:00	925		
11:05:00	1480	14:05:00	1920	17:05:00	1560	20:05:00	529		
		JUNE 11, 1988							
09:05:00	744	12:05:00	1680	15:05:00	1820	18:05:00	1160		
10:05:00	1110	13:05:00	1860	16:05:00	1610	19:05:00	863		
11:05:00	1470	14:05:00	1850	17:05:00	1420	20:05:00	485		
		JUNE 12, 1988							
09:05:00	694	12:05:00	791	15:05:00	1810	18:05:00	222		
10:05:00	1050	13:05:00	1540	16:05:00	1790	19:05:00	136		
11:05:00	1250	14:05:00	1570	17:05:00	182	20:05:00	86.0		
		JUNE 13, 1988							
09:05:00	990	12:05:00	1800	15:05:00	2160	18:05:00	1340		
10:05:00	1110	13:05:00	1900	16:05:00	1890	19:05:00	749		
11:05:00	1050	14:05:00	1970	17:05:00	1830	20:05:00	518		
		JUNE 14, 1988							
09:05:00	382	12:05:00	1670	15:05:00	1870	18:05:00	1270		
10:05:00	674	13:05:00	641	16:05:00	1840	19:05:00	300		
11:05:00	974	14:05:00	1790	17:05:00	1880	20:05:00	559		
		JUNE 15, 1988							
09:05:00	1030	12:05:00	1760	15:05:00	2130	18:05:00	1280		
10:05:00	1320	13:05:00	1860	16:05:00	1900	19:05:00	891		
11:05:00	1580	14:05:00	1890	17:05:00	1630	20:05:00	552		
		JUNE 16, 1988							
09:05:00	990	12:05:00	1750	15:05:00	1850	18:05:00	1090		
10:05:00	1310	13:05:00	1850	16:05:00	1770	19:05:00	608		
11:05:00	1570	14:05:00	1870	17:05:00	1780	20:05:00	169		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 17, 1988							
09:05:00	1050	12:05:00	1770	15:05:00	1840	18:05:00	1030		
10:05:00	1260	13:05:00	1870	16:05:00	1730	19:05:00	914		
11:05:00	1590	14:05:00	1980	17:05:00	1350	20:05:00	616		
		JUNE 18, 1988							
09:05:00	980	12:05:00	1080	15:05:00	1870	18:05:00	1340		
10:05:00	1250	13:05:00	1870	16:05:00	1860	19:05:00	801		
11:05:00	1830	14:05:00	1870	17:05:00	1510	20:05:00	543		
		JUNE 19, 1988							
09:05:00	868	12:05:00	1990	15:05:00	1950	18:05:00	1240		
10:05:00	1520	13:05:00	2500	16:05:00	1720	19:05:00	926		
11:05:00	1550	14:05:00	1410	17:05:00	1520	20:05:00	571		
		JUNE 20, 1988							
09:05:00	985	12:05:00	1750	15:05:00	1830	18:05:00	1220		
10:05:00	1310	13:05:00	1850	16:05:00	1720	19:05:00	885		
11:05:00	1570	14:05:00	1860	17:05:00	1510	20:05:00	536		
		JUNE 21, 1988							
09:05:00	961	12:05:00	1750	15:05:00	1940	18:05:00	1340		
10:05:00	1080	13:05:00	2010	16:05:00	1680	19:05:00	1060		
11:05:00	1550	14:05:00	1870	17:05:00	1470	20:05:00	569		
		JUNE 22, 1988							
09:05:00	952	12:05:00	1690	15:05:00	1790	18:05:00	1200		
10:05:00	1250	13:05:00	1860	16:05:00	1670	19:05:00	867		
11:05:00	1530	14:05:00	1810	17:05:00	1470	20:05:00	513		
		JUNE 23, 1988							
09:05:00	507	12:05:00	1640	15:05:00	1670	18:05:00	1230		
10:05:00	1070	13:05:00	1730	16:05:00	1610	19:05:00	823		
11:05:00	1640	14:05:00	1750	17:05:00	1400	20:05:00	486		
		JUNE 24, 1988							
09:05:00	960	12:05:00	1720	15:05:00	1790	18:05:00	1250		
10:05:00	1280	13:05:00	1810	16:05:00	1650	19:05:00	147		
11:05:00	1540	14:05:00	1840	17:05:00	1510	20:05:00	7.00		
		JUNE 25, 1988							
09:05:00	980	12:05:00	1740	15:05:00	1850	18:05:00	1250		
10:05:00	1300	13:05:00	1850	16:05:00	1730	19:05:00	929		
11:05:00	1570	14:05:00	1860	17:05:00	1530	20:05:00	573		
		JUNE 26, 1988							
09:05:00	962	12:05:00	1750	15:05:00	1820	18:05:00	872		
10:05:00	1290	13:05:00	1810	16:05:00	1710	19:05:00	807		
11:05:00	1550	14:05:00	1840	17:05:00	1530	20:05:00	450		
		JUNE 27, 1988							
09:05:00	959	12:05:00	1750	15:05:00	1860	18:05:00	1260		
10:05:00	1230	13:05:00	1850	16:05:00	1730	19:05:00	900		
11:05:00	1560	14:05:00	1870	17:05:00	1520	20:05:00	529		
		JUNE 28, 1988							
09:05:00	955	12:05:00	1760	15:05:00	344	18:05:00	401		
10:05:00	1290	13:05:00	210	16:05:00	339	19:05:00	371		
11:05:00	1700	14:05:00	98.0	17:05:00	527	20:05:00	361		
		JUNE 29, 1988							
09:05:00	127	12:05:00	356	15:05:00	385	18:05:00	253		
10:05:00	279	13:05:00	339	16:05:00	394	19:05:00	121		
11:05:00	424	14:05:00	341	17:05:00	349	20:05:00	80.0		
		JUNE 30, 1988							
09:05:00	477	13:05:00	733	15:05:00	904	17:05:00	899	19:05:00	814
12:05:00	706	14:05:00	720	16:05:00	1640	18:05:00	1400	20:05:00	204
		JULY 01, 1988							
09:05:00	85.0	12:05:00	450	15:05:00	975	18:05:00	698		
10:05:00	198	13:05:00	711	16:05:00	853	19:05:00	429		
11:05:00	356	14:05:00	835	17:05:00	596	20:05:00	217		
		JULY 02, 1988							
09:05:00	960	12:05:00	1810	15:05:00	1890	18:05:00	1300		
10:05:00	1300	13:05:00	1880	16:05:00	1790	19:05:00	950		
11:05:00	1600	14:05:00	1910	17:05:00	1590	20:05:00	563		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 03, 1988							
09:05:00	978	12:05:00	1580	15:05:00	1790	18:05:00	1250		
10:05:00	1340	13:05:00	1870	16:05:00	1660	19:05:00	905		
11:05:00	1630	14:05:00	1820	17:05:00	1500	20:05:00	523		
		JULY 04, 1988							
09:05:00	896	12:05:00	1770	15:05:00	1390	18:05:00	1270		
10:05:00	1430	13:05:00	1880	16:05:00	1670	19:05:00	925		
11:05:00	1240	14:05:00	2000	17:05:00	1550	20:05:00	389		
		JULY 05, 1988							
09:05:00	957	12:05:00	1780	15:05:00	1850	18:05:00	1300		
10:05:00	1300	13:05:00	1880	16:05:00	1760	19:05:00	871		
11:05:00	1580	14:05:00	1900	17:05:00	1550	20:05:00	488		
		JULY 06, 1988							
09:05:00	917	12:05:00	1770	15:05:00	1880	18:05:00	1260		
10:05:00	1270	13:05:00	1900	16:05:00	1730	19:05:00	918		
11:05:00	1550	14:05:00	1900	17:05:00	1520	20:05:00	528		
		JULY 07, 1988							
09:05:00	1130	12:05:00	912	15:05:00	665	18:05:00	1600		
10:05:00	1400	13:05:00	497	16:05:00	1290	19:05:00	1050		
11:05:00	1550	14:05:00	932	17:05:00	1580	20:05:00	405		
		JULY 08, 1988							
09:05:00	687	12:05:00	1800	15:05:00	1890	18:05:00	1300		
10:05:00	1110	13:05:00	1890	16:05:00	1780	19:05:00	951		
11:05:00	1860	14:05:00	1910	17:05:00	1600	20:05:00	557		
		JULY 09, 1988							
09:05:00	754	12:05:00	1700	15:05:00	43.0	18:05:00	352		
10:05:00	1280	13:05:00	1940	16:05:00	110	19:05:00	654		
11:05:00	1510	14:05:00	2020	17:05:00	137	20:05:00	372		
		JULY 10, 1988							
09:05:00	967	12:05:00	1800	15:05:00	2290	18:05:00	1570		
10:05:00	1310	13:05:00	1910	16:05:00	2000	19:05:00	1100		
11:05:00	1600	14:05:00	2120	17:05:00	1700	20:05:00	552		
		JULY 11, 1988							
09:05:00	970	12:05:00	1810	15:05:00	1900	18:05:00	1330		
10:05:00	1210	13:05:00	1900	16:05:00	1810	19:05:00	971		
11:05:00	1810	14:05:00	1930	17:05:00	1500	20:05:00	569		
		JULY 12, 1988							
09:05:00	402	12:05:00	1820	15:05:00	1840	18:05:00	716		
10:05:00	825	13:05:00	2370	16:05:00	1720	19:05:00	926		
11:05:00	1700	14:05:00	2150	17:05:00	1740	20:05:00	102		
		JULY 13, 1988							
09:05:00	947	13:00:00	1880	15:00:00	1910	17:00:00	1600	19:00:00	998
12:00:00	1780	14:00:00	1920	16:00:00	1770	18:00:00	1330	20:00:00	562
		JULY 14, 1988							
08:00:00	505	11:00:00	1530	14:00:00	1900	17:00:00	1560	20:00:00	264
09:00:00	966	12:00:00	1730	15:00:00	1930	18:00:00	1640		
10:00:00	1240	13:00:00	1870	16:00:00	1890	19:00:00	982		
		JULY 15, 1988							
08:00:00	537	11:00:00	1520	14:00:00	1820	17:00:00	1540	20:00:00	648
09:00:00	866	12:00:00	1700	15:00:00	1820	18:00:00	1250		
10:00:00	1190	13:00:00	1800	16:00:00	1730	19:00:00	966		
		JULY 16, 1988							
08:00:00	411	11:00:00	2010	14:00:00	1890	17:00:00	1520	20:00:00	567
09:00:00	852	12:00:00	1810	15:00:00	1880	18:00:00	1280		
10:00:00	1040	13:00:00	1860	16:00:00	1770	19:00:00	944		
		JULY 17, 1988							
08:00:00	560	11:00:00	1610	14:00:00	905	17:00:00	2040	20:00:00	198
09:00:00	909	12:00:00	1890	15:00:00	800	18:00:00	1330		
10:00:00	1290	13:00:00	1860	16:00:00	575	19:00:00	987		
		JULY 18, 1988							
08:00:00	467	11:00:00	1540	14:00:00	1900	17:00:00	1660	20:00:00	365
09:00:00	901	12:00:00	1750	15:00:00	1880	18:00:00	654		
10:00:00	1250	13:00:00	1870	16:00:00	1820	19:00:00	583		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 19, 1988							
08:00:00	272	11:00:00	1530	14:00:00	2260	17:00:00	1840	20:00:00	232
09:00:00	591	12:00:00	2140	15:00:00	2160	18:00:00	468		
10:00:00	1240	13:00:00	2000	16:00:00	2140	19:00:00	568		
		JULY 20, 1988							
08:00:00	520	11:00:00	1340	14:00:00	2080	17:00:00	1600	20:00:00	581
09:00:00	885	12:00:00	1810	15:00:00	2160	18:00:00	1460		
10:00:00	1230	13:00:00	2170	16:00:00	1970	19:00:00	1020		
		JULY 21, 1988							
08:00:00	493	11:00:00	1510	14:00:00	1900	17:00:00	1560	20:00:00	554
09:00:00	864	12:00:00	1740	15:00:00	1910	18:00:00	1290		
10:00:00	1210	13:00:00	1870	16:00:00	1770	19:00:00	936		
		JULY 22, 1988							
08:00:00	491	11:00:00	1510	14:00:00	1980	17:00:00	1560	20:00:00	533
09:00:00	867	12:00:00	1740	15:00:00	2230	18:00:00	1210		
10:00:00	1220	13:00:00	1870	16:00:00	1490	19:00:00	926		
		JULY 23, 1988							
08:00:00	472	11:00:00	1480	14:00:00	1770	17:00:00	909	20:00:00	37.0
09:00:00	837	12:00:00	1570	15:00:00	1800	18:00:00	148		
10:00:00	1180	13:00:00	1820	16:00:00	1940	19:00:00	15.0		
		JULY 24, 1988							
08:00:00	530	11:00:00	1540	14:00:00	1950	17:00:00	1610	20:00:00	575
09:00:00	851	12:00:00	1750	15:00:00	2140	18:00:00	1240		
10:00:00	1230	13:00:00	2060	16:00:00	1770	19:00:00	953		
		JULY 25, 1988							
08:00:00	496	11:00:00	1520	14:00:00	1880	17:00:00	1570	20:00:00	543
09:00:00	876	12:00:00	1730	15:00:00	1860	18:00:00	1280		
10:00:00	1220	13:00:00	1850	16:00:00	1730	19:00:00	925		
		JULY 26, 1988							
08:00:00	486	11:00:00	1520	14:00:00	1850	17:00:00	1570	20:00:00	538
09:00:00	848	12:00:00	1700	15:00:00	1810	18:00:00	1260		
10:00:00	1170	13:00:00	1820	16:00:00	1720	19:00:00	816		
		JULY 27, 1988							
08:00:00	461	11:00:00	1470	14:00:00	1830	17:00:00	1520	20:00:00	514
09:00:00	801	12:00:00	1690	15:00:00	1820	18:00:00	1230		
10:00:00	1170	13:00:00	1810	16:00:00	1730	19:00:00	900		
		JULY 28, 1988							
08:00:00	392	13:00:00	2090	16:00:00	1750	19:00:00	409		
09:00:00	720	14:00:00	1960	17:00:00	1150	20:00:00	499		
12:00:00	1800	15:00:00	2010	18:00:00	458				
		JULY 29, 1988							
08:00:00	263	11:00:00	1440	14:00:00	1900	17:00:00	1540	20:00:00	486
09:00:00	918	12:00:00	1630	15:00:00	1810	18:00:00	1170		
10:00:00	1150	13:00:00	1830	16:00:00	1680	19:00:00	848		
		JULY 30, 1988							
08:00:00	435	11:00:00	1450	14:00:00	1930	17:00:00	1470	20:00:00	455
09:00:00	803	12:00:00	1660	15:00:00	1940	18:00:00	1190		
10:00:00	1160	13:00:00	1790	16:00:00	1780	19:00:00	831		
		JULY 31, 1988							
08:00:00	193	11:00:00	1480	14:00:00	1920	17:00:00	1440	20:00:00	387
09:00:00	908	12:00:00	1730	15:00:00	1890	18:00:00	1140		
10:00:00	1190	13:00:00	2040	16:00:00	1670	19:00:00	680		
		AUGUST 01, 1988							
08:00:00	355	11:00:00	669	14:00:00	1540	17:00:00	1670	20:00:00	5.00
09:00:00	721	12:00:00	958	15:00:00	2040	18:00:00	1110		
10:00:00	1230	13:00:00	1830	16:00:00	1630	19:00:00	15.0		
		AUGUST 02, 1988							
08:00:00	220	11:00:00	1430	14:00:00	1960	17:00:00	1530	20:00:00	412
09:00:00	511	12:00:00	1460	15:00:00	1780	18:00:00	1100		
10:00:00	1070	13:00:00	1730	16:00:00	1700	19:00:00	750		
		AUGUST 03, 1988							
08:00:00	467	11:00:00	351	14:00:00	846	17:00:00	223	20:00:00	70.0
09:00:00	785	12:00:00	553	15:00:00	1150	18:00:00	332		
10:00:00	408	13:00:00	1210	16:00:00	1520	19:00:00	135		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 04, 1988							
08:00:00	426	11:00:00	1010	14:00:00	349	17:00:00	293	20:00:00	87.0
09:00:00	815	12:00:00	737	15:00:00	322	18:00:00	270		
10:00:00	1290	13:00:00	538	16:00:00	495	19:00:00	119		
		AUGUST 05, 1988							
08:00:00	420	11:00:00	1460	14:00:00	1830	17:00:00	1500	20:00:00	488
09:00:00	792	12:00:00	1690	15:00:00	1810	18:00:00	1220		
10:00:00	1150	13:00:00	1800	16:00:00	1700	19:00:00	868		
		AUGUST 06, 1988							
08:00:00	422	11:00:00	1460	14:00:00	1930	17:00:00	1490	20:00:00	464
09:00:00	803	12:00:00	1700	15:00:00	1420	18:00:00	1120		
10:00:00	1160	13:00:00	1800	16:00:00	1700	19:00:00	1050		
		AUGUST 07, 1988							
08:00:00	337	11:00:00	524	14:00:00	2150	17:00:00	1500	20:00:00	436
09:00:00	953	12:00:00	1160	15:00:00	1860	18:00:00	1170		
10:00:00	1080	13:00:00	1980	16:00:00	1960	19:00:00	820		
		AUGUST 08, 1988							
08:00:00	480	11:00:00	1410	14:00:00	1860	17:00:00	1700	20:00:00	396
09:00:00	850	12:00:00	1660	15:00:00	1790	18:00:00	1100		
10:00:00	1410	13:00:00	1780	16:00:00	1690	19:00:00	988		
		AUGUST 09, 1988							
08:00:00	399	11:00:00	1440	14:00:00	1810	17:00:00	1500	20:00:00	448
09:00:00	774	12:00:00	1650	15:00:00	1800	18:00:00	1180		
10:00:00	1130	13:00:00	1780	16:00:00	1680	19:00:00	833		
		AUGUST 10, 1988							
08:00:00	226	11:00:00	1400	14:00:00	1810	17:00:00	1430	20:00:00	419
09:00:00	656	12:00:00	1630	15:00:00	1790	18:00:00	1180		
10:00:00	1110	13:00:00	1760	16:00:00	1690	19:00:00	810		
		AUGUST 11, 1988							
08:00:00	306	11:00:00	1320	14:00:00	1740	17:00:00	1420	20:00:00	14.0
09:00:00	672	12:00:00	1560	15:00:00	1730	18:00:00	124		
10:00:00	1020	13:00:00	1720	16:00:00	1630	19:00:00	36.0		
		AUGUST 12, 1988							
08:00:00	321	11:00:00	1150	14:00:00	1630	17:00:00	1570	20:00:00	202
09:00:00	797	12:00:00	1430	15:00:00	1620	18:00:00	1190		
10:00:00	835	13:00:00	1490	16:00:00	1740	19:00:00	628		
		AUGUST 13, 1988							
08:00:00	39.0	11:00:00	354	14:00:00	1990	17:00:00	1410	20:00:00	407
09:00:00	174	12:00:00	463	15:00:00	1040	18:00:00	1160		
10:00:00	357	13:00:00	950	16:00:00	2120	19:00:00	791		
		AUGUST 14, 1988							
08:00:00	358	11:00:00	1380	14:00:00	1940	17:00:00	1420	20:00:00	395
09:00:00	711	12:00:00	1600	15:00:00	1370	18:00:00	1130		
10:00:00	1080	13:00:00	1740	16:00:00	1630	19:00:00	771		
		AUGUST 15, 1988							
08:00:00	358	11:00:00	1400	14:00:00	1760	17:00:00	1410	20:00:00	271
09:00:00	735	12:00:00	1620	15:00:00	1740	18:00:00	1120		
10:00:00	1100	13:00:00	1730	16:00:00	1630	19:00:00	713		
		AUGUST 16, 1988							
08:00:00	341	11:00:00	1370	14:00:00	1740	17:00:00	1400	20:00:00	184
09:00:00	716	12:00:00	1590	15:00:00	1720	18:00:00	1150		
10:00:00	1080	13:00:00	1720	16:00:00	1620	19:00:00	326		
		AUGUST 17, 1988							
08:00:00	337	11:00:00	1420	14:00:00	2040	17:00:00	826	20:00:00	158
09:00:00	722	12:00:00	1620	15:00:00	1930	18:00:00	1060		
10:00:00	1020	13:00:00	1990	16:00:00	1210	19:00:00	938		
		AUGUST 18, 1988							
08:00:00	344	10:00:00	1170	17:00:00	793	19:00:00	386		
09:00:00	713	16:00:00	846	18:00:00	607	20:00:00	282		
		AUGUST 19, 1988							
08:00:00	57.0	11:00:00	447	14:00:00	1620	17:00:00	1340	20:00:00	277
09:00:00	164	12:00:00	570	15:00:00	1610	18:00:00	1030		
10:00:00	207	13:00:00	1480	16:00:00	1500	19:00:00	609		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 20, 1988							
08:00:00	297	11:00:00	1380	14:00:00	1040	17:00:00	677	20:00:00	119
09:00:00	642	12:00:00	1550	15:00:00	1560	18:00:00	683		
10:00:00	926	13:00:00	939	16:00:00	1320	19:00:00	460		
		AUGUST 21, 1988							
08:00:00	193	11:00:00	629	14:00:00	722	17:00:00	894	20:00:00	257
09:00:00	407	12:00:00	500	15:00:00	849	18:00:00	851		
10:00:00	483	13:00:00	515	16:00:00	1480	19:00:00	587		
		AUGUST 22, 1988							
08:00:00	52.0	11:00:00	1530	14:00:00	1760	17:00:00	1400	20:00:00	91.0
09:00:00	200	12:00:00	1630	15:00:00	1730	18:00:00	1140		
10:00:00	466	13:00:00	1750	16:00:00	1620	19:00:00	279		
		AUGUST 23, 1988							
08:00:00	320	11:00:00	1390	14:00:00	1790	17:00:00	1380	20:00:00	315
09:00:00	705	12:00:00	1640	15:00:00	1790	18:00:00	1060		
10:00:00	1070	13:00:00	1750	16:00:00	1600	19:00:00	703		
		AUGUST 24, 1988							
08:00:00	330	11:00:00	1400	14:00:00	1560	17:00:00	1370	20:00:00	312
09:00:00	715	12:00:00	1520	15:00:00	1550	18:00:00	1070		
10:00:00	1090	13:00:00	1680	16:00:00	1570	19:00:00	602		
		AUGUST 25, 1988							
08:00:00	327	13:21:00	1740	16:21:00	1540	19:21:00	570		
09:00:00	700	14:21:00	1750	17:21:00	1270	20:21:00	164		
10:00:00	1080	15:21:00	1700	18:21:00	942				
		AUGUST 26, 1988							
08:06:00	350	11:06:00	1240	14:06:00	602	17:06:00	1350	20:06:00	62.0
09:06:00	660	12:06:00	1170	15:06:00	354	18:06:00	890		
10:06:00	1170	13:06:00	1290	16:06:00	268	19:06:00	464		
		AUGUST 27, 1988							
08:06:00	346	11:06:00	1400	14:06:00	1870	17:06:00	1680	20:06:00	101
09:06:00	731	12:06:00	1640	15:06:00	1800	18:06:00	1210		
10:06:00	1100	13:06:00	1820	16:06:00	1790	19:06:00	699		
		AUGUST 28, 1988							
08:06:00	334	11:06:00	1390	14:06:00	2020	17:06:00	1420	20:06:00	246
09:06:00	723	12:06:00	1670	15:06:00	1930	18:06:00	1010		
10:06:00	1090	13:06:00	1940	16:06:00	1690	19:06:00	627		
		AUGUST 29, 1988							
08:06:00	329	11:06:00	1380	14:06:00	1720	17:06:00	1300	20:06:00	235
09:06:00	715	12:06:00	1600	15:06:00	1700	18:06:00	972		
10:06:00	1080	13:06:00	1710	16:06:00	1560	19:06:00	617		
		AUGUST 30, 1988							
08:06:00	326	11:06:00	1380	14:06:00	1700	17:06:00	1260	20:06:00	191
09:06:00	713	12:06:00	1590	15:06:00	1640	18:06:00	929		
10:06:00	1080	13:06:00	1700	16:06:00	1500	19:06:00	548		
		AUGUST 31, 1988							
08:06:00	139	11:06:00	918	14:06:00	1500	17:06:00	572	20:06:00	103
09:06:00	486	12:06:00	1180	15:06:00	1350	18:06:00	542		
10:06:00	578	13:06:00	1450	16:06:00	1170	19:06:00	380		
		SEPTEMBER 01, 1988							
08:06:00	276	11:06:00	1330	14:06:00	1680	17:06:00	1280	20:06:00	207
09:06:00	655	12:06:00	1530	15:06:00	1640	18:06:00	957		
10:06:00	1020	13:06:00	1650	16:06:00	1520	19:06:00	582		
		SEPTEMBER 02, 1988							
08:06:00	235	11:06:00	697	14:06:00	1660	17:06:00	1420	20:06:00	73.0
09:06:00	420	12:06:00	1870	15:06:00	1690	18:06:00	1010		
10:06:00	557	13:06:00	1660	16:06:00	1600	19:06:00	548		
		SEPTEMBER 03, 1988							
08:06:00	274	11:06:00	1430	14:06:00	1900	17:06:00	1320	20:06:00	177
09:06:00	656	12:06:00	1680	15:06:00	1960	18:06:00	846		
10:06:00	1110	13:06:00	802	16:06:00	1580	19:06:00	536		
		SEPTEMBER 04, 1988							
08:06:00	231	11:06:00	1370	14:06:00	1680	17:06:00	1270	20:06:00	185
09:06:00	634	12:06:00	1600	15:06:00	1650	18:06:00	942		
10:06:00	1030	13:06:00	1670	16:06:00	1510	19:06:00	561		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		SEPTEMBER 05, 1988							
08:06:00	282	11:06:00	1350	14:06:00	1670	17:06:00	1260	20:06:00	174
09:06:00	670	12:06:00	1560	15:06:00	1640	18:06:00	928		
10:06:00	1040	13:06:00	1660	16:06:00	1510	19:06:00	547		
		SEPTEMBER 06, 1988							
08:06:00	274	11:06:00	1340	14:06:00	1660	17:06:00	1230	20:06:00	138
09:06:00	663	12:06:00	1540	15:06:00	1620	18:06:00	898		
10:06:00	1030	13:06:00	1650	16:06:00	1480	19:06:00	507		
		SEPTEMBER 07, 1988							
08:06:00	225	10:06:00	821	19:00:00	153				
09:06:00	514	11:06:00	1030	20:00:00	73.0				
		SEPTEMBER 08, 1988							
08:00:00	129	11:00:00	826	14:00:00	1630	17:00:00	1230	20:00:00	141
09:00:00	457	12:00:00	1440	15:00:00	1600	18:00:00	893		
10:00:00	707	13:00:00	1600	16:00:00	1460	19:00:00	516		
		SEPTEMBER 09, 1988							
08:00:00	189	11:00:00	1190	14:00:00	1590	17:00:00	1200	20:00:00	110
09:00:00	514	12:00:00	1400	15:00:00	1600	18:00:00	864		
10:00:00	865	13:00:00	1510	16:00:00	1430	19:00:00	471		
		SEPTEMBER 10, 1988							
08:00:00	22.0	11:00:00	195	14:00:00	1480	17:00:00	989	20:00:00	70.0
09:00:00	53.0	12:00:00	650	15:00:00	1400	18:00:00	675		
10:00:00	118	13:00:00	1260	16:00:00	1230	19:00:00	335		
		SEPTEMBER 11, 1988							
08:00:00	47.0	11:00:00	383	14:00:00	660	17:00:00	1050	20:00:00	50.0
09:00:00	180	12:00:00	738	15:00:00	1320	18:00:00	217		
10:00:00	230	13:00:00	869	16:00:00	1550	19:00:00	256		
		SEPTEMBER 12, 1988							
08:00:00	32.0	11:00:00	324	14:00:00	943	17:00:00	1190	20:00:00	116
09:00:00	110	12:00:00	369	15:00:00	1690	18:00:00	821		
10:00:00	200	13:00:00	735	16:00:00	1690	19:00:00	475		
		SEPTEMBER 13, 1988							
08:00:00	193	11:00:00	1250	14:00:00	1600	17:00:00	1180	20:00:00	112
09:00:00	562	12:00:00	1470	15:00:00	1570	18:00:00	859		
10:00:00	935	13:00:00	1580	16:00:00	1440	19:00:00	471		
		SEPTEMBER 14, 1988							
08:00:00	153	11:00:00	963	14:00:00	1280	17:00:00	550	20:00:00	18.0
09:00:00	323	12:00:00	1410	15:00:00	1160	18:00:00	327		
10:00:00	581	13:00:00	1440	16:00:00	748	19:00:00	101		
		SEPTEMBER 15, 1988							
08:00:00	86.0	11:00:00	136	14:00:00	232	17:00:00	134	20:00:00	14.0
09:00:00	90.0	12:00:00	140	15:00:00	394	18:00:00	79.0		
10:00:00	142	13:00:00	187	16:00:00	269	19:00:00	44.0		
		SEPTEMBER 16, 1988							
08:00:00	47.0	11:00:00	491	14:00:00	1660	17:00:00	1120	20:00:00	79.0
09:00:00	90.0	12:00:00	912	15:00:00	1570	18:00:00	792		
10:00:00	265	13:00:00	2010	16:00:00	1370	19:00:00	411		
		SEPTEMBER 17, 1988							
08:00:00	104	11:00:00	1340	14:00:00	1550	17:00:00	1250	20:00:00	44.0
09:00:00	479	12:00:00	1540	15:00:00	1510	18:00:00	750		
10:00:00	1000	13:00:00	1510	16:00:00	1350	19:00:00	359		
		SEPTEMBER 18, 1988							
08:00:00	101	11:00:00	905	14:00:00	1430	17:00:00	1110	20:00:00	11.0
09:00:00	412	12:00:00	401	15:00:00	1650	18:00:00	432		
10:00:00	731	13:00:00	566	16:00:00	1450	19:00:00	166		
		SEPTEMBER 19, 1988							
08:00:00	13.0	11:00:00	100	14:00:00	137	17:00:00	1100	20:00:00	26.0
09:00:00	30.0	12:00:00	251	15:00:00	344	18:00:00	662		
10:00:00	64.0	13:00:00	127	16:00:00	354	19:00:00	150		
		SEPTEMBER 20, 1988							
08:00:00	71.0	10:00:00	1070	12:00:00	746	14:00:00	1910	19:00:00	412
09:00:00	166	11:00:00	721	13:00:00	1410	18:00:00	578	20:00:00	46.0
		SEPTEMBER 21, 1988							
08:00:00	36.0	11:00:00	795	14:00:00	1290	17:00:00	672	20:00:00	14.0
09:00:00	241	12:00:00	1620	15:00:00	847	18:00:00	290		
10:00:00	470	13:00:00	768	16:00:00	794	19:00:00	102		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		SEPTEMBER 22, 1988							
08:00:00	43.0	11:00:00	741	14:00:00	1550	17:00:00	1070	20:00:00	46.0
09:00:00	228	12:00:00	1060	15:00:00	1420	18:00:00	742		
10:00:00	476	13:00:00	570	16:00:00	1590	19:00:00	334		
		SEPTEMBER 23, 1988							
08:00:00	121	11:00:00	1170	14:00:00	1510	17:00:00	968	20:00:00	36.0
09:00:00	484	12:00:00	1390	15:00:00	1470	18:00:00	746		
10:00:00	857	13:00:00	1490	16:00:00	1320	19:00:00	345		
		SEPTEMBER 24, 1988							
08:00:00	70.0	11:00:00	1080	14:00:00	1470	17:00:00	1020	20:00:00	34.0
09:00:00	294	12:00:00	1350	15:00:00	1430	18:00:00	682		
10:00:00	856	13:00:00	1450	16:00:00	1280	19:00:00	295		
		SEPTEMBER 25, 1988							
08:00:00	118	11:00:00	521	14:00:00	1560	17:00:00	1010	20:00:00	24.0
09:00:00	256	12:00:00	1490	15:00:00	1390	18:00:00	692		
10:00:00	633	13:00:00	1560	16:00:00	1240	19:00:00	320		
		SEPTEMBER 26, 1988							
08:00:00	115	11:00:00	944	14:00:00	1440	17:00:00	1000	20:00:00	23.0
09:00:00	398	12:00:00	1460	15:00:00	1440	18:00:00	659		
10:00:00	791	13:00:00	1430	16:00:00	1240	19:00:00	324		
		SEPTEMBER 27, 1988							
08:00:00	83.0	11:00:00	1090	14:00:00	1510	17:00:00	361	20:00:00	3.00
09:00:00	367	12:00:00	1080	15:00:00	1500	18:00:00	195		
10:00:00	518	13:00:00	1500	16:00:00	1290	19:00:00	68.0		
		SEPTEMBER 28, 1988							
08:00:00	8.00	11:00:00	153	14:00:00	277	17:00:00	157	20:00:00	4.00
09:00:00	84.0	12:00:00	142	15:00:00	182	18:00:00	132		
10:00:00	106	13:00:00	140	16:00:00	227	19:00:00	33.0		
		SEPTEMBER 29, 1988							
08:00:00	21.0	11:00:00	315	14:00:00	911	17:00:00	236	20:00:00	5.00
09:00:00	110	12:00:00	383	15:00:00	344	18:00:00	142		
10:00:00	135	13:00:00	537	16:00:00	293	19:00:00	62.0		
		SEPTEMBER 30, 1988							
08:00:00	25.0	11:00:00	434	14:00:00	1620	17:00:00	1100	20:00:00	15.0
09:00:00	117	12:00:00	828	15:00:00	1550	18:00:00	731		
10:00:00	287	13:00:00	1490	16:00:00	1310	19:00:00	259		

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 13, 1988							
12:00:00	1430	14:00:00	1710	16:00:00	1410	18:00:00	699	20:00:00	44.0
13:00:00	1630	15:00:00	1610	17:00:00	1080	19:00:00	318		
		APRIL 14, 1988							
09:00:00	215	12:00:00	1430	15:00:00	1630	18:00:00	770		
10:00:00	758	13:00:00	1630	16:00:00	1420	19:00:00	369		
11:00:00	1130	14:00:00	1720	17:00:00	1140	20:00:00	50.0		
		APRIL 15, 1988							
09:00:00	384	12:00:00	1430	15:00:00	1650	18:00:00	772		
10:00:00	774	13:00:00	1640	16:00:00	1450	19:00:00	361		
11:00:00	1130	14:00:00	1730	17:00:00	1150	20:00:00	53.0		
		APRIL 16, 1988							
09:00:00	393	12:00:00	1280	15:00:00	1600	18:00:00	739		
10:00:00	536	13:00:00	1330	16:00:00	1380	19:00:00	370		
11:00:00	697	14:00:00	989	17:00:00	1100	20:00:00	55.0		
		APRIL 17, 1988							
09:00:00	270	12:00:00	1610	15:00:00	1620	18:00:00	737		
10:00:00	367	13:00:00	1560	16:00:00	1370	19:00:00	352		
11:00:00	613	14:00:00	1610	17:00:00	1110	20:00:00	58.0		
		APRIL 18, 1988							
09:00:00	430	12:00:00	1460	15:00:00	1650	18:00:00	797		
10:00:00	815	13:00:00	1670	16:00:00	1440	19:00:00	392		
11:00:00	1180	14:00:00	1700	17:00:00	1150	20:00:00	67.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 19, 1988							
11:00:00	1180	13:00:00	1670	15:00:00	1670	17:00:00	1140	19:00:00	180
12:00:00	1460	14:00:00	1730	16:00:00	1360	18:00:00	654	20:00:00	39.0
		APRIL 20, 1988							
09:00:00	362	12:00:00	1060	15:00:00	1670	18:00:00	760		
10:00:00	550	13:00:00	1680	16:00:00	882	19:00:00	302		
11:00:00	627	14:00:00	1770	17:00:00	1160	20:00:00	46.0		
		APRIL 21, 1988							
09:00:00	86.0	12:00:00	365	15:00:00	63.0	18:00:00	390		
10:00:00	234	13:00:00	333	16:00:00	641	19:00:00	182		
11:00:00	288	14:00:00	497	17:00:00	430	20:00:00	47.0		
		APRIL 22, 1988							
09:00:00	423	12:00:00	973	15:00:00	1370	18:00:00	332		
10:00:00	713	13:00:00	1460	16:00:00	1030	19:00:00	120		
11:00:00	858	14:00:00	1210	17:00:00	613	20:00:00	29.0		
		APRIL 23, 1988							
09:00:00	463	12:00:00	1230	15:00:00	1670	18:00:00	825		
10:00:00	853	13:00:00	1690	16:00:00	1470	19:00:00	430		
11:00:00	1230	14:00:00	1780	17:00:00	1190	20:00:00	88.0		
		APRIL 24, 1988							
09:00:00	464	12:00:00	958	15:00:00	701	18:00:00	751		
10:00:00	863	13:00:00	659	16:00:00	1520	19:00:00	408		
11:00:00	1250	14:00:00	861	17:00:00	1170	20:00:00	99.0		
		APRIL 25, 1988							
09:00:00	389	12:00:00	1010	15:00:00	1560	18:00:00	488		
10:00:00	346	13:00:00	943	16:00:00	1110	19:00:00	192		
11:00:00	723	14:00:00	1490	17:00:00	780	20:00:00	29.0		
		APRIL 26, 1988							
09:00:00	115	12:00:00	298	15:00:00	470	18:00:00	179		
10:00:00	234	13:00:00	476	16:00:00	782	19:00:00	217		
11:00:00	243	14:00:00	568	17:00:00	686	20:00:00	76.0		
		APRIL 27, 1988							
09:00:00	493	12:00:00	738	15:00:00	1690	18:00:00	870		
10:00:00	876	13:00:00	1560	16:00:00	1500	19:00:00	202		
11:00:00	1230	14:00:00	1800	17:00:00	1240	20:00:00	109		
		APRIL 28, 1988							
09:00:00	515	12:00:00	1530	15:00:00	1340	18:00:00	847		
10:00:00	899	13:00:00	1720	16:00:00	1490	19:00:00	458		
11:00:00	1250	14:00:00	1800	17:00:00	1210	20:00:00	117		
		APRIL 29, 1988							
09:00:00	508	12:00:00	1520	15:00:00	1560	18:00:00	847		
10:00:00	882	13:00:00	1660	16:00:00	1500	19:00:00	224		
11:00:00	1240	14:00:00	1320	17:00:00	452	20:00:00	80.0		
		APRIL 30, 1988							
09:00:00	514	12:00:00	588	15:00:00	917	18:00:00	825		
10:00:00	885	13:00:00	518	16:00:00	642	19:00:00	386		
11:00:00	484	14:00:00	974	17:00:00	1180	20:00:00	92.0		
		MAY 01, 1988							
09:00:00	407	12:00:00	1280	15:00:00	595	18:00:00	91.0		
10:00:00	499	13:00:00	1160	16:00:00	742	19:00:00	44.0		
11:00:00	925	14:00:00	594	17:00:00	164	20:00:00	14.0		
		MAY 02, 1988							
09:00:00	240	11:00:00	393	17:05:00	485	19:05:00	97.0		
10:00:00	409	16:05:00	804	18:05:00	193	20:05:00	24.0		
		MAY 03, 1988							
09:05:00	328	12:05:00	621	15:05:00	1040	18:05:00	493		
10:05:00	690	13:05:00	553	16:05:00	1170	19:05:00	293		
11:05:00	742	14:05:00	485	17:05:00	907	20:05:00	80.0		
		MAY 04, 1988							
09:05:00	538	12:05:00	1510	15:05:00	1330	18:05:00	768		
10:05:00	916	13:05:00	1710	16:05:00	1410	19:05:00	187		
11:05:00	1250	14:05:00	1710	17:05:00	1130	20:05:00	99.0		
		MAY 05, 1988							
09:05:00	563	12:05:00	1550	15:05:00	1520	18:05:00	406		
10:05:00	940	13:05:00	1790	16:05:00	1380	19:05:00	328		
11:05:00	1290	14:05:00	1710	17:05:00	1090	20:05:00	65.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 06, 1988						
09:05:00	447	12:05:00	731	15:05:00	445	18:05:00	387		
10:05:00	759	13:05:00	498	16:05:00	1120	19:05:00	169		
11:05:00	1230	14:05:00	167	17:05:00	661	20:05:00	52.0		
			MAY 07, 1988						
09:05:00	601	12:05:00	323	15:05:00	728	18:05:00	459		
10:05:00	372	13:05:00	258	16:05:00	680	19:05:00	186		
11:05:00	448	14:05:00	638	17:05:00	616	20:05:00	94.0		
			MAY 08, 1988						
09:05:00	671	12:05:00	600	15:05:00	648	18:05:00	376		
10:05:00	1060	13:05:00	864	16:05:00	600	19:05:00	90.0		
11:05:00	456	14:05:00	1090	17:05:00	601	20:05:00	29.0		
			MAY 09, 1988						
09:05:00	692	12:05:00	1640	15:05:00	1680	18:05:00	282		
10:05:00	1090	13:05:00	1840	16:05:00	1520	19:05:00	172		
11:05:00	1390	14:05:00	1560	17:05:00	1210	20:05:00	116		
			MAY 10, 1988						
09:05:00	664	12:05:00	1640	15:05:00	1760	18:05:00	883		
10:05:00	1020	13:05:00	1810	16:05:00	1550	19:05:00	492		
11:05:00	1370	14:05:00	1870	17:05:00	1250	20:05:00	141		
			MAY 11, 1988						
09:05:00	602	12:05:00	657	15:05:00	1900	18:05:00	401		
10:05:00	1070	13:05:00	1840	16:05:00	527	19:05:00	210		
11:05:00	854	14:05:00	335	17:05:00	353	20:05:00	133		
			MAY 12, 1988						
09:05:00	681	12:05:00	1650	15:05:00	1510	18:05:00	135		
10:05:00	1070	13:05:00	1830	16:05:00	1330	19:05:00	59.0		
11:05:00	1410	14:05:00	1840	17:05:00	247	20:05:00	42.0		
			MAY 13, 1988						
09:05:00	732	12:05:00	1680	15:05:00	1750	18:05:00	875		
10:05:00	1090	13:05:00	1420	16:05:00	1540	19:05:00	453		
11:05:00	1420	14:05:00	1710	17:05:00	1240	20:05:00	152		
			MAY 14, 1988						
09:05:00	190	12:05:00	1460	15:05:00	1710	18:05:00	877		
10:05:00	507	13:05:00	1780	16:05:00	1500	19:05:00	500		
11:05:00	719	14:05:00	1820	17:05:00	779	20:05:00	148		
			MAY 15, 1988						
09:05:00	514	12:05:00	1340	15:05:00	1570	18:05:00	392		
10:05:00	785	13:05:00	1610	16:05:00	1560	19:05:00	555		
11:05:00	1230	14:05:00	1640	17:05:00	387	20:05:00	157		
			MAY 16, 1988						
09:05:00	699	12:05:00	1670	15:05:00	1750	18:05:00	899		
10:05:00	1080	13:05:00	1830	16:05:00	1550	19:05:00	512		
11:05:00	1420	14:05:00	1870	17:05:00	1250	20:05:00	169		
			MAY 17, 1988						
09:05:00	720	12:05:00	1660	15:05:00	1680	18:05:00	781		
10:05:00	1090	13:05:00	1820	16:05:00	1320	19:05:00	466		
11:05:00	1400	14:05:00	1810	17:05:00	1010	20:05:00	148		
			MAY 18, 1988						
09:05:00	606	11:05:00	1260	13:05:00	1080	19:00:00	42.0		
10:05:00	943	12:05:00	1630	14:05:00	605	20:00:00	20.0		
			MAY 19, 1988						
09:00:00	151	12:00:00	209	15:00:00	477	18:00:00	244		
10:00:00	287	13:00:00	139	16:00:00	684	19:00:00	227		
11:00:00	253	14:00:00	269	17:00:00	413	20:00:00	160		
			MAY 20, 1988						
09:00:00	93.0	12:00:00	567	15:00:00	744	18:00:00	53.0		
10:00:00	337	13:00:00	1010	16:00:00	505	19:00:00	40.0		
11:00:00	404	14:00:00	1020	17:00:00	106	20:00:00	50.0		
			MAY 21, 1988						
09:00:00	111	12:00:00	218	15:00:00	279	18:00:00	78.0		
10:00:00	162	13:00:00	149	16:00:00	111	19:00:00	73.0		
11:00:00	153	14:00:00	266	17:00:00	141	20:00:00	26.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		MAY 22, 1988							
09:00:00	80.0	12:00:00	298	15:00:00	825	18:00:00	171		
10:00:00	95.0	13:00:00	514	16:00:00	436	19:00:00	186		
11:00:00	241	14:00:00	538	17:00:00	359	20:00:00	167		
		MAY 23, 1988							
09:00:00	682	12:00:00	1660	15:00:00	1820	18:00:00	1010		
10:00:00	1060	13:00:00	1840	16:00:00	1630	19:00:00	622		
11:00:00	1390	14:00:00	1920	17:00:00	1360	20:00:00	252		
		MAY 24, 1988							
09:00:00	518	12:00:00	1630	15:00:00	1750	18:00:00	540		
10:00:00	807	13:00:00	1820	16:00:00	1720	19:00:00	605		
11:00:00	655	14:00:00	1890	17:00:00	1420	20:00:00	246		
		MAY 25, 1988							
09:00:00	644	12:00:00	1520	15:00:00	843	18:00:00	388		
10:00:00	922	13:00:00	1560	16:00:00	1360	19:00:00	424		
11:00:00	1290	14:00:00	1250	17:00:00	631	20:00:00	273		
		MAY 26, 1988							
09:00:00	604	12:00:00	1470	15:00:00	1800	18:00:00	968		
10:00:00	998	13:00:00	1790	16:00:00	1640	19:00:00	50.0		
11:00:00	1320	14:00:00	1880	17:00:00	1330	20:00:00	4.00		
		MAY 27, 1988							
09:00:00	569	12:00:00	1660	15:00:00	1670	18:00:00	893		
10:00:00	1050	13:00:00	1670	16:00:00	1590	19:00:00	572		
11:00:00	1160	14:00:00	1860	17:00:00	1330	20:00:00	298		
		MAY 28, 1988							
09:00:00	270	12:00:00	1700	15:00:00	1540	18:00:00	1030		
10:00:00	880	13:00:00	1150	16:00:00	1420	19:00:00	667		
11:00:00	1230	14:00:00	1300	17:00:00	1110	20:00:00	176		
		MAY 29, 1988							
09:00:00	637	12:00:00	1610	15:00:00	1800	18:00:00	977		
10:00:00	1000	13:00:00	1610	16:00:00	1580	19:00:00	571		
11:00:00	1330	14:00:00	1840	17:00:00	1320	20:00:00	253		
		MAY 30, 1988							
09:00:00	437	12:00:00	869	15:00:00	618	18:00:00	448		
10:00:00	915	13:00:00	830	16:00:00	654	19:00:00	346		
11:00:00	1160	14:00:00	727	17:00:00	729	20:00:00	209		
		MAY 31, 1988							
09:00:00	677	12:00:00	1290	15:00:00	1750	18:00:00	805		
10:00:00	980	13:00:00	1770	16:00:00	635	19:00:00	611		
11:00:00	1280	14:00:00	1840	17:00:00	904	20:00:00	254		
		JUNE 01, 1988							
09:00:00	567	12:00:00	843	15:00:00	642	18:00:00	1110		
10:00:00	551	13:00:00	1330	16:00:00	1590	19:00:00	378		
11:00:00	312	14:00:00	1780	17:00:00	1220	20:00:00	132		
		JUNE 02, 1988							
09:00:00	477	12:00:00	1580	15:00:00	1750	18:00:00	934		
10:00:00	733	13:00:00	1740	16:00:00	1530	19:00:00	576		
11:00:00	1310	14:00:00	1830	17:00:00	1300	20:00:00	233		
		JUNE 03, 1988							
09:00:00	630	12:00:00	1630	15:00:00	1860	18:00:00	937		
10:00:00	1010	13:00:00	1820	16:00:00	1640	19:00:00	621		
11:00:00	1360	14:00:00	1880	17:00:00	1200	20:00:00	290		
		JUNE 04, 1988							
09:00:00	688	12:00:00	1650	15:00:00	509	18:00:00	1070		
10:00:00	1040	13:00:00	1910	16:00:00	527	19:00:00	680		
11:00:00	1380	14:00:00	2000	17:00:00	1370	20:00:00	286		
		JUNE 05, 1988							
09:00:00	660	12:00:00	1620	15:00:00	1690	18:00:00	1050		
10:00:00	1020	13:00:00	1800	16:00:00	624	19:00:00	671		
11:00:00	1350	14:00:00	640	17:00:00	1360	20:00:00	313		
		JUNE 06, 1988							
09:00:00	704	12:00:00	1650	15:00:00	1810	18:00:00	1060		
10:00:00	1070	13:00:00	1830	16:00:00	1640	19:00:00	682		
11:00:00	1400	14:00:00	1910	17:00:00	1380	20:00:00	310		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 07, 1988							
09:00:00	666	12:00:00	1620	15:00:00	1810	18:00:00	1040		
10:00:00	1030	13:00:00	1800	16:00:00	1640	19:00:00	673		
11:00:00	1350	14:00:00	1880	17:00:00	1370	20:00:00	306		
		JUNE 08, 1988							
09:00:00	413	12:00:00	1600	15:00:00	687	18:00:00	1020		
10:00:00	1020	13:00:00	547	16:00:00	1520	19:00:00	645		
11:00:00	1350	14:00:00	1690	17:00:00	1340	20:00:00	171		
		JUNE 09, 1988							
09:00:00	597	15:05:00	1820	17:05:00	1340	19:05:00	655		
14:05:00	1900	16:05:00	1620	18:05:00	1000	20:05:00	289		
		JUNE 10, 1988							
09:05:00	681	12:05:00	1540	15:05:00	1820	18:05:00	1020		
10:05:00	983	13:05:00	1840	16:05:00	1630	19:05:00	630		
11:05:00	1410	14:05:00	1900	17:05:00	1280	20:05:00	271		
		JUNE 11, 1988							
09:05:00	560	12:05:00	1430	15:05:00	1660	18:05:00	957		
10:05:00	826	13:05:00	1660	16:05:00	1510	19:05:00	577		
11:05:00	1150	14:05:00	1790	17:05:00	1270	20:05:00	237		
		JUNE 12, 1988							
09:05:00	548	12:05:00	645	15:05:00	1200	18:05:00	150		
10:05:00	679	13:05:00	744	16:05:00	800	19:05:00	75.0		
11:05:00	716	14:05:00	769	17:05:00	47.0	20:05:00	31.0		
		JUNE 13, 1988							
09:05:00	418	12:05:00	965	15:05:00	1900	18:05:00	999		
10:05:00	666	13:05:00	1830	16:05:00	763	19:05:00	414		
11:05:00	687	14:05:00	1900	17:05:00	1420	20:05:00	185		
		JUNE 14, 1988							
09:05:00	237	12:05:00	913	15:05:00	777	18:05:00	466		
10:05:00	444	13:05:00	307	16:05:00	470	19:05:00	150		
11:05:00	513	14:05:00	381	17:05:00	669	20:05:00	158		
		JUNE 15, 1988							
09:05:00	721	12:05:00	1640	15:05:00	782	18:05:00	990		
10:05:00	1070	13:05:00	1790	16:05:00	384	19:05:00	640		
11:05:00	1390	14:05:00	579	17:05:00	545	20:05:00	296		
		JUNE 16, 1988							
09:05:00	723	12:05:00	1630	15:05:00	911	18:05:00	431		
10:05:00	1080	13:05:00	1780	16:05:00	603	19:05:00	192		
11:05:00	1390	14:05:00	1840	17:05:00	832	20:05:00	21.0		
		JUNE 17, 1988							
09:05:00	742	12:05:00	1640	15:05:00	1740	18:05:00	652		
10:05:00	1120	13:05:00	1750	16:05:00	1560	19:05:00	600		
11:05:00	1370	14:05:00	1860	17:05:00	1020	20:05:00	309		
		JUNE 18, 1988							
09:05:00	553	12:05:00	844	15:05:00	1210	18:05:00	395		
10:05:00	1060	13:05:00	687	16:05:00	485	19:05:00	467		
11:05:00	866	14:05:00	1620	17:05:00	825	20:05:00	166		
		JUNE 19, 1988							
09:05:00	693	12:05:00	873	15:05:00	1600	18:05:00	1010		
10:05:00	1040	13:05:00	921	16:05:00	1560	19:05:00	660		
11:05:00	864	14:05:00	855	17:05:00	1320	20:05:00	315		
		JUNE 20, 1988							
09:05:00	717	12:05:00	1620	15:05:00	1750	18:05:00	971		
10:05:00	1070	13:05:00	1780	16:05:00	1570	19:05:00	623		
11:05:00	1380	14:05:00	1840	17:05:00	1290	20:05:00	271		
		JUNE 21, 1988							
09:05:00	663	12:05:00	1600	15:05:00	609	18:05:00	382		
10:05:00	529	13:05:00	1150	16:05:00	1550	19:05:00	242		
11:05:00	451	14:05:00	1230	17:05:00	573	20:05:00	270		
		JUNE 22, 1988							
09:05:00	687	12:05:00	1570	15:05:00	1710	18:05:00	954		
10:05:00	1020	13:05:00	1730	16:05:00	1530	19:05:00	595		
11:05:00	1310	14:05:00	1790	17:05:00	1270	20:05:00	270		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470888)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 23, 1988							
09:05:00	330	12:05:00	564	15:05:00	1610	18:05:00	909		
10:05:00	496	13:05:00	1650	16:05:00	1390	19:05:00	541		
11:05:00	1000	14:05:00	1700	17:05:00	640	20:05:00	245		
		JUNE 24, 1988							
09:05:00	700	12:05:00	1600	15:05:00	1670	18:05:00	103		
10:05:00	1030	13:05:00	1750	16:05:00	1540	19:05:00	13.0		
11:05:00	1360	14:05:00	1760	17:05:00	1210	20:05:00	4.00		
		JUNE 25, 1988							
09:05:00	714	12:05:00	1610	15:05:00	1770	18:05:00	1010		
10:05:00	1060	13:05:00	1780	16:05:00	1590	19:05:00	662		
11:05:00	1380	14:05:00	1850	17:05:00	1330	20:05:00	319		
		JUNE 26, 1988							
09:05:00	699	12:05:00	1620	15:05:00	1750	18:05:00	704		
10:05:00	1050	13:05:00	1750	16:05:00	1580	19:05:00	635		
11:05:00	1360	14:05:00	1760	17:05:00	1200	20:05:00	228		
		JUNE 27, 1988							
09:05:00	462	12:05:00	1620	15:05:00	1760	18:05:00	1000		
10:05:00	1030	13:05:00	1790	16:05:00	1590	19:05:00	622		
11:05:00	1360	14:05:00	1860	17:05:00	1320	20:05:00	280		
		JUNE 28, 1988							
09:05:00	642	12:05:00	217	15:05:00	199	18:05:00	236		
10:05:00	1040	13:05:00	84.0	16:05:00	242	19:05:00	254		
11:05:00	694	14:05:00	55.0	17:05:00	374	20:05:00	242		
		JUNE 29, 1988							
09:05:00	66.0	12:05:00	307	15:05:00	299	18:05:00	138		
10:05:00	170	13:05:00	276	16:05:00	334	19:05:00	83.0		
11:05:00	285	14:05:00	323	17:05:00	211	20:05:00	38.0		
		JUNE 30, 1988							
09:05:00	408	13:05:00	487	15:05:00	530	17:05:00	651	19:05:00	274
12:05:00	543	14:05:00	599	16:05:00	781	18:05:00	491	20:05:00	97.0
		JULY 01, 1988							
09:05:00	48.0	12:05:00	236	15:05:00	785	18:05:00	505		
10:05:00	63.0	13:05:00	525	16:05:00	666	19:05:00	228		
11:05:00	250	14:05:00	626	17:05:00	476	20:05:00	130		
		JULY 02, 1988							
09:05:00	689	12:05:00	1650	15:05:00	1800	18:05:00	1030		
10:05:00	1050	13:05:00	1820	16:05:00	1640	19:05:00	661		
11:05:00	1390	14:05:00	1860	17:05:00	1390	20:05:00	293		
		JULY 03, 1988							
09:05:00	678	12:05:00	1430	15:05:00	1420	18:05:00	992		
10:05:00	1070	13:05:00	1340	16:05:00	1500	19:05:00	622		
11:05:00	1310	14:05:00	1510	17:05:00	1310	20:05:00	284		
		JULY 04, 1988							
09:05:00	719	12:05:00	1230	15:05:00	1090	18:05:00	983		
10:05:00	718	13:05:00	1790	16:05:00	1550	19:05:00	195		
11:05:00	714	14:05:00	1910	17:05:00	1340	20:05:00	133		
		JULY 05, 1988							
09:05:00	689	12:05:00	1640	15:05:00	1820	18:05:00	965		
10:05:00	1040	13:05:00	1820	16:05:00	1580	19:05:00	615		
11:05:00	1380	14:05:00	1870	17:05:00	1340	20:05:00	208		
		JULY 06, 1988							
09:05:00	652	12:05:00	1630	15:05:00	1760	18:05:00	1010		
10:05:00	1010	13:05:00	1810	16:05:00	1590	19:05:00	648		
11:05:00	1340	14:05:00	1890	17:05:00	1320	20:05:00	289		
		JULY 07, 1988							
09:05:00	119	12:05:00	443	15:05:00	391	18:05:00	827		
10:05:00	987	13:05:00	223	16:05:00	614	19:05:00	519		
11:05:00	682	14:05:00	475	17:05:00	817	20:05:00	186		
		JULY 08, 1988							
09:05:00	265	12:05:00	1460	15:05:00	1820	18:05:00	1040		
10:05:00	513	13:05:00	1840	16:05:00	1650	19:05:00	663		
11:05:00	672	14:05:00	1890	17:05:00	1380	20:05:00	202		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 09, 1988							
09:05:00	645	12:05:00	1460	15:05:00	22.0	18:05:00	186		
10:05:00	969	13:05:00	1830	16:05:00	57.0	19:05:00	368		
11:05:00	1270	14:05:00	33.0	17:05:00	80.0	20:05:00	218		
		JULY 10, 1988							
09:05:00	708	12:05:00	1650	15:05:00	335	18:05:00	865		
10:05:00	1060	13:05:00	1840	16:05:00	1750	19:05:00	246		
11:05:00	1390	14:05:00	1940	17:05:00	568	20:05:00	316		
		JULY 11, 1988							
09:05:00	397	12:05:00	813	15:05:00	1830	18:05:00	1050		
10:05:00	1070	13:05:00	1830	16:05:00	1450	19:05:00	671		
11:05:00	976	14:05:00	1910	17:05:00	1400	20:05:00	298		
		JULY 12, 1988							
09:05:00	272	12:05:00	919	15:05:00	1830	18:05:00	343		
10:05:00	497	13:05:00	1260	16:05:00	674	19:05:00	162		
11:05:00	944	14:05:00	1890	17:05:00	363	20:05:00	23.0		
		JULY 13, 1988							
09:05:00	458	13:00:00	1820	15:00:00	1840	17:00:00	1400	19:00:00	719
12:00:00	1560	14:00:00	1910	16:00:00	1650	18:00:00	1090	20:00:00	389
		JULY 14, 1988							
08:00:00	196	11:00:00	1330	14:00:00	1880	17:00:00	806	20:00:00	86.0
09:00:00	395	12:00:00	1620	15:00:00	1660	18:00:00	700		
10:00:00	782	13:00:00	1780	16:00:00	1520	19:00:00	324		
		JULY 15, 1988							
08:00:00	276	11:00:00	1280	14:00:00	1790	17:00:00	1360	20:00:00	328
09:00:00	623	12:00:00	1570	15:00:00	1770	18:00:00	1040		
10:00:00	929	13:00:00	1720	16:00:00	1610	19:00:00	766		
		JULY 16, 1988							
08:00:00	305	11:00:00	520	14:00:00	1880	17:00:00	1320	20:00:00	312
09:00:00	324	12:00:00	643	15:00:00	1810	18:00:00	1030		
10:00:00	404	13:00:00	1820	16:00:00	777	19:00:00	671		
		JULY 17, 1988							
08:00:00	170	11:00:00	1470	14:00:00	389	17:00:00	1530	20:00:00	88.0
09:00:00	707	12:00:00	1370	15:00:00	418	18:00:00	957		
10:00:00	1000	13:00:00	679	16:00:00	296	19:00:00	191		
		JULY 18, 1988							
08:00:00	195	11:00:00	1330	14:00:00	1680	17:00:00	418	20:00:00	101
09:00:00	623	12:00:00	1600	15:00:00	1820	18:00:00	107		
10:00:00	991	13:00:00	1790	16:00:00	1680	19:00:00	358		
		JULY 19, 1988							
08:00:00	113	11:00:00	1320	14:00:00	682	17:00:00	418	20:00:00	38.0
09:00:00	369	12:00:00	1570	15:00:00	657	18:00:00	222		
10:00:00	961	13:00:00	632	16:00:00	481	19:00:00	191		
		JULY 20, 1988							
08:00:00	262	11:00:00	489	14:00:00	663	17:00:00	315	20:00:00	161
09:00:00	613	12:00:00	445	15:00:00	1970	18:00:00	1290		
10:00:00	974	13:00:00	414	16:00:00	383	19:00:00	675		
		JULY 21, 1988							
08:00:00	239	11:00:00	1300	14:00:00	843	17:00:00	1360	20:00:00	290
09:00:00	582	12:00:00	1570	15:00:00	1810	18:00:00	1020		
10:00:00	954	13:00:00	1790	16:00:00	1630	19:00:00	650		
		JULY 22, 1988							
08:00:00	240	11:00:00	1300	14:00:00	1900	17:00:00	1230	20:00:00	271
09:00:00	585	12:00:00	1570	15:00:00	945	18:00:00	1030		
10:00:00	959	13:00:00	1770	16:00:00	757	19:00:00	634		
		JULY 23, 1988							
08:00:00	227	11:00:00	1260	14:00:00	1610	17:00:00	158	20:00:00	19.0
09:00:00	557	12:00:00	511	15:00:00	1480	18:00:00	2.00		
10:00:00	928	13:00:00	467	16:00:00	1520	19:00:00	3.00		
		JULY 24, 1988							
08:00:00	247	11:00:00	1270	14:00:00	1820	17:00:00	1080	20:00:00	301
09:00:00	577	12:00:00	1160	15:00:00	1010	18:00:00	1040		
10:00:00	986	13:00:00	1550	16:00:00	1490	19:00:00	670		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 25, 1988							
08:00:00	243	11:00:00	1300	14:00:00	1860	17:00:00	1340	20:00:00	270
09:00:00	585	12:00:00	1580	15:00:00	1790	18:00:00	1010		
10:00:00	966	13:00:00	1770	16:00:00	1620	19:00:00	641		
		JULY 26, 1988							
08:00:00	217	11:00:00	1280	14:00:00	1760	17:00:00	1230	20:00:00	262
09:00:00	577	12:00:00	1580	15:00:00	1750	18:00:00	997		
10:00:00	945	13:00:00	1700	16:00:00	1590	19:00:00	665		
		JULY 27, 1988							
08:00:00	213	11:00:00	1250	14:00:00	1820	17:00:00	1310	20:00:00	266
09:00:00	550	12:00:00	1530	15:00:00	1760	18:00:00	978		
10:00:00	910	13:00:00	1730	16:00:00	1580	19:00:00	611		
		JULY 28, 1988							
08:00:00	79.0	13:00:00	843	16:00:00	733	19:00:00	238		
09:00:00	292	14:00:00	1820	17:00:00	125	20:00:00	196		
12:00:00	737	15:00:00	784	18:00:00	259				
		JULY 29, 1988							
08:00:00	139	11:00:00	1230	14:00:00	752	17:00:00	1280	20:00:00	230
09:00:00	484	12:00:00	1500	15:00:00	1720	18:00:00	906		
10:00:00	884	13:00:00	1690	16:00:00	1580	19:00:00	575		
		JULY 30, 1988							
08:00:00	198	11:00:00	1230	14:00:00	989	17:00:00	1270	20:00:00	190
09:00:00	522	12:00:00	1520	15:00:00	1520	18:00:00	913		
10:00:00	895	13:00:00	1640	16:00:00	1520	19:00:00	515		
		JULY 31, 1988							
08:00:00	104	11:00:00	714	14:00:00	863	17:00:00	1140	20:00:00	47.0
09:00:00	548	12:00:00	1620	15:00:00	780	18:00:00	848		
10:00:00	289	13:00:00	1770	16:00:00	1440	19:00:00	292		
		AUGUST 01, 1988							
08:00:00	131	11:00:00	436	14:00:00	901	17:00:00	664	20:00:00	2.00
09:00:00	287	12:00:00	732	15:00:00	1550	18:00:00	26.0		
10:00:00	501	13:00:00	1010	16:00:00	802	19:00:00	3.00		
		AUGUST 02, 1988							
08:00:00	91.0	11:00:00	711	14:00:00	1700	17:00:00	1260	20:00:00	204
09:00:00	172	12:00:00	793	15:00:00	888	18:00:00	780		
10:00:00	963	13:00:00	885	16:00:00	1590	19:00:00	424		
		AUGUST 03, 1988							
08:00:00	137	11:00:00	155	14:00:00	191	17:00:00	114	20:00:00	34.0
09:00:00	496	12:00:00	161	15:00:00	335	18:00:00	127		
10:00:00	197	13:00:00	183	16:00:00	104	19:00:00	114		
		AUGUST 04, 1988							
08:00:00	180	11:00:00	727	14:00:00	218	17:00:00	203	20:00:00	65.0
09:00:00	521	12:00:00	417	15:00:00	294	18:00:00	114		
10:00:00	656	13:00:00	299	16:00:00	184	19:00:00	86.0		
		AUGUST 05, 1988							
08:00:00	173	11:00:00	1240	14:00:00	1820	17:00:00	1290	20:00:00	223
09:00:00	509	12:00:00	1520	15:00:00	1740	18:00:00	959		
10:00:00	887	13:00:00	1720	16:00:00	1560	19:00:00	578		
		AUGUST 06, 1988							
08:00:00	172	11:00:00	1240	14:00:00	1260	17:00:00	847	20:00:00	124
09:00:00	518	12:00:00	1530	15:00:00	724	18:00:00	327		
10:00:00	900	13:00:00	1710	16:00:00	1330	19:00:00	571		
		AUGUST 07, 1988							
08:00:00	81.0	11:00:00	60.0	14:00:00	1270	17:00:00	1250	20:00:00	196
09:00:00	155	12:00:00	510	15:00:00	947	18:00:00	893		
10:00:00	55.0	13:00:00	415	16:00:00	1480	19:00:00	530		
		AUGUST 08, 1988							
08:00:00	155	11:00:00	418	14:00:00	1800	17:00:00	735	20:00:00	156
09:00:00	304	12:00:00	1480	15:00:00	1730	18:00:00	418		
10:00:00	601	13:00:00	1710	16:00:00	1540	19:00:00	211		
		AUGUST 09, 1988							
08:00:00	155	11:00:00	1210	14:00:00	1780	17:00:00	1280	20:00:00	184
09:00:00	493	12:00:00	1500	15:00:00	1710	18:00:00	926		
10:00:00	866	13:00:00	1690	16:00:00	1520	19:00:00	546		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 10, 1988							
08:00:00	118	11:00:00	1190	14:00:00	1720	17:00:00	1260	20:00:00	163
09:00:00	471	12:00:00	1470	15:00:00	1710	18:00:00	687		
10:00:00	879	13:00:00	1670	16:00:00	1490	19:00:00	511		
		AUGUST 11, 1988							
08:00:00	99.0	11:00:00	1080	14:00:00	1730	17:00:00	710	20:00:00	8.00
09:00:00	391	12:00:00	1380	15:00:00	1670	18:00:00	13.0		
10:00:00	773	13:00:00	1620	16:00:00	1470	19:00:00	18.0		
		AUGUST 12, 1988							
08:00:00	111	11:00:00	824	14:00:00	1200	17:00:00	873	20:00:00	64.0
09:00:00	438	12:00:00	1300	15:00:00	953	18:00:00	446		
10:00:00	622	13:00:00	1430	16:00:00	871	19:00:00	243		
		AUGUST 13, 1988							
08:00:00	35.0	11:00:00	85.0	14:00:00	95.0	17:00:00	848	20:00:00	146
09:00:00	47.0	12:00:00	44.0	15:00:00	809	18:00:00	892		
10:00:00	174	13:00:00	120	16:00:00	1630	19:00:00	503		
		AUGUST 14, 1988							
08:00:00	128	11:00:00	1160	14:00:00	881	17:00:00	1210	20:00:00	141
09:00:00	440	12:00:00	1440	15:00:00	622	18:00:00	864		
10:00:00	814	13:00:00	1640	16:00:00	1480	19:00:00	488		
		AUGUST 15, 1988							
08:00:00	98.0	11:00:00	1180	14:00:00	1750	17:00:00	1240	20:00:00	81.0
09:00:00	448	12:00:00	1460	15:00:00	1660	18:00:00	838		
10:00:00	829	13:00:00	1660	16:00:00	1410	19:00:00	338		
		AUGUST 16, 1988							
08:00:00	106	11:00:00	1150	14:00:00	1740	17:00:00	1200	20:00:00	114
09:00:00	311	12:00:00	1440	15:00:00	1650	18:00:00	433		
10:00:00	814	13:00:00	1630	16:00:00	1460	19:00:00	189		
		AUGUST 17, 1988							
08:00:00	101	11:00:00	1070	14:00:00	851	17:00:00	572	20:00:00	66.0
09:00:00	369	12:00:00	1430	15:00:00	1270	18:00:00	545		
10:00:00	420	13:00:00	955	16:00:00	714	19:00:00	225		
		AUGUST 18, 1988							
08:00:00	24.0	10:00:00	391	17:00:00	545	19:00:00	168		
09:00:00	437	16:00:00	523	18:00:00	448	20:00:00	77.0		
		AUGUST 19, 1988							
08:00:00	12.0	11:00:00	225	14:00:00	1340	17:00:00	1120	20:00:00	74.0
09:00:00	93.0	12:00:00	376	15:00:00	1570	18:00:00	741		
10:00:00	161	13:00:00	858	16:00:00	1400	19:00:00	366		
		AUGUST 20, 1988							
08:00:00	76.0	11:00:00	817	14:00:00	711	17:00:00	536	20:00:00	44.0
09:00:00	369	12:00:00	955	15:00:00	1200	18:00:00	476		
10:00:00	725	13:00:00	578	16:00:00	1090	19:00:00	190		
		AUGUST 21, 1988							
08:00:00	54.0	11:00:00	406	14:00:00	476	17:00:00	599	20:00:00	81.0
09:00:00	229	12:00:00	216	15:00:00	358	18:00:00	627		
10:00:00	361	13:00:00	361	16:00:00	794	19:00:00	437		
		AUGUST 22, 1988							
08:00:00	28.0	11:00:00	518	14:00:00	1760	17:00:00	1230	20:00:00	28.0
09:00:00	123	12:00:00	1490	15:00:00	1660	18:00:00	777		
10:00:00	203	13:00:00	1670	16:00:00	1450	19:00:00	25.0		
		AUGUST 23, 1988							
08:00:00	80.0	11:00:00	1150	14:00:00	1760	17:00:00	1150	20:00:00	81.0
09:00:00	412	12:00:00	1450	15:00:00	1640	18:00:00	798		
10:00:00	796	13:00:00	1640	16:00:00	1440	19:00:00	397		
		AUGUST 24, 1988							
08:00:00	80.0	11:00:00	1170	14:00:00	1440	17:00:00	1160	20:00:00	75.0
09:00:00	421	12:00:00	1330	15:00:00	1540	18:00:00	794		
10:00:00	810	13:00:00	1020	16:00:00	671	19:00:00	287		
		AUGUST 25, 1988							
08:00:00	64.0	13:21:00	1720	16:21:00	1350	19:21:00	282		
09:00:00	420	14:21:00	1730	17:21:00	1040	20:21:00	14.0		
10:00:00	780	15:21:00	1590	18:21:00	661				

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 26, 1988							
08:06:00	96.0	11:06:00	1010	14:06:00	160	17:06:00	548	20:06:00	6.00
09:06:00	425	12:06:00	917	15:06:00	214	18:06:00	387		
10:06:00	720	13:06:00	636	16:06:00	124	19:06:00	63.0		
		AUGUST 27, 1988							
08:06:00	90.0	11:06:00	1180	14:06:00	593	17:06:00	1330	20:06:00	37.0
09:06:00	436	12:06:00	1470	15:06:00	393	18:06:00	204		
10:06:00	826	13:06:00	1690	16:06:00	1560	19:06:00	146		
		AUGUST 28, 1988							
08:06:00	86.0	11:06:00	1170	14:06:00	492	17:06:00	1100	20:06:00	35.0
09:06:00	428	12:06:00	574	15:06:00	491	18:06:00	729		
10:06:00	820	13:06:00	465	16:06:00	1330	19:06:00	334		
		AUGUST 29, 1988							
08:06:00	91.0	11:06:00	1170	14:06:00	1710	17:06:00	1090	20:06:00	33.0
09:06:00	422	12:06:00	1450	15:06:00	1590	18:06:00	701		
10:06:00	811	13:06:00	1640	16:06:00	1360	19:06:00	325		
		AUGUST 30, 1988							
08:06:00	80.0	11:06:00	1170	14:06:00	1650	17:06:00	1010	20:06:00	19.0
09:06:00	420	12:06:00	1440	15:06:00	1540	18:06:00	644		
10:06:00	810	13:06:00	1630	16:06:00	1330	19:06:00	277		
		AUGUST 31, 1988							
08:06:00	47.0	11:06:00	737	14:06:00	799	17:06:00	340	20:06:00	12.0
09:06:00	193	12:06:00	703	15:06:00	912	18:06:00	324		
10:06:00	383	13:06:00	1100	16:06:00	519	19:06:00	138		
		SEPTEMBER 01, 1988							
08:06:00	60.0	11:06:00	1100	14:06:00	1660	17:06:00	1040	20:06:00	17.0
09:06:00	366	12:06:00	1380	15:06:00	1570	18:06:00	682		
10:06:00	758	13:06:00	1580	16:06:00	1350	19:06:00	293		
		SEPTEMBER 02, 1988							
08:06:00	55.0	11:06:00	369	14:06:00	1640	17:06:00	395	20:06:00	17.0
09:06:00	169	12:06:00	1500	15:06:00	1580	18:06:00	520		
10:06:00	397	13:06:00	1580	16:06:00	366	19:06:00	146		
		SEPTEMBER 03, 1988							
08:06:00	54.0	11:06:00	563	14:06:00	409	17:06:00	1110	20:06:00	19.0
09:06:00	359	12:06:00	328	15:06:00	1700	18:06:00	557		
10:06:00	353	13:06:00	421	16:06:00	277	19:06:00	226		
		SEPTEMBER 04, 1988							
08:06:00	48.0	11:06:00	1110	14:06:00	1670	17:06:00	1030	20:06:00	13.0
09:06:00	308	12:06:00	1480	15:06:00	1550	18:06:00	657		
10:06:00	724	13:06:00	1610	16:06:00	1340	19:06:00	270		
		SEPTEMBER 05, 1988							
08:06:00	54.0	11:06:00	1130	14:06:00	1660	17:06:00	1020	20:06:00	13.0
09:06:00	376	12:06:00	1410	15:06:00	1550	18:06:00	644		
10:06:00	768	13:06:00	1590	16:06:00	1330	19:06:00	259		
		SEPTEMBER 06, 1988							
08:06:00	56.0	11:06:00	1120	14:06:00	1640	17:06:00	982	20:06:00	10.0
09:06:00	366	12:06:00	1400	15:06:00	1530	18:06:00	612		
10:06:00	761	13:06:00	1580	16:06:00	1300	19:06:00	225		
		SEPTEMBER 07, 1988							
08:06:00	47.0	10:06:00	613	19:00:00	87.0				
09:06:00	295	11:06:00	903	20:00:00	6.00				
		SEPTEMBER 08, 1988							
08:00:00	14.0	11:00:00	629	14:00:00	1620	17:00:00	994	20:00:00	10.0
09:00:00	222	12:00:00	1070	15:00:00	1490	18:00:00	612		
10:00:00	504	13:00:00	1500	16:00:00	1270	19:00:00	223		
		SEPTEMBER 09, 1988							
08:00:00	25.0	11:00:00	964	14:00:00	1530	17:00:00	971	20:00:00	7.00
09:00:00	226	12:00:00	1250	15:00:00	1460	18:00:00	576		
10:00:00	637	13:00:00	1440	16:00:00	1270	19:00:00	189		
		SEPTEMBER 10, 1988							
08:00:00	6.00	11:00:00	139	14:00:00	1070	17:00:00	754	20:00:00	4.00
09:00:00	27.0	12:00:00	203	15:00:00	1270	18:00:00	444		
10:00:00	58.0	13:00:00	839	16:00:00	1040	19:00:00	86.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		SEPTEMBER 11, 1988							
08:00:00	6.00	11:00:00	130	14:00:00	126	17:00:00	349	20:00:00	2.00
09:00:00	86.0	12:00:00	215	15:00:00	143	18:00:00	121		
10:00:00	152	13:00:00	357	16:00:00	407	19:00:00	57.0		
		SEPTEMBER 12, 1988							
08:00:00	7.00	11:00:00	210	14:00:00	709	17:00:00	907	20:00:00	4.00
09:00:00	37.0	12:00:00	311	15:00:00	837	18:00:00	573		
10:00:00	127	13:00:00	352	16:00:00	959	19:00:00	194		
		SEPTEMBER 13, 1988							
08:00:00	19.0	11:00:00	1020	14:00:00	1590	17:00:00	942	20:00:00	3.00
09:00:00	280	12:00:00	1310	15:00:00	1470	18:00:00	569		
10:00:00	658	13:00:00	1510	16:00:00	1260	19:00:00	195		
		SEPTEMBER 14, 1988							
08:00:00	19.0	11:00:00	585	14:00:00	1000	17:00:00	465	20:00:00	1.00
09:00:00	232	12:00:00	853	15:00:00	772	18:00:00	136		
10:00:00	400	13:00:00	1030	16:00:00	527	19:00:00	37.0		
		SEPTEMBER 15, 1988							
08:00:00	6.00	11:00:00	88.0	14:00:00	140	17:00:00	65.0	20:00:00	1.00
09:00:00	59.0	12:00:00	77.0	15:00:00	174	18:00:00	57.0		
10:00:00	63.0	13:00:00	125	16:00:00	110	19:00:00	33.0		
		SEPTEMBER 16, 1988							
08:00:00	4.00	11:00:00	315	14:00:00	1250	17:00:00	889	20:00:00	1.00
09:00:00	74.0	12:00:00	525	15:00:00	1430	18:00:00	495		
10:00:00	89.0	13:00:00	920	16:00:00	1230	19:00:00	145		
		SEPTEMBER 17, 1988							
08:00:00	10.0	11:00:00	552	14:00:00	1500	17:00:00	856	20:00:00	1.00
09:00:00	207	12:00:00	484	15:00:00	1330	18:00:00	460		
10:00:00	597	13:00:00	1450	16:00:00	862	19:00:00	86.0		
		SEPTEMBER 18, 1988							
08:00:00	9.00	11:00:00	299	14:00:00	378	17:00:00	744	20:00:00	.00
09:00:00	196	12:00:00	275	15:00:00	585	18:00:00	272		
10:00:00	549	13:00:00	405	16:00:00	578	19:00:00	50.0		
		SEPTEMBER 19, 1988							
08:00:00	1.00	11:00:00	85.0	14:00:00	104	17:00:00	523	20:00:00	1.00
09:00:00	13.0	12:00:00	141	15:00:00	184	18:00:00	175		
10:00:00	39.0	13:00:00	112	16:00:00	201	19:00:00	43.0		
		SEPTEMBER 20, 1988							
08:00:00	5.00	10:00:00	248	12:00:00	599	14:00:00	861	19:00:00	121
09:00:00	118	11:00:00	440	13:00:00	732	18:00:00	283	20:00:00	1.00
		SEPTEMBER 21, 1988							
08:00:00	4.00	11:00:00	585	14:00:00	581	17:00:00	187	20:00:00	1.00
09:00:00	45.0	12:00:00	522	15:00:00	689	18:00:00	152		
10:00:00	220	13:00:00	649	16:00:00	553	19:00:00	24.0		
		SEPTEMBER 22, 1988							
08:00:00	3.00	11:00:00	251	14:00:00	491	17:00:00	888	20:00:00	1.00
09:00:00	75.0	12:00:00	339	15:00:00	867	18:00:00	432		
10:00:00	286	13:00:00	251	16:00:00	887	19:00:00	99.0		
		SEPTEMBER 23, 1988							
08:00:00	6.00	11:00:00	941	14:00:00	1490	17:00:00	782	20:00:00	.00
09:00:00	210	12:00:00	1230	15:00:00	1370	18:00:00	440		
10:00:00	582	13:00:00	1420	16:00:00	977	19:00:00	94.0		
		SEPTEMBER 24, 1988							
08:00:00	3.00	11:00:00	854	14:00:00	1450	17:00:00	778	20:00:00	.00
09:00:00	124	12:00:00	1120	15:00:00	1330	18:00:00	392		
10:00:00	461	13:00:00	1380	16:00:00	1100	19:00:00	76.0		
		SEPTEMBER 25, 1988							
08:00:00	3.00	11:00:00	318	14:00:00	1280	17:00:00	666	20:00:00	.00
09:00:00	143	12:00:00	584	15:00:00	1290	18:00:00	359		
10:00:00	261	13:00:00	1030	16:00:00	1110	19:00:00	83.0		
		SEPTEMBER 26, 1988							
08:00:00	3.00	11:00:00	648	14:00:00	1430	17:00:00	734	20:00:00	.00
09:00:00	184	12:00:00	1170	15:00:00	1330	18:00:00	120		
10:00:00	536	13:00:00	968	16:00:00	969	19:00:00	69.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		SEPTEMBER 27, 1988							
08:00:00	2.00	11:00:00	496	14:00:00	721	17:00:00	209	20:00:00	1.00
09:00:00	112	12:00:00	620	15:00:00	763	18:00:00	77.0		
10:00:00	392	13:00:00	596	16:00:00	822	19:00:00	16.0		
		SEPTEMBER 28, 1988							
08:00:00	1.00	11:00:00	115	14:00:00	142	17:00:00	77.0	20:00:00	1.00
09:00:00	13.0	12:00:00	98.0	15:00:00	113	18:00:00	61.0		
10:00:00	67.0	13:00:00	99.0	16:00:00	114	19:00:00	9.00		
		SEPTEMBER 29, 1988							
08:00:00	1.00	11:00:00	185	14:00:00	398	17:00:00	170	20:00:00	1.00
09:00:00	34.0	12:00:00	294	15:00:00	274	18:00:00	116		
10:00:00	115	13:00:00	337	16:00:00	227	19:00:00	10.0		
		SEPTEMBER 30, 1988							
08:00:00	1.00	11:00:00	298	14:00:00	1040	17:00:00	304	20:00:00	1.00
09:00:00	39.0	12:00:00	460	15:00:00	1320	18:00:00	365		
10:00:00	119	13:00:00	857	16:00:00	769	19:00:00	43.0		

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 13, 1988							
12:00:00	1510	14:00:00	1720	16:00:00	1480	18:00:00	840	20:00:00	135
13:00:00	1670	15:00:00	1650	17:00:00	1210	19:00:00	453		
		APRIL 14, 1988							
09:00:00	375	12:00:00	1510	15:00:00	1670	18:00:00	909		
10:00:00	909	13:00:00	1670	16:00:00	1510	19:00:00	517		
11:00:00	1250	14:00:00	1730	17:00:00	1250	20:00:00	155		
		APRIL 15, 1988							
09:00:00	528	12:00:00	1520	15:00:00	1680	18:00:00	920		
10:00:00	913	13:00:00	1690	16:00:00	1530	19:00:00	505		
11:00:00	1250	14:00:00	1740	17:00:00	1270	20:00:00	113		
		APRIL 16, 1988							
09:00:00	542	12:00:00	1500	15:00:00	1640	18:00:00	883		
10:00:00	711	13:00:00	1640	16:00:00	1470	19:00:00	502		
11:00:00	1020	14:00:00	1200	17:00:00	1220	20:00:00	162		
		APRIL 17, 1988							
09:00:00	297	12:00:00	1640	15:00:00	1640	18:00:00	877		
10:00:00	527	13:00:00	1610	16:00:00	1460	19:00:00	499		
11:00:00	964	14:00:00	1650	17:00:00	1210	20:00:00	156		
		APRIL 18, 1988							
09:00:00	574	12:00:00	1560	15:00:00	1700	18:00:00	932		
10:00:00	956	13:00:00	1710	16:00:00	1530	19:00:00	542		
11:00:00	1270	14:00:00	1740	17:00:00	1270	20:00:00	178		
		APRIL 19, 1988							
11:00:00	1290	13:00:00	1700	15:00:00	1700	17:00:00	1290	19:00:00	426
12:00:00	1550	14:00:00	1750	16:00:00	1470	18:00:00	885	20:00:00	99.0
		APRIL 20, 1988							
09:00:00	498	12:00:00	1470	15:00:00	1720	18:00:00	917		
10:00:00	790	13:00:00	1720	16:00:00	1390	19:00:00	346		
11:00:00	853	14:00:00	1780	17:00:00	1290	20:00:00	114		
		APRIL 21, 1988							
09:00:00	126	12:00:00	417	15:00:00	482	18:00:00	446		
10:00:00	366	13:00:00	423	16:00:00	691	19:00:00	272		
11:00:00	328	14:00:00	599	17:00:00	472	20:00:00	94.0		
		APRIL 22, 1988							
09:00:00	559	12:00:00	1090	15:00:00	1640	18:00:00	473		
10:00:00	803	13:00:00	1640	16:00:00	1310	19:00:00	193		
11:00:00	928	14:00:00	1730	17:00:00	638	20:00:00	61.0		
		APRIL 23, 1988							
09:00:00	613	12:00:00	1450	15:00:00	1720	18:00:00	965		
10:00:00	999	13:00:00	1730	16:00:00	1550	19:00:00	579		
11:00:00	1350	14:00:00	1780	17:00:00	1310	20:00:00	206		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		APRIL 24, 1988							
09:00:00	630	12:00:00	1490	15:00:00	898	18:00:00	940		
10:00:00	1050	13:00:00	967	16:00:00	1610	19:00:00	493		
11:00:00	1380	14:00:00	1750	17:00:00	1280	20:00:00	165		
		APRIL 25, 1988							
09:00:00	523	12:00:00	1200	15:00:00	1650	18:00:00	567		
10:00:00	551	13:00:00	1380	16:00:00	1330	19:00:00	280		
11:00:00	876	14:00:00	1680	17:00:00	915	20:00:00	73.0		
		APRIL 26, 1988							
09:00:00	161	12:00:00	349	15:00:00	670	18:00:00	590		
10:00:00	277	13:00:00	537	16:00:00	919	19:00:00	397		
11:00:00	264	14:00:00	606	17:00:00	840	20:00:00	82.0		
		APRIL 27, 1988							
09:00:00	636	12:00:00	1460	15:00:00	1760	18:00:00	1000		
10:00:00	1010	13:00:00	1700	16:00:00	1580	19:00:00	410		
11:00:00	1340	14:00:00	1830	17:00:00	1340	20:00:00	229		
		APRIL 28, 1988							
09:00:00	657	12:00:00	1610	15:00:00	1660	18:00:00	992		
10:00:00	1030	13:00:00	1760	16:00:00	1570	19:00:00	607		
11:00:00	1360	14:00:00	1810	17:00:00	1330	20:00:00	236		
		APRIL 29, 1988							
09:00:00	649	12:00:00	1590	15:00:00	1690	18:00:00	1010		
10:00:00	1020	13:00:00	1730	16:00:00	1570	19:00:00	353		
11:00:00	1350	14:00:00	1680	17:00:00	1090	20:00:00	197		
		APRIL 30, 1988							
09:00:00	645	12:00:00	655	15:00:00	1180	18:00:00	993		
10:00:00	1100	13:00:00	709	16:00:00	1140	19:00:00	554		
11:00:00	529	14:00:00	1160	17:00:00	1220	20:00:00	234		
		MAY 01, 1988							
09:00:00	436	12:00:00	1320	15:00:00	1020	18:00:00	118		
10:00:00	695	13:00:00	1340	16:00:00	1130	19:00:00	79.0		
11:00:00	997	14:00:00	1040	17:00:00	294	20:00:00	38.0		
		MAY 02, 1988							
09:00:00	366	11:00:00	563	17:05:00	579	19:05:00	180		
10:00:00	420	16:05:00	889	18:05:00	283	20:05:00	43.0		
		MAY 03, 1988							
09:05:00	501	12:05:00	809	15:05:00	1250	18:05:00	560		
10:05:00	717	13:05:00	677	16:05:00	1410	19:05:00	479		
11:05:00	818	14:05:00	668	17:05:00	988	20:05:00	116		
		MAY 04, 1988							
09:05:00	676	12:05:00	1550	15:05:00	1550	18:05:00	908		
10:05:00	1050	13:05:00	1740	16:05:00	1500	19:05:00	439		
11:05:00	1350	14:05:00	1760	17:05:00	1220	20:05:00	203		
		MAY 05, 1988							
09:05:00	682	12:05:00	1630	15:05:00	1640	18:05:00	752		
10:05:00	1070	13:05:00	1810	16:05:00	1480	19:05:00	445		
11:05:00	1390	14:05:00	1820	17:05:00	1250	20:05:00	141		
		MAY 06, 1988							
09:05:00	715	12:05:00	1150	15:05:00	853	18:05:00	493		
10:05:00	943	13:05:00	728	16:05:00	1420	19:05:00	312		
11:05:00	1350	14:05:00	431	17:05:00	714	20:05:00	110		
		MAY 07, 1988							
09:05:00	765	12:05:00	412	15:05:00	1420	18:05:00	695		
10:05:00	502	13:05:00	496	16:05:00	1220	19:05:00	363		
11:05:00	702	14:05:00	1650	17:05:00	1000	20:05:00	147		
		MAY 08, 1988							
09:05:00	821	12:05:00	659	15:05:00	1590	18:05:00	699		
10:05:00	1220	13:05:00	1360	16:05:00	684	19:05:00	296		
11:05:00	937	14:05:00	1510	17:05:00	1210	20:05:00	71.0		
		MAY 09, 1988							
09:05:00	841	12:05:00	1730	15:05:00	1790	18:05:00	712		
10:05:00	1200	13:05:00	1860	16:05:00	1610	19:05:00	266		
11:05:00	1480	14:05:00	1800	17:05:00	1350	20:05:00	139		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		MAY 10, 1988							
09:05:00	792	12:05:00	1720	15:05:00	1810	18:05:00	1020		
10:05:00	1160	13:05:00	1850	16:05:00	1630	19:05:00	637		
11:05:00	1480	14:05:00	1880	17:05:00	1370	20:05:00	268		
		MAY 11, 1988							
09:05:00	802	12:05:00	844	15:05:00	1960	18:05:00	798		
10:05:00	1200	13:05:00	1860	16:05:00	1460	19:05:00	361		
11:05:00	1250	14:05:00	1210	17:05:00	400	20:05:00	262		
		MAY 12, 1988							
09:05:00	830	12:05:00	1720	15:05:00	1790	18:05:00	193		
10:05:00	1200	13:05:00	1860	16:05:00	1610	19:05:00	123		
11:05:00	1510	14:05:00	1880	17:05:00	390	20:05:00	81.0		
		MAY 13, 1988							
09:05:00	857	12:05:00	1750	15:05:00	1810	18:05:00	1010		
10:05:00	1220	13:05:00	1750	16:05:00	1620	19:05:00	626		
11:05:00	1530	14:05:00	1860	17:05:00	1330	20:05:00	275		
		MAY 14, 1988							
09:05:00	543	12:05:00	1720	15:05:00	1760	18:05:00	1070		
10:05:00	805	13:05:00	1810	16:05:00	1590	19:05:00	656		
11:05:00	1080	14:05:00	1840	17:05:00	1180	20:05:00	272		
		MAY 15, 1988							
09:05:00	632	12:05:00	1400	15:05:00	1660	18:05:00	1030		
10:05:00	1030	13:05:00	1660	16:05:00	1630	19:05:00	755		
11:05:00	1320	14:05:00	1720	17:05:00	1170	20:05:00	281		
		MAY 16, 1988							
09:05:00	847	12:05:00	1740	15:05:00	1810	18:05:00	1030		
10:05:00	1210	13:05:00	1860	16:05:00	1630	19:05:00	658		
11:05:00	1520	14:05:00	1890	17:05:00	1370	20:05:00	290		
		MAY 17, 1988							
09:05:00	860	12:05:00	1720	15:05:00	1710	18:05:00	905		
10:05:00	1210	13:05:00	1840	16:05:00	1470	19:05:00	628		
11:05:00	1500	14:05:00	1850	17:05:00	1190	20:05:00	266		
		MAY 18, 1988							
09:05:00	726	11:05:00	1400	13:05:00	1580	19:00:00	66.0		
10:05:00	1090	12:05:00	1670	14:05:00	855	20:00:00	57.0		
		MAY 19, 1988							
09:00:00	300	12:00:00	226	15:00:00	604	18:00:00	371		
10:00:00	309	13:00:00	241	16:00:00	835	19:00:00	310		
11:00:00	317	14:00:00	344	17:00:00	497	20:00:00	240		
		MAY 20, 1988							
09:00:00	130	12:00:00	637	15:00:00	1480	18:00:00	175		
10:00:00	414	13:00:00	1070	16:00:00	567	19:00:00	81.0		
11:00:00	652	14:00:00	1540	17:00:00	240	20:00:00	79.0		
		MAY 21, 1988							
09:00:00	136	12:00:00	296	15:00:00	345	18:00:00	102		
10:00:00	190	13:00:00	256	16:00:00	144	19:00:00	92.0		
11:00:00	224	14:00:00	304	17:00:00	150	20:00:00	37.0		
		MAY 22, 1988							
09:00:00	103	12:00:00	344	15:00:00	880	18:00:00	232		
10:00:00	128	13:00:00	608	16:00:00	884	19:00:00	207		
11:00:00	254	14:00:00	707	17:00:00	482	20:00:00	239		
		MAY 23, 1988							
09:00:00	825	12:00:00	1730	15:00:00	1870	18:00:00	1140		
10:00:00	1190	13:00:00	1880	16:00:00	1710	19:00:00	771		
11:00:00	1500	14:00:00	1920	17:00:00	1460	20:00:00	388		
		MAY 24, 1988							
09:00:00	783	12:00:00	1720	15:00:00	1850	18:00:00	961		
10:00:00	1100	13:00:00	1850	16:00:00	1810	19:00:00	766		
11:00:00	1170	14:00:00	1900	17:00:00	1520	20:00:00	374		
		MAY 25, 1988							
09:00:00	687	12:00:00	1690	15:00:00	1210	18:00:00	977		
10:00:00	1130	13:00:00	1800	16:00:00	1700	19:00:00	504		
11:00:00	1380	14:00:00	1660	17:00:00	1010	20:00:00	386		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		MAY 26, 1988							
09:00:00	736	12:00:00	1620	15:00:00	1820	18:00:00	1120		
10:00:00	1160	13:00:00	1820	16:00:00	1700	19:00:00	146		
11:00:00	1450	14:00:00	1890	17:00:00	1440	20:00:00	16.0		
		MAY 27, 1988							
09:00:00	803	12:00:00	1750	15:00:00	1820	18:00:00	1050		
10:00:00	1220	13:00:00	1840	16:00:00	1650	19:00:00	680		
11:00:00	1410	14:00:00	1950	17:00:00	1460	20:00:00	371		
		MAY 28, 1988							
09:00:00	550	12:00:00	1730	15:00:00	1620	18:00:00	1110		
10:00:00	984	13:00:00	1420	16:00:00	1520	19:00:00	778		
11:00:00	1400	14:00:00	1650	17:00:00	1240	20:00:00	327		
		MAY 29, 1988							
09:00:00	776	12:00:00	1690	15:00:00	1820	18:00:00	1120		
10:00:00	1130	13:00:00	1700	16:00:00	1670	19:00:00	735		
11:00:00	1440	14:00:00	1880	17:00:00	1420	20:00:00	376		
		MAY 30, 1988							
09:00:00	589	12:00:00	1600	15:00:00	1310	18:00:00	798		
10:00:00	1060	13:00:00	995	16:00:00	705	19:00:00	694		
11:00:00	1410	14:00:00	1340	17:00:00	1240	20:00:00	309		
		MAY 31, 1988							
09:00:00	794	12:00:00	1570	15:00:00	1800	18:00:00	1020		
10:00:00	1110	13:00:00	1820	16:00:00	1510	19:00:00	737		
11:00:00	1400	14:00:00	1860	17:00:00	1320	20:00:00	379		
		JUNE 01, 1988							
09:00:00	784	12:00:00	973	15:00:00	1000	18:00:00	1190		
10:00:00	1020	13:00:00	1770	16:00:00	1680	19:00:00	601		
11:00:00	364	14:00:00	1890	17:00:00	1370	20:00:00	368		
		JUNE 02, 1988							
09:00:00	513	12:00:00	1650	15:00:00	1790	18:00:00	1070		
10:00:00	1040	13:00:00	1790	16:00:00	1630	19:00:00	714		
11:00:00	1420	14:00:00	1830	17:00:00	1390	20:00:00	350		
		JUNE 03, 1988							
09:00:00	779	12:00:00	1710	15:00:00	1900	18:00:00	1080		
10:00:00	1150	13:00:00	1860	16:00:00	1750	19:00:00	788		
11:00:00	1460	14:00:00	1910	17:00:00	1440	20:00:00	427		
		JUNE 04, 1988							
09:00:00	814	12:00:00	1720	15:00:00	1380	18:00:00	1190		
10:00:00	1170	13:00:00	1970	16:00:00	1510	19:00:00	822		
11:00:00	1480	14:00:00	2070	17:00:00	1500	20:00:00	435		
		JUNE 05, 1988							
09:00:00	791	12:00:00	1700	15:00:00	1870	18:00:00	1180		
10:00:00	1140	13:00:00	1840	16:00:00	1500	19:00:00	817		
11:00:00	1460	14:00:00	1620	17:00:00	1450	20:00:00	447		
		JUNE 06, 1988							
09:00:00	845	12:00:00	1730	15:00:00	1860	18:00:00	1190		
10:00:00	1190	13:00:00	1870	16:00:00	1710	19:00:00	824		
11:00:00	1500	14:00:00	1910	17:00:00	1480	20:00:00	446		
		JUNE 07, 1988							
09:00:00	803	12:00:00	1690	15:00:00	1850	18:00:00	1170		
10:00:00	1150	13:00:00	1840	16:00:00	1700	19:00:00	811		
11:00:00	1460	14:00:00	1880	17:00:00	1470	20:00:00	437		
		JUNE 08, 1988							
09:00:00	774	12:00:00	1670	15:00:00	1460	18:00:00	1140		
10:00:00	1150	13:00:00	1190	16:00:00	1640	19:00:00	787		
11:00:00	1450	14:00:00	1850	17:00:00	1420	20:00:00	369		
		JUNE 09, 1988							
09:00:00	754	15:05:00	1850	17:05:00	1460	19:05:00	794		
14:05:00	1910	16:05:00	1680	18:05:00	1140	20:05:00	426		
		JUNE 10, 1988							
09:05:00	746	12:05:00	1640	15:05:00	1850	18:05:00	1100		
10:05:00	1150	13:05:00	1890	16:05:00	1710	19:05:00	776		
11:05:00	1450	14:05:00	1910	17:05:00	1440	20:05:00	399		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 11, 1988							
09:05:00	651	12:05:00	1520	15:05:00	1750	18:05:00	1070		
10:05:00	971	13:05:00	1730	16:05:00	1560	19:05:00	708		
11:05:00	1360	14:05:00	1820	17:05:00	1330	20:05:00	359		
		JUNE 12, 1988							
09:05:00	623	12:05:00	696	15:05:00	1610	18:05:00	182		
10:05:00	869	13:05:00	1190	16:05:00	1360	19:05:00	102		
11:05:00	900	14:05:00	1120	17:05:00	85.0	20:05:00	54.0		
		JUNE 13, 1988							
09:05:00	736	12:05:00	1570	15:05:00	2010	18:05:00	1160		
10:05:00	859	13:05:00	1870	16:05:00	1320	19:05:00	576		
11:05:00	866	14:05:00	1920	17:05:00	1580	20:05:00	368		
		JUNE 14, 1988							
09:05:00	308	12:05:00	1210	15:05:00	1310	18:05:00	851		
10:05:00	541	13:05:00	422	16:05:00	864	19:05:00	245		
11:05:00	745	14:05:00	871	17:05:00	1250	20:05:00	407		
		JUNE 15, 1988							
09:05:00	859	12:05:00	1700	15:05:00	1610	18:05:00	1130		
10:05:00	1200	13:05:00	1830	16:05:00	822	19:05:00	769		
11:05:00	1490	14:05:00	1090	17:05:00	1160	20:05:00	418		
		JUNE 16, 1988							
09:05:00	857	12:05:00	1690	15:05:00	1590	18:05:00	694		
10:05:00	1200	13:05:00	1820	16:05:00	1410	19:05:00	461		
11:05:00	1480	14:05:00	1860	17:05:00	1450	20:05:00	89.0		
		JUNE 17, 1988							
09:05:00	887	12:05:00	1710	15:05:00	1800	18:05:00	867		
10:05:00	1190	13:05:00	1820	16:05:00	1650	19:05:00	719		
11:05:00	1490	14:05:00	1920	17:05:00	1150	20:05:00	458		
		JUNE 18, 1988							
09:05:00	780	12:05:00	951	15:05:00	1560	18:05:00	914		
10:05:00	1170	13:05:00	1180	16:05:00	1460	19:05:00	620		
11:05:00	1430	14:05:00	1780	17:05:00	1160	20:05:00	384		
		JUNE 19, 1988							
09:05:00	772	12:05:00	1550	15:05:00	1780	18:05:00	1130		
10:05:00	1260	13:05:00	1700	16:05:00	1640	19:05:00	793		
11:05:00	1340	14:05:00	1110	17:05:00	1420	20:05:00	441		
		JUNE 20, 1988							
09:05:00	851	12:05:00	1690	15:05:00	1790	18:05:00	1100		
10:05:00	1190	13:05:00	1820	16:05:00	1650	19:05:00	757		
11:05:00	1480	14:05:00	1850	17:05:00	1410	20:05:00	404		
		JUNE 21, 1988							
09:05:00	827	12:05:00	1670	15:05:00	1500	18:05:00	865		
10:05:00	840	13:05:00	1740	16:05:00	1620	19:05:00	596		
11:05:00	999	14:05:00	1690	17:05:00	1030	20:05:00	415		
		JUNE 22, 1988							
09:05:00	819	12:05:00	1640	15:05:00	1750	18:05:00	1080		
10:05:00	1130	13:05:00	1810	16:05:00	1600	19:05:00	730		
11:05:00	1420	14:05:00	1800	17:05:00	1380	20:05:00	408		
		JUNE 23, 1988							
09:05:00	445	12:05:00	1350	15:05:00	1640	18:05:00	1060		
10:05:00	751	13:05:00	1690	16:05:00	1530	19:05:00	685		
11:05:00	1320	14:05:00	1720	17:05:00	1000	20:05:00	359		
		JUNE 24, 1988							
09:05:00	830	12:05:00	1660	15:05:00	1730	18:05:00	868		
10:05:00	1160	13:05:00	1780	16:05:00	1600	19:05:00	62.0		
11:05:00	1440	14:05:00	1800	17:05:00	1350	20:05:00	5.00		
		JUNE 25, 1988							
09:05:00	845	12:05:00	1680	15:05:00	1810	18:05:00	1130		
10:05:00	1190	13:05:00	1820	16:05:00	1660	19:05:00	795		
11:05:00	1470	14:05:00	1860	17:05:00	1430	20:05:00	444		
		JUNE 26, 1988							
09:05:00	834	12:05:00	1690	15:05:00	1780	18:05:00	777		
10:05:00	1170	13:05:00	1780	16:05:00	1650	19:05:00	692		
11:05:00	1450	14:05:00	1810	17:05:00	1370	20:05:00	302		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JUNE 27, 1988							
09:05:00	769	12:05:00	1690	15:05:00	1810	18:05:00	1130		
10:05:00	1150	13:05:00	1820	16:05:00	1660	19:05:00	757		
11:05:00	1460	14:05:00	1870	17:05:00	1430	20:05:00	403		
		JUNE 28, 1988							
09:05:00	753	12:05:00	1340	15:05:00	288	18:05:00	318		
10:05:00	1170	13:05:00	125	16:05:00	297	19:05:00	320		
11:05:00	1260	14:05:00	73.0	17:05:00	437	20:05:00	297		
		JUNE 29, 1988							
09:05:00	108	12:05:00	335	15:05:00	344	18:05:00	188		
10:05:00	206	13:05:00	317	16:05:00	358	19:05:00	100		
11:05:00	352	14:05:00	333	17:05:00	281	20:05:00	57.0		
		JUNE 30, 1988							
09:05:00	432	13:05:00	636	15:05:00	726	17:05:00	726	19:05:00	528
12:05:00	634	14:05:00	671	16:05:00	1100	18:05:00	739	20:05:00	159
		JULY 01, 1988							
09:05:00	67.0	12:05:00	337	15:05:00	847	18:05:00	597		
10:05:00	135	13:05:00	614	16:05:00	790	19:05:00	314		
11:05:00	305	14:05:00	726	17:05:00	536	20:05:00	179		
		JULY 02, 1988							
09:05:00	824	12:05:00	1720	15:05:00	1840	18:05:00	1150		
10:05:00	1170	13:05:00	1840	16:05:00	1700	19:05:00	806		
11:05:00	1500	14:05:00	1880	17:05:00	1500	20:05:00	427		
		JULY 03, 1988							
09:05:00	815	12:05:00	1490	15:05:00	1680	18:05:00	1120		
10:05:00	1150	13:05:00	1640	16:05:00	1590	19:05:00	761		
11:05:00	1440	14:05:00	1700	17:05:00	1420	20:05:00	402		
		JULY 04, 1988							
09:05:00	794	12:05:00	1540	15:05:00	1200	18:05:00	1130		
10:05:00	985	13:05:00	1840	16:05:00	1610	19:05:00	544		
11:05:00	981	14:05:00	1940	17:05:00	1440	20:05:00	245		
		JULY 05, 1988							
09:05:00	826	12:05:00	1710	15:05:00	1830	18:05:00	1140		
10:05:00	1180	13:05:00	1850	16:05:00	1650	19:05:00	754		
11:05:00	1480	14:05:00	1890	17:05:00	1440	20:05:00	374		
		JULY 06, 1988							
09:05:00	785	12:05:00	1700	15:05:00	1830	18:05:00	1140		
10:05:00	1130	13:05:00	1850	16:05:00	1660	19:05:00	785		
11:05:00	1450	14:05:00	1890	17:05:00	1430	20:05:00	412		
		JULY 07, 1988							
09:05:00	486	12:05:00	685	15:05:00	507	18:05:00	1140		
10:05:00	1160	13:05:00	340	16:05:00	868	19:05:00	865		
11:05:00	949	14:05:00	627	17:05:00	1250	20:05:00	326		
		JULY 08, 1988							
09:05:00	439	12:05:00	1700	15:05:00	1860	18:05:00	1170		
10:05:00	786	13:05:00	1860	16:05:00	1720	19:05:00	805		
11:05:00	1120	14:05:00	1900	17:05:00	1500	20:05:00	413		
		JULY 09, 1988							
09:05:00	705	12:05:00	1570	15:05:00	31.0	18:05:00	280		
10:05:00	1110	13:05:00	1880	16:05:00	83.0	19:05:00	467		
11:05:00	1360	14:05:00	898	17:05:00	103	20:05:00	272		
		JULY 10, 1988							
09:05:00	839	12:05:00	1730	15:05:00	1750	18:05:00	1280		
10:05:00	1180	13:05:00	1880	16:05:00	1860	19:05:00	769		
11:05:00	1490	14:05:00	2010	17:05:00	1270	20:05:00	455		
		JULY 11, 1988							
09:05:00	758	12:05:00	1530	15:05:00	1870	18:05:00	1190		
10:05:00	1160	13:05:00	1870	16:05:00	1690	19:05:00	817		
11:05:00	1430	14:05:00	1920	17:05:00	1470	20:05:00	433		
		JULY 12, 1988							
09:05:00	334	12:05:00	1520	15:05:00	1840	18:05:00	486		
10:05:00	661	13:05:00	1880	16:05:00	1210	19:05:00	427		
11:05:00	1390	14:05:00	2020	17:05:00	1060	20:05:00	50.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 13, 1988							
09:05:00	687	13:00:00	1860	15:00:00	1870	17:00:00	1510	19:00:00	862
12:00:00	1690	14:00:00	1910	16:00:00	1720	18:00:00	1210	20:00:00	462
		JULY 14, 1988							
08:00:00	342	11:00:00	1430	14:00:00	1890	17:00:00	1320	20:00:00	176
09:00:00	590	12:00:00	1690	15:00:00	1830	18:00:00	1160		
10:00:00	1090	13:00:00	1830	16:00:00	1690	19:00:00	677		
		JULY 15, 1988							
08:00:00	405	11:00:00	1390	14:00:00	1810	17:00:00	1450	20:00:00	487
09:00:00	750	12:00:00	1630	15:00:00	1800	18:00:00	1140		
10:00:00	1060	13:00:00	1760	16:00:00	1670	19:00:00	856		
		JULY 16, 1988							
08:00:00	361	11:00:00	1010	14:00:00	1880	17:00:00	1460	20:00:00	438
09:00:00	537	12:00:00	1450	15:00:00	1840	18:00:00	1150		
10:00:00	627	13:00:00	1840	16:00:00	1500	19:00:00	807		
		JULY 17, 1988							
08:00:00	366	11:00:00	1550	14:00:00	655	17:00:00	1680	20:00:00	141
09:00:00	833	12:00:00	1580	15:00:00	606	18:00:00	1170		
10:00:00	1140	13:00:00	1030	16:00:00	423	19:00:00	618		
		JULY 18, 1988							
08:00:00	324	11:00:00	1430	14:00:00	1840	17:00:00	871	20:00:00	241
09:00:00	761	12:00:00	1680	15:00:00	1850	18:00:00	394		
10:00:00	1120	13:00:00	1830	16:00:00	1750	19:00:00	422		
		JULY 19, 1988							
08:00:00	184	11:00:00	1430	14:00:00	1530	17:00:00	1410	20:00:00	139
09:00:00	441	12:00:00	1750	15:00:00	1080	18:00:00	355		
10:00:00	1110	13:00:00	1040	16:00:00	924	19:00:00	367		
		JULY 20, 1988							
08:00:00	389	11:00:00	848	14:00:00	1370	17:00:00	984	20:00:00	402
09:00:00	750	12:00:00	1160	15:00:00	2040	18:00:00	1340		
10:00:00	1100	13:00:00	1630	16:00:00	1390	19:00:00	838		
		JULY 21, 1988							
08:00:00	362	11:00:00	1400	14:00:00	1630	17:00:00	1460	20:00:00	420
09:00:00	724	12:00:00	1660	15:00:00	1850	18:00:00	1160		
10:00:00	1090	13:00:00	1830	16:00:00	1700	19:00:00	795		
		JULY 22, 1988							
08:00:00	363	11:00:00	1410	14:00:00	1940	17:00:00	1390	20:00:00	403
09:00:00	726	12:00:00	1650	15:00:00	1520	18:00:00	1120		
10:00:00	1090	13:00:00	1820	16:00:00	981	19:00:00	781		
		JULY 23, 1988							
08:00:00	348	11:00:00	1370	14:00:00	1690	17:00:00	492	20:00:00	29.0
09:00:00	696	12:00:00	1060	15:00:00	1690	18:00:00	50.0		
10:00:00	1050	13:00:00	1160	16:00:00	1750	19:00:00	8.00		
		JULY 24, 1988							
08:00:00	385	11:00:00	1390	14:00:00	1890	17:00:00	1420	20:00:00	436
09:00:00	736	12:00:00	1520	15:00:00	1390	18:00:00	1150		
10:00:00	1110	13:00:00	1810	16:00:00	1620	19:00:00	812		
		JULY 25, 1988							
08:00:00	363	11:00:00	1410	14:00:00	1870	17:00:00	1460	20:00:00	407
09:00:00	726	12:00:00	1660	15:00:00	1830	18:00:00	1150		
10:00:00	1100	13:00:00	1810	16:00:00	1690	19:00:00	783		
		JULY 26, 1988							
08:00:00	355	11:00:00	1390	14:00:00	1810	17:00:00	1390	20:00:00	404
09:00:00	711	12:00:00	1630	15:00:00	1770	18:00:00	1130		
10:00:00	1050	13:00:00	1770	16:00:00	1650	19:00:00	757		
		JULY 27, 1988							
08:00:00	333	11:00:00	1360	14:00:00	1830	17:00:00	1420	20:00:00	363
09:00:00	680	12:00:00	1610	15:00:00	1790	18:00:00	1110		
10:00:00	1040	13:00:00	1770	16:00:00	1650	19:00:00	758		
		JULY 28, 1988							
08:00:00	254	13:00:00	1740	16:00:00	1320	19:00:00	321		
09:00:00	575	14:00:00	1910	17:00:00	445	20:00:00	348		
12:00:00	1060	15:00:00	1310	18:00:00	343				

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		JULY 29, 1988							
08:00:00	191	11:00:00	1340	14:00:00	1170	17:00:00	1420	20:00:00	361
09:00:00	736	12:00:00	1570	15:00:00	1760	18:00:00	1040		
10:00:00	1020	13:00:00	1740	16:00:00	1620	19:00:00	707		
		JULY 30, 1988							
08:00:00	314	11:00:00	1350	14:00:00	1440	17:00:00	1370	20:00:00	316
09:00:00	662	12:00:00	1590	15:00:00	1760	18:00:00	1050		
10:00:00	1030	13:00:00	1720	16:00:00	1640	19:00:00	681		
		JULY 31, 1988							
08:00:00	153	11:00:00	1180	14:00:00	1590	17:00:00	1290	20:00:00	214
09:00:00	695	12:00:00	1690	15:00:00	1520	18:00:00	1000		
10:00:00	748	13:00:00	1870	16:00:00	1570	19:00:00	441		
		AUGUST 01, 1988							
08:00:00	255	11:00:00	557	14:00:00	1200	17:00:00	1320	20:00:00	4.00
09:00:00	535	12:00:00	871	15:00:00	1860	18:00:00	345		
10:00:00	837	13:00:00	1430	16:00:00	1230	19:00:00	8.00		
		AUGUST 02, 1988							
08:00:00	148	11:00:00	1020	14:00:00	1820	17:00:00	1360	20:00:00	325
09:00:00	349	12:00:00	1160	15:00:00	1480	18:00:00	938		
10:00:00	1010	13:00:00	1270	16:00:00	1650	19:00:00	567		
		AUGUST 03, 1988							
08:00:00	291	11:00:00	241	14:00:00	456	17:00:00	154	20:00:00	48.0
09:00:00	623	12:00:00	340	15:00:00	589	18:00:00	196		
10:00:00	305	13:00:00	742	16:00:00	673	19:00:00	123		
		AUGUST 04, 1988							
08:00:00	302	11:00:00	831	14:00:00	285	17:00:00	230	20:00:00	76.0
09:00:00	666	12:00:00	587	15:00:00	309	18:00:00	185		
10:00:00	957	13:00:00	388	16:00:00	331	19:00:00	97.0		
		AUGUST 05, 1988							
08:00:00	294	11:00:00	1350	14:00:00	1830	17:00:00	1400	20:00:00	354
09:00:00	649	12:00:00	1610	15:00:00	1780	18:00:00	1090		
10:00:00	1020	13:00:00	1760	16:00:00	1640	19:00:00	723		
		AUGUST 06, 1988							
08:00:00	295	11:00:00	1360	14:00:00	1660	17:00:00	1180	20:00:00	262
09:00:00	661	12:00:00	1600	15:00:00	946	18:00:00	683		
10:00:00	1030	13:00:00	1750	16:00:00	1520	19:00:00	776		
		AUGUST 07, 1988							
08:00:00	176	11:00:00	259	14:00:00	1710	17:00:00	1380	20:00:00	314
09:00:00	640	12:00:00	764	15:00:00	1440	18:00:00	1020		
10:00:00	629	13:00:00	858	16:00:00	1730	19:00:00	678		
		AUGUST 08, 1988							
08:00:00	299	11:00:00	948	14:00:00	1830	17:00:00	1220	20:00:00	220
09:00:00	544	12:00:00	1570	15:00:00	1760	18:00:00	639		
10:00:00	914	13:00:00	1750	16:00:00	1610	19:00:00	523		
		AUGUST 09, 1988							
08:00:00	273	11:00:00	1330	14:00:00	1800	17:00:00	1410	20:00:00	314
09:00:00	633	12:00:00	1580	15:00:00	1760	18:00:00	1050		
10:00:00	1000	13:00:00	1740	16:00:00	1610	19:00:00	688		
		AUGUST 10, 1988							
08:00:00	191	11:00:00	1300	14:00:00	1770	17:00:00	1350	20:00:00	287
09:00:00	592	12:00:00	1550	15:00:00	1760	18:00:00	961		
10:00:00	997	13:00:00	1710	16:00:00	1580	19:00:00	662		
		AUGUST 11, 1988							
08:00:00	173	11:00:00	1210	14:00:00	1740	17:00:00	1180	20:00:00	11.0
09:00:00	526	12:00:00	1480	15:00:00	1700	18:00:00	56.0		
10:00:00	889	13:00:00	1680	16:00:00	1560	19:00:00	26.0		
		AUGUST 12, 1988							
08:00:00	213	11:00:00	958	14:00:00	1460	17:00:00	1160	20:00:00	130
09:00:00	597	12:00:00	1370	15:00:00	1280	18:00:00	715		
10:00:00	683	13:00:00	1460	16:00:00	1340	19:00:00	381		
		AUGUST 13, 1988							
08:00:00	36.0	11:00:00	213	14:00:00	1040	17:00:00	1210	20:00:00	272
09:00:00	90.0	12:00:00	209	15:00:00	910	18:00:00	1030		
10:00:00	250	13:00:00	444	16:00:00	1880	19:00:00	651		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 14, 1988							
08:00:00	242	11:00:00	1270	14:00:00	1610	17:00:00	1320	20:00:00	264
09:00:00	572	12:00:00	1520	15:00:00	836	18:00:00	998		
10:00:00	946	13:00:00	1690	16:00:00	1560	19:00:00	630		
		AUGUST 15, 1988							
08:00:00	228	11:00:00	1290	14:00:00	1760	17:00:00	1290	20:00:00	174
09:00:00	591	12:00:00	1540	15:00:00	1710	18:00:00	978		
10:00:00	964	13:00:00	1700	16:00:00	1530	19:00:00	510		
		AUGUST 16, 1988							
08:00:00	221	11:00:00	1260	14:00:00	1740	17:00:00	1300	20:00:00	145
09:00:00	543	12:00:00	1510	15:00:00	1680	18:00:00	886		
10:00:00	945	13:00:00	1680	16:00:00	1540	19:00:00	252		
		AUGUST 17, 1988							
08:00:00	220	11:00:00	1270	14:00:00	1530	17:00:00	678	20:00:00	120
09:00:00	550	12:00:00	1520	15:00:00	1640	18:00:00	776		
10:00:00	794	13:00:00	1290	16:00:00	955	19:00:00	467		
		AUGUST 18, 1988							
08:00:00	162	10:00:00	662	17:00:00	645	19:00:00	274		
09:00:00	535	16:00:00	691	18:00:00	513	20:00:00	150		
		AUGUST 19, 1988							
08:00:00	35.0	11:00:00	313	14:00:00	1530	17:00:00	1230	20:00:00	173
09:00:00	131	12:00:00	441	15:00:00	1580	18:00:00	879		
10:00:00	188	13:00:00	1120	16:00:00	1430	19:00:00	488		
		AUGUST 20, 1988							
08:00:00	180	11:00:00	1150	14:00:00	905	17:00:00	606	20:00:00	76.0
09:00:00	509	12:00:00	1230	15:00:00	1380	18:00:00	573		
10:00:00	838	13:00:00	703	16:00:00	1210	19:00:00	315		
		AUGUST 21, 1988							
08:00:00	117	11:00:00	493	14:00:00	597	17:00:00	747	20:00:00	157
09:00:00	307	12:00:00	357	15:00:00	570	18:00:00	749		
10:00:00	423	13:00:00	436	16:00:00	1200	19:00:00	496		
		AUGUST 22, 1988							
08:00:00	39.0	11:00:00	951	14:00:00	1760	17:00:00	1310	20:00:00	59.0
09:00:00	179	12:00:00	1570	15:00:00	1700	18:00:00	957		
10:00:00	340	13:00:00	1710	16:00:00	1540	19:00:00	102		
		AUGUST 23, 1988							
08:00:00	196	11:00:00	1270	14:00:00	1770	17:00:00	1260	20:00:00	194
09:00:00	556	12:00:00	1540	15:00:00	1700	18:00:00	931		
10:00:00	936	13:00:00	1700	16:00:00	1530	19:00:00	528		
		AUGUST 24, 1988							
08:00:00	201	11:00:00	1290	14:00:00	1520	17:00:00	1270	20:00:00	191
09:00:00	567	12:00:00	1450	15:00:00	1540	18:00:00	920		
10:00:00	951	13:00:00	1430	16:00:00	1300	19:00:00	449		
		AUGUST 25, 1988							
08:00:00	173	13:21:00	1730	16:21:00	1450	19:21:00	422		
09:00:00	531	14:21:00	1740	17:21:00	1160	20:21:00	76.0		
10:00:00	936	15:21:00	1650	18:21:00	804				
		AUGUST 26, 1988							
08:06:00	222	11:06:00	1100	14:06:00	382	17:06:00	892	20:06:00	23.0
09:06:00	559	12:06:00	1050	15:06:00	275	18:06:00	720		
10:06:00	930	13:06:00	824	16:06:00	218	19:06:00	243		
		AUGUST 27, 1988							
08:06:00	216	11:06:00	1300	14:06:00	1230	17:06:00	1450	20:06:00	75.0
09:06:00	584	12:06:00	1570	15:06:00	813	18:06:00	565		
10:06:00	964	13:06:00	1730	16:06:00	1710	19:06:00	488		
		AUGUST 28, 1988							
08:06:00	207	11:06:00	1280	14:06:00	1580	17:06:00	1250	20:06:00	132
09:06:00	575	12:06:00	1340	15:06:00	1200	18:06:00	877		
10:06:00	957	13:06:00	1450	16:06:00	1540	19:06:00	479		
		AUGUST 29, 1988							
08:06:00	205	11:06:00	1280	14:06:00	1720	17:06:00	1190	20:06:00	125
09:06:00	568	12:06:00	1530	15:06:00	1640	18:06:00	847		
10:06:00	949	13:06:00	1670	16:06:00	1460	19:06:00	467		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		AUGUST 30, 1988							
08:06:00	200	11:06:00	1280	14:06:00	1680	17:06:00	1140	20:06:00	91.0
09:06:00	566	12:06:00	1520	15:06:00	1590	18:06:00	789		
10:06:00	948	13:06:00	1670	16:06:00	1410	19:06:00	409		
		AUGUST 31, 1988							
08:06:00	98.0	11:06:00	856	14:06:00	1300	17:06:00	472	20:06:00	56.0
09:06:00	341	12:06:00	961	15:06:00	1060	18:06:00	408		
10:06:00	439	13:06:00	1280	16:06:00	797	19:06:00	254		
		SEPTEMBER 01, 1988							
08:06:00	162	11:06:00	1220	14:06:00	1670	17:06:00	1170	20:06:00	101
09:06:00	505	12:06:00	1460	15:06:00	1610	18:06:00	822		
10:06:00	888	13:06:00	1620	16:06:00	1440	19:06:00	435		
		SEPTEMBER 02, 1988							
08:06:00	143	11:06:00	521	14:06:00	1650	17:06:00	873	20:06:00	46.0
09:06:00	281	12:06:00	1610	15:06:00	1620	18:06:00	797		
10:06:00	473	13:06:00	1610	16:06:00	1260	19:06:00	362		
		SEPTEMBER 03, 1988							
08:06:00	155	11:06:00	797	14:06:00	1190	17:06:00	1210	20:06:00	88.0
09:06:00	509	12:06:00	839	15:06:00	1780	18:06:00	694		
10:06:00	775	13:06:00	615	16:06:00	1160	19:06:00	386		
		SEPTEMBER 04, 1988							
08:06:00	136	11:06:00	1260	14:06:00	1680	17:06:00	1150	20:06:00	83.0
09:06:00	470	12:06:00	1550	15:06:00	1600	18:06:00	802		
10:06:00	882	13:06:00	1640	16:06:00	1430	19:06:00	412		
		SEPTEMBER 05, 1988							
08:06:00	162	11:06:00	1240	14:06:00	1670	17:06:00	1140	20:06:00	79.0
09:06:00	521	12:06:00	1480	15:06:00	1600	18:06:00	788		
10:06:00	908	13:06:00	1630	16:06:00	1420	19:06:00	400		
		SEPTEMBER 06, 1988							
08:06:00	159	11:06:00	1230	14:06:00	1650	17:06:00	1110	20:06:00	62.0
09:06:00	515	12:06:00	1480	15:06:00	1580	18:06:00	755		
10:06:00	899	13:06:00	1620	16:06:00	1390	19:06:00	363		
		SEPTEMBER 07, 1988							
08:06:00	132	10:06:00	734	19:00:00	112				
09:06:00	424	11:06:00	966	20:00:00	40.0				
		SEPTEMBER 08, 1988							
08:00:00	66.0	11:00:00	717	14:00:00	1620	17:00:00	1110	20:00:00	64.0
09:00:00	333	12:00:00	1310	15:00:00	1550	18:00:00	756		
10:00:00	607	13:00:00	1550	16:00:00	1370	19:00:00	365		
		SEPTEMBER 09, 1988							
08:00:00	95.0	11:00:00	1070	14:00:00	1560	17:00:00	1080	20:00:00	51.0
09:00:00	356	12:00:00	1330	15:00:00	1520	18:00:00	726		
10:00:00	754	13:00:00	1480	16:00:00	1350	19:00:00	310		
		SEPTEMBER 10, 1988							
08:00:00	16.0	11:00:00	165	14:00:00	1320	17:00:00	863	20:00:00	34.0
09:00:00	37.0	12:00:00	427	15:00:00	1340	18:00:00	558		
10:00:00	81.0	13:00:00	1120	16:00:00	1130	19:00:00	181		
		SEPTEMBER 11, 1988							
08:00:00	28.0	11:00:00	235	14:00:00	374	17:00:00	570	20:00:00	24.0
09:00:00	131	12:00:00	354	15:00:00	507	18:00:00	148		
10:00:00	187	13:00:00	600	16:00:00	959	19:00:00	133		
		SEPTEMBER 12, 1988							
08:00:00	17.0	11:00:00	260	14:00:00	829	17:00:00	1050	20:00:00	49.0
09:00:00	66.0	12:00:00	343	15:00:00	1150	18:00:00	700		
10:00:00	165	13:00:00	525	16:00:00	1330	19:00:00	330		
		SEPTEMBER 13, 1988							
08:00:00	93.0	11:00:00	1140	14:00:00	1590	17:00:00	1060	20:00:00	46.0
09:00:00	419	12:00:00	1390	15:00:00	1520	18:00:00	716		
10:00:00	799	13:00:00	1550	16:00:00	1350	19:00:00	331		
		SEPTEMBER 14, 1988							
08:00:00	90.0	11:00:00	768	14:00:00	1110	17:00:00	499	20:00:00	8.00
09:00:00	275	12:00:00	1170	15:00:00	929	18:00:00	240		
10:00:00	469	13:00:00	1260	16:00:00	606	19:00:00	68.0		

Table 31.--Water-quality records for Sand Lake Bay - Platform 2 (06470988)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 13 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
		SEPTEMBER 15, 1988							
08:00:00	40.0	11:00:00	108	14:00:00	189	17:00:00	96.0	20:00:00	7.00
09:00:00	71.0	12:00:00	98.0	15:00:00	285	18:00:00	67.0		
10:00:00	107	13:00:00	163	16:00:00	201	19:00:00	38.0		
		SEPTEMBER 16, 1988							
08:00:00	22.0	11:00:00	383	14:00:00	1510	17:00:00	1010	20:00:00	31.0
09:00:00	80.0	12:00:00	663	15:00:00	1470	18:00:00	651		
10:00:00	170	13:00:00	1360	16:00:00	1310	19:00:00	276		
		SEPTEMBER 17, 1988							
08:00:00	53.0	11:00:00	884	14:00:00	1520	17:00:00	1020	20:00:00	17.0
09:00:00	339	12:00:00	1070	15:00:00	1430	18:00:00	603		
10:00:00	764	13:00:00	1480	16:00:00	1190	19:00:00	221		
		SEPTEMBER 18, 1988							
08:00:00	52.0	11:00:00	693	14:00:00	799	17:00:00	946	20:00:00	4.00
09:00:00	312	12:00:00	351	15:00:00	989	18:00:00	332		
10:00:00	651	13:00:00	497	16:00:00	1130	19:00:00	125		
		SEPTEMBER 19, 1988							
08:00:00	6.00	11:00:00	92.0	14:00:00	119	17:00:00	825	20:00:00	9.00
09:00:00	20.0	12:00:00	182	15:00:00	234	18:00:00	324		
10:00:00	52.0	13:00:00	117	16:00:00	283	19:00:00	93.0		
		SEPTEMBER 20, 1988							
08:00:00	34.0	10:00:00	503	12:00:00	678	14:00:00	1390	19:00:00	256
09:00:00	149	11:00:00	572	13:00:00	921	18:00:00	424	20:00:00	17.0
		SEPTEMBER 21, 1988							
08:00:00	19.0	11:00:00	652	14:00:00	867	17:00:00	369	20:00:00	5.00
09:00:00	129	12:00:00	1010	15:00:00	768	18:00:00	210		
10:00:00	299	13:00:00	709	16:00:00	677	19:00:00	59.0		
		SEPTEMBER 22, 1988							
08:00:00	23.0	11:00:00	518	14:00:00	815	17:00:00	965	20:00:00	16.0
09:00:00	140	12:00:00	592	15:00:00	1160	18:00:00	587		
10:00:00	384	13:00:00	415	16:00:00	1220	19:00:00	215		
		SEPTEMBER 23, 1988							
08:00:00	52.0	11:00:00	1060	14:00:00	1500	17:00:00	870	20:00:00	12.0
09:00:00	345	12:00:00	1310	15:00:00	1420	18:00:00	590		
10:00:00	721	13:00:00	1460	16:00:00	1210	19:00:00	215		
		SEPTEMBER 24, 1988							
08:00:00	30.0	11:00:00	999	14:00:00	1460	17:00:00	904	20:00:00	11.0
09:00:00	191	12:00:00	1250	15:00:00	1380	18:00:00	535		
10:00:00	652	13:00:00	1420	16:00:00	1190	19:00:00	180		
		SEPTEMBER 25, 1988							
08:00:00	46.0	11:00:00	425	14:00:00	1450	17:00:00	853	20:00:00	8.00
09:00:00	193	12:00:00	1070	15:00:00	1340	18:00:00	498		
10:00:00	433	13:00:00	1310	16:00:00	1190	19:00:00	159		
		SEPTEMBER 26, 1988							
08:00:00	43.0	11:00:00	787	14:00:00	1430	17:00:00	870	20:00:00	7.00
09:00:00	265	12:00:00	1350	15:00:00	1380	18:00:00	458		
10:00:00	669	13:00:00	1290	16:00:00	1140	19:00:00	187		
		SEPTEMBER 27, 1988							
08:00:00	35.0	11:00:00	703	14:00:00	926	17:00:00	293	20:00:00	2.00
09:00:00	221	12:00:00	795	15:00:00	1150	18:00:00	130		
10:00:00	448	13:00:00	854	16:00:00	1030	19:00:00	42.0		
		SEPTEMBER 28, 1988							
08:00:00	4.00	11:00:00	130	14:00:00	186	17:00:00	130	20:00:00	2.00
09:00:00	45.0	12:00:00	120	15:00:00	151	18:00:00	102		
10:00:00	87.0	13:00:00	116	16:00:00	160	19:00:00	20.0		
		SEPTEMBER 29, 1988							
08:00:00	10.0	11:00:00	224	14:00:00	610	17:00:00	199	20:00:00	2.00
09:00:00	80.0	12:00:00	343	15:00:00	310	18:00:00	126		
10:00:00	122	13:00:00	426	16:00:00	254	19:00:00	28.0		
		SEPTEMBER 30, 1988							
08:00:00	10.0	11:00:00	364	14:00:00	1390	17:00:00	723	20:00:00	5.00
09:00:00	73.0	12:00:00	583	15:00:00	1420	18:00:00	520		
10:00:00	204	13:00:00	1280	16:00:00	1130	19:00:00	144		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)

LOCATION.--Lat 45°44'02", long 98°16'51", in NE¼NE¼NW¼ sec.15, T.126 N., R.62 W., Brown County, Hydrologic Unit 10160003, on floating platform 8.2 mi north of Columbia, SD.

PERIOD OF RECORD.--April 1988 to current year, seasonal records only.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1988 to current year, seasonal records only.
pH: August 1988 to current year, seasonal records only.
AIR TEMPERATURE: April 1988 to August 1988 (discontinued).
WATER TEMPERATURE: April 1988 to current year, seasonal records only.
TURBIDITY: April 1988 to current year, seasonal records only.
DISSOLVED OXYGEN: August 1988 to current year, seasonal records only.
WIND SPEED: April 1988 to current year, seasonal records only.
WIND DIRECTION: April 1988 to current year, seasonal records only.
INCIDENT LIGHT INTENSITY: April 1988 to current year, seasonal records only.

REMARKS.--Water-quality and climatological data were collected using a water-quality monitor and meteorological sensors located on a platform anchored in the lake. The platform was installed April 7, 1988. The platform sunk on June 29, 1988 due to pontoon damage caused by severe wind conditions. It was removed from the lake, repaired and reinstalled on August 17, 1988. Other interruptions in record were due to malfunction of the sensors or recording instruments. Instantaneous values of specific conductance, pH, air temperature, water temperature, turbidity, dissolved oxygen, wind speed and wind direction were recorded at hourly intervals. Instantaneous values of incident light intensity were measured at 15-minute intervals during daylight hours. Each hour, the maximum, minimum and mean incident light intensity values of the four 15-minute values of the previous hour were recorded.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
APR										
07...	1800	686	8.80	25.0	12.5	720	9.9	99	<0.010	<0.100
18...	1030	717	8.40	4.5	7.5	726	10.3	90	<0.010	<0.100
MAY										
02...	1830	760	8.20	15.5	15.0	721	7.9	83	0.020	<0.100
19...	0835	805	8.20	15.5	17.0	722	7.1	78	0.120	0.510
JUN										
08...	1340	800	8.80	31.0	24.5	723	9.4	119	--	--
14...	1345	820	8.60	21.0	20.0	728	8.3	96	0.080	0.410
29...	1600	838	8.70	20.0	20.5	722	6.4	75	0.010	<0.100
JUL										
14...	1000	763	9.20	25.0	23.5	720	8.5	106	<0.010	<0.100
27...	1100	742	9.80	30.0	24.5	724	10.6	134	<0.010	<0.100
AUG										
17...	1820	755	9.60	27.5	28.0	727	12.7	171	<0.010	<0.100
26...	1330	--	9.20	18.5	18.5	724	7.7	87	<0.010	<0.100
SEP										
07...	1900	942	9.00	23.0	17.5	715	6.8	76	0.080	<0.100
20...	1430	886	8.70	12.0	10.5	727	8.7	82	0.120	0.380

DATE	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	PHOSPHOROUS DISSOLVED (MG/L AS P)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L)
APR										
07...	--	<0.010	0.040	--	1.5	0.070	0.020	<0.010	15.0	0.600
18...	--	0.020	0.040	0.03	1.2	0.090	0.030	<0.010	11.0	0.300
MAY										
02...	--	0.080	0.120	0.10	2.4	0.190	0.030	<0.010	32.0	1.40
19...	0.390	0.340	0.370	0.44	2.2	0.120	0.060	0.040	12.0	1.70
JUN										
08...	--	--	--	--	--	--	--	--	32.0	3.30
14...	0.330	0.080	0.090	0.10	2.1	0.200	0.150	0.110	47.0	2.60
29...	--	0.030	<0.040	0.04	3.1	0.260	0.060	0.030	63.0	3.80
JUL										
14...	--	<0.010	0.060	--	5.7	0.110	0.040	<0.010	210	0.400
27...	--	0.040	0.080	0.05	5.5	0.210	<0.010	<0.010	230	<1.10
AUG										
17...	--	0.060	0.090	0.08	4.1	0.280	0.120	0.050	570	<4.20
26...	--	0.170	0.130	0.22	5.3	0.290	0.260	0.150	130	<0.800
SEP										
07...	--	0.340	0.240	0.44	2.5	0.580	0.290	0.220	180	<0.800
20...	0.260	0.380	0.370	0.49	5.2	0.400	0.270	0.180	19.0	<0.400

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	850	750	830
2	---	---	---	---	---	---	---	---	---	850	820	840
3	---	---	---	---	---	---	---	---	---	870	830	850
4	---	---	---	---	---	---	---	---	---	880	850	870
5	---	---	---	---	---	---	---	---	---	930	810	870
6	---	---	---	---	---	---	---	---	---	950	810	880
7	---	---	---	---	---	---	---	---	---	990	890	930
8	---	---	---	---	---	---	---	---	---	1000	960	980
9	---	---	---	---	---	---	---	---	---	960	890	940
10	---	---	---	---	---	---	---	---	---	1010	940	970
11	---	---	---	---	---	---	---	---	---	990	960	980
12	---	---	---	---	---	---	---	---	---	960	920	950
13	---	---	---	---	---	---	---	---	---	950	930	940
14	---	---	---	---	---	---	---	---	---	930	910	920
15	---	---	---	---	---	---	---	---	---	910	890	900
16	---	---	---	---	---	---	---	---	---	990	830	940
17	---	---	---	---	---	---	---	---	---	970	890	930
18	---	---	---	---	---	---	780	760	770	960	940	950
19	---	---	---	---	---	---	800	690	760	940	880	900
20	---	---	---	---	---	---	780	760	770	880	870	870
21	---	---	---	---	---	---	790	760	780	880	860	880
22	---	---	---	---	---	---	780	750	770	890	870	880
23	---	---	---	---	---	---	770	740	750	890	860	880
24	---	---	---	---	---	---	780	730	750	900	870	880
25	---	---	---	---	---	---	790	710	760	900	890	890
26	---	---	---	---	---	---	760	740	750	900	890	890
27	---	---	---	---	---	---	790	750	760	900	880	890
28	---	---	---	---	---	---	780	750	770	900	870	890
29	---	---	---	---	---	---	840	740	800	880	870	880
30	---	---	---	---	---	---	820	750	800	890	870	880
31	---	---	---	---	---	---	860	800	830	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	9.4	9.1
2	---	---	---	---	---	---	---	---	---	---	9.4	9.1
3	---	---	---	---	---	---	---	---	---	---	9.4	9.1
4	---	---	---	---	---	---	---	---	---	---	9.3	9.0
5	---	---	---	---	---	---	---	---	---	---	9.1	9.0
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	9.4	8.9
9	---	---	---	---	---	---	---	---	---	---	9.5	8.8
10	---	---	---	---	---	---	---	---	---	---	9.3	8.5
11	---	---	---	---	---	---	---	---	---	---	8.8	8.6
12	---	---	---	---	---	---	---	---	---	---	9.2	8.7
13	---	---	---	---	---	---	---	---	---	---	9.1	8.6
14	---	---	---	---	---	---	---	---	---	---	9.1	8.9
15	---	---	---	---	---	---	---	---	---	---	9.2	8.7
16	---	---	---	---	---	---	---	---	---	---	9.2	8.7
17	---	---	---	---	---	---	---	---	---	---	9.4	8.9
18	---	---	---	---	---	---	---	---	---	---	9.1	8.9
19	---	---	---	---	---	---	---	---	10.0	9.7	9.1	8.9
20	---	---	---	---	---	---	---	---	9.8	9.6	9.0	8.5
21	---	---	---	---	---	---	---	---	9.8	9.1	8.7	8.5
22	---	---	---	---	---	---	---	---	9.8	9.1	8.6	8.6
23	---	---	---	---	---	---	---	---	9.7	9.6	8.8	8.6
24	---	---	---	---	---	---	---	---	9.7	9.5	8.8	8.6
25	---	---	---	---	---	---	---	---	9.7	9.5	8.7	8.5
26	---	---	---	---	---	---	---	---	9.7	9.3	8.8	8.5
27	---	---	---	---	---	---	---	---	9.4	9.3	8.9	8.6
28	---	---	---	---	---	---	---	---	9.5	9.3	8.7	8.5
29	---	---	---	---	---	---	---	---	9.3	9.1	8.8	8.6
30	---	---	---	---	---	---	---	---	9.3	9.2	8.7	8.6
31	---	---	---	---	---	---	---	---	9.3	9.0	---	---

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

TEMPERATURE, AIR, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	23.0	16.0	19.5
2	---	---	---	---	---	---	---	---	---	19.5	10.0	16.0
3	---	---	---	---	---	---	---	---	---	16.5	7.0	10.5
4	---	---	---	---	---	---	---	---	---	21.0	3.0	11.0
5	---	---	---	---	---	---	---	---	---	22.0	5.0	14.0
6	---	---	---	---	---	---	---	---	---	23.5	12.5	18.5
7	---	---	---	---	---	---	---	---	---	22.0	12.5	16.5
8	---	---	---	---	---	---	18.5	6.0	13.0	19.0	8.0	12.5
9	---	---	---	---	---	---	9.0	1.0	5.0	22.0	8.0	14.5
10	---	---	---	---	---	---	14.5	-2.0	6.0	23.5	11.5	15.5
11	---	---	---	---	---	---	16.5	.0	9.0	24.0	10.0	17.5
12	---	---	---	---	---	---	20.5	4.5	12.0	27.5	8.0	18.0
13	---	---	---	---	---	---	12.5	.5	8.5	19.0	.5	10.5
14	---	---	---	---	---	---	10.5	-5.0	3.5	23.0	13.5	18.0
15	---	---	---	---	---	---	23.0	-7.0	5.5	21.0	8.5	16.0
16	---	---	---	---	---	---	24.0	-.5	12.0	24.0	1.5	12.5
17	---	---	---	---	---	---	13.5	-2.5	5.0	26.0	9.0	18.0
18	---	---	---	---	---	---	11.5	-7.0	3.0	28.0	15.5	22.0
19	---	---	---	---	---	---	16.5	-5.5	7.0	17.5	15.0	16.0
20	---	---	---	---	---	---	10.5	-1.0	7.0	18.5	12.5	15.0
21	---	---	---	---	---	---	8.0	3.0	4.5	12.5	11.5	12.0
22	---	---	---	---	---	---	10.0	-2.5	5.0	16.0	10.5	12.5
23	---	---	---	---	---	---	15.5	-3.5	5.5	30.5	9.5	18.5
24	---	---	---	---	---	---	17.0	-1.0	8.0	27.0	13.5	21.0
25	---	---	---	---	---	---	11.5	-.5	5.5	25.5	13.5	20.0
26	---	---	---	---	---	---	6.0	.0	3.0	29.5	16.0	22.5
27	---	---	---	---	---	---	15.5	-1.0	7.0	32.0	14.0	22.5
28	---	---	---	---	---	---	27.5	.5	12.5	31.5	20.0	25.5
29	---	---	---	---	---	---	24.0	7.0	16.5	29.5	20.5	25.0
30	---	---	---	---	---	---	25.0	13.5	18.0	28.0	18.5	24.0
31	---	---	---	---	---	---	---	---	---	29.0	21.0	25.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.5	18.0	22.5	---	---	---	---	---	---	---	---	---
2	38.0	16.5	24.5	---	---	---	---	---	---	---	---	---
3	39.0	18.0	27.0	---	---	---	---	---	---	---	---	---
4	33.0	20.5	27.0	---	---	---	---	---	---	---	---	---
5	30.5	21.0	26.0	---	---	---	---	---	---	---	---	---
6	31.0	18.0	24.5	---	---	---	---	---	---	---	---	---
7	33.5	19.5	26.0	---	---	---	---	---	---	---	---	---
8	31.0	17.5	24.5	---	---	---	---	---	---	---	---	---
9	27.5	13.0	19.5	---	---	---	---	---	---	---	---	---
10	29.5	13.0	22.0	---	---	---	---	---	---	---	---	---
11	31.0	19.5	25.0	---	---	---	---	---	---	---	---	---
12	25.0	17.0	21.0	---	---	---	---	---	---	---	---	---
13	28.0	16.5	21.5	---	---	---	---	---	---	---	---	---
14	22.0	13.5	18.0	---	---	---	---	---	---	---	---	---
15	26.0	11.0	18.5	---	---	---	---	---	---	---	---	---
16	29.5	14.0	21.0	---	---	---	---	---	---	---	---	---
17	31.5	17.0	24.0	---	---	---	---	---	---	---	---	---
18	35.0	20.5	27.5	---	---	---	25.5	19.0	22.0	---	---	---
19	35.0	20.0	28.5	---	---	---	30.5	18.0	22.0	---	---	---
20	36.0	19.5	28.5	---	---	---	30.0	17.5	23.5	---	---	---
21	39.0	25.0	31.0	---	---	---	27.0	20.5	24.5	---	---	---
22	30.0	20.5	25.5	---	---	---	30.5	15.5	21.5	---	---	---
23	29.5	20.0	24.5	---	---	---	26.5	12.5	20.0	---	---	---
24	40.0	20.5	27.5	---	---	---	30.5	12.5	22.0	---	---	---
25	28.5	16.5	23.0	---	---	---	24.0	13.0	19.0	---	---	---
26	30.5	17.5	24.0	---	---	---	---	---	---	---	---	---
27	34.0	18.5	26.0	---	---	---	---	---	---	---	---	---
28	30.5	21.5	26.0	---	---	---	---	---	---	---	---	---
29	20.0	17.0	18.0	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	14.5	12.5	13.5
2	---	---	---	---	---	---	---	---	---	14.5	13.5	14.0
3	---	---	---	---	---	---	---	---	---	14.0	13.0	13.5
4	---	---	---	---	---	---	---	---	---	14.0	11.5	12.5
5	---	---	---	---	---	---	---	---	---	14.5	12.0	13.5
6	---	---	---	---	---	---	---	---	---	15.0	13.0	14.0
7	---	---	---	---	---	---	---	---	---	15.5	13.5	14.5
8	---	---	---	---	---	---	13.5	11.5	13.0	15.5	14.0	14.5
9	---	---	---	---	---	---	11.0	10.0	10.5	13.5	12.5	13.0
10	---	---	---	---	---	---	11.0	8.5	10.0	15.0	12.5	13.5
11	---	---	---	---	---	---	12.0	9.5	11.0	16.0	13.5	15.0
12	---	---	---	---	---	---	12.5	10.0	11.5	16.5	14.5	15.5
13	---	---	---	---	---	---	12.5	11.0	11.5	15.5	13.5	14.5
14	---	---	---	---	---	---	11.5	9.5	10.5	16.0	13.5	14.5
15	---	---	---	---	---	---	12.5	9.0	10.5	15.5	14.0	14.5
16	---	---	---	---	---	---	12.5	9.5	11.0	19.5	13.0	14.5
17	---	---	---	---	---	---	12.0	9.5	10.5	16.0	13.5	14.5
18	---	---	---	---	---	---	9.0	7.0	8.0	17.5	15.0	16.0
19	---	---	---	---	---	---	8.5	6.5	7.5	17.5	16.5	16.5
20	---	---	---	---	---	---	8.0	6.5	7.5	17.0	16.0	16.5
21	---	---	---	---	---	---	7.5	7.0	7.0	16.5	15.0	16.0
22	---	---	---	---	---	---	7.5	6.0	6.5	15.0	14.0	14.5
23	---	---	---	---	---	---	8.0	6.0	7.0	19.5	14.5	16.5
24	---	---	---	---	---	---	8.5	6.5	7.5	21.5	17.0	19.0
25	---	---	---	---	---	---	8.0	6.5	7.5	20.0	17.5	18.5
26	---	---	---	---	---	---	7.5	6.0	7.0	22.5	18.5	20.0
27	---	---	---	---	---	---	7.5	5.0	6.5	25.0	20.0	22.0
28	---	---	---	---	---	---	10.5	6.5	8.0	23.0	20.5	22.0
29	---	---	---	---	---	---	12.5	9.5	11.0	23.0	20.5	22.0
30	---	---	---	---	---	---	14.0	11.5	12.5	21.5	20.0	21.0
31	---	---	---	---	---	---	---	---	---	22.5	20.0	21.0

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	22.0	19.5	21.0	---	---	---	---	---	---	20.5	18.0	19.5
2	27.5	20.5	22.5	---	---	---	---	---	---	20.0	18.0	19.0
3	29.5	21.0	23.5	---	---	---	---	---	---	18.5	17.0	18.0
4	27.0	24.0	25.5	---	---	---	---	---	---	17.5	16.0	17.0
5	26.0	23.5	25.0	---	---	---	---	---	---	18.0	15.5	17.0
6	24.0	22.0	23.5	---	---	---	---	---	---	19.5	16.0	17.5
7	25.0	22.0	23.5	---	---	---	---	---	---	18.5	15.0	16.5
8	24.0	20.5	23.0	---	---	---	---	---	---	17.0	16.0	16.5
9	20.5	18.5	19.5	---	---	---	---	---	---	18.0	14.0	15.5
10	20.0	17.5	19.0	---	---	---	---	---	---	18.0	14.0	16.0
11	19.0	17.0	18.5	---	---	---	---	---	---	18.0	17.0	17.5
12	18.5	17.5	18.0	---	---	---	---	---	---	16.5	14.5	15.5
13	19.5	16.5	18.0	---	---	---	---	---	---	16.5	13.0	14.5
14	19.0	17.0	18.0	---	---	---	---	---	---	16.5	14.5	15.5
15	19.0	16.5	18.0	---	---	---	---	---	---	16.0	14.5	15.0
16	21.5	17.5	19.5	---	---	---	---	---	---	17.0	14.5	15.5
17	24.5	20.5	22.0	---	---	---	---	---	---	20.0	15.5	17.0
18	25.0	22.0	23.5	---	---	---	25.5	24.5	25.0	18.5	16.5	17.5
19	25.5	23.5	24.5	---	---	---	25.0	23.0	24.0	16.5	12.0	13.5
20	26.0	23.5	24.5	---	---	---	24.0	21.5	23.0	12.0	10.5	11.5
21	28.0	24.0	25.5	---	---	---	23.0	21.0	22.0	14.0	11.5	12.5
22	26.5	24.5	25.5	---	---	---	23.5	21.0	22.0	14.5	13.0	13.5
23	25.0	22.5	23.5	---	---	---	22.0	20.0	21.0	15.5	12.5	14.0
24	27.5	22.5	24.0	---	---	---	21.5	19.0	20.0	17.5	14.0	15.5
25	26.0	23.0	24.5	---	---	---	20.5	19.0	19.5	16.5	15.0	16.0
26	26.0	23.5	24.5	---	---	---	19.0	17.5	18.5	17.0	15.0	16.0
27	25.0	22.5	24.0	---	---	---	18.5	16.5	17.5	16.0	14.0	15.0
28	24.5	23.0	23.5	---	---	---	17.5	15.5	16.5	14.5	12.0	13.0
29	23.0	20.5	21.0	---	---	---	18.0	15.5	16.5	12.5	11.5	12.0
30	---	---	---	---	---	---	19.5	16.0	17.5	13.5	11.5	12.5
31	---	---	---	---	---	---	20.5	17.5	19.0	---	---	---

TURBIDITY (NTU), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	54
2	---	---	---	---	---	---	---	---	---	---	---	57
3	---	---	---	---	---	---	---	---	---	---	---	52
4	---	---	---	---	---	---	---	---	---	---	---	40
5	---	---	---	---	---	---	---	---	---	---	---	21
6	---	---	---	---	---	---	---	---	---	---	---	29
7	---	---	---	---	---	---	---	---	---	---	---	85
8	---	---	---	---	---	---	---	---	---	---	---	90
9	---	---	---	---	---	---	---	---	---	---	---	36
10	---	---	---	---	---	---	---	---	---	---	---	79
11	---	---	---	---	---	---	---	---	---	---	---	110
12	---	---	---	---	---	---	---	---	---	---	---	68
13	---	---	---	---	---	---	---	---	---	---	---	50
14	---	---	---	---	---	---	---	---	---	---	---	35
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	40
17	---	---	---	---	---	---	---	---	---	---	---	30
18	---	---	---	---	---	---	---	---	---	---	52	85
19	---	---	---	---	---	---	---	---	---	---	56	85
20	---	---	---	---	---	---	---	---	---	---	79	120
21	---	---	---	---	---	---	---	---	---	---	130	110
22	---	---	---	---	---	---	---	---	---	---	91	61
23	---	---	---	---	---	---	---	---	---	---	85	69
24	---	---	---	---	---	---	---	---	---	---	64	72
25	---	---	---	---	---	---	---	---	---	---	59	91
26	---	---	---	---	---	---	---	---	---	---	55	60
27	---	---	---	---	---	---	---	---	---	---	68	59
28	---	---	---	---	---	---	---	---	---	---	62	64
29	---	---	---	---	---	---	---	---	---	---	46	84
30	---	---	---	---	---	---	---	---	---	---	63	110
31	---	---	---	---	---	---	---	---	---	---	61	---

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	8.4	4.1	6.3	---	---	---
19	---	---	---	---	---	---	11.2	2.8	5.7	---	---	---
20	---	---	---	---	---	---	9.0	2.5	6.3	---	---	---
21	---	---	---	---	---	---	5.0	1.7	3.3	9.2	7.9	8.4
22	---	---	---	---	---	---	---	---	---	9.2	7.3	8.2
23	---	---	---	---	---	---	---	---	---	10.7	8.0	9.0
24	---	---	---	---	---	---	---	---	---	12.1	7.5	9.2
25	---	---	---	---	---	---	---	---	---	9.6	7.6	8.4
26	---	---	---	---	---	---	---	---	---	10.8	7.2	8.5
27	---	---	---	---	---	---	10.0	5.3	7.4	9.4	8.0	8.7
28	---	---	---	---	---	---	10.6	4.4	7.4	8.6	7.8	8.3
29	---	---	---	---	---	---	---	---	---	8.7	7.4	8.3
30	---	---	---	---	---	---	---	---	---	9.0	8.2	8.5
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	34	129	25
2	---	---	---	---	---	---	---	---	---	26	126	18
3	---	---	---	---	---	---	---	---	---	20	328	15
4	---	---	---	---	---	---	---	---	---	19	351	12
5	---	---	---	---	---	---	---	---	---	15	---	10
6	---	---	---	---	---	---	---	---	---	34	---	21
7	---	---	---	---	---	---	---	---	---	22	---	14
8	---	---	---	---	---	---	25	---	15	32	---	15
9	---	---	---	---	---	---	23	---	16	27	---	20
10	---	---	---	---	---	---	15	---	9.3	21	---	10
11	---	---	---	---	---	---	14	---	8.9	14	---	9.2
12	---	---	---	---	---	---	15	---	10	30	---	15
13	---	---	---	---	---	---	22	321	14	19	---	10
14	---	---	---	---	---	---	16	331	11	24	---	17
15	---	---	---	---	---	---	11	35	6.1	34	---	22
16	---	---	---	---	---	---	21	132	13	12	---	5.8
17	---	---	---	---	---	---	25	---	19	25	---	17
18	---	---	---	---	---	---	12	---	7.6	27	---	19
19	---	---	---	---	---	---	12	302	6.9	14	---	11
20	---	---	---	---	---	---	23	32	14	16	41	11
21	---	---	---	---	---	---	11	98	6.9	19	17	14
22	---	---	---	---	---	---	20	352	14	20	17	15
23	---	---	---	---	---	---	16	344	9.2	7.4	24	5.6
24	---	---	---	---	---	---	19	303	13	13	---	6.7
25	---	---	---	---	---	---	18	58	13	24	---	17
26	---	---	---	---	---	---	18	345	13	26	---	8.2
27	---	---	---	---	---	---	13	320	9.6	9.6	---	6.4
28	---	---	---	---	---	---	8.5	165	4.8	21	---	16
29	---	---	---	---	---	---	20	149	13	23	---	18
30	---	---	---	---	---	---	21	192	18	26	16	20
31	---	---	---	---	---	---	---	---	---	25	---	19

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM AND MEAN DAILY WIND SPEED, IN MILES PER HOUR, AND WIND DIRECTION, IN DEGREES CLOCKWISE FROM TRUE NORTH, AT TIME OF MAXIMUM WIND SPEED, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)	MAXIMUM WIND SPEED (MPH)	WIND DIRECTION AT TIME OF MAXIMUM (DEGREES)	WIND SPEED MEAN (MPH)
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15	---	12	---	---	---	---	---	---	15	298	9.1
2	9.6	---	4.4	---	---	---	---	---	---	21	338	13
3	8.5	115	4.9	---	---	---	---	---	---	25	352	15
4	11	162	7.0	---	---	---	---	---	---	20	355	13
5	20	166	15	---	---	---	---	---	---	10	30	6.0
6	19	196	15	---	---	---	---	---	---	14	153	7.3
7	15	175	11	---	---	---	---	---	---	21	176	15
8	23	107	9.7	---	---	---	---	---	---	23	305	13
9	19	115	13	---	---	---	---	---	---	11	207	7.0
10	21	---	15	---	---	---	---	---	---	26	99	15
11	25	170	18	---	---	---	---	---	---	27	162	16
12	26	7	13	---	---	---	---	---	---	18	342	12
13	14	15	9.7	---	---	---	---	---	---	13	258	8.4
14	16	353	12	---	---	---	---	---	---	12	74	8.0
15	15	337	10	---	---	---	---	---	---	13	100	9.9
16	13	115	9.9	---	---	---	---	---	---	10	224	8.0
17	10	179	7.8	---	---	---	---	---	---	12	44	6.3
18	---	---	---	---	---	---	15	54	12	26	28	19
19	---	---	---	---	---	---	10	144	6.2	30	333	22
20	---	---	---	---	---	---	17	144	14	16	345	12
21	---	---	---	---	---	---	24	170	17	16	58	12
22	---	---	---	---	---	---	19	20	8.0	16	302	9.7
23	---	---	---	---	---	---	21	298	14	12	198	9.1
24	---	---	---	---	---	---	15	326	10	14	177	9.5
25	---	---	---	---	---	---	19	314	13	19	93	13
26	---	---	---	---	---	---	15	151	7.4	16	302	8.9
27	---	---	---	---	---	---	16	296	12	16	70	12
28	---	---	---	---	---	---	15	342	8.9	21	69	16
29	---	---	---	---	---	---	7.0	125	4.3	16	15	10
30	---	---	---	---	---	---	15	168	10	18	185	12
31	---	---	---	---	---	---	14	2	8.5	---	---	---

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 07, 1988						
18:52:00	645	19:52:00	348						
			APRIL 08, 1988						
08:37:00	227	11:37:00	602	14:37:00	1740	17:37:00	651	20:37:00	36.0
09:37:00	413	12:37:00	797	15:37:00	1580	18:37:00	387		
10:37:00	763	13:37:00	913	16:37:00	1010	19:37:00	199		
			APRIL 09, 1988						
08:22:00	254	11:22:00	1580	14:22:00	2040	17:22:00	1390	20:22:00	92.0
09:22:00	659	12:22:00	1870	15:22:00	1870	18:22:00	435		
10:22:00	1130	13:22:00	957	16:22:00	1070	19:22:00	521		
			APRIL 10, 1988						
08:37:00	534	11:37:00	1510	14:37:00	1850	17:37:00	1120	20:37:00	50.0
09:37:00	968	12:37:00	1800	15:37:00	1660	18:37:00	747		
10:37:00	1310	13:37:00	1810	16:37:00	1400	19:37:00	357		
			APRIL 11, 1988						
08:22:00	453	11:22:00	1530	14:22:00	1790	17:22:00	1100	20:22:00	90.0
09:22:00	876	12:22:00	1640	15:22:00	1860	18:22:00	835		
10:22:00	1250	13:22:00	1760	16:22:00	1480	19:22:00	408		
			APRIL 12, 1988						
08:22:00	497	11:22:00	1400	14:22:00	1670	17:22:00	1210	20:22:00	127
09:22:00	908	12:22:00	1570	15:22:00	1610	18:22:00	865		
10:22:00	1080	13:22:00	1660	16:22:00	1460	19:22:00	510		
			APRIL 13, 1988						
08:22:00	153	12:00:00	1510	15:00:00	1630	18:00:00	998		
09:22:00	714	13:00:00	1650	16:00:00	1530	19:00:00	597		
11:00:00	1320	14:00:00	1660	17:00:00	1300	20:00:00	256		
			APRIL 14, 1988						
08:15:00	214	11:15:00	1350	14:15:00	1680	17:15:00	1280	20:15:00	195
09:15:00	702	12:15:00	1580	15:15:00	1650	18:15:00	941		
10:15:00	1060	13:15:00	1670	16:15:00	1510	19:15:00	583		
			APRIL 15, 1988						
08:15:00	364	11:15:00	1370	14:15:00	1690	17:15:00	1310	20:15:00	113
09:15:00	730	12:15:00	1580	15:15:00	1670	18:15:00	979		
10:15:00	1080	13:15:00	1680	16:15:00	1530	19:15:00	541		
			APRIL 16, 1988						
08:15:00	376	11:15:00	1330	14:15:00	1620	17:15:00	1120	20:15:00	201
09:15:00	810	12:15:00	1810	15:15:00	1590	18:15:00	867		
10:15:00	846	13:15:00	1990	16:15:00	1420	19:15:00	508		
			APRIL 17, 1988						
08:15:00	311	11:15:00	1310	14:15:00	1690	17:15:00	1190	20:15:00	138
09:15:00	403	12:15:00	1630	15:15:00	1600	18:15:00	862		
10:15:00	633	13:15:00	1670	16:15:00	1420	19:15:00	435		
			APRIL 18, 1988						
08:00:00	417	11:00:00	1400	14:00:00	1770	17:00:00	1290	20:00:00	309
09:00:00	828	12:00:00	1660	15:00:00	1700	18:00:00	1020	21:00:00	28.0
10:00:00	1220	13:00:00	1780	16:00:00	1560	19:00:00	702		
			APRIL 19, 1988						
08:00:00	305	12:00:00	1560	15:00:00	1670	18:00:00	1050		
10:00:00	1040	13:00:00	1680	16:00:00	1550	19:00:00	634		
11:00:00	1340	14:00:00	1710	17:00:00	1370	20:00:00	145		
			APRIL 20, 1988						
09:00:00	643	12:00:00	1580	15:00:00	1710	18:00:00	1100		
10:00:00	844	13:00:00	1690	16:00:00	1590	19:00:00	468		
11:00:00	944	14:00:00	1730	17:00:00	1390	20:00:00	194		
			APRIL 21, 1988						
09:00:00	190	12:00:00	468	15:00:00	668	18:00:00	458		
10:00:00	526	13:00:00	537	16:00:00	750	19:00:00	404		
11:00:00	366	14:00:00	755	17:00:00	473	20:00:00	172		
			APRIL 22, 1988						
09:00:00	722	12:00:00	1370	15:00:00	1760	18:00:00	538		
10:00:00	829	13:00:00	1640	16:00:00	1460	19:00:00	270		
11:00:00	944	14:00:00	1770	17:00:00	678	20:00:00	95.0		
			APRIL 23, 1988						
09:00:00	746	12:00:00	1580	15:00:00	1690	18:00:00	1080		
10:00:00	1110	13:00:00	1720	16:00:00	1550	19:00:00	720		
11:00:00	1380	14:00:00	1720	17:00:00	1360	20:00:00	341		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 24, 1988						
09:00:00	785	12:00:00	1710	15:00:00	1430	18:00:00	1040		
10:00:00	1040	13:00:00	1630	16:00:00	1620	19:00:00	624		
11:00:00	1420	14:00:00	2070	17:00:00	1390	20:00:00	232		
			APRIL 25, 1988						
09:00:00	698	12:00:00	1280	15:00:00	1620	18:00:00	660		
10:00:00	711	13:00:00	1700	16:00:00	1590	19:00:00	402		
11:00:00	958	14:00:00	1760	17:00:00	1070	20:00:00	129		
			APRIL 26, 1988						
09:00:00	226	12:00:00	376	15:00:00	960	18:00:00	717		
10:00:00	321	13:00:00	579	16:00:00	1020	19:00:00	646		
11:00:00	292	14:00:00	658	17:00:00	976	20:00:00	87.0		
			APRIL 27, 1988						
09:00:00	774	12:00:00	1660	15:00:00	1740	18:00:00	1090		
10:00:00	1140	13:00:00	1810	16:00:00	1610	19:00:00	732		
11:00:00	1410	14:00:00	1800	17:00:00	1430	20:00:00	367		
			APRIL 28, 1988						
09:00:00	796	12:00:00	1640	15:00:00	1750	18:00:00	1130		
10:00:00	1150	13:00:00	1750	16:00:00	1640	19:00:00	765		
11:00:00	1430	14:00:00	1770	17:00:00	1420	20:00:00	379		
			APRIL 29, 1988						
09:00:00	755	12:00:00	1620	15:00:00	1810	18:00:00	1090		
10:00:00	1140	13:00:00	1730	16:00:00	1650	19:00:00	275		
11:00:00	1400	14:00:00	1820	17:00:00	1490	20:00:00	296		
			APRIL 30, 1988						
09:00:00	792	12:00:00	607	15:00:00	1260	18:00:00	1160		
10:00:00	1450	13:00:00	903	16:00:00	1480	19:00:00	754		
11:00:00	670	14:00:00	1260	17:00:00	1320	20:00:00	408		
			MAY 01, 1988						
09:00:00	459	12:00:00	1400	15:00:00	1270	18:00:00	126		
10:00:00	901	13:00:00	1490	16:00:00	1410	19:00:00	130		
11:00:00	1080	14:00:00	1220	17:00:00	584	20:00:00	70.0		
			MAY 02, 1988						
09:00:00	417	11:00:00	1460	13:00:00	541	15:00:00	1920	20:00:00	72.0
10:00:00	466	12:00:00	1400	14:00:00	976	16:00:00	1570		
			MAY 03, 1988						
10:00:00	696	13:00:00	870	16:00:00	1670	19:00:00	575		
11:00:00	984	14:00:00	902	17:00:00	1450	20:00:00	205		
12:00:00	1080	15:00:00	1360	18:00:00	1040				
			MAY 04, 1988						
09:00:00	780	12:00:00	1560	15:00:00	1600	18:00:00	1080		
10:00:00	1100	13:00:00	1710	16:00:00	1660	19:00:00	722		
11:00:00	1400	14:00:00	1720	17:00:00	1340	20:00:00	356		
			MAY 05, 1988						
09:00:00	802	12:00:00	1660	15:00:00	1730	18:00:00	1050		
10:00:00	1150	13:00:00	1760	16:00:00	1590	19:00:00	565		
11:00:00	1440	14:00:00	1820	17:00:00	1350	20:00:00	297		
			MAY 06, 1988						
09:00:00	954	12:00:00	1590	15:00:00	856	18:00:00	676		
10:00:00	1090	13:00:00	1590	16:00:00	1730	19:00:00	371		
11:00:00	1340	14:00:00	550	17:00:00	777	20:00:00	191		
			MAY 07, 1988						
09:00:00	883	12:00:00	714	15:00:00	1890	18:00:00	490		
10:00:00	998	13:00:00	1030	16:00:00	1450	19:00:00	479		
11:00:00	1740	14:00:00	2110	17:00:00	1770	20:00:00	169		
			MAY 08, 1988						
09:00:00	914	12:00:00	1390	15:00:00	2100	18:00:00	606		
10:00:00	1310	13:00:00	1940	16:00:00	1950	19:00:00	328		
11:00:00	1550	14:00:00	2050	17:00:00	1620	20:00:00	114		
			MAY 09, 1988						
09:00:00	1070	12:00:00	1760	15:00:00	1810	18:00:00	943		
10:00:00	1340	13:00:00	1840	16:00:00	1650	19:00:00	632		
11:00:00	1620	14:00:00	1860	17:00:00	1410	20:00:00	202		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 10, 1988						
09:00:00	961	12:00:00	1710	15:00:00	1810	18:00:00	1180		
10:00:00	1120	13:00:00	1810	16:00:00	1680	19:00:00	833		
11:00:00	1480	14:00:00	1840	17:00:00	1440	20:00:00	457		
			MAY 11, 1988						
09:00:00	986	12:00:00	2170	15:00:00	1960	18:00:00	1180		
10:00:00	1250	13:00:00	1950	16:00:00	1620	19:00:00	712		
11:00:00	1500	14:00:00	1970	17:00:00	1530	20:00:00	375		
			MAY 12, 1988						
09:00:00	975	12:00:00	1740	15:00:00	1810	18:00:00	309		
10:00:00	1350	13:00:00	1830	16:00:00	1620	19:00:00	146		
11:00:00	1560	14:00:00	1840	17:00:00	527	20:00:00	140		
			MAY 13, 1988						
09:00:00	929	12:00:00	1730	15:00:00	1780	18:00:00	1110		
10:00:00	1260	13:00:00	1870	16:00:00	1660	19:00:00	770		
11:00:00	1540	14:00:00	1870	17:00:00	1390	20:00:00	401		
			MAY 14, 1988						
09:00:00	812	12:00:00	1780	15:00:00	1800	18:00:00	1270		
10:00:00	1350	13:00:00	1820	16:00:00	1660	19:00:00	853		
11:00:00	1500	14:00:00	1840	17:00:00	1440	20:00:00	421		
			MAY 15, 1988						
09:00:00	708	12:00:00	1690	15:00:00	1720	18:00:00	1070		
10:00:00	1170	13:00:00	1750	16:00:00	1630	19:00:00	720		
11:00:00	1400	14:00:00	1760	17:00:00	1360	20:00:00	398		
			MAY 16, 1988						
09:00:00	826	12:00:00	1790	15:00:00	1800	18:00:00	1100		
10:00:00	1190	13:00:00	1860	16:00:00	1660	19:00:00	750		
11:00:00	1610	14:00:00	1860	17:00:00	1410	20:00:00	397		
			MAY 17, 1988						
09:00:00	1090	12:00:00	1820	15:00:00	1810	18:00:00	1040		
10:00:00	1410	13:00:00	1860	16:00:00	1420	19:00:00	724		
11:00:00	1540	14:00:00	1860	17:00:00	1420	20:00:00	389		
			MAY 18, 1988						
09:00:00	861	12:00:00	1720	15:00:00	981	18:00:00	252		
10:00:00	1180	13:00:00	2460	16:00:00	1150	19:00:00	107		
11:00:00	619	14:00:00	1410	17:00:00	963	20:00:00	111		
			MAY 19, 1988						
12:00:00	246	14:00:00	455	16:00:00	1110	18:00:00	481	20:00:00	433
13:00:00	322	15:00:00	773	17:00:00	583	19:00:00	367		
			MAY 20, 1988						
08:00:00	124	11:00:00	993	14:00:00	1770	17:00:00	331	20:00:00	138
09:00:00	205	12:00:00	757	15:00:00	1820	18:00:00	304		
10:00:00	406	13:00:00	1270	16:00:00	767	19:00:00	109		
			MAY 21, 1988						
08:00:00	102	11:00:00	277	14:00:00	355	17:00:00	166	20:00:00	55.0
09:00:00	149	12:00:00	473	15:00:00	388	18:00:00	134		
10:00:00	233	13:00:00	314	16:00:00	174	19:00:00	104		
			MAY 22, 1988						
08:00:00	89.0	11:00:00	276	14:00:00	795	17:00:00	537	20:00:00	269
09:00:00	118	12:00:00	411	15:00:00	892	18:00:00	291		
10:00:00	138	13:00:00	636	16:00:00	951	19:00:00	222		
			MAY 23, 1988						
08:00:00	558	11:00:00	1590	14:00:00	1950	17:00:00	1600	20:00:00	565
09:00:00	938	12:00:00	1800	15:00:00	1930	18:00:00	1310		
10:00:00	1290	13:00:00	1920	16:00:00	1820	19:00:00	963		
			MAY 24, 1988						
08:00:00	542	11:00:00	1390	14:00:00	1920	17:00:00	1650	20:00:00	514
09:00:00	1040	12:00:00	1790	15:00:00	1900	18:00:00	1440		
10:00:00	1370	13:00:00	1890	16:00:00	1830	19:00:00	960		
			MAY 25, 1988						
08:00:00	622	11:00:00	1450	14:00:00	2110	17:00:00	1430	20:00:00	604
09:00:00	746	12:00:00	1790	15:00:00	1710	18:00:00	1570		
10:00:00	1280	13:00:00	1920	16:00:00	1780	19:00:00	615		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 26, 1988						
08:00:00	512	11:00:00	1570	14:00:00	1900	17:00:00	1560	20:00:00	36.0
09:00:00	824	12:00:00	1750	15:00:00	1860	18:00:00	1250		
10:00:00	1280	13:00:00	1870	16:00:00	1770	19:00:00	216		
			MAY 27, 1988						
08:00:00	615	11:00:00	1500	14:00:00	1940	17:00:00	1600	20:00:00	460
09:00:00	937	12:00:00	1840	15:00:00	1970	18:00:00	1250		
10:00:00	1340	13:00:00	1880	16:00:00	1740	19:00:00	723		
			MAY 28, 1988						
08:00:00	193	11:00:00	1530	14:00:00	1770	17:00:00	1470	20:00:00	477
09:00:00	830	12:00:00	1780	15:00:00	1710	18:00:00	1190		
10:00:00	976	13:00:00	1720	16:00:00	1650	19:00:00	935		
			MAY 29, 1988						
08:00:00	556	11:00:00	1550	14:00:00	1930	17:00:00	1590	20:00:00	544
09:00:00	869	12:00:00	1690	15:00:00	1860	18:00:00	1210		
10:00:00	1200	13:00:00	1840	16:00:00	1760	19:00:00	815		
			MAY 30, 1988						
08:00:00	99.0	11:00:00	1550	14:00:00	933	17:00:00	1710	20:00:00	459
09:00:00	753	12:00:00	1830	15:00:00	827	18:00:00	1210		
10:00:00	1160	13:00:00	1140	16:00:00	825	19:00:00	760		
			MAY 31, 1988						
08:00:00	401	11:00:00	1510	14:00:00	1860	17:00:00	1580	20:00:00	503
09:00:00	891	12:00:00	1750	15:00:00	1840	18:00:00	1340		
10:00:00	1230	13:00:00	1830	16:00:00	1830	19:00:00	906		
			JUNE 01, 1988						
08:00:00	214	11:00:00	399	14:00:00	1980	17:00:00	1350	20:00:00	665
09:00:00	962	12:00:00	1410	15:00:00	1950	18:00:00	1350		
10:00:00	1550	13:00:00	1800	16:00:00	1670	19:00:00	632		
			JUNE 02, 1988						
08:00:00	570	11:00:00	1490	14:00:00	1780	17:00:00	1460	20:00:00	473
09:00:00	778	12:00:00	1670	15:00:00	1790	18:00:00	1210		
10:00:00	1200	13:00:00	1780	16:00:00	1680	19:00:00	862		
			JUNE 03, 1988						
08:00:00	538	11:00:00	1530	14:00:00	1890	17:00:00	1570	20:00:00	591
09:00:00	907	12:00:00	1750	15:00:00	1900	18:00:00	1240		
10:00:00	1250	13:00:00	1850	16:00:00	1810	19:00:00	977		
			JUNE 04, 1988						
08:00:00	582	11:00:00	1560	14:00:00	2040	17:00:00	1650	20:00:00	562
09:00:00	941	12:00:00	1800	15:00:00	2040	18:00:00	1330		
10:00:00	1280	13:00:00	1980	16:00:00	1960	19:00:00	971		
			JUNE 05, 1988						
08:00:00	570	11:00:00	1540	14:00:00	1980	17:00:00	1550	20:00:00	509
09:00:00	931	12:00:00	1750	15:00:00	1990	18:00:00	1340		
10:00:00	1260	13:00:00	1880	16:00:00	1890	19:00:00	939		
			JUNE 06, 1988						
08:00:00	634	11:00:00	1610	14:00:00	1940	17:00:00	1640	20:00:00	637
09:00:00	920	12:00:00	1790	15:00:00	1880	18:00:00	1290		
10:00:00	1340	13:00:00	1900	16:00:00	1730	19:00:00	1010		
			JUNE 07, 1988						
08:00:00	605	11:00:00	1530	14:00:00	1870	17:00:00	1530	20:00:00	605
09:00:00	936	12:00:00	1730	15:00:00	1860	18:00:00	1300		
10:00:00	1270	13:00:00	1860	16:00:00	1760	19:00:00	953		
			JUNE 08, 1988						
08:00:00	568	10:00:00	1240	16:00:00	1740	18:00:00	1370	20:00:00	545
09:00:00	975	15:00:00	1840	17:00:00	1600	19:00:00	1010		
			JUNE 09, 1988						
08:00:00	494	11:00:00	1660	14:00:00	1930	17:00:00	1650	20:00:00	651
09:00:00	829	12:00:00	1730	15:00:00	1850	18:00:00	1380		
10:00:00	1130	13:00:00	1880	16:00:00	1820	19:00:00	1020		
			JUNE 10, 1988						
08:00:00	519	11:00:00	1470	14:00:00	1910	17:00:00	1650	20:00:00	608
09:00:00	774	12:00:00	1770	15:00:00	1870	18:00:00	1300		
10:00:00	1280	13:00:00	1900	16:00:00	1750	19:00:00	977		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 11, 1988						
08:00:00	431	11:00:00	1440	14:00:00	1850	17:00:00	1500	20:00:00	554
09:00:00	674	12:00:00	1620	15:00:00	1780	18:00:00	1230		
10:00:00	1040	13:00:00	1850	16:00:00	1640	19:00:00	978		
			JUNE 12, 1988						
08:00:00	395	11:00:00	1140	14:00:00	1770	17:00:00	371	20:00:00	116
09:00:00	748	12:00:00	752	15:00:00	1750	18:00:00	186		
10:00:00	1020	13:00:00	1440	16:00:00	1730	19:00:00	153		
			JUNE 13, 1988						
08:00:00	287	11:00:00	1020	14:00:00	1850	17:00:00	1730	20:00:00	497
09:00:00	896	12:00:00	1730	15:00:00	2000	18:00:00	1160		
10:00:00	1050	13:00:00	1810	16:00:00	1880	19:00:00	1050		
			JUNE 14, 1988						
08:00:00	395	11:00:00	948	14:00:00	2150	17:00:00	1870	20:00:00	773
09:00:00	320	12:00:00	2110	15:00:00	2190	18:00:00	1500		
10:00:00	711	13:00:00	562	16:00:00	2110	19:00:00	246		
			JUNE 15, 1988						
08:00:00	617	11:00:00	1590	14:00:00	2240	17:00:00	2040	20:00:00	660
09:00:00	977	12:00:00	1780	15:00:00	2050	18:00:00	1350		
10:00:00	1320	13:00:00	1920	16:00:00	1500	19:00:00	1060		
			JUNE 16, 1988						
08:00:00	593	11:00:00	1580	14:00:00	1950	17:00:00	1840	20:00:00	183
09:00:00	954	12:00:00	1780	15:00:00	1910	18:00:00	983		
10:00:00	1290	13:00:00	1900	16:00:00	1280	19:00:00	744		
			JUNE 17, 1988						
08:00:00	569	11:00:00	1590	14:00:00	2010	17:00:00	1480	20:00:00	730
09:00:00	1010	12:00:00	1790	15:00:00	1900	18:00:00	1360		
10:00:00	1210	13:00:00	1950	16:00:00	1830	19:00:00	1010		
			JUNE 18, 1988						
08:00:00	434	11:00:00	1700	14:00:00	2090	17:00:00	1390	20:00:00	664
09:00:00	918	12:00:00	1370	15:00:00	1980	18:00:00	1690		
10:00:00	1280	13:00:00	1990	16:00:00	1900	19:00:00	813		
			JUNE 19, 1988						
08:00:00	327	11:00:00	1560	14:00:00	1800	17:00:00	1580	20:00:00	661
09:00:00	1000	12:00:00	2110	15:00:00	2200	18:00:00	1350		
10:00:00	1490	13:00:00	2450	16:00:00	1770	19:00:00	1020		
			JUNE 20, 1988						
08:00:00	662	11:00:00	1610	14:00:00	1890	17:00:00	1590	20:00:00	641
09:00:00	986	12:00:00	1750	15:00:00	1870	18:00:00	1340		
10:00:00	1330	13:00:00	1870	16:00:00	1750	19:00:00	995		
			JUNE 21, 1988						
08:00:00	591	11:00:00	1560	14:00:00	1890	17:00:00	1550	20:00:00	606
09:00:00	928	12:00:00	1760	15:00:00	2060	18:00:00	1380		
10:00:00	1270	13:00:00	1940	16:00:00	1740	19:00:00	1050		
			JUNE 22, 1988						
08:00:00	654	11:00:00	1520	14:00:00	1860	17:00:00	1560	20:00:00	608
09:00:00	956	12:00:00	1710	15:00:00	1830	18:00:00	1320		
10:00:00	1260	13:00:00	1920	16:00:00	1730	19:00:00	971		
			JUNE 23, 1988						
08:00:00	257	11:00:00	1760	14:00:00	1820	17:00:00	1620	20:00:00	561
09:00:00	605	12:00:00	1680	15:00:00	1780	18:00:00	1380		
10:00:00	1250	13:00:00	1780	16:00:00	1750	19:00:00	967		
			JUNE 24, 1988						
08:00:00	599	11:00:00	1560	14:00:00	1840	17:00:00	1580	20:00:00	21.0
09:00:00	969	12:00:00	1730	15:00:00	1800	18:00:00	1460		
10:00:00	1300	13:00:00	1830	16:00:00	1740	19:00:00	186		
			JUNE 25, 1988						
08:00:00	656	11:00:00	1580	14:00:00	1890	17:00:00	1580	20:00:00	659
09:00:00	1010	12:00:00	1760	15:00:00	1870	18:00:00	1330		
10:00:00	1330	13:00:00	1860	16:00:00	1770	19:00:00	1010		
			JUNE 26, 1988						
08:00:00	632	11:00:00	1560	14:00:00	1850	17:00:00	1590	20:00:00	836
09:00:00	979	12:00:00	1750	15:00:00	1850	18:00:00	1050		
10:00:00	1310	13:00:00	1850	16:00:00	1740	19:00:00	896		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 27, 1988						
08:00:00	552	11:00:00	1570	14:00:00	1920	17:00:00	1580	20:00:00	617
09:00:00	934	12:00:00	1750	15:00:00	1890	18:00:00	1350		
10:00:00	1190	13:00:00	1850	16:00:00	1790	19:00:00	1000		
			JUNE 28, 1988						
08:00:00	684	11:00:00	1650	14:00:00	91.0	17:00:00	543	20:00:00	536
09:00:00	989	12:00:00	1700	15:00:00	407	18:00:00	389		
10:00:00	1290	13:00:00	256	16:00:00	269	19:00:00	370		
			JUNE 29, 1988						
08:00:00	100	10:00:00	237	12:00:00	334				
09:00:00	180	11:00:00	418	13:00:00	359				
			AUGUST 18, 1988						
08:00:00	302	11:00:00	1020	14:00:00	1840	17:00:00	677	20:00:00	475
09:00:00	662	12:00:00	1600	15:00:00	1600	18:00:00	580		
10:00:00	598	13:00:00	1690	16:00:00	1890	19:00:00	403		
			AUGUST 19, 1988						
08:00:00	67.0	11:00:00	430	14:00:00	1600	17:00:00	1380	20:00:00	317
09:00:00	149	12:00:00	573	15:00:00	1540	18:00:00	1110		
10:00:00	197	13:00:00	1500	16:00:00	1530	19:00:00	694		
			AUGUST 20, 1988						
08:00:00	264	11:00:00	1310	14:00:00	990	17:00:00	665	20:00:00	88.0
09:00:00	578	12:00:00	1470	15:00:00	1380	18:00:00	663		
10:00:00	834	13:00:00	944	16:00:00	1280	19:00:00	468		
			AUGUST 21, 1988						
08:00:00	177	11:00:00	569	14:00:00	676	17:00:00	714	20:00:00	304
09:00:00	402	12:00:00	475	15:00:00	719	18:00:00	873		
10:00:00	444	13:00:00	528	16:00:00	1380	19:00:00	649		
			AUGUST 22, 1988						
08:00:00	46.0	11:00:00	1260	14:00:00	1750	17:00:00	1460	20:00:00	73.0
09:00:00	195	12:00:00	1570	15:00:00	1670	18:00:00	1220		
10:00:00	448	13:00:00	1700	16:00:00	1640	19:00:00	272		
			AUGUST 23, 1988						
08:00:00	278	11:00:00	1290	14:00:00	1770	17:00:00	1460	20:00:00	397
09:00:00	625	12:00:00	1590	15:00:00	1800	18:00:00	1130		
10:00:00	983	13:00:00	1710	16:00:00	1640	19:00:00	774		
			AUGUST 24, 1988						
08:00:00	277	11:00:00	1300	14:00:00	1710	17:00:00	1420	20:00:00	395
09:00:00	624	12:00:00	1540	15:00:00	1680	18:00:00	1140		
10:00:00	990	13:00:00	1680	16:00:00	1630	19:00:00	792		
			AUGUST 25, 1988						
08:00:00	266	11:00:00	1290	14:00:00	1720	17:00:00	1430	20:00:00	377
09:00:00	618	12:00:00	1510	15:00:00	1670	18:00:00	1150		
10:00:00	975	13:00:00	1710	16:00:00	1630	19:00:00	795		
			AUGUST 26, 1988						
08:00:00	264	10:00:00	981	15:15:00	358	17:15:00	1150	19:15:00	381
09:00:00	540	14:15:00	452	16:15:00	560	18:15:00	855	20:15:00	20.0
			AUGUST 27, 1988						
08:00:00	281	11:00:00	1320	14:00:00	1980	17:00:00	1590	20:00:00	251
09:00:00	642	12:00:00	1640	15:00:00	1910	18:00:00	1160		
10:00:00	1010	13:00:00	1770	16:00:00	1790	19:00:00	733		
			AUGUST 28, 1988						
08:00:00	268	11:00:00	1310	14:00:00	1930	17:00:00	1420	20:00:00	333
09:00:00	626	12:00:00	1650	15:00:00	1990	18:00:00	1120		
10:00:00	995	13:00:00	1870	16:00:00	1700	19:00:00	741		
			AUGUST 29, 1988						
08:00:00	261	11:00:00	1300	14:00:00	1710	17:00:00	1370	20:00:00	325
09:00:00	618	12:00:00	1540	15:00:00	1630	18:00:00	1070		
10:00:00	987	13:00:00	1670	16:00:00	1570	19:00:00	733		
			AUGUST 30, 1988						
08:00:00	258	11:00:00	1290	14:00:00	1660	17:00:00	1330	20:00:00	262
09:00:00	615	12:00:00	1510	15:00:00	1620	18:00:00	1030		
10:00:00	981	13:00:00	1640	16:00:00	1520	19:00:00	651		
			AUGUST 31, 1988						
08:00:00	118	11:00:00	940	14:00:00	1430	17:00:00	521	20:00:00	112
09:00:00	445	12:00:00	1060	15:00:00	1010	18:00:00	432		
10:00:00	526	13:00:00	1360	16:00:00	1150	19:00:00	325		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 01, 1988						
08:00:00	219	11:00:00	1240	14:00:00	1670	17:00:00	1360	20:00:00	296
09:00:00	565	12:00:00	1470	15:00:00	1600	18:00:00	1060		
10:00:00	929	13:00:00	1600	16:00:00	1560	19:00:00	699		
			SEPTEMBER 02, 1988						
08:00:00	166	11:00:00	1770	14:00:00	1640	17:00:00	1630	20:00:00	107
09:00:00	496	12:00:00	1520	15:00:00	1600	18:00:00	898		
10:00:00	652	13:00:00	1620	16:00:00	1710	19:00:00	654		
			SEPTEMBER 03, 1988						
08:00:00	211	11:00:00	1420	14:00:00	2030	17:00:00	1310	20:00:00	257
09:00:00	565	12:00:00	1590	15:00:00	1750	18:00:00	1060		
10:00:00	1150	13:00:00	1050	16:00:00	1610	19:00:00	674		
			SEPTEMBER 04, 1988						
08:00:00	182	11:00:00	1250	14:00:00	1680	17:00:00	1310	20:00:00	270
09:00:00	548	12:00:00	1670	15:00:00	1650	18:00:00	1040		
10:00:00	925	13:00:00	1650	16:00:00	1560	19:00:00	679		
			SEPTEMBER 05, 1988						
08:00:00	212	11:00:00	1250	14:00:00	1660	17:00:00	1330	20:00:00	261
09:00:00	577	12:00:00	1490	15:00:00	1640	18:00:00	1030		
10:00:00	940	13:00:00	1640	16:00:00	1540	19:00:00	663		
			SEPTEMBER 06, 1988						
08:00:00	113	11:00:00	1240	14:00:00	1640	17:00:00	1300	20:00:00	211
09:00:00	311	12:00:00	1480	15:00:00	1580	18:00:00	999		
10:00:00	931	13:00:00	1610	16:00:00	1530	19:00:00	618		
			SEPTEMBER 07, 1988						
08:00:00	165	10:00:00	727	12:00:00	1010	14:00:00	1340	16:00:00	727
09:00:00	477	11:00:00	994	13:00:00	1340	15:00:00	555	20:00:00	68.0
			SEPTEMBER 08, 1988						
08:00:00	118	13:00:00	1470	16:00:00	1470	19:00:00	566		
11:00:00	834	14:00:00	1630	17:00:00	1260	20:00:00	160		
12:00:00	1350	15:00:00	1570	18:00:00	989				
			SEPTEMBER 09, 1988						
08:00:00	164	11:00:00	1110	14:00:00	1540	17:00:00	1220	20:00:00	122
09:00:00	447	12:00:00	1350	15:00:00	1480	18:00:00	933		
10:00:00	797	13:00:00	1490	16:00:00	1420	19:00:00	520		
			SEPTEMBER 10, 1988						
08:00:00	21.0	11:00:00	181	14:00:00	1390	17:00:00	982	20:00:00	71.0
09:00:00	49.0	12:00:00	645	15:00:00	1320	18:00:00	709		
10:00:00	111	13:00:00	1220	16:00:00	1200	19:00:00	354		
			SEPTEMBER 11, 1988						
08:00:00	44.0	11:00:00	397	14:00:00	604	17:00:00	1030	20:00:00	57.0
09:00:00	172	12:00:00	987	15:00:00	748	18:00:00	209		
10:00:00	201	13:00:00	906	16:00:00	1410	19:00:00	232		
			SEPTEMBER 12, 1988						
08:00:00	32.0	11:00:00	275	14:00:00	1080	17:00:00	1190	20:00:00	149
09:00:00	100	12:00:00	354	15:00:00	1120	18:00:00	861		
10:00:00	192	13:00:00	629	16:00:00	1820	19:00:00	536		
			SEPTEMBER 13, 1988						
08:00:00	143	11:00:00	1150	14:00:00	1560	17:00:00	1210	20:00:00	154
09:00:00	497	12:00:00	1360	15:00:00	1520	18:00:00	910		
10:00:00	838	13:00:00	1550	16:00:00	1440	19:00:00	549		
			SEPTEMBER 14, 1988						
08:00:00	133	11:00:00	988	14:00:00	1290	17:00:00	532	20:00:00	22.0
09:00:00	306	12:00:00	1380	15:00:00	1020	18:00:00	311		
10:00:00	488	13:00:00	1380	16:00:00	670	19:00:00	94.0		
			SEPTEMBER 15, 1988						
08:00:00	79.0	11:00:00	148	14:00:00	179	17:00:00	125	20:00:00	14.0
09:00:00	79.0	12:00:00	150	15:00:00	410	18:00:00	96.0		
10:00:00	134	13:00:00	184	16:00:00	227	19:00:00	36.0		
			SEPTEMBER 16, 1988						
08:00:00	36.0	11:00:00	527	14:00:00	1560	17:00:00	1160	20:00:00	94.0
09:00:00	104	12:00:00	1340	15:00:00	1530	18:00:00	855		
10:00:00	194	13:00:00	1620	16:00:00	1370	19:00:00	484		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MAXIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 17, 1988						
08:00:00	108	11:00:00	1240	14:00:00	1490	17:00:00	1000	20:00:00	44.0
09:00:00	419	12:00:00	1530	15:00:00	1480	18:00:00	806		
10:00:00	903	13:00:00	1460	16:00:00	1350	19:00:00	415		
			SEPTEMBER 18, 1988						
08:00:00	87.0	11:00:00	1070	14:00:00	1040	17:00:00	1150	20:00:00	14.0
09:00:00	378	12:00:00	500	15:00:00	1540	18:00:00	454		
10:00:00	656	13:00:00	519	16:00:00	1310	19:00:00	161		
			SEPTEMBER 19, 1988						
08:00:00	13.0	11:00:00	92.0	14:00:00	133	17:00:00	1130	20:00:00	25.0
09:00:00	32.0	12:00:00	244	15:00:00	254	18:00:00	415		
10:00:00	56.0	13:00:00	124	16:00:00	336	19:00:00	139		
			SEPTEMBER 20, 1988						
08:00:00	62.0	10:00:00	450	17:00:00	1150	19:00:00	483		
09:00:00	158	16:00:00	1390	18:00:00	661	20:00:00	55.0		
			SEPTEMBER 21, 1988						
08:00:00	37.0	11:00:00	1250	14:00:00	1160	17:00:00	687	20:00:00	14.0
09:00:00	197	12:00:00	1550	15:00:00	799	18:00:00	248		
10:00:00	450	13:00:00	1110	16:00:00	904	19:00:00	101		
			SEPTEMBER 22, 1988						
08:00:00	43.0	11:00:00	656	14:00:00	693	17:00:00	1100	20:00:00	63.0
09:00:00	206	12:00:00	1150	15:00:00	1430	18:00:00	771		
10:00:00	419	13:00:00	518	16:00:00	1470	19:00:00	410		
			SEPTEMBER 23, 1988						
08:00:00	83.0	11:00:00	1070	14:00:00	1500	17:00:00	1110	20:00:00	43.0
09:00:00	427	12:00:00	1320	15:00:00	1430	18:00:00	802		
10:00:00	771	13:00:00	1420	16:00:00	1340	19:00:00	434		
			SEPTEMBER 24, 1988						
08:00:00	67.0	11:00:00	1000	14:00:00	1470	17:00:00	1070	20:00:00	41.0
09:00:00	244	12:00:00	1270	15:00:00	1430	18:00:00	744		
10:00:00	787	13:00:00	1410	16:00:00	1290	19:00:00	357		
			SEPTEMBER 25, 1988						
08:00:00	98.0	11:00:00	424	14:00:00	1450	17:00:00	1150	20:00:00	28.0
09:00:00	240	12:00:00	1220	15:00:00	1390	18:00:00	694		
10:00:00	545	13:00:00	1540	16:00:00	1300	19:00:00	367		
			SEPTEMBER 26, 1988						
08:00:00	90.0	11:00:00	1230	14:00:00	1410	17:00:00	1020	20:00:00	27.0
09:00:00	335	12:00:00	1240	15:00:00	1410	18:00:00	730		
10:00:00	674	13:00:00	1370	16:00:00	1290	19:00:00	392		
			SEPTEMBER 27, 1988						
08:00:00	72.0	11:00:00	999	14:00:00	1150	17:00:00	360	20:00:00	5.00
09:00:00	331	12:00:00	1400	15:00:00	1490	18:00:00	189		
10:00:00	508	13:00:00	1500	16:00:00	1290	19:00:00	78.0		
			SEPTEMBER 28, 1988						
08:00:00	8.00	11:00:00	187	14:00:00	230	17:00:00	128	20:00:00	5.00
09:00:00	95.0	12:00:00	115	15:00:00	161	18:00:00	120		
10:00:00	119	13:00:00	113	16:00:00	195	19:00:00	32.0		
			SEPTEMBER 29, 1988						
08:00:00	22.0	11:00:00	278	14:00:00	977	17:00:00	216	20:00:00	6.00
09:00:00	105	12:00:00	393	15:00:00	326	18:00:00	135		
10:00:00	144	13:00:00	383	16:00:00	242	19:00:00	61.0		
			SEPTEMBER 30, 1988						
08:00:00	25.0	11:00:00	454	14:00:00	1570	17:00:00	1070	20:00:00	17.0
09:00:00	120	12:00:00	893	15:00:00	1550	18:00:00	585		
10:00:00	237	13:00:00	1780	16:00:00	1450	19:00:00	241		

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 07, 1988						
18:52:00	420	19:52:00	36.0						
			APRIL 08, 1988						
08:37:00	79.0	11:37:00	237	14:37:00	824	17:37:00	475	20:37:00	4.00
09:37:00	242	12:37:00	613	15:37:00	1260	18:37:00	253		
10:37:00	523	13:37:00	593	16:37:00	635	19:37:00	74.0		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 09, 1988						
08:22:00	105	11:22:00	1210	14:22:00	705	17:22:00	403	20:22:00	7.00
09:22:00	273	12:22:00	657	15:22:00	704	18:22:00	318		
10:22:00	896	13:22:00	464	16:22:00	386	19:22:00	210		
			APRIL 10, 1988						
08:37:00	103	11:37:00	1380	14:37:00	268	17:37:00	841	20:37:00	5.00
09:37:00	339	12:37:00	386	15:37:00	1510	18:37:00	461		
10:37:00	1060	13:37:00	353	16:37:00	1210	19:37:00	107		
			APRIL 11, 1988						
08:22:00	179	11:22:00	1350	14:22:00	1480	17:22:00	883	20:22:00	8.00
09:22:00	540	12:22:00	213	15:22:00	1440	18:22:00	515		
10:22:00	961	13:22:00	206	16:22:00	1210	19:22:00	179		
			APRIL 12, 1988						
08:22:00	191	11:22:00	1230	14:22:00	1630	17:22:00	964	20:22:00	7.00
09:22:00	627	12:22:00	1440	15:22:00	1500	18:22:00	582		
10:22:00	993	13:22:00	1600	16:22:00	1280	19:22:00	256		
			APRIL 13, 1988						
08:22:00	66.0	12:00:00	1350	15:00:00	1550	18:00:00	711		
09:22:00	94.0	13:00:00	1550	16:00:00	1350	19:00:00	325		
11:00:00	913	14:00:00	1630	17:00:00	1060	20:00:00	46.0		
			APRIL 14, 1988						
08:15:00	122	11:15:00	1150	14:15:00	1650	17:15:00	1040	20:15:00	19.0
09:15:00	325	12:15:00	1430	15:15:00	1560	18:15:00	672		
10:15:00	822	13:15:00	1610	16:15:00	1350	19:15:00	288		
			APRIL 15, 1988						
08:15:00	130	11:15:00	1160	14:15:00	1640	17:15:00	1070	20:15:00	21.0
09:15:00	450	12:15:00	1430	15:15:00	1590	18:15:00	633		
10:15:00	820	13:15:00	1610	16:15:00	1370	19:15:00	214		
			APRIL 16, 1988						
08:15:00	139	11:15:00	741	14:15:00	876	17:15:00	934	20:15:00	20.0
09:15:00	473	12:15:00	1490	15:15:00	1480	18:15:00	604		
10:15:00	658	13:15:00	1780	16:15:00	1310	19:15:00	294		
			APRIL 17, 1988						
08:15:00	76.0	11:15:00	590	14:15:00	1570	17:15:00	865	20:15:00	22.0
09:15:00	263	12:15:00	622	15:15:00	1440	18:15:00	514		
10:15:00	518	13:15:00	1540	16:15:00	1200	19:15:00	218		
			APRIL 18, 1988						
08:00:00	133	11:00:00	312	14:00:00	1750	17:00:00	1050	20:00:00	70.0
09:00:00	522	12:00:00	224	15:00:00	1620	18:00:00	841	21:00:00	5.00
10:00:00	923	13:00:00	1720	16:00:00	1370	19:00:00	402		
			APRIL 19, 1988						
08:00:00	101	12:00:00	1400	15:00:00	1590	18:00:00	825		
10:00:00	780	13:00:00	1600	16:00:00	1430	19:00:00	259		
11:00:00	1110	14:00:00	1690	17:00:00	1150	20:00:00	39.0		
			APRIL 20, 1988						
09:00:00	335	12:00:00	1190	15:00:00	1650	18:00:00	762		
10:00:00	560	13:00:00	1610	16:00:00	981	19:00:00	276		
11:00:00	640	14:00:00	1710	17:00:00	1160	20:00:00	47.0		
			APRIL 21, 1988						
09:00:00	83.0	12:00:00	349	15:00:00	466	18:00:00	347		
10:00:00	240	13:00:00	339	16:00:00	646	19:00:00	210		
11:00:00	294	14:00:00	497	17:00:00	374	20:00:00	48.0		
			APRIL 22, 1988						
09:00:00	404	12:00:00	938	15:00:00	1160	18:00:00	321		
10:00:00	757	13:00:00	1450	16:00:00	922	19:00:00	109		
11:00:00	781	14:00:00	1480	17:00:00	581	20:00:00	30.0		
			APRIL 23, 1988						
09:00:00	473	12:00:00	1440	15:00:00	1620	18:00:00	819		
10:00:00	830	13:00:00	1620	16:00:00	1440	19:00:00	431		
11:00:00	1190	14:00:00	1700	17:00:00	1170	20:00:00	93.0		
			APRIL 24, 1988						
09:00:00	311	12:00:00	1380	15:00:00	748	18:00:00	725		
10:00:00	748	13:00:00	617	16:00:00	1510	19:00:00	380		
11:00:00	613	14:00:00	766	17:00:00	1130	20:00:00	103		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 25, 1988						
09:00:00	413	12:00:00	844	15:00:00	1480	18:00:00	497		
10:00:00	306	13:00:00	993	16:00:00	958	19:00:00	177		
11:00:00	823	14:00:00	1440	17:00:00	728	20:00:00	33.0		
			APRIL 26, 1988						
09:00:00	113	12:00:00	302	15:00:00	431	18:00:00	169		
10:00:00	266	13:00:00	522	16:00:00	676	19:00:00	184		
11:00:00	234	14:00:00	480	17:00:00	705	20:00:00	55.0		
			APRIL 27, 1988						
09:00:00	510	12:00:00	1520	15:00:00	1630	18:00:00	855		
10:00:00	886	13:00:00	1660	16:00:00	1450	19:00:00	480		
11:00:00	1210	14:00:00	1760	17:00:00	1210	20:00:00	113		
			APRIL 28, 1988						
09:00:00	515	12:00:00	1490	15:00:00	1680	18:00:00	860		
10:00:00	888	13:00:00	1680	16:00:00	1480	19:00:00	479		
11:00:00	1220	14:00:00	1760	17:00:00	1180	20:00:00	127		
			APRIL 29, 1988						
09:00:00	477	12:00:00	1450	15:00:00	1560	18:00:00	902		
10:00:00	868	13:00:00	1630	16:00:00	1420	19:00:00	238		
11:00:00	1220	14:00:00	1750	17:00:00	1170	20:00:00	78.0		
			APRIL 30, 1988						
09:00:00	524	12:00:00	511	15:00:00	753	18:00:00	865		
10:00:00	806	13:00:00	496	16:00:00	929	19:00:00	441		
11:00:00	490	14:00:00	816	17:00:00	1200	20:00:00	100		
			MAY 01, 1988						
09:00:00	383	12:00:00	1270	15:00:00	536	18:00:00	96.0		
10:00:00	477	13:00:00	1160	16:00:00	638	19:00:00	41.0		
11:00:00	941	14:00:00	1050	17:00:00	205	20:00:00	19.0		
			MAY 02, 1988						
09:00:00	229	11:00:00	406	13:00:00	308	15:00:00	814	20:00:00	35.0
10:00:00	395	12:00:00	605	14:00:00	601	16:00:00	777		
			MAY 03, 1988						
10:00:00	592	13:00:00	559	16:00:00	846	19:00:00	300		
11:00:00	676	14:00:00	475	17:00:00	1280	20:00:00	89.0		
12:00:00	612	15:00:00	899	18:00:00	631				
			MAY 04, 1988						
09:00:00	500	12:00:00	1410	15:00:00	1380	18:00:00	817		
10:00:00	890	13:00:00	1650	16:00:00	1440	19:00:00	447		
11:00:00	1190	14:00:00	1640	17:00:00	1160	20:00:00	123		
			MAY 05, 1988						
09:00:00	524	12:00:00	1500	15:00:00	1540	18:00:00	532		
10:00:00	894	13:00:00	1070	16:00:00	1410	19:00:00	274		
11:00:00	1230	14:00:00	1460	17:00:00	1050	20:00:00	80.0		
			MAY 06, 1988						
09:00:00	231	12:00:00	658	15:00:00	416	18:00:00	298		
10:00:00	909	13:00:00	541	16:00:00	1200	19:00:00	194		
11:00:00	1050	14:00:00	185	17:00:00	390	20:00:00	61.0		
			MAY 07, 1988						
09:00:00	630	12:00:00	184	15:00:00	1340	18:00:00	430		
10:00:00	594	13:00:00	190	16:00:00	522	19:00:00	181		
11:00:00	345	14:00:00	1660	17:00:00	530	20:00:00	114		
			MAY 08, 1988						
09:00:00	634	12:00:00	514	15:00:00	489	18:00:00	339		
10:00:00	1010	13:00:00	514	16:00:00	532	19:00:00	96.0		
11:00:00	537	14:00:00	1100	17:00:00	479	20:00:00	43.0		
			MAY 09, 1988						
09:00:00	681	12:00:00	1650	15:00:00	1670	18:00:00	285		
10:00:00	1010	13:00:00	1740	16:00:00	1500	19:00:00	163		
11:00:00	1360	14:00:00	1750	17:00:00	1220	20:00:00	137		
			MAY 10, 1988						
09:00:00	602	12:00:00	1560	15:00:00	1730	18:00:00	922		
10:00:00	996	13:00:00	1750	16:00:00	1540	19:00:00	539		
11:00:00	1310	14:00:00	1780	17:00:00	1250	20:00:00	188		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 11, 1988						
09:00:00	297	12:00:00	716	15:00:00	1910	18:00:00	430		
10:00:00	258	13:00:00	1790	16:00:00	354	19:00:00	183		
11:00:00	727	14:00:00	382	17:00:00	948	20:00:00	162		
			MAY 12, 1988						
09:00:00	700	12:00:00	1620	15:00:00	1450	18:00:00	115		
10:00:00	1100	13:00:00	1770	16:00:00	1350	19:00:00	110		
11:00:00	1430	14:00:00	1680	17:00:00	201	20:00:00	53.0		
			MAY 13, 1988						
09:00:00	661	12:00:00	1590	15:00:00	1680	18:00:00	836		
10:00:00	1030	13:00:00	1760	16:00:00	1470	19:00:00	449		
11:00:00	1350	14:00:00	1350	17:00:00	1190	20:00:00	156		
			MAY 14, 1988						
09:00:00	138	12:00:00	493	15:00:00	1680	18:00:00	816		
10:00:00	453	13:00:00	1740	16:00:00	1530	19:00:00	624		
11:00:00	552	14:00:00	1390	17:00:00	705	20:00:00	124		
			MAY 15, 1988						
09:00:00	364	12:00:00	1140	15:00:00	1560	18:00:00	329		
10:00:00	783	13:00:00	1580	16:00:00	464	19:00:00	210		
11:00:00	1160	14:00:00	1600	17:00:00	1090	20:00:00	146		
			MAY 16, 1988						
09:00:00	210	12:00:00	1670	15:00:00	1700	18:00:00	837		
10:00:00	247	13:00:00	1810	16:00:00	1480	19:00:00	482		
11:00:00	1420	14:00:00	1830	17:00:00	1180	20:00:00	165		
			MAY 17, 1988						
09:00:00	763	12:00:00	1530	15:00:00	1540	18:00:00	630		
10:00:00	1160	13:00:00	1800	16:00:00	1130	19:00:00	376		
11:00:00	209	14:00:00	1810	17:00:00	838	20:00:00	141		
			MAY 18, 1988						
09:00:00	588	12:00:00	1620	15:00:00	562	18:00:00	43.0		
10:00:00	394	13:00:00	1470	16:00:00	659	19:00:00	43.0		
11:00:00	394	14:00:00	579	17:00:00	454	20:00:00	10.0		
			MAY 19, 1988						
12:00:00	194	14:00:00	264	16:00:00	638	18:00:00	226	20:00:00	154
13:00:00	146	15:00:00	469	17:00:00	270	19:00:00	237		
			MAY 20, 1988						
08:00:00	29.0	11:00:00	545	14:00:00	1100	17:00:00	69.0	20:00:00	54.0
09:00:00	75.0	12:00:00	483	15:00:00	779	18:00:00	63.0		
10:00:00	315	13:00:00	1070	16:00:00	431	19:00:00	51.0		
			MAY 21, 1988						
08:00:00	29.0	11:00:00	163	14:00:00	231	17:00:00	122	20:00:00	26.0
09:00:00	127	12:00:00	228	15:00:00	301	18:00:00	79.0		
10:00:00	156	13:00:00	157	16:00:00	105	19:00:00	71.0		
			MAY 22, 1988						
08:00:00	33.0	11:00:00	219	14:00:00	494	17:00:00	307	20:00:00	169
09:00:00	79.0	12:00:00	262	15:00:00	743	18:00:00	165		
10:00:00	90.0	13:00:00	469	16:00:00	469	19:00:00	157		
			MAY 23, 1988						
08:00:00	298	11:00:00	1370	14:00:00	1930	17:00:00	1400	20:00:00	275
09:00:00	647	12:00:00	1650	15:00:00	433	18:00:00	1050		
10:00:00	1030	13:00:00	1840	16:00:00	1670	19:00:00	661		
			MAY 24, 1988						
08:00:00	290	11:00:00	796	14:00:00	1900	17:00:00	434	20:00:00	258
09:00:00	386	12:00:00	1590	15:00:00	792	18:00:00	1030		
10:00:00	1140	13:00:00	1830	16:00:00	1700	19:00:00	661		
			MAY 25, 1988						
08:00:00	339	11:00:00	1240	14:00:00	1260	17:00:00	739	20:00:00	231
09:00:00	560	12:00:00	1490	15:00:00	798	18:00:00	451		
10:00:00	899	13:00:00	1700	16:00:00	859	19:00:00	450		
			MAY 26, 1988						
08:00:00	262	11:00:00	1280	14:00:00	424	17:00:00	1370	20:00:00	10.0
09:00:00	618	12:00:00	1500	15:00:00	1330	18:00:00	973		
10:00:00	959	13:00:00	1730	16:00:00	1630	19:00:00	57.0		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 27, 1988						
08:00:00	206	11:00:00	1190	14:00:00	1870	17:00:00	1390	20:00:00	303
09:00:00	579	12:00:00	1590	15:00:00	936	18:00:00	931		
10:00:00	1030	13:00:00	1700	16:00:00	987	19:00:00	442		
			MAY 28, 1988						
08:00:00	172	11:00:00	1130	14:00:00	884	17:00:00	1120	20:00:00	251
09:00:00	265	12:00:00	1550	15:00:00	1510	18:00:00	1040		
10:00:00	805	13:00:00	1570	16:00:00	1200	19:00:00	617		
			MAY 29, 1988						
08:00:00	226	11:00:00	1300	14:00:00	1890	18:00:00	1020		
09:00:00	601	12:00:00	1640	16:00:00	1550	19:00:00	563		
10:00:00	1040	13:00:00	1560	17:00:00	1300	20:00:00	270		
			MAY 30, 1988						
08:00:00	21.0	11:00:00	915	14:00:00	693	17:00:00	1400	20:00:00	222
09:00:00	351	12:00:00	1560	15:00:00	672	18:00:00	490		
10:00:00	465	13:00:00	805	16:00:00	597	19:00:00	341		
			MAY 31, 1988						
08:00:00	199	11:00:00	1270	14:00:00	1850	17:00:00	496	20:00:00	265
09:00:00	684	12:00:00	1480	15:00:00	686	18:00:00	997		
10:00:00	934	13:00:00	1770	16:00:00	591	19:00:00	611		
			JUNE 01, 1988						
08:00:00	167	11:00:00	307	14:00:00	1840	17:00:00	877	20:00:00	138
09:00:00	526	12:00:00	802	15:00:00	1670	18:00:00	604		
10:00:00	504	13:00:00	1600	16:00:00	1600	19:00:00	412		
			JUNE 02, 1988						
08:00:00	203	11:00:00	1270	14:00:00	1770	17:00:00	1290	20:00:00	243
09:00:00	463	12:00:00	1540	15:00:00	1710	18:00:00	927		
10:00:00	1030	13:00:00	1710	16:00:00	1540	19:00:00	588		
			JUNE 03, 1988						
08:00:00	297	11:00:00	1330	14:00:00	1860	17:00:00	1170	20:00:00	313
09:00:00	625	12:00:00	1590	15:00:00	1850	18:00:00	933		
10:00:00	989	13:00:00	1790	16:00:00	1620	19:00:00	661		
			JUNE 04, 1988						
08:00:00	322	11:00:00	1360	14:00:00	388	17:00:00	1420	20:00:00	327
09:00:00	675	12:00:00	1630	15:00:00	1970	18:00:00	1070		
10:00:00	1030	13:00:00	1880	16:00:00	692	19:00:00	707		
			JUNE 05, 1988						
08:00:00	293	11:00:00	1320	14:00:00	1850	17:00:00	1350	20:00:00	304
09:00:00	655	12:00:00	1630	15:00:00	1310	18:00:00	1020		
10:00:00	982	13:00:00	1790	16:00:00	1710	19:00:00	705		
			JUNE 06, 1988						
08:00:00	349	11:00:00	1380	14:00:00	1900	17:00:00	1350	20:00:00	328
09:00:00	708	12:00:00	1660	15:00:00	370	18:00:00	1030		
10:00:00	1080	13:00:00	1840	16:00:00	1620	19:00:00	680		
			JUNE 07, 1988						
08:00:00	320	11:00:00	1350	14:00:00	1860	17:00:00	1360	20:00:00	317
09:00:00	651	12:00:00	1590	15:00:00	1780	18:00:00	1030		
10:00:00	1040	13:00:00	1770	16:00:00	1620	19:00:00	675		
			JUNE 08, 1988						
08:00:00	322	10:00:00	1020	16:00:00	1420	18:00:00	1080	20:00:00	210
09:00:00	399	15:00:00	963	17:00:00	1390	19:00:00	665		
			JUNE 09, 1988						
08:00:00	270	11:00:00	778	14:00:00	1890	17:00:00	1430	20:00:00	350
09:00:00	542	12:00:00	1660	15:00:00	352	18:00:00	1080		
10:00:00	586	13:00:00	1780	16:00:00	1700	19:00:00	747		
			JUNE 10, 1988						
08:00:00	272	11:00:00	1290	14:00:00	1890	17:00:00	1410	20:00:00	333
09:00:00	623	12:00:00	1470	15:00:00	532	18:00:00	1120		
10:00:00	884	13:00:00	1780	16:00:00	1680	19:00:00	732		
			JUNE 11, 1988						
08:00:00	304	11:00:00	1080	14:00:00	1760	17:00:00	1360	20:00:00	277
09:00:00	504	12:00:00	1400	15:00:00	1520	18:00:00	1050		
10:00:00	777	13:00:00	1610	16:00:00	1490	19:00:00	639		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 12, 1988						
08:00:00	198	11:00:00	702	14:00:00	703	17:00:00	52.0	20:00:00	33.0
09:00:00	447	12:00:00	614	15:00:00	1190	18:00:00	105		
10:00:00	696	13:00:00	759	16:00:00	875	19:00:00	94.0		
			JUNE 13, 1988						
08:00:00	129	11:00:00	577	14:00:00	1830	17:00:00	1440	20:00:00	300
09:00:00	490	12:00:00	854	15:00:00	1850	18:00:00	573		
10:00:00	703	13:00:00	1740	16:00:00	814	19:00:00	732		
			JUNE 14, 1988						
08:00:00	239	11:00:00	571	14:00:00	519	17:00:00	496	20:00:00	176
09:00:00	241	12:00:00	782	15:00:00	580	18:00:00	650		
10:00:00	478	13:00:00	344	16:00:00	595	19:00:00	118		
			JUNE 15, 1988						
08:00:00	187	11:00:00	1390	14:00:00	496	17:00:00	520	20:00:00	375
09:00:00	728	12:00:00	1660	15:00:00	595	18:00:00	358		
10:00:00	1060	13:00:00	1840	16:00:00	455	19:00:00	756		
			JUNE 16, 1988						
08:00:00	330	11:00:00	1350	14:00:00	1920	17:00:00	654	20:00:00	29.0
09:00:00	681	12:00:00	1630	15:00:00	1780	18:00:00	444		
10:00:00	1040	13:00:00	1810	16:00:00	597	19:00:00	271		
			JUNE 17, 1988						
08:00:00	181	11:00:00	1390	14:00:00	1910	17:00:00	1010	20:00:00	401
09:00:00	714	12:00:00	1630	15:00:00	1830	18:00:00	745		
10:00:00	1120	13:00:00	1820	16:00:00	1700	19:00:00	660		
			JUNE 18, 1988						
08:00:00	149	11:00:00	1380	14:00:00	1710	17:00:00	757	20:00:00	357
09:00:00	500	12:00:00	923	15:00:00	1480	18:00:00	342		
10:00:00	1050	13:00:00	1170	16:00:00	1520	19:00:00	441		
			JUNE 19, 1988						
08:00:00	219	11:00:00	783	14:00:00	881	17:00:00	1420	20:00:00	393
09:00:00	425	12:00:00	1620	15:00:00	1820	18:00:00	1120		
10:00:00	1070	13:00:00	919	16:00:00	1660	19:00:00	757		
			JUNE 20, 1988						
08:00:00	393	11:00:00	1400	14:00:00	1860	17:00:00	1370	20:00:00	355
09:00:00	753	12:00:00	1650	15:00:00	1790	18:00:00	1070		
10:00:00	1060	13:00:00	1780	16:00:00	1640	19:00:00	760		
			JUNE 21, 1988						
08:00:00	154	11:00:00	582	14:00:00	1280	17:00:00	1500	20:00:00	254
09:00:00	367	12:00:00	1610	15:00:00	1780	18:00:00	475		
10:00:00	637	13:00:00	1070	16:00:00	1620	19:00:00	715		
			JUNE 22, 1988						
08:00:00	198	11:00:00	1310	14:00:00	1830	17:00:00	1370	20:00:00	363
09:00:00	699	12:00:00	1610	15:00:00	1760	18:00:00	1060		
10:00:00	1050	13:00:00	1750	16:00:00	1610	19:00:00	702		
			JUNE 23, 1988						
08:00:00	164	11:00:00	834	14:00:00	1790	17:00:00	504	20:00:00	313
09:00:00	345	12:00:00	859	15:00:00	1730	18:00:00	824		
10:00:00	608	13:00:00	1660	16:00:00	1610	19:00:00	668		
			JUNE 24, 1988						
08:00:00	353	11:00:00	1370	14:00:00	1760	17:00:00	874	20:00:00	8.00
09:00:00	699	12:00:00	1610	15:00:00	1690	18:00:00	99.0		
10:00:00	1050	13:00:00	1770	16:00:00	1610	19:00:00	20.0		
			JUNE 25, 1988						
08:00:00	390	11:00:00	1390	14:00:00	1880	17:00:00	1400	20:00:00	397
09:00:00	740	12:00:00	1640	15:00:00	1810	18:00:00	1090		
10:00:00	1100	13:00:00	1790	16:00:00	1640	19:00:00	741		
			JUNE 26, 1988						
08:00:00	390	11:00:00	1370	14:00:00	1750	17:00:00	1210	20:00:00	296
09:00:00	701	12:00:00	1610	15:00:00	1780	18:00:00	720		
10:00:00	1070	13:00:00	1770	16:00:00	1630	19:00:00	704		
			JUNE 27, 1988						
08:00:00	331	11:00:00	1340	14:00:00	1860	17:00:00	1460	20:00:00	349
09:00:00	642	12:00:00	1620	15:00:00	1860	18:00:00	1090		
10:00:00	1010	13:00:00	1810	16:00:00	1650	19:00:00	728		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 28, 1988						
08:00:00	321	11:00:00	743	14:00:00	62.0	17:00:00	351	20:00:00	243
09:00:00	736	12:00:00	408	15:00:00	159	18:00:00	247		
10:00:00	1060	13:00:00	95.0	16:00:00	253	19:00:00	273		
			JUNE 29, 1988						
08:00:00	66.0	10:00:00	190	12:00:00	287				
09:00:00	55.0	11:00:00	239	13:00:00	259				
			AUGUST 18, 1988						
08:00:00	23.0	11:00:00	703	14:00:00	1720	17:00:00	403	20:00:00	78.0
09:00:00	391	12:00:00	1020	15:00:00	320	18:00:00	424		
10:00:00	413	13:00:00	1460	16:00:00	549	19:00:00	185		
			AUGUST 19, 1988						
08:00:00	16.0	11:00:00	207	14:00:00	1230	17:00:00	1200	20:00:00	82.0
09:00:00	80.0	12:00:00	393	15:00:00	624	18:00:00	826		
10:00:00	147	13:00:00	815	16:00:00	1420	19:00:00	422		
			AUGUST 20, 1988						
08:00:00	73.0	11:00:00	930	14:00:00	685	17:00:00	502	20:00:00	46.0
09:00:00	338	12:00:00	872	15:00:00	805	18:00:00	484		
10:00:00	649	13:00:00	526	16:00:00	1040	19:00:00	186		
			AUGUST 21, 1988						
08:00:00	52.0	11:00:00	354	14:00:00	440	17:00:00	581	20:00:00	88.0
09:00:00	220	12:00:00	237	15:00:00	338	18:00:00	551		
10:00:00	332	13:00:00	344	16:00:00	780	19:00:00	463		
			AUGUST 22, 1988						
08:00:00	27.0	11:00:00	499	14:00:00	1720	17:00:00	325	20:00:00	32.0
09:00:00	116	12:00:00	1410	15:00:00	181	18:00:00	860		
10:00:00	194	13:00:00	184	16:00:00	1510	19:00:00	28.0		
			AUGUST 23, 1988						
08:00:00	66.0	11:00:00	1070	14:00:00	1220	17:00:00	1250	20:00:00	111
09:00:00	360	12:00:00	1400	15:00:00	1670	18:00:00	706		
10:00:00	720	13:00:00	211	16:00:00	1540	19:00:00	486		
			AUGUST 24, 1988						
08:00:00	62.0	11:00:00	1080	14:00:00	1680	17:00:00	1220	20:00:00	108
09:00:00	361	12:00:00	1380	15:00:00	215	18:00:00	896		
10:00:00	717	13:00:00	1580	16:00:00	1490	19:00:00	494		
			AUGUST 25, 1988						
08:00:00	58.0	11:00:00	1070	14:00:00	1210	17:00:00	1210	20:00:00	97.0
09:00:00	364	12:00:00	1360	15:00:00	415	18:00:00	899		
10:00:00	704	13:00:00	1610	16:00:00	1490	19:00:00	500		
			AUGUST 26, 1988						
08:00:00	56.0	10:00:00	659	15:15:00	209	17:15:00	577	19:15:00	63.0
09:00:00	332	14:15:00	161	16:15:00	210	18:15:00	317	20:15:00	6.00
			AUGUST 27, 1988						
08:00:00	55.0	11:00:00	1100	14:00:00	356	17:00:00	283	20:00:00	55.0
09:00:00	366	12:00:00	1390	15:00:00	398	18:00:00	312		
10:00:00	731	13:00:00	1110	16:00:00	362	19:00:00	505		
			AUGUST 28, 1988						
08:00:00	53.0	11:00:00	1080	14:00:00	636	17:00:00	1190	20:00:00	67.0
09:00:00	353	12:00:00	1380	15:00:00	348	18:00:00	843		
10:00:00	721	13:00:00	237	16:00:00	582	19:00:00	434		
			AUGUST 29, 1988						
08:00:00	52.0	11:00:00	1070	14:00:00	1690	17:00:00	1170	20:00:00	62.0
09:00:00	348	12:00:00	1360	15:00:00	594	18:00:00	805		
10:00:00	713	13:00:00	1580	16:00:00	1450	19:00:00	427		
			AUGUST 30, 1988						
08:00:00	51.0	11:00:00	1060	14:00:00	1630	17:00:00	1100	20:00:00	27.0
09:00:00	346	12:00:00	1340	15:00:00	293	18:00:00	747		
10:00:00	708	13:00:00	1570	16:00:00	1400	19:00:00	362		
			AUGUST 31, 1988						
08:00:00	31.0	11:00:00	556	14:00:00	697	17:00:00	329	20:00:00	16.0
09:00:00	160	12:00:00	955	15:00:00	763	18:00:00	325		
10:00:00	322	13:00:00	989	16:00:00	554	19:00:00	163		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 01, 1988						
08:00:00	42.0	11:00:00	1010	14:00:00	1640	17:00:00	1130	20:00:00	29.0
09:00:00	303	12:00:00	1310	15:00:00	301	18:00:00	785		
10:00:00	656	13:00:00	1520	16:00:00	1390	19:00:00	398		
			SEPTEMBER 02, 1988						
08:00:00	39.0	11:00:00	323	14:00:00	345	17:00:00	444	20:00:00	23.0
09:00:00	163	12:00:00	1310	15:00:00	567	18:00:00	314		
10:00:00	422	13:00:00	1530	16:00:00	1570	19:00:00	183		
			SEPTEMBER 03, 1988						
08:00:00	36.0	11:00:00	689	14:00:00	614	17:00:00	1200	20:00:00	32.0
09:00:00	300	12:00:00	325	15:00:00	428	18:00:00	714		
10:00:00	366	13:00:00	625	16:00:00	1380	19:00:00	321		
			SEPTEMBER 04, 1988						
08:00:00	36.0	11:00:00	1020	14:00:00	1630	17:00:00	1110	20:00:00	22.0
09:00:00	275	12:00:00	1300	15:00:00	286	18:00:00	777		
10:00:00	663	13:00:00	1540	16:00:00	1360	19:00:00	386		
			SEPTEMBER 05, 1988						
08:00:00	37.0	11:00:00	1030	14:00:00	1620	17:00:00	1120	20:00:00	22.0
09:00:00	310	12:00:00	1320	15:00:00	1270	18:00:00	764		
10:00:00	669	13:00:00	1530	16:00:00	1390	19:00:00	361		
			SEPTEMBER 06, 1988						
08:00:00	32.0	11:00:00	1010	14:00:00	1580	17:00:00	1070	20:00:00	16.0
09:00:00	160	12:00:00	1310	15:00:00	1250	18:00:00	722		
10:00:00	661	13:00:00	1520	16:00:00	1360	19:00:00	314		
			SEPTEMBER 07, 1988						
08:00:00	31.0	10:00:00	556	12:00:00	984	14:00:00	1120	16:00:00	420
09:00:00	228	11:00:00	779	13:00:00	1080	15:00:00	282	20:00:00	8.00
			SEPTEMBER 08, 1988						
08:00:00	14.0	13:00:00	229	16:00:00	1350	19:00:00	268		
11:00:00	597	14:00:00	1580	17:00:00	1070	20:00:00	12.0		
12:00:00	959	15:00:00	565	18:00:00	712				
			SEPTEMBER 09, 1988						
08:00:00	24.0	11:00:00	888	14:00:00	1490	17:00:00	1010	20:00:00	9.00
09:00:00	212	12:00:00	1180	15:00:00	820	18:00:00	638		
10:00:00	555	13:00:00	1370	16:00:00	1280	19:00:00	217		
			SEPTEMBER 10, 1988						
08:00:00	7.00	11:00:00	129	14:00:00	1100	17:00:00	757	20:00:00	6.00
09:00:00	27.0	12:00:00	195	15:00:00	917	18:00:00	471		
10:00:00	56.0	13:00:00	811	16:00:00	965	19:00:00	83.0		
			SEPTEMBER 11, 1988						
08:00:00	7.00	11:00:00	121	14:00:00	125	17:00:00	325	20:00:00	4.00
09:00:00	82.0	12:00:00	201	15:00:00	134	18:00:00	107		
10:00:00	146	13:00:00	356	16:00:00	398	19:00:00	54.0		
			SEPTEMBER 12, 1988						
08:00:00	7.00	11:00:00	209	14:00:00	576	17:00:00	940	20:00:00	6.00
09:00:00	32.0	12:00:00	287	15:00:00	702	18:00:00	633		
10:00:00	122	13:00:00	317	16:00:00	670	19:00:00	237		
			SEPTEMBER 13, 1988						
08:00:00	19.0	11:00:00	927	14:00:00	1540	17:00:00	999	20:00:00	5.00
09:00:00	231	12:00:00	1240	15:00:00	810	18:00:00	636		
10:00:00	581	13:00:00	1440	16:00:00	1280	19:00:00	246		
			SEPTEMBER 14, 1988						
08:00:00	19.0	11:00:00	567	14:00:00	963	17:00:00	433	20:00:00	3.00
09:00:00	203	12:00:00	714	15:00:00	696	18:00:00	118		
10:00:00	366	13:00:00	1000	16:00:00	502	19:00:00	39.0		
			SEPTEMBER 15, 1988						
08:00:00	7.00	11:00:00	87.0	14:00:00	107	17:00:00	52.0	20:00:00	3.00
09:00:00	57.0	12:00:00	76.0	15:00:00	192	18:00:00	69.0		
10:00:00	62.0	13:00:00	104	16:00:00	112	19:00:00	30.0		
			SEPTEMBER 16, 1988						
08:00:00	5.00	11:00:00	282	14:00:00	649	17:00:00	936	20:00:00	3.00
09:00:00	61.0	12:00:00	533	15:00:00	1410	18:00:00	561		
10:00:00	86.0	13:00:00	695	16:00:00	1210	19:00:00	168		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MINIMUM HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 17, 1988						
08:00:00	10.0	11:00:00	523	14:00:00	1460	17:00:00	844	20:00:00	2.00
09:00:00	232	12:00:00	570	15:00:00	1430	18:00:00	519		
10:00:00	551	13:00:00	1380	16:00:00	1080	19:00:00	89.0		
			SEPTEMBER 18, 1988						
08:00:00	10.0	11:00:00	447	14:00:00	352	17:00:00	466	20:00:00	1.00
09:00:00	151	12:00:00	248	15:00:00	554	18:00:00	278		
10:00:00	449	13:00:00	343	16:00:00	619	19:00:00	56.0		
			SEPTEMBER 19, 1988						
08:00:00	3.00	11:00:00	77.0	14:00:00	112	17:00:00	636	20:00:00	2.00
09:00:00	15.0	12:00:00	130	15:00:00	175	18:00:00	149		
10:00:00	38.0	13:00:00	107	16:00:00	188	19:00:00	53.0		
			SEPTEMBER 20, 1988						
08:00:00	6.00	10:00:00	280	17:00:00	945	19:00:00	171		
09:00:00	121	16:00:00	1250	18:00:00	295	20:00:00	2.00		
			SEPTEMBER 21, 1988						
08:00:00	4.00	11:00:00	496	14:00:00	557	17:00:00	186	20:00:00	2.00
09:00:00	45.0	12:00:00	497	15:00:00	742	18:00:00	167		
10:00:00	222	13:00:00	583	16:00:00	539	19:00:00	23.0		
			SEPTEMBER 22, 1988						
08:00:00	4.00	11:00:00	239	14:00:00	451	17:00:00	917	20:00:00	2.00
09:00:00	84.0	12:00:00	341	15:00:00	679	18:00:00	476		
10:00:00	288	13:00:00	232	16:00:00	681	19:00:00	139		
			SEPTEMBER 23, 1988						
08:00:00	6.00	11:00:00	864	14:00:00	1460	17:00:00	575	20:00:00	2.00
09:00:00	149	12:00:00	1150	15:00:00	1410	18:00:00	535		
10:00:00	520	13:00:00	1370	16:00:00	835	19:00:00	138		
			SEPTEMBER 24, 1988						
08:00:00	4.00	11:00:00	771	14:00:00	1390	17:00:00	842	20:00:00	2.00
09:00:00	116	12:00:00	1100	15:00:00	1340	18:00:00	459		
10:00:00	406	13:00:00	1340	16:00:00	1140	19:00:00	100		
			SEPTEMBER 25, 1988						
08:00:00	4.00	11:00:00	273	14:00:00	442	17:00:00	701	20:00:00	2.00
09:00:00	130	12:00:00	618	15:00:00	1300	18:00:00	399		
10:00:00	236	13:00:00	472	16:00:00	1110	19:00:00	107		
			SEPTEMBER 26, 1988						
08:00:00	4.00	11:00:00	628	14:00:00	1390	17:00:00	810	20:00:00	2.00
09:00:00	152	12:00:00	1000	15:00:00	1320	18:00:00	141		
10:00:00	463	13:00:00	821	16:00:00	1080	19:00:00	91.0		
			SEPTEMBER 27, 1988						
08:00:00	4.00	11:00:00	579	14:00:00	658	17:00:00	203	20:00:00	2.00
09:00:00	99.0	12:00:00	552	15:00:00	1230	18:00:00	73.0		
10:00:00	393	13:00:00	539	16:00:00	811	19:00:00	17.0		
			SEPTEMBER 28, 1988						
08:00:00	2.00	11:00:00	91.0	14:00:00	134	17:00:00	71.0	20:00:00	2.00
09:00:00	15.0	12:00:00	97.0	15:00:00	116	18:00:00	53.0		
10:00:00	61.0	13:00:00	90.0	16:00:00	104	19:00:00	10.0		
			SEPTEMBER 29, 1988						
08:00:00	3.00	11:00:00	148	14:00:00	461	17:00:00	179	20:00:00	2.00
09:00:00	32.0	12:00:00	296	15:00:00	239	18:00:00	105		
10:00:00	106	13:00:00	309	16:00:00	214	19:00:00	9.00		
			SEPTEMBER 30, 1988						
08:00:00	2.00	11:00:00	274	14:00:00	743	17:00:00	324	20:00:00	2.00
09:00:00	33.0	12:00:00	419	15:00:00	1300	18:00:00	346		
10:00:00	136	13:00:00	1270	16:00:00	862	19:00:00	46.0		

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 07, 1988						
18:52:00	516	19:52:00	183						
			APRIL 08, 1988						
08:37:00	154	11:37:00	489	14:37:00	1380	17:37:00	578	20:37:00	15.0
09:37:00	300	12:37:00	700	15:37:00	1480	18:37:00	321		
10:37:00	649	13:37:00	747	16:37:00	811	19:37:00	139		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 09, 1988						
08:22:00	192	11:22:00	1380	14:22:00	1390	17:22:00	732	20:22:00	42.0
09:22:00	402	12:22:00	998	15:22:00	1020	18:22:00	356		
10:22:00	1030	13:22:00	727	16:22:00	623	19:22:00	352		
			APRIL 10, 1988						
08:37:00	272	11:37:00	1430	14:37:00	1040	17:37:00	982	20:37:00	21.0
09:37:00	743	12:37:00	812	15:37:00	1580	18:37:00	606		
10:37:00	1190	13:37:00	922	16:37:00	1310	19:37:00	227		
			APRIL 11, 1988						
08:22:00	314	11:22:00	1430	14:22:00	1680	17:22:00	1010	20:22:00	43.0
09:22:00	711	12:22:00	1270	15:22:00	1580	18:22:00	648		
10:22:00	1110	13:22:00	1290	16:22:00	1340	19:22:00	288		
			APRIL 12, 1988						
08:22:00	344	11:22:00	1310	14:22:00	1650	17:22:00	1090	20:22:00	60.0
09:22:00	763	12:22:00	1510	15:22:00	1570	18:22:00	725		
10:22:00	1050	13:22:00	1630	16:22:00	1380	19:22:00	394		
			APRIL 13, 1988						
08:22:00	107	12:00:00	1430	15:00:00	1600	18:00:00	851		
09:22:00	322	13:00:00	1610	16:00:00	1440	19:00:00	469		
11:00:00	1170	14:00:00	1650	17:00:00	1200	20:00:00	143		
			APRIL 14, 1988						
08:15:00	166	11:15:00	1260	14:15:00	1670	17:15:00	1160	20:15:00	95.0
09:15:00	486	12:15:00	1500	15:15:00	1610	18:15:00	813		
10:15:00	947	13:15:00	1640	16:15:00	1430	19:15:00	432		
			APRIL 15, 1988						
08:15:00	245	11:15:00	1270	14:15:00	1670	17:15:00	1190	20:15:00	67.0
09:15:00	590	12:15:00	1510	15:15:00	1630	18:15:00	810		
10:15:00	952	13:15:00	1650	16:15:00	1460	19:15:00	399		
			APRIL 16, 1988						
08:15:00	253	11:15:00	930	14:15:00	1370	17:15:00	1040	20:15:00	100
09:15:00	654	12:15:00	1600	15:15:00	1520	18:15:00	712		
10:15:00	731	13:15:00	1870	16:15:00	1360	19:15:00	413		
			APRIL 17, 1988						
08:15:00	220	11:15:00	881	14:15:00	1640	17:15:00	1050	20:15:00	75.0
09:15:00	307	12:15:00	1340	15:15:00	1520	18:15:00	695		
10:15:00	600	13:15:00	1620	16:15:00	1320	19:15:00	326		
			APRIL 18, 1988						
08:00:00	272	11:00:00	851	14:00:00	1760	17:00:00	1160	20:00:00	184
09:00:00	674	12:00:00	1040	15:00:00	1670	18:00:00	961	21:00:00	12.0
10:00:00	1070	13:00:00	1750	16:00:00	1460	19:00:00	551		
			APRIL 19, 1988						
08:00:00	206	12:00:00	1490	15:00:00	1640	18:00:00	930		
10:00:00	911	13:00:00	1640	16:00:00	1480	19:00:00	450		
11:00:00	1240	14:00:00	1700	17:00:00	1270	20:00:00	93.0		
			APRIL 20, 1988						
09:00:00	509	12:00:00	1460	15:00:00	1680	18:00:00	960		
10:00:00	694	13:00:00	1660	16:00:00	1400	19:00:00	392		
11:00:00	817	14:00:00	1720	17:00:00	1280	20:00:00	115		
			APRIL 21, 1988						
09:00:00	124	12:00:00	402	15:00:00	574	18:00:00	404		
10:00:00	354	13:00:00	417	16:00:00	687	19:00:00	318		
11:00:00	317	14:00:00	594	17:00:00	430	20:00:00	102		
			APRIL 22, 1988						
09:00:00	526	12:00:00	1120	15:00:00	1500	18:00:00	438		
10:00:00	792	13:00:00	1570	16:00:00	1210	19:00:00	178		
11:00:00	847	14:00:00	1620	17:00:00	615	20:00:00	59.0		
			APRIL 23, 1988						
09:00:00	602	12:00:00	1510	15:00:00	1660	18:00:00	952		
10:00:00	971	13:00:00	1670	16:00:00	1510	19:00:00	576		
11:00:00	1300	14:00:00	1710	17:00:00	1270	20:00:00	214		
			APRIL 24, 1988						
09:00:00	568	12:00:00	1530	15:00:00	1020	18:00:00	902		
10:00:00	867	13:00:00	1050	16:00:00	1560	19:00:00	512		
11:00:00	1120	14:00:00	1510	17:00:00	1200	20:00:00	154		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			APRIL 25, 1988						
09:00:00	535	12:00:00	1120	15:00:00	1580	18:00:00	576		
10:00:00	510	13:00:00	1300	16:00:00	1290	19:00:00	266		
11:00:00	890	14:00:00	1580	17:00:00	852	20:00:00	73.0		
			APRIL 26, 1988						
09:00:00	162	12:00:00	320	15:00:00	671	18:00:00	480		
10:00:00	292	13:00:00	550	16:00:00	859	19:00:00	378		
11:00:00	266	14:00:00	539	17:00:00	829	20:00:00	74.0		
			APRIL 27, 1988						
09:00:00	644	12:00:00	1600	15:00:00	1690	18:00:00	983		
10:00:00	1010	13:00:00	1730	16:00:00	1550	19:00:00	604		
11:00:00	1320	14:00:00	1770	17:00:00	1330	20:00:00	235		
			APRIL 28, 1988						
09:00:00	653	12:00:00	1570	15:00:00	1710	18:00:00	996		
10:00:00	1020	13:00:00	1710	16:00:00	1560	19:00:00	621		
11:00:00	1330	14:00:00	1760	17:00:00	1310	20:00:00	250		
			APRIL 29, 1988						
09:00:00	612	12:00:00	1540	15:00:00	1690	18:00:00	1010		
10:00:00	999	13:00:00	1690	16:00:00	1540	19:00:00	256		
11:00:00	1310	14:00:00	1780	17:00:00	1350	20:00:00	184		
			APRIL 30, 1988						
09:00:00	638	12:00:00	573	15:00:00	969	18:00:00	1020		
10:00:00	1080	13:00:00	697	16:00:00	1190	19:00:00	565		
11:00:00	549	14:00:00	1050	17:00:00	1250	20:00:00	243		
			MAY 01, 1988						
09:00:00	415	12:00:00	1320	15:00:00	779	18:00:00	112		
10:00:00	664	13:00:00	1350	16:00:00	1150	19:00:00	83.0		
11:00:00	986	14:00:00	1150	17:00:00	350	20:00:00	40.0		
			MAY 02, 1988						
09:00:00	313	11:00:00	781	13:00:00	419	15:00:00	1140	20:00:00	52.0
10:00:00	425	12:00:00	860	14:00:00	857	16:00:00	1140		
			MAY 03, 1988						
10:00:00	648	13:00:00	672	16:00:00	1270	19:00:00	448		
11:00:00	800	14:00:00	631	17:00:00	1340	20:00:00	136		
12:00:00	792	15:00:00	1110	18:00:00	803				
			MAY 04, 1988						
09:00:00	629	12:00:00	1480	15:00:00	1510	18:00:00	950		
10:00:00	999	13:00:00	1680	16:00:00	1540	19:00:00	584		
11:00:00	1290	14:00:00	1690	17:00:00	1250	20:00:00	236		
			MAY 05, 1988						
09:00:00	674	12:00:00	1580	15:00:00	1650	18:00:00	822		
10:00:00	1020	13:00:00	1580	16:00:00	1480	19:00:00	424		
11:00:00	1340	14:00:00	1630	17:00:00	1190	20:00:00	160		
			MAY 06, 1988						
09:00:00	681	12:00:00	1110	15:00:00	606	18:00:00	450		
10:00:00	974	13:00:00	907	16:00:00	1460	19:00:00	303		
11:00:00	1200	14:00:00	389	17:00:00	665	20:00:00	124		
			MAY 07, 1988						
09:00:00	751	12:00:00	391	15:00:00	1700	18:00:00	461		
10:00:00	782	13:00:00	517	16:00:00	860	19:00:00	387		
11:00:00	866	14:00:00	1870	17:00:00	957	20:00:00	146		
			MAY 08, 1988						
09:00:00	775	12:00:00	803	15:00:00	1530	18:00:00	486		
10:00:00	1140	13:00:00	1030	16:00:00	955	19:00:00	197		
11:00:00	792	14:00:00	1730	17:00:00	968	20:00:00	81.0		
			MAY 09, 1988						
09:00:00	863	12:00:00	1690	15:00:00	1740	18:00:00	601		
10:00:00	1160	13:00:00	1790	16:00:00	1570	19:00:00	363		
11:00:00	1480	14:00:00	1800	17:00:00	1340	20:00:00	170		
			MAY 10, 1988						
09:00:00	742	12:00:00	1640	15:00:00	1770	18:00:00	1050		
10:00:00	1070	13:00:00	1790	16:00:00	1610	19:00:00	683		
11:00:00	1410	14:00:00	1810	17:00:00	1360	20:00:00	319		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 11, 1988						
09:00:00	524	12:00:00	1430	15:00:00	1940	18:00:00	955		
10:00:00	937	13:00:00	1840	16:00:00	956	19:00:00	476		
11:00:00	1170	14:00:00	1560	17:00:00	1350	20:00:00	271		
			MAY 12, 1988						
09:00:00	835	12:00:00	1680	15:00:00	1640	18:00:00	221		
10:00:00	1220	13:00:00	1800	16:00:00	1530	19:00:00	125		
11:00:00	1480	14:00:00	1780	17:00:00	409	20:00:00	82.0		
			MAY 13, 1988						
09:00:00	785	12:00:00	1660	15:00:00	1740	18:00:00	966		
10:00:00	1140	13:00:00	1810	16:00:00	1560	19:00:00	606		
11:00:00	1450	14:00:00	1690	17:00:00	1300	20:00:00	277		
			MAY 14, 1988						
09:00:00	406	12:00:00	1240	15:00:00	1750	18:00:00	1010		
10:00:00	911	13:00:00	1770	16:00:00	1590	19:00:00	699		
11:00:00	927	14:00:00	1700	17:00:00	953	20:00:00	290		
			MAY 15, 1988						
09:00:00	544	12:00:00	1440	15:00:00	1640	18:00:00	695		
10:00:00	1030	13:00:00	1660	16:00:00	1240	19:00:00	564		
11:00:00	1280	14:00:00	1660	17:00:00	1260	20:00:00	260		
			MAY 16, 1988						
09:00:00	496	12:00:00	1730	15:00:00	1750	18:00:00	969		
10:00:00	823	13:00:00	1840	16:00:00	1570	19:00:00	613		
11:00:00	1520	14:00:00	1850	17:00:00	1300	20:00:00	277		
			MAY 17, 1988						
09:00:00	947	12:00:00	1700	15:00:00	1690	18:00:00	827		
10:00:00	1270	13:00:00	1840	16:00:00	1280	19:00:00	578		
11:00:00	883	14:00:00	1840	17:00:00	1170	20:00:00	268		
			MAY 18, 1988						
09:00:00	774	12:00:00	1660	15:00:00	712	18:00:00	145		
10:00:00	762	13:00:00	1860	16:00:00	833	19:00:00	63.0		
11:00:00	509	14:00:00	966	17:00:00	717	20:00:00	43.0		
			MAY 19, 1988						
12:00:00	217	14:00:00	335	16:00:00	829	18:00:00	362	20:00:00	241
13:00:00	246	15:00:00	611	17:00:00	429	19:00:00	303		
			MAY 20, 1988						
08:00:00	64.0	11:00:00	671	14:00:00	1400	17:00:00	216	20:00:00	82.0
09:00:00	120	12:00:00	585	15:00:00	1350	18:00:00	181		
10:00:00	355	13:00:00	1150	16:00:00	520	19:00:00	81.0		
			MAY 21, 1988						
08:00:00	62.0	11:00:00	211	14:00:00	293	17:00:00	144	20:00:00	40.0
09:00:00	138	12:00:00	308	15:00:00	336	18:00:00	108		
10:00:00	200	13:00:00	236	16:00:00	144	19:00:00	88.0		
			MAY 22, 1988						
08:00:00	56.0	11:00:00	246	14:00:00	639	17:00:00	423	20:00:00	231
09:00:00	100	12:00:00	340	15:00:00	814	18:00:00	227		
10:00:00	120	13:00:00	548	16:00:00	816	19:00:00	186		
			MAY 23, 1988						
08:00:00	426	11:00:00	1480	14:00:00	1940	17:00:00	1500	20:00:00	418
09:00:00	795	12:00:00	1730	15:00:00	1290	18:00:00	1180		
10:00:00	1160	13:00:00	1880	16:00:00	1750	19:00:00	812		
			MAY 24, 1988						
08:00:00	412	11:00:00	1180	14:00:00	1910	17:00:00	1300	20:00:00	395
09:00:00	678	12:00:00	1720	15:00:00	1600	18:00:00	1230		
10:00:00	1220	13:00:00	1860	16:00:00	1780	19:00:00	821		
			MAY 25, 1988						
08:00:00	464	11:00:00	1340	14:00:00	1690	17:00:00	1050	20:00:00	362
09:00:00	668	12:00:00	1690	15:00:00	1080	18:00:00	936		
10:00:00	1090	13:00:00	1830	16:00:00	1420	19:00:00	526		
			MAY 26, 1988						
08:00:00	357	11:00:00	1430	14:00:00	1530	17:00:00	1460	20:00:00	21.0
09:00:00	709	12:00:00	1650	15:00:00	1720	18:00:00	1130		
10:00:00	1130	13:00:00	1800	16:00:00	1690	19:00:00	145		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			MAY 27, 1988						
08:00:00	399	11:00:00	1360	14:00:00	1910	17:00:00	1490	20:00:00	378
09:00:00	782	12:00:00	1730	15:00:00	1630	18:00:00	1090		
10:00:00	1190	13:00:00	1820	16:00:00	1500	19:00:00	638		
			MAY 28, 1988						
08:00:00	186	11:00:00	1350	14:00:00	1430	17:00:00	1270	20:00:00	350
09:00:00	531	12:00:00	1690	15:00:00	1580	18:00:00	1120		
10:00:00	894	13:00:00	1660	16:00:00	1480	19:00:00	759		
			MAY 29, 1988						
08:00:00	378	11:00:00	1410	14:00:00	1910	17:00:00	1430	20:00:00	387
09:00:00	736	12:00:00	1670	15:00:00	1320	18:00:00	1090		
10:00:00	1090	13:00:00	1690	16:00:00	1670	19:00:00	713		
			MAY 30, 1988						
08:00:00	52.0	11:00:00	1330	14:00:00	794	17:00:00	1570	20:00:00	326
09:00:00	538	12:00:00	1700	15:00:00	771	18:00:00	699		
10:00:00	783	13:00:00	941	16:00:00	683	19:00:00	533		
			MAY 31, 1988						
08:00:00	298	11:00:00	1390	14:00:00	1850	17:00:00	1210	20:00:00	377
09:00:00	759	12:00:00	1570	15:00:00	1550	18:00:00	1150		
10:00:00	1080	13:00:00	1800	16:00:00	1350	19:00:00	762		
			JUNE 01, 1988						
08:00:00	187	11:00:00	343	14:00:00	1910	17:00:00	1130	20:00:00	388
09:00:00	806	12:00:00	1060	15:00:00	1810	18:00:00	1040		
10:00:00	1100	13:00:00	1710	16:00:00	1630	19:00:00	536		
			JUNE 02, 1988						
08:00:00	367	11:00:00	1380	14:00:00	1780	17:00:00	1380	20:00:00	363
09:00:00	595	12:00:00	1610	15:00:00	1760	18:00:00	1070		
10:00:00	1100	13:00:00	1750	16:00:00	1610	19:00:00	722		
			JUNE 03, 1988						
08:00:00	415	11:00:00	1430	14:00:00	1870	17:00:00	1380	20:00:00	449
09:00:00	765	12:00:00	1660	15:00:00	1870	18:00:00	1090		
10:00:00	1120	13:00:00	1820	16:00:00	1730	19:00:00	812		
			JUNE 04, 1988						
08:00:00	447	11:00:00	1460	14:00:00	912	17:00:00	1530	20:00:00	453
09:00:00	811	12:00:00	1700	15:00:00	2000	18:00:00	1200		
10:00:00	1160	13:00:00	1920	16:00:00	1530	19:00:00	847		
			JUNE 05, 1988						
08:00:00	428	11:00:00	1440	14:00:00	1900	17:00:00	1470	20:00:00	420
09:00:00	784	12:00:00	1690	15:00:00	1770	18:00:00	1160		
10:00:00	1130	13:00:00	1830	16:00:00	1810	19:00:00	808		
			JUNE 06, 1988						
08:00:00	474	11:00:00	1510	14:00:00	1920	17:00:00	1500	20:00:00	471
09:00:00	834	12:00:00	1720	15:00:00	1490	18:00:00	1180		
10:00:00	1210	13:00:00	1870	16:00:00	1670	19:00:00	853		
			JUNE 07, 1988						
08:00:00	454	11:00:00	1450	14:00:00	1870	17:00:00	1460	20:00:00	454
09:00:00	807	12:00:00	1670	15:00:00	1810	18:00:00	1170		
10:00:00	1150	13:00:00	1810	16:00:00	1690	19:00:00	821		
			JUNE 08, 1988						
08:00:00	450	10:00:00	1130	16:00:00	1630	18:00:00	1220	20:00:00	384
09:00:00	765	15:00:00	1450	17:00:00	1490	19:00:00	823		
			JUNE 09, 1988						
08:00:00	373	11:00:00	1370	14:00:00	1910	17:00:00	1550	20:00:00	499
09:00:00	706	12:00:00	1680	15:00:00	1240	18:00:00	1230		
10:00:00	776	13:00:00	1840	16:00:00	1760	19:00:00	886		
			JUNE 10, 1988						
08:00:00	398	11:00:00	1380	14:00:00	1900	17:00:00	1530	20:00:00	470
09:00:00	682	12:00:00	1600	15:00:00	1530	18:00:00	1200		
10:00:00	1070	13:00:00	1870	16:00:00	1700	19:00:00	851		
			JUNE 11, 1988						
08:00:00	360	11:00:00	1230	14:00:00	1820	17:00:00	1420	20:00:00	417
09:00:00	595	12:00:00	1460	15:00:00	1670	18:00:00	1140		
10:00:00	890	13:00:00	1720	16:00:00	1570	19:00:00	792		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 12, 1988						
08:00:00	282	11:00:00	892	14:00:00	1110	17:00:00	144	20:00:00	67.0
09:00:00	595	12:00:00	670	15:00:00	1550	18:00:00	144		
10:00:00	841	13:00:00	1130	16:00:00	1250	19:00:00	124		
			JUNE 13, 1988						
08:00:00	243	11:00:00	709	14:00:00	1840	17:00:00	1580	20:00:00	379
09:00:00	680	12:00:00	1490	15:00:00	1910	18:00:00	830		
10:00:00	829	13:00:00	1780	16:00:00	1580	19:00:00	888		
			JUNE 14, 1988						
08:00:00	313	11:00:00	813	14:00:00	1080	17:00:00	973	20:00:00	554
09:00:00	291	12:00:00	1470	15:00:00	1660	18:00:00	998		
10:00:00	542	13:00:00	467	16:00:00	1670	19:00:00	206		
			JUNE 15, 1988						
08:00:00	391	11:00:00	1490	14:00:00	1360	17:00:00	1450	20:00:00	515
09:00:00	845	12:00:00	1720	15:00:00	1030	18:00:00	1010		
10:00:00	1190	13:00:00	1880	16:00:00	801	19:00:00	902		
			JUNE 16, 1988						
08:00:00	463	11:00:00	1470	14:00:00	1930	17:00:00	1460	20:00:00	111
09:00:00	815	12:00:00	1710	15:00:00	1840	18:00:00	752		
10:00:00	1170	13:00:00	1860	16:00:00	1070	19:00:00	528		
			JUNE 17, 1988						
08:00:00	349	11:00:00	1490	14:00:00	1940	17:00:00	1240	20:00:00	562
09:00:00	854	12:00:00	1720	15:00:00	1870	18:00:00	1130		
10:00:00	1160	13:00:00	1870	16:00:00	1740	19:00:00	801		
			JUNE 18, 1988						
08:00:00	253	11:00:00	1520	14:00:00	1860	17:00:00	946	20:00:00	506
09:00:00	733	12:00:00	1170	15:00:00	1760	18:00:00	993		
10:00:00	1160	13:00:00	1650	16:00:00	1750	19:00:00	538		
			JUNE 19, 1988						
08:00:00	284	11:00:00	1340	14:00:00	1240	17:00:00	1510	20:00:00	526
09:00:00	783	12:00:00	1810	15:00:00	2000	18:00:00	1240		
10:00:00	1250	13:00:00	1670	16:00:00	1710	19:00:00	890		
			JUNE 20, 1988						
08:00:00	526	11:00:00	1470	14:00:00	1880	17:00:00	1480	20:00:00	495
09:00:00	875	12:00:00	1710	15:00:00	1830	18:00:00	1220		
10:00:00	1190	13:00:00	1840	16:00:00	1710	19:00:00	887		
			JUNE 21, 1988						
08:00:00	337	11:00:00	1100	14:00:00	1600	17:00:00	1520	20:00:00	410
09:00:00	690	12:00:00	1680	15:00:00	1910	18:00:00	903		
10:00:00	971	13:00:00	1580	16:00:00	1670	19:00:00	875		
			JUNE 22, 1988						
08:00:00	484	11:00:00	1430	14:00:00	1850	17:00:00	1460	20:00:00	510
09:00:00	826	12:00:00	1650	15:00:00	1800	18:00:00	1180		
10:00:00	1150	13:00:00	1830	16:00:00	1680	19:00:00	839		
			JUNE 23, 1988						
08:00:00	208	11:00:00	1380	14:00:00	1810	17:00:00	1040	20:00:00	435
09:00:00	443	12:00:00	1270	15:00:00	1740	18:00:00	1100		
10:00:00	874	13:00:00	1730	16:00:00	1690	19:00:00	811		
			JUNE 24, 1988						
08:00:00	477	11:00:00	1460	14:00:00	1810	17:00:00	1250	20:00:00	12.0
09:00:00	834	12:00:00	1670	15:00:00	1760	18:00:00	995		
10:00:00	1180	13:00:00	1800	16:00:00	1660	19:00:00	86.0		
			JUNE 25, 1988						
08:00:00	522	11:00:00	1490	14:00:00	1880	17:00:00	1490	20:00:00	528
09:00:00	882	12:00:00	1700	15:00:00	1840	18:00:00	1210		
10:00:00	1220	13:00:00	1830	16:00:00	1710	19:00:00	877		
			JUNE 26, 1988						
08:00:00	513	11:00:00	1460	14:00:00	1820	17:00:00	1420	20:00:00	510
09:00:00	843	12:00:00	1680	15:00:00	1810	18:00:00	890		
10:00:00	1180	13:00:00	1810	16:00:00	1690	19:00:00	789		
			JUNE 27, 1988						
08:00:00	439	11:00:00	1440	14:00:00	1890	17:00:00	1510	20:00:00	479
09:00:00	794	12:00:00	1680	15:00:00	1870	18:00:00	1230		
10:00:00	1120	13:00:00	1830	16:00:00	1720	19:00:00	863		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			JUNE 28, 1988						
08:00:00	500	11:00:00	1230	14:00:00	75.0	17:00:00	430	20:00:00	365
09:00:00	849	12:00:00	1310	15:00:00	294	18:00:00	323		
10:00:00	1180	13:00:00	156	16:00:00	261	19:00:00	326		
			JUNE 29, 1988						
08:00:00	80.0	10:00:00	207	12:00:00	304				
09:00:00	121	11:00:00	318	13:00:00	308				
			AUGUST 18, 1988						
08:00:00	137	11:00:00	855	14:00:00	1800	17:00:00	552	20:00:00	197
09:00:00	521	12:00:00	1350	15:00:00	803	18:00:00	497		
10:00:00	484	13:00:00	1600	16:00:00	978	19:00:00	262		
			AUGUST 19, 1988						
08:00:00	39.0	11:00:00	290	14:00:00	1450	17:00:00	1290	20:00:00	199
09:00:00	117	12:00:00	441	15:00:00	1080	18:00:00	965		
10:00:00	173	13:00:00	1160	16:00:00	1460	19:00:00	556		
			AUGUST 20, 1988						
08:00:00	154	11:00:00	1090	14:00:00	862	17:00:00	583	20:00:00	70.0
09:00:00	457	12:00:00	1160	15:00:00	1110	18:00:00	575		
10:00:00	754	13:00:00	678	16:00:00	1190	19:00:00	307		
			AUGUST 21, 1988						
08:00:00	110	11:00:00	454	14:00:00	578	17:00:00	634	20:00:00	176
09:00:00	293	12:00:00	339	15:00:00	488	18:00:00	726		
10:00:00	392	13:00:00	426	16:00:00	1130	19:00:00	547		
			AUGUST 22, 1988						
08:00:00	37.0	11:00:00	830	14:00:00	1740	17:00:00	1140	20:00:00	58.0
09:00:00	169	12:00:00	1490	15:00:00	907	18:00:00	1040		
10:00:00	328	13:00:00	1230	16:00:00	1580	19:00:00	101		
			AUGUST 23, 1988						
08:00:00	161	11:00:00	1190	14:00:00	1600	17:00:00	1340	20:00:00	249
09:00:00	490	12:00:00	1460	15:00:00	1710	18:00:00	956		
10:00:00	856	13:00:00	1310	16:00:00	1580	19:00:00	632		
			AUGUST 24, 1988						
08:00:00	158	11:00:00	1190	14:00:00	1700	17:00:00	1330	20:00:00	249
09:00:00	491	12:00:00	1460	15:00:00	1300	18:00:00	1020		
10:00:00	855	13:00:00	1630	16:00:00	1560	19:00:00	645		
			AUGUST 25, 1988						
08:00:00	151	11:00:00	1190	14:00:00	1580	17:00:00	1330	20:00:00	204
09:00:00	488	12:00:00	1460	15:00:00	1110	18:00:00	1020		
10:00:00	844	13:00:00	1670	16:00:00	1570	19:00:00	649		
			AUGUST 26, 1988						
08:00:00	148	10:00:00	824	15:15:00	271	17:15:00	869	19:15:00	170
09:00:00	452	14:15:00	290	16:15:00	347	18:15:00	605	20:15:00	10.0
			AUGUST 27, 1988						
08:00:00	156	11:00:00	1210	14:00:00	1160	17:00:00	938	20:00:00	159
09:00:00	502	12:00:00	1510	15:00:00	1260	18:00:00	728		
10:00:00	875	13:00:00	1560	16:00:00	811	19:00:00	585		
			AUGUST 28, 1988						
08:00:00	148	11:00:00	1190	14:00:00	1580	17:00:00	1310	20:00:00	196
09:00:00	487	12:00:00	1530	15:00:00	1120	18:00:00	980		
10:00:00	859	13:00:00	1020	16:00:00	1370	19:00:00	587		
			AUGUST 29, 1988						
08:00:00	147	11:00:00	1190	14:00:00	1700	17:00:00	1280	20:00:00	188
09:00:00	481	12:00:00	1450	15:00:00	1350	18:00:00	956		
10:00:00	850	13:00:00	1630	16:00:00	1520	19:00:00	579		
			AUGUST 30, 1988						
08:00:00	142	11:00:00	1180	14:00:00	1650	17:00:00	1220	20:00:00	125
09:00:00	479	12:00:00	1440	15:00:00	1090	18:00:00	890		
10:00:00	845	13:00:00	1620	16:00:00	1460	19:00:00	501		
			AUGUST 31, 1988						
08:00:00	80.0	11:00:00	763	14:00:00	1230	17:00:00	455	20:00:00	66.0
09:00:00	294	12:00:00	1000	15:00:00	901	18:00:00	391		
10:00:00	430	13:00:00	1210	16:00:00	839	19:00:00	264		
			SEPTEMBER 01, 1988						
08:00:00	120	11:00:00	1130	14:00:00	1650	17:00:00	1250	20:00:00	158
09:00:00	430	12:00:00	1390	15:00:00	1140	18:00:00	927		
10:00:00	792	13:00:00	1570	16:00:00	1480	19:00:00	547		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 02, 1988						
08:00:00	108	11:00:00	728	14:00:00	1300	17:00:00	1200	20:00:00	60.0
09:00:00	301	12:00:00	1440	15:00:00	1320	18:00:00	600		
10:00:00	499	13:00:00	1560	16:00:00	1650	19:00:00	403		
			SEPTEMBER 03, 1988						
08:00:00	104	11:00:00	1080	14:00:00	1270	17:00:00	1240	20:00:00	134
09:00:00	430	12:00:00	716	15:00:00	1060	18:00:00	897		
10:00:00	751	13:00:00	772	16:00:00	1500	19:00:00	502		
			SEPTEMBER 04, 1988						
08:00:00	97.0	11:00:00	1150	14:00:00	1650	17:00:00	1220	20:00:00	135
09:00:00	408	12:00:00	1490	15:00:00	1010	18:00:00	915		
10:00:00	790	13:00:00	1610	16:00:00	1480	19:00:00	530		
			SEPTEMBER 05, 1988						
08:00:00	112	11:00:00	1140	14:00:00	1640	17:00:00	1230	20:00:00	132
09:00:00	442	12:00:00	1410	15:00:00	1520	18:00:00	898		
10:00:00	806	13:00:00	1580	16:00:00	1470	19:00:00	511		
			SEPTEMBER 06, 1988						
08:00:00	72.0	11:00:00	1130	14:00:00	1610	17:00:00	1190	20:00:00	100
09:00:00	247	12:00:00	1400	15:00:00	1420	18:00:00	861		
10:00:00	791	13:00:00	1570	16:00:00	1440	19:00:00	465		
			SEPTEMBER 07, 1988						
08:00:00	92.0	10:00:00	655	12:00:00	1000	14:00:00	1240	16:00:00	636
09:00:00	361	11:00:00	905	13:00:00	1210	15:00:00	436	20:00:00	39.0
			SEPTEMBER 08, 1988						
08:00:00	62.0	13:00:00	878	16:00:00	1400	19:00:00	437		
11:00:00	698	14:00:00	1600	17:00:00	1160	20:00:00	73.0		
12:00:00	1230	15:00:00	1290	18:00:00	839				
			SEPTEMBER 09, 1988						
08:00:00	85.0	11:00:00	998	14:00:00	1510	17:00:00	1120	20:00:00	55.0
09:00:00	318	12:00:00	1260	15:00:00	1240	18:00:00	790		
10:00:00	673	13:00:00	1420	16:00:00	1360	19:00:00	348		
			SEPTEMBER 10, 1988						
08:00:00	15.0	11:00:00	149	14:00:00	1210	17:00:00	858	20:00:00	35.0
09:00:00	35.0	12:00:00	424	15:00:00	1180	18:00:00	586		
10:00:00	77.0	13:00:00	1050	16:00:00	1080	19:00:00	185		
			SEPTEMBER 11, 1988						
08:00:00	27.0	11:00:00	231	14:00:00	340	17:00:00	537	20:00:00	27.0
09:00:00	119	12:00:00	409	15:00:00	350	18:00:00	142		
10:00:00	171	13:00:00	588	16:00:00	906	19:00:00	124		
			SEPTEMBER 12, 1988						
08:00:00	17.0	11:00:00	249	14:00:00	832	17:00:00	1070	20:00:00	62.0
09:00:00	61.0	12:00:00	324	15:00:00	848	18:00:00	750		
10:00:00	154	13:00:00	456	16:00:00	1380	19:00:00	385		
			SEPTEMBER 13, 1988						
08:00:00	72.0	11:00:00	1040	14:00:00	1550	17:00:00	1110	20:00:00	63.0
09:00:00	364	12:00:00	1310	15:00:00	1320	18:00:00	778		
10:00:00	709	13:00:00	1490	16:00:00	1360	19:00:00	398		
			SEPTEMBER 14, 1988						
08:00:00	77.0	11:00:00	745	14:00:00	1080	17:00:00	481	20:00:00	10.0
09:00:00	252	12:00:00	1050	15:00:00	889	18:00:00	224		
10:00:00	419	13:00:00	1220	16:00:00	558	19:00:00	67.0		
			SEPTEMBER 15, 1988						
08:00:00	38.0	11:00:00	107	14:00:00	147	17:00:00	85.0	20:00:00	9.00
09:00:00	63.0	12:00:00	98.0	15:00:00	291	18:00:00	78.0		
10:00:00	100	13:00:00	148	16:00:00	174	19:00:00	33.0		
			SEPTEMBER 16, 1988						
08:00:00	19.0	11:00:00	386	14:00:00	1100	17:00:00	1060	20:00:00	36.0
09:00:00	76.0	12:00:00	798	15:00:00	1470	18:00:00	717		
10:00:00	139	13:00:00	1170	16:00:00	1300	19:00:00	327		
			SEPTEMBER 17, 1988						
08:00:00	53.0	11:00:00	812	14:00:00	1470	17:00:00	949	20:00:00	18.0
09:00:00	312	12:00:00	1050	15:00:00	1460	18:00:00	662		
10:00:00	692	13:00:00	1420	16:00:00	1260	19:00:00	263		

Table 32.--Water-quality records for Sand Lake Open - Platform 1 (06470990)--Continued

MEAN HOURLY INCIDENT LIGHT INTENSITY, IN MICROEINSTEINS PER SQUARE METER PER SECOND, 2 METERS ABOVE WATER SURFACE APRIL 7 THROUGH JUNE 29 AND AUGUST 18 THROUGH SEPTEMBER 30, 1988

TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE	TIME	VALUE
			SEPTEMBER 18, 1988						
08:00:00	47.0	11:00:00	704	14:00:00	670	17:00:00	841	20:00:00	6.00
09:00:00	276	12:00:00	380	15:00:00	929	18:00:00	361		
10:00:00	566	13:00:00	432	16:00:00	960	19:00:00	128		
			SEPTEMBER 19, 1988						
08:00:00	7.00	11:00:00	88.0	14:00:00	122	17:00:00	895	20:00:00	10.0
09:00:00	22.0	12:00:00	177	15:00:00	211	18:00:00	244		
10:00:00	50.0	13:00:00	116	16:00:00	251	19:00:00	93.0		
			SEPTEMBER 20, 1988						
08:00:00	32.0	10:00:00	395	17:00:00	1050	19:00:00	309		
09:00:00	140	16:00:00	1320	18:00:00	497	20:00:00	21.0		
			SEPTEMBER 21, 1988						
08:00:00	18.0	11:00:00	847	14:00:00	775	17:00:00	380	20:00:00	6.00
09:00:00	110	12:00:00	998	15:00:00	775	18:00:00	207		
10:00:00	292	13:00:00	796	16:00:00	673	19:00:00	61.0		
			SEPTEMBER 22, 1988						
08:00:00	21.0	11:00:00	479	14:00:00	574	17:00:00	1000	20:00:00	22.0
09:00:00	145	12:00:00	593	15:00:00	988	18:00:00	648		
10:00:00	376	13:00:00	386	16:00:00	1170	19:00:00	269		
			SEPTEMBER 23, 1988						
08:00:00	40.0	11:00:00	969	14:00:00	1480	17:00:00	877	20:00:00	15.0
09:00:00	287	12:00:00	1230	15:00:00	1420	18:00:00	671		
10:00:00	643	13:00:00	1390	16:00:00	1160	19:00:00	280		
			SEPTEMBER 24, 1988						
08:00:00	29.0	11:00:00	922	14:00:00	1440	17:00:00	960	20:00:00	14.0
09:00:00	170	12:00:00	1190	15:00:00	1390	18:00:00	603		
10:00:00	596	13:00:00	1370	16:00:00	1220	19:00:00	222		
			SEPTEMBER 25, 1988						
08:00:00	40.0	11:00:00	375	14:00:00	1190	17:00:00	945	20:00:00	10.0
09:00:00	173	12:00:00	788	15:00:00	1360	18:00:00	547		
10:00:00	376	13:00:00	1180	16:00:00	1190	19:00:00	190		
			SEPTEMBER 26, 1988						
08:00:00	37.0	11:00:00	939	14:00:00	1400	17:00:00	925	20:00:00	10.0
09:00:00	225	12:00:00	1180	15:00:00	1360	18:00:00	520		
10:00:00	580	13:00:00	1080	16:00:00	1200	19:00:00	237		
			SEPTEMBER 27, 1988						
08:00:00	32.0	11:00:00	741	14:00:00	835	17:00:00	282	20:00:00	3.00
09:00:00	198	12:00:00	842	15:00:00	1400	18:00:00	127		
10:00:00	430	13:00:00	796	16:00:00	1020	19:00:00	44.0		
			SEPTEMBER 28, 1988						
08:00:00	5.00	11:00:00	124	14:00:00	175	17:00:00	95.0	20:00:00	3.00
09:00:00	50.0	12:00:00	109	15:00:00	141	18:00:00	92.0		
10:00:00	94.0	13:00:00	99.0	16:00:00	156	19:00:00	21.0		
			SEPTEMBER 29, 1988						
08:00:00	10.0	11:00:00	200	14:00:00	632	17:00:00	200	20:00:00	3.00
09:00:00	69.0	12:00:00	339	15:00:00	287	18:00:00	116		
10:00:00	121	13:00:00	356	16:00:00	224	19:00:00	27.0		
			SEPTEMBER 30, 1988						
08:00:00	11.0	11:00:00	373	14:00:00	1170	17:00:00	684	20:00:00	6.00
09:00:00	72.0	12:00:00	597	15:00:00	1410	18:00:00	481		
10:00:00	201	13:00:00	1490	16:00:00	1220	19:00:00	143		

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)

LOCATION.--Lat 45°40'10", long 98°18'31", in NW¼SW¼ sec.4, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, near outlet control structure 3 mi north of Columbia.

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1985 to current year (prior to October 1987, seasonal records only).
pH: May 1985 to September 1985, November 1987 to current year (prior to October 1987, seasonal records only).
WATER TEMPERATURE: May 1985 to current year (prior to October 1987, seasonal records only).
DISSOLVED OXYGEN: May 1985 to September 1985, November 1987 to current year (prior to October 1987, seasonal records only).

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen were determined at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from November 19 to November 30 during ice formation. Other interruptions in record were due to malfunction of the sensors or recording instruments.

EXTREMES FOR PERIOD OF DAILY RECORD:
SPECIFIC CONDUCTANCE: Maximum observed, 1170 microsiemens, Sep. 15, 1988; minimum observed, 380 microsiemens, Apr. 13-17, 1987.
WATER TEMPERATURE: Maximum observed, 32.5°C, July 31, 1987; minimum daily 0.0°C on several days during 1985-88.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	ALDRIN, DISSOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AMETRYNE TOTAL	ATRAZINE, TOTAL (UG/L)
MAY												
26...	0830	820	8.13	19.0	19.0	722	--	--	<0.01	<0.010	<0.10	0.10
JUL												
27...	1300	938	8.49	31.0	24.0	725	--	--	<0.01	<0.010	<0.10	<0.10
SEP												
30...	0900	990	8.11	8.0	10.0	727	7.6	71	<0.01	<0.010	<0.10	<0.10

DATE	CHLORDANE, DISSOLVED (UG/L)	CHLORDANE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DISSOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DISSOLVED (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN DISSOLVED (UG/L)
MAY												
26...	<0.1	<0.1	0.20	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUL												
27...	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
SEP												
30...	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DISSOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY											
26...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL											
27...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP											
30...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)
MAY											
26...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
27...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
30...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
26...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
JUL											
27...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP											
30...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
26...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.01	<0.01	<0.01
JUL											
27...	<0.10	<0.10	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.50	<0.50	<0.10
SEP											
30...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.01	<0.01	<0.01

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	680	660	700	730	700	720	710	690	700	880	850	870
2	690	670	680	730	710	720	710	690	700	890	860	870
3	690	680	690	750	720	730	720	700	710	890	870	880
4	700	680	690	740	720	730	740	700	720	890	870	880
5	710	690	700	730	710	730	740	720	730	950	900	920
6	710	700	700	730	700	720	730	720	730	950	920	930
7	710	700	700	730	710	720	770	720	730	970	940	950
8	710	700	700	730	710	720	720	710	720	980	950	960
9	710	700	700	740	710	720	720	710	720	990	960	970
10	720	700	700	740	710	710	760	720	730	1000	970	980
11	710	700	710	740	690	720	730	720	720	990	980	990
12	730	700	710	730	710	720	760	720	720	990	970	980
13	730	700	710	750	720	730	770	720	740	990	960	970
14	720	700	720	740	710	720	770	730	740	990	970	980
15	720	700	710	750	720	740	750	730	750	1000	960	980
16	720	710	710	760	700	730	770	750	760	1000	970	980
17	720	700	710	750	710	730	840	750	770	990	970	970
18	720	710	710	750	730	740	780	760	770	980	960	970
19	720	700	710	---	---	---	790	750	770	980	970	980
20	720	700	710	---	---	---	790	760	770	1000	980	990
21	710	700	700	---	---	---	790	760	770	1030	990	1010
22	720	700	710	---	---	---	790	770	780	1040	1020	1030
23	720	700	710	---	---	---	780	760	780	1040	960	1030
24	750	700	710	---	---	---	790	770	780	1040	1020	1040
25	720	670	710	---	---	---	810	790	800	1060	1040	1050
26	740	710	720	---	---	---	820	800	810	1090	1060	1070
27	740	710	720	---	---	---	850	820	830	1130	1100	1120
28	730	710	720	---	---	---	850	810	830	1130	1100	1120
29	730	710	720	---	---	---	850	830	840	---	---	---
30	720	710	720	---	---	---	860	830	850	---	---	---
31	730	700	720	---	---	---	860	840	850	---	---	---

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	780	760	770
2	---	---	---	---	---	---	---	---	---	790	770	780
3	---	---	---	---	---	---	---	---	---	790	760	770
4	---	---	---	---	---	---	---	---	---	780	760	770
5	---	---	---	---	---	---	---	---	---	790	770	780
6	---	---	---	---	---	---	---	---	---	790	780	780
7	---	---	---	---	---	---	---	---	---	800	780	790
8	---	---	---	---	---	---	---	---	---	800	780	790
9	---	---	---	---	---	---	---	---	---	810	790	800
10	---	---	---	---	---	---	---	---	---	810	800	800
11	---	---	---	---	---	---	---	---	---	820	800	810
12	---	---	---	---	---	---	---	---	---	840	800	810
13	---	---	---	---	---	---	---	---	---	830	800	820
14	---	---	---	---	---	---	700	670	680	830	810	820
15	---	---	---	---	---	---	720	680	700	840	820	830
16	---	---	---	---	---	---	750	700	720	850	830	830
17	---	---	---	---	---	---	750	720	740	860	830	840
18	---	---	---	---	---	---	760	730	740	870	840	850
19	---	---	---	---	---	---	750	730	740	860	840	850
20	---	---	---	---	---	---	760	740	750	950	850	860
21	---	---	---	---	---	---	800	750	760	860	820	840
22	---	---	---	---	---	---	760	750	760	830	810	820
23	---	---	---	---	---	---	760	750	760	830	810	820
24	---	---	---	---	---	---	770	740	760	840	820	830
25	---	---	---	---	---	---	770	750	760	850	830	830
26	---	---	---	---	---	---	790	750	760	850	820	840
27	---	---	---	---	---	---	800	750	770	860	820	850
28	---	---	---	---	---	---	770	750	760	880	840	850
29	---	---	---	---	---	---	770	750	760	910	840	850
30	---	---	---	---	---	---	770	760	770	870	830	850
31	---	---	---	---	---	---	---	---	---	870	840	850
		JUNE			JULY			AUGUST			SEPTEMBER	
1	850	840	850	920	910	920	980	950	970	1090	1070	1090
2	860	840	850	930	900	920	960	920	940	1090	1070	1090
3	870	840	850	930	910	920	930	910	930	1110	1070	1090
4	950	840	890	940	920	930	930	920	930	1110	1070	1090
5	960	830	900	950	940	940	930	900	930	1130	1090	1100
6	970	840	900	950	940	950	940	920	930	1110	1070	1100
7	980	830	900	960	930	940	950	910	940	1130	1090	1120
8	930	830	870	950	920	940	940	920	940	1130	1090	1110
9	890	840	870	950	940	940	950	930	940	1130	1090	1110
10	890	820	850	950	940	950	960	940	950	1130	1110	1120
11	840	820	830	960	930	950	970	940	960	1150	1090	1130
12	850	830	840	960	880	950	960	930	950	1130	1110	1110
13	850	830	830	910	880	890	960	930	940	1130	1090	1120
14	880	810	840	900	880	900	940	920	930	1150	1030	1120
15	900	810	860	900	890	890	950	930	940	1170	1030	1120
16	900	850	880	900	880	890	950	920	940	1110	990	1090
17	900	880	890	900	880	890	950	930	950	1130	1010	1100
18	910	880	900	900	880	890	960	930	950	1130	970	1050
19	900	890	900	910	890	900	970	940	960	1070	850	950
20	910	890	900	930	870	900	980	950	970	990	850	950
21	910	900	900	920	870	900	1000	970	980	990	870	950
22	920	900	910	930	890	910	1020	990	1000	1010	930	980
23	920	900	910	920	900	910	1030	1000	1020	990	910	970
24	920	910	910	920	900	910	1050	1000	1030	1010	920	960
25	930	910	920	930	900	920	1090	1040	1060	1040	920	990
26	950	910	930	930	900	910	1090	1060	1090	1050	950	1010
27	940	920	930	940	910	930	1090	1070	1090	1070	950	1020
28	940	910	930	950	930	940	1110	1020	1090	1050	950	1000
29	930	910	920	960	910	950	1110	1030	1090	1050	990	1030
30	920	910	920	960	950	960	1110	1090	1100	1070	970	1020
31	---	---	---	970	950	960	1130	1090	1110	---	---	---

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	9.1	8.8	---	---	---	---	---	---
5	---	---	---	---	9.1	8.9	---	---	---	---	---	---
6	---	---	---	---	9.0	9.0	---	---	---	---	---	---
7	---	---	---	---	9.0	8.8	---	---	---	---	---	---
8	---	---	---	---	9.0	8.8	---	---	---	---	---	---
9	---	---	---	---	9.0	8.8	---	---	---	---	---	---
10	---	---	---	---	9.0	8.8	---	---	---	---	---	---
11	---	---	---	---	8.9	8.8	---	---	---	---	8.4	8.2
12	---	---	---	---	9.0	8.7	---	---	---	---	8.4	8.3
13	---	---	---	---	9.1	9.0	---	---	---	---	8.5	8.2
14	---	---	---	---	9.1	9.0	---	---	---	---	8.5	8.4
15	---	---	---	---	9.2	9.0	---	---	---	---	8.5	8.4
16	---	---	---	---	9.2	9.1	---	---	---	---	8.6	8.4
17	---	---	---	---	9.2	8.9	---	---	---	---	8.5	8.4
18	---	---	---	---	9.2	9.1	---	---	---	---	8.6	8.4
19	---	---	---	---	9.3	9.1	---	---	---	---	8.6	8.4
20	---	---	---	---	9.3	9.0	---	---	---	---	8.7	8.4
21	---	---	---	---	9.2	8.6	---	---	---	---	8.6	8.4
22	---	---	---	---	9.1	8.7	---	---	---	---	8.7	8.4
23	---	---	---	---	---	---	---	---	---	---	8.6	8.3
24	---	---	---	---	---	---	---	---	---	---	8.6	8.2
25	---	---	---	---	---	---	---	---	---	---	8.3	8.0
26	---	---	---	---	---	---	---	---	---	---	8.2	8.1
27	---	---	---	---	---	---	---	---	---	---	8.2	8.0
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	7.7	7.3	7.1	6.7	---	---
2	---	7.5	---	---	---	---	7.9	7.3	7.2	6.3	---	---
3	---	---	---	---	---	---	8.0	7.4	7.3	6.5	---	---
4	---	---	8.4	7.9	---	---	8.1	7.3	7.2	6.7	---	---
5	---	---	8.1	7.8	---	---	8.0	7.5	7.8	6.9	---	---
6	---	---	8.5	7.5	---	---	8.0	7.7	8.1	6.4	---	---
7	---	---	8.1	7.9	---	---	8.0	7.3	7.7	6.0	---	---
8	---	---	8.1	7.8	7.4	7.3	8.0	7.3	7.8	6.5	---	---
9	---	---	7.8	7.5	7.4	7.1	8.3	7.4	7.3	6.5	8.3	7.9
10	---	---	7.6	7.4	7.5	7.1	8.3	7.5	7.3	6.8	8.3	7.9
11	---	---	7.4	7.2	7.6	7.3	8.4	7.5	7.3	6.8	8.1	7.4
12	---	---	7.8	7.2	8.0	7.4	8.1	7.5	7.5	6.9	8.0	7.6
13	---	---	7.4	7.2	7.6	7.4	8.4	7.3	7.3	6.6	7.9	7.4
14	9.1	8.8	7.5	7.2	7.5	7.4	8.3	7.2	7.6	6.7	8.1	7.5
15	9.2	8.8	7.4	7.2	7.8	6.9	7.8	7.1	7.3	6.7	8.2	7.6
16	9.0	8.6	7.6	7.2	7.0	6.8	7.2	6.7	7.2	6.9	8.2	7.5
17	8.8	8.4	---	---	7.1	6.8	7.7	6.7	7.4	6.7	8.3	8.0
18	8.6	8.4	---	---	7.0	6.2	7.6	6.6	8.2	6.6	8.3	7.8
19	8.5	8.3	---	---	6.5	6.2	7.1	6.5	8.1	7.5	7.8	7.5
20	8.6	8.2	---	---	6.6	6.1	6.8	6.2	8.3	7.4	7.7	7.3
21	8.5	8.2	---	---	6.7	6.3	6.2	5.9	8.4	7.9	7.5	7.4
22	---	---	---	---	6.9	6.4	6.7	5.8	---	---	---	---
23	---	---	---	---	7.3	6.6	7.0	6.5	---	---	---	---
24	---	---	---	---	7.2	6.9	7.0	6.5	---	---	---	---
25	---	---	---	---	---	---	7.0	6.3	---	---	---	---
26	---	---	---	---	---	---	7.3	5.9	8.0	7.6	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	8.8	7.4	---	---	---	---
29	---	---	---	---	8.0	7.8	8.8	7.5	---	---	---	---
30	---	---	---	---	8.0	7.4	8.2	6.8	---	---	---	---
31	---	---	---	---	---	---	7.2	6.5	---	---	---	---

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.0	12.0	13.5	8.0	6.5	7.0	2.0	.5	1.5	1.5	1.0	1.0
2	12.0	9.0	11.0	9.5	8.0	9.0	1.5	1.0	1.5	1.5	1.0	1.0
3	12.0	8.5	10.5	9.5	9.0	9.5	1.5	.5	1.0	1.5	1.0	1.0
4	12.5	9.5	11.0	9.0	7.0	8.0	2.0	1.0	1.5	1.0	.5	1.0
5	11.5	9.5	10.5	6.5	5.0	6.0	2.0	1.0	1.5	1.0	.5	1.0
6	9.5	8.0	9.0	6.5	4.0	5.5	2.0	1.5	2.0	1.0	.5	1.0
7	10.5	7.0	8.5	7.0	4.5	5.5	2.0	1.5	2.0	1.0	.5	.5
8	9.5	7.5	8.5	5.5	3.0	4.0	3.0	1.5	2.0	1.0	.5	.5
9	8.0	5.5	6.0	3.0	1.5	2.5	3.0	2.0	2.5	1.0	.5	.5
10	6.5	4.0	5.5	2.5	1.5	2.0	2.5	1.5	2.0	1.0	.5	.5
11	7.0	3.5	5.5	3.0	1.0	2.0	2.0	1.0	1.5	.5	.5	.5
12	9.5	5.0	7.0	4.0	2.0	3.0	1.0	.0	.5	.5	.0	.5
13	8.5	6.5	7.5	5.0	2.5	3.5	.5	.0	.5	.5	.5	.5
14	8.5	6.5	7.5	4.5	3.0	3.5	1.0	.5	.5	.5	.5	.5
15	8.0	7.5	8.0	5.5	4.5	5.0	1.0	.5	.5	1.0	.5	.5
16	8.0	7.5	8.0	5.0	2.0	3.5	2.0	.5	1.0	1.0	.5	1.0
17	8.5	6.0	7.5	2.0	.0	1.0	2.0	1.0	1.5	1.5	.5	1.0
18	8.0	6.0	7.0	.5	.0	.5	2.5	1.0	1.5	1.0	1.0	1.0
19	7.0	4.5	6.0	---	---	---	2.0	1.0	1.5	1.0	.5	1.0
20	5.0	4.0	4.5	---	---	---	2.5	1.0	1.5	1.0	.5	.5
21	4.0	2.0	3.0	---	---	---	2.0	1.5	1.5	1.0	.5	1.0
22	3.0	1.5	2.5	---	---	---	2.0	1.5	1.5	1.0	1.0	1.0
23	4.0	2.5	3.0	---	---	---	2.0	1.0	1.5	1.0	1.0	1.0
24	3.5	1.5	2.5	---	---	---	1.5	1.0	1.0	1.0	.5	1.0
25	5.0	1.5	3.0	---	---	---	2.0	1.5	1.5	1.0	.5	.5
26	6.0	4.0	5.0	---	---	---	2.0	1.5	1.5	1.0	.5	1.0
27	5.5	3.0	4.5	---	---	---	1.5	1.5	1.5	1.5	1.0	1.0
28	5.0	3.0	4.0	---	---	---	1.5	1.0	1.5	1.5	1.0	1.0
29	6.0	3.5	4.5	---	---	---	1.5	1.0	1.5	1.5	1.0	1.5
30	7.0	4.0	5.5	---	---	---	1.5	1.0	1.5	1.5	1.0	1.5
31	7.5	4.5	6.0	---	---	---	1.5	1.0	1.0	1.5	1.0	1.0
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.0	---	---	---	8.0	5.0	6.0	17.5	15.0	16.5
2	1.5	1.0	1.0	---	---	---	8.0	6.0	7.5	17.0	15.0	16.0
3	1.0	1.0	1.0	---	---	---	11.0	7.0	9.0	15.5	14.0	15.0
4	1.0	.5	1.0	---	---	---	13.0	10.0	11.5	16.0	12.0	14.0
5	1.0	.5	.5	---	---	---	13.0	10.0	11.5	17.5	13.0	15.5
6	1.0	.5	.5	---	---	---	12.5	9.0	11.0	17.5	15.5	16.5
7	1.0	.5	.5	---	---	---	15.5	11.0	13.0	17.5	15.5	16.5
8	1.0	.5	.5	4.0	3.0	3.5	14.5	11.5	14.0	18.0	15.0	16.5
9	.5	.0	.5	4.0	3.0	3.5	11.5	9.0	10.0	16.5	13.0	15.0
10	.5	.5	.5	4.0	3.0	3.5	11.0	8.0	9.5	18.5	15.0	16.5
11	1.0	.0	.5	3.0	.0	2.0	12.0	8.5	10.0	20.0	16.5	18.0
12	.5	.0	.5	1.0	.0	.5	13.5	9.0	11.5	20.5	18.0	19.0
13	.5	.5	.5	1.5	.5	1.0	13.0	11.0	12.0	18.0	14.5	16.5
14	.5	.5	.5	2.0	.5	1.5	12.0	8.5	10.5	18.0	15.0	16.5
15	1.0	.5	.5	2.5	2.0	2.5	12.5	8.0	10.0	17.5	15.5	16.5
16	1.0	.5	1.0	3.5	2.5	3.0	13.0	9.0	11.0	19.5	14.5	15.5
17	1.5	1.0	1.0	3.5	3.0	3.5	12.5	9.5	11.0	19.0	16.0	17.5
18	1.5	1.0	1.5	4.0	3.0	3.5	11.0	7.0	9.0	20.5	17.0	18.5
19	1.5	1.0	1.5	4.0	3.5	3.5	11.5	8.0	9.5	19.5	18.5	19.0
20	2.0	1.0	1.5	4.0	3.5	3.5	11.5	8.0	10.0	18.5	17.5	18.0
21	---	---	---	4.5	3.5	4.0	10.5	9.0	9.5	18.0	15.0	16.5
22	---	---	---	4.5	4.0	4.0	10.0	7.0	8.5	15.0	13.5	14.5
23	---	---	---	4.5	2.5	4.0	11.0	5.5	9.0	19.5	14.0	16.0
24	---	---	---	3.5	2.5	3.0	12.0	8.5	10.0	22.0	18.0	19.0
25	---	---	---	3.5	1.0	2.0	11.0	8.5	10.0	21.0	18.0	19.5
26	---	---	---	3.5	.5	2.0	10.0	7.5	8.5	24.0	20.0	21.5
27	---	---	---	5.5	2.0	4.0	11.0	6.5	8.5	27.0	21.5	24.0
28	---	---	---	6.0	4.5	5.5	14.0	9.0	11.5	26.0	23.5	25.0
29	---	---	---	5.0	3.0	4.0	15.0	11.0	13.0	25.5	23.0	24.5
30	---	---	---	6.5	3.5	5.0	17.0	14.5	15.5	24.5	23.0	24.0
31	---	---	---	6.5	4.0	5.0	---	---	---	25.5	22.5	24.0

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	23.5	24.5	20.0	19.0	19.5	26.0	23.0	24.5	22.0	19.0	20.5
2	26.0	23.5	25.0	22.5	19.0	20.5	27.0	21.5	24.0	20.5	18.5	19.5
3	30.0	25.0	26.5	25.5	21.5	23.5	25.0	22.0	24.0	19.0	17.0	18.0
4	29.0	26.5	28.0	28.0	23.5	25.0	22.0	20.5	21.0	19.0	16.0	18.0
5	28.0	26.0	27.0	29.5	25.5	27.5	24.5	19.0	21.5	19.5	15.5	18.0
6	27.0	24.0	25.5	29.0	26.0	27.5	26.5	21.0	23.5	20.5	16.0	18.5
7	27.5	23.5	25.5	27.5	24.5	25.5	24.0	22.0	23.0	19.0	15.0	17.0
8	30.0	25.5	27.5	27.0	23.5	25.0	24.0	20.0	22.0	17.5	15.5	16.5
9	26.5	23.0	24.5	27.0	25.0	26.0	25.0	20.5	22.5	21.0	14.5	17.0
10	24.5	21.5	23.0	27.0	24.0	25.5	25.5	21.0	23.5	19.5	15.5	17.5
11	24.0	20.5	22.5	26.0	22.5	24.0	29.0	23.0	25.5	19.0	18.0	18.5
12	23.5	22.5	23.0	26.0	23.5	25.0	29.0	22.0	24.5	17.5	14.0	15.5
13	26.0	21.0	23.0	26.0	23.5	24.5	25.5	22.5	23.5	16.5	12.5	14.5
14	25.0	23.0	23.5	28.5	24.5	26.0	29.0	21.5	25.0	17.0	14.5	16.0
15	23.5	21.0	22.5	28.0	26.5	27.0	29.5	24.0	26.0	16.5	15.0	16.0
16	25.0	21.0	23.0	27.0	24.5	25.5	28.0	24.5	26.0	18.5	15.0	16.0
17	27.0	23.0	24.5	27.0	24.5	25.5	27.0	24.5	26.0	24.0	16.5	19.0
18	27.5	24.5	26.0	25.0	23.5	24.0	25.0	23.0	24.5	20.5	18.0	19.0
19	28.5	26.0	27.0	25.0	23.5	24.0	24.5	22.0	23.0	17.5	11.5	13.5
20	29.0	26.0	27.5	24.5	22.5	23.5	24.0	21.5	23.0	13.5	10.5	12.0
21	29.0	26.0	27.5	24.0	23.0	23.5	22.5	20.0	21.5	14.0	11.0	12.5
22	29.5	26.5	28.0	27.0	23.5	25.0	22.0	20.5	21.5	14.5	13.0	13.5
23	27.0	24.0	25.5	26.0	23.0	24.5	21.0	19.0	20.0	15.5	12.0	13.5
24	28.5	24.0	25.5	25.0	23.0	24.0	22.0	18.5	20.0	16.5	12.5	14.0
25	27.5	25.0	26.5	27.0	23.5	25.0	21.0	18.5	20.0	16.0	13.5	15.0
26	28.5	25.0	26.5	27.0	24.5	26.0	20.0	17.5	18.5	16.5	13.0	15.0
27	27.0	24.5	26.0	27.5	25.0	26.0	18.5	16.0	17.5	15.5	12.5	14.0
28	26.0	24.0	25.0	26.0	23.0	24.5	18.0	15.5	17.0	13.5	10.5	12.0
29	24.5	20.5	22.0	27.0	23.0	25.0	22.0	15.5	18.5	11.0	10.0	10.5
30	20.0	19.0	19.5	28.5	24.0	26.5	21.0	17.5	19.0	13.5	10.5	11.5
31	---	---	---	27.0	24.5	26.0	23.0	18.5	20.0	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	11.6	9.3	10.5	---	---	---
2	---	---	---	---	---	---	11.2	9.7	10.5	---	---	---
3	---	---	---	---	---	---	10.8	8.9	9.8	---	---	---
4	---	---	---	---	---	---	13.1	10.0	11.2	---	---	---
5	---	---	---	---	---	---	12.0	10.8	11.3	---	---	---
6	---	---	---	---	---	---	11.5	10.7	11.1	---	---	---
7	---	---	---	---	---	---	10.9	9.1	10.0	---	---	---
8	---	---	---	---	---	---	10.7	9.3	10.2	---	---	---
9	---	---	---	---	---	---	10.2	9.5	9.9	---	---	---
10	---	---	---	---	---	---	10.5	9.2	9.9	---	---	---
11	---	---	---	---	---	---	10.2	8.8	9.6	---	---	---
12	---	---	---	---	---	---	10.2	8.7	9.3	---	---	---
13	---	---	---	---	---	---	10.8	10.0	10.4	---	---	---
14	---	---	---	---	---	---	10.6	9.9	10.3	---	---	---
15	---	---	---	---	---	---	11.3	10.3	10.8	---	---	---
16	---	---	---	---	---	---	12.5	10.8	11.6	---	---	---
17	---	---	---	---	---	---	13.8	12.0	12.8	---	---	---
18	---	---	---	---	---	---	14.2	12.7	13.4	---	---	---
19	---	---	---	---	---	---	15.0	13.6	14.2	---	---	---
20	---	---	---	---	---	---	15.2	13.9	14.4	---	---	---
21	---	---	---	---	---	---	14.7	12.8	13.6	---	---	---
22	---	---	---	---	---	---	14.2	11.5	13.4	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 33.--Water-quality records for Sand Lake near Columbia, SD (06470992)--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	11.6	6.3	8.6
5	---	---	---	---	---	---	---	---	---	10.4	7.3	8.7
6	---	---	---	---	---	---	---	---	---	8.1	5.4	6.9
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	11.7	7.2	9.3	---	---	---
15	---	---	---	---	---	---	12.4	7.9	9.9	---	---	---
16	---	---	---	---	---	---	11.1	8.7	9.5	---	---	---
17	---	---	---	---	---	---	9.4	6.3	8.0	---	---	---
18	---	---	---	---	---	---	10.1	6.7	8.3	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 34.--Water-discharge records for James River at Columbia, SD (06471000)

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¼NW¼ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Transportation Company bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--5,857 mi^2, of which about 3,376 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,272.91 ft above National Geodetic Vertical Datum of 1929. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Gage-height telemeter at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--43 years, 114 ft^3/s, 82,590 acre-ft/yr; median of yearly mean discharges, 70 ft^3/s, 50,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 ft^3/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum gage height, 17.11 ft, Mar. 24, 1987, backwater from Elm River; maximum daily reverse flow, 1,860 ft^3/s, Apr. 8, 1952, backwater from Elm River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 257 ft^3/s at 1300 hours, Nov. 18, gage height, 7.56 ft; maximum gage height, 7.74 ft, Nov. 21, backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	224	e230	e20	e15	e9.5	e3.0	26	3.1	.00	.00	.00
2	164	235	e230	e20	e15	e9.5	e3.0	12	2.8	.00	.00	.00
3	164	242	e220	e20	e15	e9.5	e3.0	7.0	2.6	.00	.00	.00
4	161	242	e100	e20	e15	e9.3	e3.0	13	3.4	.00	.00	.00
5	160	240	e60	e20	e15	e6.0	23	13	3.7	.00	.00	.00
6	159	240	e50	e20	e15	e6.0	32	8.9	3.1	.00	.00	.00
7	160	241	e40	e15	e15	e5.5	31	8.9	2.9	.00	.00	.00
8	163	241	e35	e15	e15	e5.0	32	7.8	2.6	.00	.00	.00
9	161	241	e35	e15	e10	e4.5	29	15	2.1	.00	.00	.00
10	162	240	e35	e15	e10	e5.0	28	9.8	2.0	.00	.00	.00
11	162	239	e35	e15	e10	e4.5	21	10	1.4	.00	.00	.00
12	163	238	e30	e15	e10	e4.0	15	9.5	1.4	.07	.00	.00
13	162	238	e28	e15	e10	e4.0	11	11	1.4	.42	.00	.00
14	162	238	e25	e15	e10	e4.0	20	12	1.7	.05	.00	.00
15	162	240	e22	e20	e10	e4.0	46	5.6	1.4	.01	.00	.00
16	164	246	e22	e20	e10	e4.0	57	5.0	1.2	.00	.00	.00
17	166	248	e22	e20	e10	e3.5	60	6.0	1.1	.00	.00	.00
18	165	252	e22	e20	e10	e3.5	61	4.6	1.1	.00	.00	.00
19	164	250	e22	e20	e10	e3.5	60	4.0	1.1	.00	.00	.00
20	164	e250	e21	e20	e10	e3.5	59	4.9	.73	.00	.00	.00
21	164	e250	e21	e20	e10	e3.0	61	10	.58	.00	.00	.00
22	165	e250	e21	e20	e10	e3.0	74	15	.48	.00	.00	.00
23	166	e250	e21	e20	e10	e3.0	81	23	.32	.00	.00	.00
24	166	e250	e20	e20	e10	e3.0	80	19	.00	.00	.00	.00
25	165	e250	e20	e19	e10	e3.0	78	10	.00	.00	.00	.00
26	166	e250	e20	e19	e10	e3.0	81	7.4	.00	.00	.00	.00
27	165	e245	e20	e19	e10	e3.0	80	6.7	.00	.00	.00	.00
28	162	e245	e20	e17	e10	e3.0	74	8.4	.00	.00	.00	.00
29	162	e240	e20	e17	e10	e3.0	66	7.6	.00	.00	.00	.00
30	174	e240	e20	e17	---	e3.0	47	5.6	.00	.00	.00	.00
31	205	---	e20	e15	---	e3.0	---	3.7	---	.00	.00	---
TOTAL	5113	7295	1507	563	330	141.3	1319.0	310.4	42.21	0.55	0.00	0.00
MEAN	165	243	48.6	18.2	11.4	4.56	44.0	10.0	1.41	.018	.00	.00
MAX	205	252	230	20	15	9.5	81	26	3.7	.42	.00	.00
MIN	159	224	20	15	10	3.0	3.0	3.7	.00	.00	.00	.00
AC-FT	10140	14470	2990	1120	655	280	2620	616	84	1.1	.0	.0

CAL YR 1987 TOTAL 109176 MEAN 299 MAX 1250 MIN -100 AC-FT 216600
WTR YR 1988 TOTAL 16621.46 MEAN 45.4 MAX 252 MIN .00 AC-FT 32970

e Estimated

Table 35.--Water-quality records for James River at Columbia, SD (06471000)

PERIOD OF RECORD.--October 1948 to September 1964, October 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to September 1981; April 1986 to November 1987 (seasonal records only), November 1987 to current year.
pH: December 1987 to current year.
WATER TEMPERATURE: October 1966 to September 1981; April 1986 to November 1987 (seasonal records only), November 1987 to current year.
DISSOLVED OXYGEN: November 1987 to current year.

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen were determined at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from November 19 to November 30 during ice formation. Other interruptions in record were due to malfunction of the sensors or recording instruments.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 2,500 microsiemens, Mar. 1, 1974, Jan. 27-29, Jan. 31, 1979; minimum observed, 240 microsiemens, Mar. 17, 1972.
WATER TEMPERATURE: Maximum observed, 36.5°C, June 21, 1988; minimum observed, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV											
04...	1245	242	760	8.20	272	15.0	9.0	8.7	730	9.8	89
JAN											
28...	1200	17	1040	8.43	--	2.0	0.0	4.7	726	18.0	130
MAR											
23...	1010	3.2	606	8.84	221	9.0	1.0	--	724	16.1	119
APR											
14...	0915	21	710	8.38	--	5.0	6.0	57	734	10.4	87
MAY											
25...	1035	10	1090	8.65	292	22.0	19.5	17	727	12.3	141

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
NOV											
04...	K130	410	280	5	58	32	55	29	1	15	258
JAN											
28...	K10	160	210	0	75	6.0	78	42	2	20	242
MAR											
23...	K10	K20	--	0	--	--	--	--	--	--	--
APR											
14...	--	--	250	0	49	30	58	33	2	12	253
MAY											
25...	220	210	420	130	83	52	94	32	2	17	301

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
NOV											
04...	120	0.90	0.20	19	484	14	466	0.66	316	0.030	--
JAN											
28...	150	24	0.30	2.6	653	9	502	0.89	30.0	<0.010	--
MAR											
23...	--	--	--	--	--	--	--	--	--	<0.010	<0.010
APR											
14...	96	20	--	--	438	41	418	0.60	24.8	<0.010	--
MAY											
25...	290	44	0.30	7.4	801	36	796	1.09	21.6	0.030	0.030

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)
NOV											
04...	0.350	0.320	--	0.280	0.280	0.36	1.4	--	0.080	0.090	150
JAN											
28...	<0.100	--	--	0.050	0.040	0.06	1.6	--	0.060	0.040	200
MAR											
23...	<0.100	--	<0.100	0.010	<0.030	0.01	1.1	--	0.100	0.030	--
APR											
14...	<0.100	--	--	0.030	--	0.04	--	--	--	0.020	140
MAY											
25...	0.200	0.170	0.200	0.060	0.050	0.08	1.4	7.1	0.200	--	260

DATE	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	CYANIDE DISSOLVED (MG/L AS CN)
NOV											
04...	0.060	--	--	3	79	<0.5	<1	<1	--	1	<0.01
JAN											
28...	<0.010	--	<10	1	90	<0.5	<1	<1	<3	1	<0.01
MAR											
23...	<0.010	0.034	--	--	--	--	--	--	--	--	--
APR											
14...	0.004	--	--	2	--	--	<1	--	--	1	<0.01
MAY											
25...	0.050	0.095	<10	3	93	<0.5	<1	<1	<3	2	<0.01

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	ANTIMONY, DISSOLVED (UG/L AS SB)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	THALLIUM, DISSOLVED (UG/L AS TL)
NOV											
04...	11	<5	--	110	<0.1	--	1	1	1	<1.0	<1
JAN											
28...	6	<5	59	200	<0.1	<10	<1	<1	<1	<1.0	<1
MAR											
23...	--	--	--	--	--	--	--	--	--	--	--
APR											
14...	34	<5	--	710	<0.1	--	--	--	<1	--	--
MAY											
25...	16	<5	71	780	<0.1	<10	5	--	<1	<1.0	--

DATE	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CYANIDE TOTAL (MG/L AS CN)	SELENIUM, TOTAL (UG/L AS SE)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV										
04...	--	--	<3	--	--	--	--	30	20	89
JAN										
28...	360	<6	9	--	--	--	--	63	2.9	77
MAR										
23...	--	--	--	2	<1	<0.010	<1	22	25	98
APR										
14...	--	--	<3	--	--	--	--	157	8.9	99
MAY										
25...	420	<6	<3	4	2	<0.010	<1	42	1.1	98

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY 25...	1035	10	1090	8.65	22.0	19.5	727	12.3	141	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY 25...	0.10	<0.1	<0.1	0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY 25...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY 25...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY 25...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY 25...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	700	680	690	780	750	756	710	700	702	870	840	855
2	700	680	691	760	750	752	710	700	707	870	850	861
3	700	680	688	760	750	752	720	710	711	870	860	861
4	710	690	698	750	730	744	---	---	---	890	860	875
5	710	700	706	753	733	744	---	---	---	920	890	906
6	720	700	707	775	736	745	750	740	746	930	910	920
7	710	700	706	790	731	750	750	740	740	960	930	942
8	710	700	708	745	732	741	750	740	745	960	940	953
9	720	710	710	749	736	740	750	730	738	980	950	966
10	720	700	711	752	739	745	740	720	729	1000	970	983
11	720	710	713	746	734	741	740	720	730	1010	990	997
12	720	710	716	749	737	741	740	700	727	1000	980	992
13	720	710	714	752	740	744	740	720	727	1000	980	992
14	720	710	714	747	735	743	740	720	729	1000	830	958
15	720	710	716	751	739	748	740	720	734	930	880	908
16	720	710	718	752	734	746	770	740	755	900	860	885
17	720	710	719	748	735	744	760	740	755	890	800	840
18	730	710	720	760	750	752	760	740	750	860	810	825
19	730	710	716	---	---	---	760	740	754	840	740	811
20	720	710	717	---	---	---	780	740	761	770	720	750
21	720	710	716	---	---	---	780	760	768	800	750	784
22	720	710	716	---	---	---	780	750	765	820	800	810
23	720	710	717	---	---	---	770	750	760	830	800	813
24	730	710	718	---	---	---	790	760	777	870	820	841
25	720	710	718	---	---	---	800	780	792	870	830	847
26	740	720	724	---	---	---	810	780	798	910	860	883
27	740	720	728	---	---	---	820	800	810	920	890	904
28	730	720	726	---	---	---	810	800	807	920	890	911
29	730	720	721	---	---	---	820	800	811	920	910	918
30	730	710	723	---	---	---	830	810	821	910	890	900
31	760	730	749	---	---	---	840	820	829	890	880	885
		FEBRUARY			MARCH			APRIL			MAY	
1	910	880	897	860	770	807	---	---	---	896	853	873
2	940	910	929	830	760	795	---	---	---	908	846	886
3	960	930	947	830	780	802	---	---	---	900	870	888
4	1000	910	967	850	790	816	---	---	---	---	---	---
5	1030	1000	1020	850	750	810	---	---	---	---	---	---
6	1050	980	1020	790	670	743	780	600	690	---	---	---
7	1070	1050	1060	700	530	618	590	560	577	---	---	---
8	1070	1010	1050	540	490	517	620	560	591	---	---	---
9	1080	1070	1080	530	460	498	630	600	619	970	830	934
10	1080	1060	1070	500	460	484	630	610	617	830	810	823
11	1090	1060	1080	530	480	498	630	610	618	860	820	845
12	1110	1080	1090	600	530	573	660	610	640	910	860	884
13	1120	1100	1110	670	600	632	690	660	679	900	860	876
14	1110	1090	1110	810	680	758	700	671	688	880	850	864
15	1110	1090	1100	910	820	872	744	681	721	940	870	906
16	1150	1110	1120	940	880	905	757	714	741	1010	920	963
17	1140	1070	1110	930	760	848	799	737	767	1000	920	949
18	1110	1010	1060	850	780	821	800	760	780	1000	920	964
19	1030	950	1010	880	800	843	784	762	773	1000	960	973
20	1020	970	997	---	---	---	787	765	776	1130	990	1020
21	1020	960	992	---	---	---	799	777	784	1000	910	957
22	1010	930	982	---	---	---	812	780	793	1330	990	1130
23	1000	920	964	---	---	---	804	783	796	1420	1330	1380
24	1040	950	1010	---	---	---	817	785	799	1330	1230	1300
25	1050	990	1030	---	---	---	809	788	798	1220	1100	1160
26	1020	880	972	---	---	---	802	780	790	1110	1070	1090
27	900	740	851	---	---	---	815	783	799	1130	1070	1090
28	820	690	758	---	---	---	828	796	813	1070	1020	1040
29	840	700	768	---	---	---	840	809	825	1040	1000	1020
30	---	---	---	---	---	---	871	831	849	1000	980	989
31	---	---	---	---	---	---	---	---	---	1040	980	1010

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1020	980	995	---	---	---	---	---	---	---	---	---
2	1050	980	1010	---	---	---	---	---	---	---	---	---
3	1020	980	997	---	---	---	---	---	---	---	---	---
4	980	940	963	---	---	---	---	---	---	---	---	---
5	930	860	885	---	---	---	---	---	---	---	---	---
6	860	820	842	---	---	---	---	---	---	---	---	---
7	890	830	860	---	---	---	---	---	---	---	---	---
8	870	840	855	---	---	---	---	---	---	---	---	---
9	880	840	858	---	---	---	---	---	---	---	---	---
10	860	840	849	---	---	---	---	---	---	---	---	---
11	870	820	845	---	---	---	---	---	---	---	---	---
12	880	850	863	---	---	---	---	---	---	---	---	---
13	880	830	854	750	450	620	---	---	---	---	---	---
14	870	820	843	700	610	672	---	---	---	---	---	---
15	840	810	826	760	690	721	---	---	---	---	---	---
16	840	800	819	---	---	---	---	---	---	---	---	---
17	860	810	834	---	---	---	---	---	---	---	---	---
18	870	830	851	---	---	---	---	---	---	---	---	---
19	910	840	876	---	---	---	---	---	---	---	---	---
20	910	830	888	---	---	---	---	---	---	---	---	---
21	970	880	929	---	---	---	---	---	---	---	---	---
22	970	920	943	---	---	---	---	---	---	---	---	---
23	960	880	912	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.5	12.5	14.0	9.0	7.0	7.5	1.0	.5	1.0	.0	.0	.0
2	12.0	9.0	10.5	10.5	9.0	10.0	1.0	.5	1.0	.0	.0	.0
3	12.0	9.0	10.5	10.5	9.5	10.0	1.0	.0	.5	.0	.0	.0
4	13.0	10.5	12.0	9.5	7.5	8.5	1.0	.0	.5	.0	.0	.0
5	12.5	10.0	10.5	7.0	4.5	5.5	1.0	.0	.5	.0	.0	.0
6	10.0	8.0	9.0	6.0	4.0	5.0	2.0	1.0	1.5	.0	.0	.0
7	10.0	7.0	8.5	6.5	4.5	5.5	2.0	1.5	2.0	.0	.0	.0
8	10.0	8.0	9.0	6.5	3.0	4.0	3.0	2.0	2.5	.0	.0	.0
9	8.5	5.5	6.5	3.0	1.0	2.0	2.5	2.0	2.0	.0	.0	.0
10	6.5	3.5	5.5	2.5	.5	1.5	1.5	.0	.5	.0	.0	.0
11	7.5	4.0	6.0	3.5	.5	2.0	1.5	.0	1.0	.0	.0	.0
12	9.0	5.5	7.0	4.5	2.5	3.5	1.0	.0	.5	.0	.0	.0
13	9.0	7.0	8.0	4.5	3.0	4.0	.5	.0	.0	.0	.0	.0
14	8.5	7.0	8.0	5.0	3.5	4.0	.5	.0	.0	.0	.0	.0
15	8.5	8.0	8.0	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0
16	8.5	8.0	8.0	5.5	2.5	3.5	.5	.0	.0	.5	.0	.0
17	9.0	6.0	7.5	2.0	.0	1.0	.5	.0	.0	.5	.0	.0
18	8.5	6.5	7.5	1.0	.0	.5	.5	.0	.0	.5	.0	.0
19	7.0	5.5	6.0	---	---	---	.5	.0	.0	.0	.0	.0
20	5.5	4.0	4.5	---	---	---	.5	.0	.0	.5	.0	.0
21	4.0	2.0	3.0	---	---	---	.5	.0	.0	1.0	.5	.5
22	3.5	2.0	2.5	---	---	---	.5	.0	.0	1.0	1.0	1.0
23	4.0	2.5	3.5	---	---	---	.0	.0	.0	.5	.5	.5
24	3.5	2.0	3.0	---	---	---	.5	.0	.0	.5	.0	.5
25	5.0	1.5	3.5	---	---	---	.0	.0	.0	.5	.5	.5
26	6.5	4.5	5.5	---	---	---	.5	.0	.0	.5	.5	.5
27	6.0	3.5	4.5	---	---	---	.0	.0	.0	.5	.5	.5
28	5.5	3.5	4.5	---	---	---	.0	.0	.0	.5	.5	.5
29	6.0	3.5	5.0	---	---	---	.0	.0	.0	.5	.5	.5
30	6.5	4.5	6.0	---	---	---	.0	.0	.0	.5	.5	.5
31	7.5	5.0	6.0	---	---	---	.0	.0	.0	.5	.5	.5

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	1.0	.5	.5	---	---	---	---	---	---
2	.5	.5	.5	.5	.5	.5	---	---	---	---	---	---
3	.5	.5	.5	1.0	.5	.5	---	---	---	---	---	---
4	.5	.0	.5	1.0	.5	.5	---	---	---	---	---	---
5	.5	.5	.5	1.0	.5	.5	---	---	---	---	---	---
6	.5	.0	.5	1.0	.5	.5	---	---	---	---	---	---
7	.5	.5	.5	1.0	.5	.5	---	---	---	---	---	---
8	.5	.0	.5	1.0	.5	.5	---	---	---	---	---	---
9	.5	.5	.5	1.0	.5	.5	---	---	---	---	---	---
10	.5	.5	.5	1.0	.5	.5	---	---	---	21.5	14.0	17.5
11	.5	.5	.5	.5	.5	.5	---	---	---	23.0	15.5	19.0
12	.5	.5	.5	.5	.5	.5	---	---	---	26.0	16.5	20.5
13	.5	.5	.5	.5	.5	.5	---	---	---	19.0	11.0	15.0
14	.5	.5	.5	.5	.5	.5	---	---	---	22.5	13.5	17.5
15	.5	.5	.5	1.0	.5	.5	---	---	---	22.0	13.0	17.0
16	.5	.0	.5	1.0	.5	.5	---	---	---	24.5	12.0	17.5
17	.5	.0	.5	1.0	.5	.5	---	---	---	24.5	14.5	19.0
18	.5	.0	.5	1.0	.5	.5	---	---	---	24.0	16.0	20.0
19	1.0	.5	.5	1.0	.5	.5	---	---	---	20.5	18.0	19.0
20	1.0	.5	.5	---	---	---	---	---	---	20.5	16.5	18.0
21	1.0	.0	.5	---	---	---	---	---	---	17.0	13.5	15.5
22	.5	.5	.5	---	---	---	---	---	---	14.0	12.5	13.5
23	1.0	.5	.5	---	---	---	---	---	---	22.5	13.0	17.5
24	1.0	.5	.5	---	---	---	---	---	---	26.0	18.5	22.0
25	1.0	.5	.5	---	---	---	---	---	---	24.5	18.0	21.0
26	1.0	.5	.5	---	---	---	---	---	---	29.5	19.0	23.5
27	1.0	.5	.5	---	---	---	---	---	---	30.5	20.0	25.0
28	1.0	.5	.5	---	---	---	---	---	---	29.5	23.0	26.0
29	1.0	.5	.5	---	---	---	---	---	---	29.5	21.5	25.0
30	---	---	---	---	---	---	---	---	---	28.0	21.0	24.0
31	---	---	---	---	---	---	---	---	---	30.0	20.5	25.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	30.5	21.0	25.0	---	---	---	---	---	---	---	---	---
2	33.5	21.5	26.5	---	---	---	---	---	---	---	---	---
3	34.5	22.5	28.0	---	---	---	---	---	---	---	---	---
4	33.5	23.0	28.0	---	---	---	---	---	---	---	---	---
5	32.5	22.5	27.0	---	---	---	---	---	---	---	---	---
6	31.5	20.0	25.5	---	---	---	---	---	---	---	---	---
7	33.5	21.0	26.5	---	---	---	---	---	---	---	---	---
8	34.5	22.5	28.0	---	---	---	---	---	---	---	---	---
9	29.5	19.0	24.0	---	---	---	---	---	---	---	---	---
10	29.0	18.5	23.0	---	---	---	---	---	---	---	---	---
11	29.5	18.5	23.0	---	---	---	---	---	---	---	---	---
12	28.5	21.5	24.5	---	---	---	---	---	---	---	---	---
13	30.5	20.0	24.5	34.0	20.5	26.5	---	---	---	---	---	---
14	27.5	21.0	23.5	32.5	23.0	27.5	---	---	---	---	---	---
15	28.0	17.5	22.0	35.0	27.0	30.5	---	---	---	---	---	---
16	29.0	18.5	23.5	---	---	---	---	---	---	---	---	---
17	31.0	21.5	25.5	---	---	---	---	---	---	---	---	---
18	30.5	23.0	26.5	---	---	---	---	---	---	---	---	---
19	33.5	24.0	28.0	---	---	---	---	---	---	---	---	---
20	31.0	24.0	27.0	---	---	---	---	---	---	---	---	---
21	36.5	25.5	29.5	---	---	---	---	---	---	---	---	---
22	33.0	25.5	29.0	---	---	---	---	---	---	---	---	---
23	28.5	23.0	25.5	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	8.5	8.4	---	---
2	---	---	---	---	---	---	---	---	8.5	8.4	---	---
3	---	---	---	---	---	---	---	---	8.4	8.3	---	---
4	---	---	---	---	---	---	---	---	---	---	9.0	8.7
5	---	---	---	---	---	---	---	---	8.4	8.2	9.1	8.8
6	---	---	---	---	---	---	---	---	---	---	9.4	8.8
7	---	---	---	---	---	---	---	---	8.3	8.0	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	8.2	8.1	9.5	9.1
10	---	---	---	---	---	---	---	---	8.1	8.0	9.5	9.1
11	---	---	---	---	---	---	---	---	8.2	7.9	9.2	8.9
12	---	---	---	---	8.9	8.8	---	---	8.0	7.9	9.0	8.5
13	---	---	---	---	8.9	8.9	---	---	8.1	7.9	8.9	8.5
14	---	---	---	---	8.9	8.9	---	---	8.1	7.9	8.8	8.5
15	---	---	---	---	9.0	8.9	---	---	8.1	8.1	8.9	8.6
16	---	---	---	---	9.0	8.9	---	---	9.0	7.9	9.1	8.7
17	---	---	---	---	9.0	8.9	---	---	---	---	9.4	8.8
18	---	---	---	---	9.0	8.9	---	---	---	---	9.9	9.0
19	---	---	---	---	9.0	8.9	---	---	---	---	9.5	9.1
20	---	---	---	---	9.0	8.9	---	---	---	---	---	---
21	---	---	---	---	9.0	9.0	9.1	9.0	---	---	---	---
22	---	---	---	---	9.0	8.9	9.1	8.9	---	---	---	---
23	---	---	---	---	9.0	8.9	9.0	8.8	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	8.8	8.6
25	---	---	---	---	---	---	9.0	8.7	---	---	9.1	8.8
26	---	---	---	---	---	---	8.9	8.7	---	---	9.0	8.8
27	---	---	---	---	---	---	8.8	8.6	---	---	9.0	8.8
28	---	---	---	---	---	---	8.8	8.5	---	---	9.1	8.9
29	---	---	---	---	---	---	8.9	8.4	---	---	9.0	8.9
30	---	---	---	---	---	---	8.6	8.5	---	---	9.0	8.8
31	---	---	---	---	---	---	8.5	8.4	---	---	9.0	8.8

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.9	8.7	8.2	8.0	8.5	8.1	---	---	---	---	---	---
2	---	---	8.0	7.9	8.5	8.0	---	---	---	---	---	---
3	---	---	7.9	7.8	8.5	7.9	---	---	---	---	---	---
4	8.7	8.1	---	---	8.7	8.1	---	---	---	---	---	---
5	8.1	7.9	---	---	9.1	8.5	---	---	---	---	---	---
6	8.0	7.7	---	---	9.1	8.8	---	---	---	---	---	---
7	7.9	7.7	---	---	9.1	8.7	---	---	---	---	---	---
8	8.2	7.8	---	---	9.1	8.7	---	---	---	---	---	---
9	8.8	8.2	8.7	8.3	9.3	9.0	---	---	---	---	---	---
10	8.8	8.5	8.7	8.4	9.3	9.1	---	---	---	---	---	---
11	9.1	8.6	8.7	8.4	9.4	9.1	---	---	---	---	---	---
12	8.9	8.4	8.6	8.2	9.3	9.0	8.8	8.0	---	---	---	---
13	8.9	8.4	8.7	8.3	9.2	9.0	8.6	7.3	---	---	---	---
14	8.8	8.3	8.6	8.3	9.1	8.7	9.2	8.8	---	---	---	---
15	8.4	8.2	8.6	8.3	---	---	8.9	8.0	---	---	---	---
16	8.3	7.9	8.5	8.2	---	---	---	---	---	---	---	---
17	7.9	7.8	8.6	8.2	---	---	---	---	---	---	---	---
18	7.9	7.7	8.5	8.2	---	---	---	---	---	---	---	---
19	7.8	7.6	8.2	8.0	---	---	---	---	---	---	---	---
20	7.7	7.6	---	---	---	---	---	---	---	---	---	---
21	8.0	7.6	---	---	---	---	---	---	---	---	---	---
22	8.0	7.9	---	---	---	---	---	---	---	---	---	---
23	8.0	7.8	---	---	---	---	---	---	---	---	---	---
24	7.9	7.8	---	---	---	---	---	---	---	---	---	---
25	8.0	7.9	---	---	---	---	---	---	---	---	---	---
26	8.1	8.0	8.6	8.2	---	---	---	---	---	---	---	---
27	8.2	8.1	8.3	8.0	---	---	---	---	---	---	---	---
28	8.3	8.2	8.4	8.0	---	---	---	---	---	---	---	---
29	8.3	8.2	8.4	8.1	---	---	---	---	---	---	---	---
30	8.3	8.2	8.5	8.2	---	---	---	---	---	---	---	---
31	---	---	8.4	8.0	---	---	---	---	---	---	---	---

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	12.9	11.6	12.2	---	---	---
2	---	---	---	---	---	---	12.9	11.6	12.1	---	---	---
3	---	---	---	---	---	---	12.5	11.3	11.8	---	---	---
4	---	---	---	---	---	---	13.9	11.5	12.4	---	---	---
5	---	---	---	---	---	---	13.6	12.1	12.9	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	11.6	10.8	11.4	---	---	---
13	---	---	---	---	---	---	11.1	10.6	10.8	---	---	---
14	---	---	---	---	---	---	10.5	10.1	10.3	---	---	---
15	---	---	---	---	---	---	10.4	9.8	10.1	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	10.7	7.1	8.8
2	---	---	---	---	---	---	---	---	---	14.5	6.7	10.0
3	---	---	---	---	---	---	---	---	---	11.9	6.9	10.2
4	---	---	---	19	15.5	18	---	---	---	---	---	---
5	---	---	---	19.1	15.3	17.2	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	13.8	9.6	12.3
10	---	---	---	---	---	---	---	---	---	14.3	6.2	10.3
11	---	---	---	---	---	---	---	---	---	14.2	6.4	10.2
12	---	---	---	---	---	---	---	---	---	13.9	5.0	8.5
13	---	---	---	---	---	---	---	---	---	13.6	5.0	9.2
14	---	---	---	---	---	---	---	---	---	12.4	7.0	9.7
15	---	---	---	---	---	---	---	---	---	11.0	5.5	8.4
16	---	---	---	---	---	---	---	---	---	12.7	4.7	8.0
17	---	---	---	---	---	---	---	---	---	10.4	5.6	8.2
18	---	---	---	---	---	---	---	---	---	9.0	5.0	6.4
19	---	---	---	---	---	---	12.5	8.9	10.7	9.4	2.2	5.3
20	---	---	---	---	---	---	13.1	9.0	11.0	10.4	3.0	6.7
21	---	---	---	---	---	---	12.0	9.5	10.8	10.3	6.2	8.3
22	---	---	---	---	---	---	12.6	9.8	11.2	13.6	8.1	10.5
23	---	---	---	---	---	---	12.8	9.8	11.2	14.1	8.6	11.6
24	---	---	---	---	---	---	11.6	9.3	10.5	14.4	7.9	10.6
25	---	---	---	---	---	---	11.8	8.6	10.1	11.7	5.6	8.8
26	---	---	---	---	---	---	11.5	9.0	10.2	8.2	3.0	5.4
27	---	---	---	---	---	---	12.1	9.6	10.8	7.2	1.8	4.4
28	---	---	---	---	---	---	12.0	9.1	10.5	6.1	2.3	4.3
29	---	---	---	---	---	---	10.2	7.6	9.0	5.5	1.4	3.2
30	---	---	---	---	---	---	10.6	6.7	8.5	5.2	.7	2.7
31	---	---	---	---	---	---	---	---	---	6.7	.3	2.9

Table 35.--Water-quality records for James River at Columbia, SD (06471000)--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.4	.1	3.2	---	---	---	---	---	---	---	---	---
2	6.7	.0	3.0	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	11.7	1.9	6.5	12	7.4	10.4	---	---	---	---	---	---
15	11.4	4.9	7.4	8.3	3.6	6.4	---	---	---	---	---	---
16	10.6	3.6	7.2	---	---	---	---	---	---	---	---	---
17	9.6	2.5	6.4	---	---	---	---	---	---	---	---	---
18	8.4	3.1	5.6	---	---	---	---	---	---	---	---	---
19	6.9	2.4	4.6	---	---	---	---	---	---	---	---	---
20	7.1	2.8	5.0	---	---	---	---	---	---	---	---	---
21	6.5	2.5	4.1	---	---	---	---	---	---	---	---	---
22	5.9	2.5	4.1	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 36.--Water-discharge records for James River at Ashton, SD (06473000)

LOCATION.--Lat 44°59"54", long 98°28'50", in NW¼NW¼NE¼ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank at downstream side of highway bridge, 0.9 mi east of Ashton, 6.1 mi upstream from Snake Creek, and 14.2 mi upstream from Turtle Creek.

DRAINAGE AREA.--9,742 mi^2, approximately, of which about 4,069 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1209: 1947. WDR SD-84-1: Drainage area. WDR SD-86-1: 1985; Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream all at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater and reverse flow caused by Snake Creek during most years. Several observations of water temperature and specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years, 166 ft^3/s, 120,300 acre-ft/yr; median of yearly mean discharges, 110 ft^3/s, 79,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft^3/s, Apr. 24, 1969, gage height, 20.63 ft; maximum gage height, 21.17 ft, Apr. 13, 1969, backwater from Snake Creek; maximum daily reverse flow, 2,100 ft^3/s, Apr. 9, 1969, backwater from Snake Creek.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 320 ft^3/s at 1100 hours, Dec. 11, gage height, 5.78 ft; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	160	e240	e39	e22	e21	20	97	38	.66	.00	.00
2	152	160	e230	e38	e21	e21	19	97	35	.67	.00	.00
3	150	161	e220	e38	e20	e19	20	96	33	.58	.00	.00
4	150	167	246	e37	e20	e18	21	90	31	.49	.00	.00
5	147	174	289	e35	e19	e20	19	72	26	e.42	.00	.00
6	146	189	306	e34	e18	e21	19	65	24	e.35	.00	.00
7	145	202	309	e33	e18	e22	19	73	23	e.33	.00	.00
8	145	213	306	e32	e18	e24	18	65	20	e.31	.00	.00
9	145	220	291	e30	e17	e25	17	52	15	e.32	.00	.00
10	144	227	250	e29	e17	e28	18	44	14	e.30	.00	.00
11	145	233	237	e28	e17	e29	16	36	13	e.25	.00	.00
12	147	236	195	e27	e16	e28	16	31	11	e.28	.00	.00
13	146	237	e130	e26	e15	e27	15	28	8.4	e.22	.00	.00
14	148	244	e90	e26	e15	e26	17	23	7.3	e.16	.00	.00
15	152	248	e86	e25	e15	e25	24	19	7.6	e.04	.00	.00
16	152	254	e80	e26	e16	e24	34	19	6.9	e.04	.00	.00
17	152	256	e78	e27	e16	e24	40	15	8.0	e.01	.00	.00
18	152	255	e74	e28	e17	e25	41	12	8.8	.00	.00	.00
19	151	257	e73	e27	e17	e26	38	14	8.5	.00	.00	e.00
20	150	257	e70	e27	e18	e27	37	15	7.5	.00	.00	e.00
21	151	e255	e68	e26	e18	e28	39	22	6.3	.00	.00	e.00
22	151	e260	e65	e25	e19	e29	49	32	4.9	.00	.00	e.00
23	152	e265	e60	e24	e20	e31	62	34	3.4	.00	.00	e.00
24	152	261	e54	e24	e21	e33	73	34	2.5	.00	.00	e.00
25	152	258	e50	e23	e21	e34	77	35	1.8	.00	.00	e.00
26	154	259	e48	e23	e22	37	77	40	1.3	.00	.00	e.00
27	156	262	e47	e22	e23	34	81	47	1.2	.00	.00	e.00
28	156	e260	e45	e22	e23	28	88	48	1.2	.00	.00	e.00
29	158	e255	e43	e22	e22	29	93	43	.94	.00	.00	e.00
30	158	e250	e41	e23	---	27	96	42	.62	.00	.00	e.00
31	159	---	e40	e23	---	22	---	42	---	.00	.00	---
TOTAL	4669	6935	4361	869	541	812	1203	1382	370.16	5.43	0.00	0.00
MEAN	151	231	141	28.0	18.7	26.2	40.1	44.6	12.3	.18	.00	.00
MAX	159	265	309	39	23	37	96	97	38	.67	.00	.00
MIN	144	160	40	22	15	18	15	12	.62	.00	.00	.00
AC-FT	9260	13760	8650	1720	1070	1610	2390	2740	734	11	.0	.0

CAL YR 1987 TOTAL 135202 MEAN 370 MAX 1360 MIN 40 AC-FT 268200
WTR YR 1988 TOTAL 21147.59 MEAN 57.8 MAX 309 MIN .00 AC-FT 41950

e Estimated

Table 37.--Water-quality records for James River at Ashton, SD (06473000)

PERIOD OF RECORD.--October 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1985 to November 1987 (seasonal records only), December 1987 to September 1988 (discontinued).
pH: June to September 1985, December 1987 to September 1988 (discontinued).
WATER TEMPERATURE: October 1977 to November 1987 (seasonal records only), December 1987 to September 1988 (discontinued).
DISSOLVED OXYGEN: June to September 1985, October 1987 to September 1988 (discontinued).

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen were determined at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from November 19 to November 29 during ice formation. Other interruptions in record were due to malfunction of the sensors or recording instruments.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 2,020 microsiemens, Nov. 18, 1986; minimum observed, 480 microsiemens, Mar. 24-29, 1988.
WATER TEMPERATURE: Maximum observed, 32.5°C, June 21, 1988; minimum observed, 0.0°C on several days during 1978-80, 1983, 1984, 1988.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
NOV												
06...	0920	192	730	8.68	7.5	8.0	8.2	729	12.1	107	260	7
JAN												
27...	1100	22	1220	7.86	-1.0	1.0	3.3	734	7.4	54	460	19
MAR												
25...	0915	34	590	8.57	14.0	3.5	7.8	716	11.8	95	190	13
APR												
15...	0820	22	770	8.38	5.0	8.0	14	735	10.4	91	260	15
MAY												
26...	1425	43	945	8.28	29.0	26.0	52	720	8.4	110	310	37
JUN												
29...	1000	1.0	1320	8.36	21.5	22.0	76	724	5.4	65	420	90

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV											
06...	54	31	58	31	2	15	256	120	17	16	483
JAN											
27...	95	54	94	30	2	23	441	200	31	8.3	787
MAR											
25...	39	23	45	33	1	6.9	179	98	17	--	343
APR											
15...	51	31	65	35	2	10	240	130	30	--	411
MAY											
26...	62	38	80	35	2	14	275	180	40	--	612
JUN											
29...	79	53	130	39	3	16	326	290	73	--	873

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV											
06...	17	466	0.66	250	<0.010	--	0.150	--	--	--	--
JAN											
27...	10	772	1.07	46.7	0.010	--	0.350	0.340	--	--	--
MAR											
25...	35	337	0.47	32.0	<0.010	<0.010	<0.100	--	<0.100	0.020	0.030
APR											
15...	42	461	0.56	854	<0.010	--	<0.100	--	--	0.020	--
MAY											
26...	18	581	0.83	71.1	0.050	0.070	0.370	0.320	0.400	0.030	0.070
JUN											
29...	250	840	1.19	2.36	<0.010	--	<0.100	--	--	0.060	--

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)
NOV											
06...	--	--	--	--	0.040	180	0.018	--	3	82	<0.5
JAN											
27...	--	--	--	--	0.100	220	0.071	--	2	120	<0.5
MAR											
25...	0.03	1.0	--	0.100	<0.010	100	0.004	0.022	1	--	--
APR											
15...	0.03	--	--	--	0.080	140	0.037	--	2	--	--
MAY											
26...	0.04	2.6	13	0.170	0.110	<10	0.095	0.110	3	--	--
JUN											
29...	0.08	--	--	--	0.220	310	0.179	--	7	--	--

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
NOV											
06...	<1	<1	<3	<1	<0.01	5	<5	20	<0.1	3	<1
JAN											
27...	<1	<1	<3	1	<0.01	7	<5	120	<0.1	2	<1
MAR											
25...	<1	--	--	<1	<0.01	7	<5	180	<0.1	--	--
APR											
15...	<1	--	--	2	<0.01	12	<5	140	<0.1	--	--
MAY											
26...	<1	--	--	2	<0.01	6	<5	310	<0.1	--	--
JUN											
29...	<1	--	--	2	<0.01	13	<5	2200	<0.1	--	--

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CYANIDE TOTAL (MG/L AS CN)	SELE-NIUM, TOTAL (UG/L AS SE)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
06...	<1	<1.0	<1	<3	--	--	--	--	35	18	82
JAN											
27...	<1	1.0	<1	7	--	--	--	--	110	6.5	59
MAR											
25...	<1	--	--	<3	1	<1	<0.010	<1	102	9.5	93
APR											
15...	<1	--	--	<3	--	--	--	--	53	110	95
MAY											
26...	<1	--	--	<3	4	<1	<0.010	<1	129	15	100
JUN											
29...	<1	--	--	6	--	--	--	--	253	0.68	93

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
26...	1425	43	945	8.28	29.0	26.0	720	8.4	110	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
26...	0.10	<0.1	<0.1	0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
26...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY											
26...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
26...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
26...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.09	<0.01	<0.01

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	745	722	763	731	709	716	620	600	609	---	---	---
2	747	725	736	729	707	713	620	600	607	---	---	---
3	750	728	745	707	705	706	620	600	608	---	---	---
4	772	750	754	724	703	706	620	580	595	---	---	---
5	776	753	764	722	701	704	620	580	603	---	---	---
6	779	757	775	703	700	701	620	600	615	---	---	---
7	780	759	777	709	704	706	680	620	661	---	---	---
8	779	757	775	736	710	720	720	680	695	---	---	---
9	777	775	776	742	716	733	720	680	698	---	---	---
10	775	753	767	808	742	757	720	680	699	---	---	---
11	773	751	768	814	750	792	720	680	713	---	---	---
12	771	749	759	837	758	816	720	700	718	---	---	---
13	769	747	751	823	762	787	720	700	710	---	---	---
14	766	745	747	828	751	774	720	700	705	---	---	---
15	765	723	745	779	756	774	720	700	701	---	---	---
16	763	741	755	785	779	782	720	700	711	---	---	---
17	761	739	755	791	767	783	720	700	719	---	---	---
18	759	737	756	797	774	785	780	720	742	---	---	---
19	757	736	753	---	---	---	780	680	750	---	---	---
20	755	734	752	---	---	---	780	680	758	---	---	---
21	753	731	745	---	---	---	780	720	775	---	---	---
22	751	729	742	---	---	---	800	780	789	---	---	---
23	749	727	738	---	---	---	800	780	791	---	---	---
24	747	725	731	---	---	---	800	780	792	---	---	---
25	745	723	732	---	---	---	820	780	789	---	---	---
26	743	721	726	---	---	---	---	---	---	---	---	---
27	740	719	726	---	---	---	---	---	---	---	---	---
28	739	717	727	---	---	---	---	---	---	---	---	---
29	737	715	725	---	---	---	---	---	---	---	---	---
30	734	713	719	620	600	610	---	---	---	---	---	---
31	733	711	721	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	520	500	508	764	681	700
2	---	---	---	---	---	---	520	500	502	740	679	713
3	---	---	---	---	---	---	---	---	---	756	736	747
4	---	---	---	---	---	---	---	---	---	773	752	761
5	---	---	---	---	---	---	---	---	---	771	748	758
6	---	---	---	---	---	---	---	---	---	768	745	752
7	---	---	---	---	---	---	---	---	---	765	742	757
8	---	---	---	---	---	---	---	---	---	760	739	746
9	---	---	---	---	---	---	---	---	---	820	738	776
10	---	---	---	---	---	---	---	---	---	819	798	815
11	---	---	---	600	580	596	---	---	---	895	795	844
12	---	---	---	580	500	525	---	---	---	912	872	890
13	---	---	---	520	500	504	---	---	---	910	888	893
14	---	---	---	520	500	507	---	---	---	966	887	913
15	---	---	---	520	500	512	---	---	---	963	884	912
16	---	---	---	520	500	512	---	---	---	980	782	929
17	---	---	---	520	500	511	---	---	---	977	898	946
18	---	---	---	520	500	513	---	---	---	995	954	974
19	---	---	---	520	500	517	---	---	---	991	952	964
20	---	---	---	520	500	519	818	795	806	971	888	962
21	---	---	---	520	500	515	913	794	845	948	945	947
22	---	---	---	520	500	510	1170	912	1050	944	882	905
23	---	---	---	520	500	504	1210	1170	1200	941	880	914
24	---	---	---	500	480	499	1210	883	1060	938	859	907
25	---	---	---	500	480	487	903	800	832	936	856	902
26	---	---	---	500	480	488	800	777	795	952	853	910
27	---	---	---	500	480	492	797	654	731	1050	930	980
28	---	---	---	500	480	498	691	592	647	1180	1050	1110
29	---	---	---	520	480	506	689	649	668	1180	1160	1170
30	---	---	---	520	500	514	786	687	764	1150	1050	1110
31	---	---	---	520	500	512	---	---	---	1200	1050	1160

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1100	1060	1090	1520	1500	1510	---	---	---	---	---	---
2	1110	1060	1080	---	---	---	---	---	---	---	---	---
3	1190	1090	1150	---	---	---	---	---	---	---	---	---
4	1220	1180	1200	---	---	---	---	---	---	---	---	---
5	1210	1180	1200	---	---	---	---	---	---	---	---	---
6	1130	1110	1130	---	---	---	---	---	---	---	---	---
7	1140	1110	1130	1420	1400	1414	---	---	---	---	---	---
8	1140	1120	1140	1420	1400	1410	---	---	---	---	---	---
9	1150	1130	1130	---	---	---	---	---	---	---	---	---
10	1150	1040	1120	---	---	---	---	---	---	---	---	---
11	1060	1040	1040	---	---	---	---	---	---	---	---	---
12	1070	1050	1060	---	---	---	---	---	---	---	---	---
13	1070	1050	1060	---	---	---	---	---	---	---	---	---
14	1140	1050	1090	---	---	---	---	---	---	---	---	---
15	1180	1060	1120	---	---	---	---	---	---	---	---	---
16	1220	1090	1170	---	---	---	---	---	---	---	---	---
17	1220	1200	1210	---	---	---	---	---	---	---	---	---
18	1280	1200	1230	---	---	---	---	---	---	---	---	---
19	1300	1220	1260	---	---	---	---	---	---	---	---	---
20	1320	1220	1290	---	---	---	---	---	---	---	---	---
21	1380	1300	1330	---	---	---	---	---	---	---	---	---
22	1380	1300	1330	---	---	---	---	---	---	---	---	---
23	1320	1300	1310	---	---	---	---	---	---	---	---	---
24	1320	1300	1310	---	---	---	---	---	---	---	---	---
25	1320	1220	1290	---	---	---	---	---	---	---	---	---
26	1280	1200	1240	---	---	---	---	---	---	---	---	---
27	1320	1200	1240	---	---	---	---	---	---	---	---	---
28	1320	1280	1300	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	1520	1500	1500	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.0	14.0	15.0	8.0	6.5	7.0	.0	.0	.0	.0	.0	.0
2	14.0	12.0	13.0	9.5	8.0	8.5	.0	.0	.0	.0	.0	.0
3	13.0	11.0	12.0	9.5	9.5	9.5	.0	.0	.0	.0	.0	.0
4	13.5	12.0	12.5	9.5	8.0	9.0	.0	.0	.0	.0	.0	.0
5	12.5	11.0	12.0	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0
6	11.5	10.5	11.0	7.5	6.5	7.0	.0	.0	.0	.0	.0	.0
7	11.0	9.5	10.5	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
8	11.0	9.0	10.0	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0
9	10.0	8.0	9.0	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
10	8.0	6.0	7.0	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
11	8.0	6.0	7.0	3.0	1.5	2.5	.0	.0	.0	.0	.0	.0
12	8.5	6.5	7.5	3.5	2.0	3.0	.0	.0	.0	.0	.0	.0
13	8.5	7.5	8.0	4.0	2.5	3.5	.0	.0	.0	.0	.0	.0
14	8.5	8.0	8.5	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
15	8.5	8.0	8.5	5.0	4.5	4.5	.0	.0	.0	.0	.0	.0
16	8.5	8.0	8.5	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0
17	9.0	7.5	8.5	3.5	2.0	2.5	.0	.0	.0	.0	.0	.0
18	9.0	8.0	8.5	2.0	1.5	2.0	.0	.0	.0	.0	.0	.0
19	8.0	7.0	7.5	---	---	---	.0	.0	.0	.0	.0	.0
20	7.0	5.0	6.0	---	---	---	.0	.0	.0	.0	.0	.0
21	5.5	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
22	5.0	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
23	5.5	4.5	5.0	---	---	---	.0	.0	.0	.0	.0	.0
24	5.0	4.0	4.5	---	---	---	.0	.0	.0	.0	.0	.0
25	4.5	3.5	4.0	---	---	---	.0	.0	.0	.0	.0	.0
26	6.0	4.5	5.5	---	---	---	.0	.0	.0	.0	.0	.0
27	5.5	4.5	5.0	---	---	---	.0	.0	.0	.0	.0	.0
28	5.5	4.5	5.0	---	---	---	.0	.0	.0	.0	.0	.0
29	6.0	4.0	5.0	---	---	---	.0	.0	.0	.0	.0	.0
30	6.5	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.0	5.5	6.0	---	---	---	.0	.0	.0	.0	.0	.0

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	9.5	5.0	7.0	17.5	15.5	16.5
2	.0	.0	.0	.0	.0	.0	8.0	6.5	7.5	16.5	15.5	16.0
3	.0	.0	.0	.0	.0	.0	12.0	7.0	9.0	15.5	14.0	15.0
4	.0	.0	.0	.0	.0	.0	---	---	---	16.5	12.5	14.5
5	.0	.0	.0	.0	.0	.0	---	---	---	18.5	14.5	16.5
6	.0	.0	.0	.0	.0	.0	---	---	---	18.0	15.5	17.0
7	.0	.0	.0	.0	.0	.0	---	---	---	18.5	15.5	17.0
8	.0	.0	.0	.0	.0	.0	---	---	---	17.5	15.5	16.0
9	.0	.0	.0	.0	.0	.0	---	---	---	19.5	13.0	15.5
10	.0	.0	.0	.5	.0	.0	---	---	---	19.5	15.0	17.0
11	.0	.0	.0	.0	.0	.0	---	---	---	21.0	16.0	18.5
12	.0	.0	.0	.0	.0	.0	---	---	---	21.5	17.5	19.5
13	.0	.0	.0	.0	.0	.0	---	---	---	20.0	15.0	17.5
14	.0	.0	.0	.0	.0	.0	---	---	---	19.0	14.5	17.0
15	.0	.0	.0	.0	.0	.0	---	---	---	17.5	15.0	16.5
16	.0	.0	.0	.0	.0	.0	---	---	---	22.0	14.0	17.5
17	.0	.0	.0	.0	.0	.0	---	---	---	20.0	14.5	17.5
18	.0	.0	.0	.0	.0	.0	---	---	---	21.5	16.0	19.0
19	.0	.0	.0	.0	.0	.0	---	---	---	19.5	18.0	19.0
20	.0	.0	.0	.0	.0	.0	12.5	9.0	11.5	18.0	16.0	17.0
21	.0	.0	.0	.5	.0	.0	11.0	8.5	10.0	16.0	14.0	15.0
22	.0	.0	.0	1.0	.0	.0	10.0	8.0	9.0	14.0	13.0	13.5
23	.0	.0	.0	1.5	.0	.5	12.0	7.5	9.5	20.0	13.0	16.5
24	.0	.0	.0	3.0	.5	1.5	13.5	9.0	11.0	22.5	16.5	19.5
25	.0	.0	.0	4.5	1.5	3.0	12.5	10.0	11.0	22.0	17.5	20.0
26	.0	.0	.0	6.0	1.5	3.5	11.0	9.0	9.5	25.5	20.0	22.5
27	.0	.0	.0	8.5	3.5	5.5	11.5	7.5	9.5	28.0	22.0	24.5
28	.0	.0	.0	7.5	5.5	6.5	14.5	9.5	11.5	27.5	24.0	25.5
29	.0	.0	.0	7.0	4.0	5.5	16.0	12.0	14.0	27.0	23.5	25.0
30	---	---	---	8.5	5.0	6.5	18.0	14.5	16.0	26.5	23.0	24.5
31	---	---	---	8.5	4.5	6.5	---	---	---	27.0	23.0	25.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.0	23.0	24.5	19.5	14.0	16.5	---	---	---	---	---	---
2	28.5	23.0	25.5	---	---	---	---	---	---	---	---	---
3	29.5	24.0	26.5	---	---	---	---	---	---	---	---	---
4	30.5	25.5	28.0	---	---	---	---	---	---	---	---	---
5	29.0	25.0	27.0	---	---	---	---	---	---	---	---	---
6	27.5	23.0	25.5	---	---	---	---	---	---	---	---	---
7	28.5	23.5	26.0	---	---	---	---	---	---	---	---	---
8	29.5	24.5	27.0	---	---	---	---	---	---	---	---	---
9	26.5	22.5	24.5	---	---	---	---	---	---	---	---	---
10	25.5	20.5	23.0	---	---	---	---	---	---	---	---	---
11	25.0	20.5	23.0	---	---	---	---	---	---	---	---	---
12	26.5	21.5	24.0	---	---	---	---	---	---	---	---	---
13	28.0	21.5	24.5	---	---	---	---	---	---	---	---	---
14	25.5	22.5	24.0	---	---	---	---	---	---	---	---	---
15	26.0	20.5	23.5	---	---	---	---	---	---	---	---	---
16	27.5	21.5	24.5	---	---	---	---	---	---	---	---	---
17	29.5	22.0	25.5	---	---	---	---	---	---	---	---	---
18	29.5	24.0	27.0	---	---	---	---	---	---	---	---	---
19	31.5	26.0	28.5	---	---	---	---	---	---	---	---	---
20	31.0	25.5	28.5	---	---	---	---	---	---	---	---	---
21	32.5	26.0	29.0	---	---	---	---	---	---	---	---	---
22	30.5	25.0	28.0	---	---	---	---	---	---	---	---	---
23	27.0	23.5	25.0	---	---	---	---	---	---	---	---	---
24	32.0	22.5	26.5	---	---	---	---	---	---	---	---	---
25	29.0	22.5	26.0	---	---	---	---	---	---	---	---	---
26	26.0	20.0	23.5	---	---	---	---	---	---	---	---	---
27	29.0	17.0	22.5	---	---	---	---	---	---	---	---	---
28	30.5	22.5	26.5	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	19.0	16.0	17.5	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 37.--Water-quality records for James River at Ashton, SD (06473000)--Continued

PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	8.4	8.4	8.4
2	---	---	---	---	---	---	---	---	---	8.4	8.3	8.4
3	---	---	---	---	---	---	---	---	---	8.4	8.4	8.4
4	---	---	---	---	---	---	---	---	---	8.5	8.4	8.4
5	---	---	---	---	---	---	---	---	---	8.5	8.4	8.4
6	---	---	---	---	---	---	---	---	---	8.5	8.4	8.4
7	---	---	---	---	---	---	---	---	---	8.4	8.4	8.4
8	---	---	---	---	---	---	---	---	---	8.4	8.3	8.4
9	---	---	---	---	---	---	---	---	---	8.4	8.3	8.4
10	---	---	---	---	---	---	---	---	---	8.4	8.1	8.3
11	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
12	---	---	---	---	---	---	---	---	---	8.2	8.2	8.2
13	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
14	---	---	---	---	---	---	---	---	---	8.3	8.0	8.2
15	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
16	---	---	---	---	---	---	8.8	8.4	8.6	8.2	8.2	8.2
17	---	---	---	---	---	---	8.8	8.8	8.8	8.2	8.1	8.1
18	---	---	---	---	---	---	8.8	8.7	8.8	8.1	8.1	8.1
19	---	---	---	---	---	---	8.8	8.6	8.7	8.1	8.1	8.1
20	---	---	---	---	---	---	8.7	8.6	8.7	8.1	8.0	8.1
21	---	---	---	---	---	---	8.8	8.6	8.7	8.1	8.0	8.0
22	---	---	---	---	---	---	8.8	8.6	8.7	8.0	8.0	8.0
23	---	---	---	---	---	---	8.7	8.6	8.6	8.0	8.0	8.0
24	---	---	---	---	---	---	8.6	8.5	8.6	8.0	8.0	8.0
25	---	---	---	---	---	---	8.7	8.6	8.6	8.0	8.0	8.0
26	---	---	---	---	---	---	8.7	8.6	8.6	8.0	8.0	8.0
27	---	---	---	---	---	---	8.7	8.6	8.6	8.0	7.9	8.0
28	---	---	---	---	---	---	8.7	8.6	8.6	8.0	7.9	7.9
29	---	---	---	---	---	---	8.6	8.6	8.6	7.9	7.9	7.9
30	---	---	---	---	---	---	8.6	8.5	8.5	7.9	7.9	7.9
31	---	---	---	---	---	---	8.5	8.4	8.5	7.9	7.9	7.9
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.9	7.9	---	---	---	8.6	8.5	8.6	---	---	---
2	7.9	7.9	7.9	---	---	---	8.6	8.5	8.6	---	---	---
3	7.9	7.9	7.9	---	---	---	8.6	8.3	8.5	---	---	---
4	7.9	7.8	7.9	---	---	---	8.4	8.2	8.3	---	---	---
5	7.9	7.8	7.9	---	---	---	8.4	8.1	8.3	---	---	---
6	7.9	7.8	7.9	---	---	---	8.5	8.4	8.4	---	---	---
7	7.9	7.8	7.9	---	---	---	---	---	---	---	---	---
8	7.9	7.8	7.8	---	---	---	---	---	---	---	---	---
9	7.9	7.8	7.8	---	---	---	---	---	---	---	---	---
10	7.9	7.8	7.9	---	---	---	---	---	---	8.4	8.3	8.4
11	8.0	7.3	7.7	8.7	8.7	8.7	---	---	---	8.4	8.2	8.3
12	7.2	6.8	7.0	8.7	8.7	8.7	---	---	---	8.3	8.1	8.2
13	6.9	6.8	6.9	8.7	8.6	8.7	---	---	---	8.3	8.2	8.2
14	7.2	7.0	7.1	8.7	8.6	8.7	---	---	---	8.3	8.2	8.2
15	7.2	7.0	7.1	8.7	8.6	8.7	---	---	---	8.3	8.2	8.2
16	7.2	7.0	7.1	8.7	8.7	8.7	---	---	---	8.2	8.0	8.1
17	7.4	7.2	7.3	8.8	8.7	8.7	---	---	---	8.1	7.9	8.0
18	7.5	7.4	7.5	8.8	8.7	8.8	---	---	---	7.9	7.5	7.8
19	7.5	7.4	7.5	8.8	8.7	8.7	---	---	---	7.5	7.0	7.3
20	7.6	7.5	7.5	8.7	8.7	8.7	8.2	8.0	8.2	7.0	6.6	6.8
21	---	---	---	8.7	8.7	8.7	8.4	8.2	8.3	6.7	6.5	6.6
22	---	---	---	8.7	8.6	8.7	8.4	8.3	8.3	6.7	6.6	6.7
23	---	---	---	8.7	8.7	8.7	8.3	8.1	8.2	6.6	6.4	6.5
24	---	---	---	8.7	8.6	8.7	8.1	8.0	8.0	---	---	---
25	---	---	---	8.7	8.5	8.6	---	---	---	---	---	---
26	---	---	---	8.6	8.4	8.5	---	---	---	---	---	---
27	---	---	---	8.6	8.4	8.5	---	---	---	8.1	7.7	7.9
28	---	---	---	8.6	8.4	8.5	---	---	---	7.7	6.7	7.3
29	---	---	---	8.6	8.5	8.6	---	---	---	6.6	6.3	6.5
30	---	---	---	8.6	8.5	8.5	---	---	---	6.3	6.2	6.3
31	---	---	---	8.6	8.4	8.5	---	---	---	6.4	6.2	6.3

Table 37.--Water-quality records for James River at Ashton (06473000)--Continued

PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.7	6.4	6.6	---	---	---	---	---	---	---	---	---
2	6.8	6.5	6.7	---	---	---	---	---	---	---	---	---
3	7.7	6.6	7.1	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	--
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1987 TO SEPTEMBER

		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	18.6	17.0	17.7	---	---	---
5	---	---	---	---	---	---	18.2	17.4	17.9	---	---	---
6	---	---	---	---	---	---	17.8	17.4	17.6	---	---	---
7	---	---	---	---	---	---	17.4	16.8	17.0	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	15.4	14.6	15.0	---	---	---
18	---	---	---	---	---	---	15.8	14.6	15.2	---	---	---
19	---	---	---	---	---	---	15.6	14.6	15.2	---	---	---
20	---	---	---	---	---	---	16.2	15.0	15.6	---	---	---
21	---	---	---	---	---	---	16.8	15.8	16.4	---	---	---
22	---	---	---	---	---	---	17.0	16.4	16.7	---	---	---
23	---	---	---	---	---	---	16.2	15.2	15.7	---	---	---
24	---	---	---	---	---	---	16.8	15.2	15.9	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 37.--Water-quality records for James River at Ashton (06473000)--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	10.2	9.0	9.5	---	---	---
21	---	---	---	---	---	---	9.8	8.6	9.3	---	---	---
22	---	---	---	---	---	---	9.8	8.8	9.4	---	---	---
23	---	---	---	---	---	---	10.2	8.8	9.5	---	---	---
24	---	---	---	---	---	---	10.6	9.4	10.0	---	---	---
25	---	---	---	---	---	---	10.0	9.2	9.5	---	---	---
26	---	---	---	---	---	---	9.6	8.6	9.1	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

Table 38.--Water-discharge records for James River at Huron, SD (06476000)

LOCATION.--Lat 44°21'49", long 98°11'56", in SW¼SE¼NE¼ sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Chicago and North Western Transportation Co. bridge, and 165 ft upstream from bridge on business loop U.S. Highway 14.

DRAINAGE AREA.--15,869 mi^2, of which about 4,148 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at site about 100 ft downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of the National Weather Service.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 1,223.44 ft above National Geodetic Vertical Datum of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good except those for daily discharges less than 100 ft^3/s, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973.

AVERAGE DISCHARGE.--49 years, 247 ft^3/s, 179,000 acre-ft/yr; median of yearly mean discharges, 140 ft^3/s, 101,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft^3/s, Apr. 13, 1969, gage height, 16.70 ft; no flow for long periods in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood between Apr. 11 and 13, 1881, reached a stage of 19.8 ft, from U.S. Weather Bureau publication. Flood of Mar. 22, 1922, reached a stage of 16.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 814 ft^3/s at 0845 hours, May 26, gage height, 9.94 ft; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	130	154	64	32	56	35	6.4	38	.00	e.00	.00
2	108	131	198	59	e30	54	42	18	39	.00	e.00	.00
3	100	142	187	55	e30	49	39	36	36	.00	.00	.00
4	107	147	167	e55	30	50	38	40	33	.00	.00	.00
5	121	137	153	e55	e30	52	40	40	22	.00	.00	.00
6	111	132	148	55	e30	51	32	22	18	.00	.00	.00
7	102	134	140	52	e30	51	33	27	17	.00	.00	.00
8	102	150	165	53	28	54	27	47	20	.00	.00	.00
9	106	136	181	54	28	52	36	49	10	.00	.00	.00
10	103	129	188	48	28	53	25	47	5.3	.00	.00	.00
11	103	135	211	43	28	57	21	40	2.2	.00	.00	.00
12	106	144	206	42	25	59	17	40	3.4	.00	.00	.00
13	106	154	161	e40	23	53	23	30	8.7	.00	.00	.00
14	111	153	144	e40	22	49	16	23	6.9	.00	.00	.00
15	118	171	124	38	22	47	14	30	8.3	.00	.00	.00
16	124	208	113	37	20	46	3.8	25	4.3	.00	.00	.00
17	125	213	105	37	21	48	23	6.4	.43	.00	.00	.00
18	128	184	97	37	22	47	7.1	.57	.33	.00	.00	.00
19	128	194	93	38	23	46	5.6	16	.85	.00	.00	.00
20	135	185	88	37	26	49	13	23	.57	.00	.00	.00
21	123	170	84	37	28	50	12	56	.00	.00	.00	.00
22	130	189	81	37	29	54	12	56	.00	.00	.00	.00
23	128	194	80	37	30	55	14	61	.00	.00	.00	.00
24	128	185	78	37	31	53	11	64	.00	.00	.00	.00
25	110	183	77	39	32	52	14	47	.00	.00	.00	.00
26	134	193	e75	37	33	57	25	414	.00	.00	.00	.00
27	135	198	e75	34	36	32	18	166	.00	.00	.00	.00
28	129	216	e75	33	43	45	19	79	.00	.00	.00	.00
29	129	217	69	32	48	43	16	54	.00	e.00	.00	.00
30	130	210	66	32	---	46	17	40	.00	e.00	.00	.00
31	128	---	65	32	---	37	---	36	---	e.00	.00	---
TOTAL	3674	5064	3848	1326	838	1547	648.5	1639.37	274.28	0.00	0.00	0.00
MEAN	119	169	124	42.8	28.9	49.9	21.6	52.9	9.14	.00	.00	.00
MAX	135	217	211	64	48	59	42	414	39	.00	.00	.00
MIN	100	129	65	32	20	32	3.8	.57	.00	.00	.00	.00
AC-FT	7290	10040	7630	2630	1660	3070	1290	3250	544	.0	.0	.0

CAL YR 1987 TOTAL 153267 MEAN 420 MAX 2160 MIN 65 AC-FT 304000
WTR YR 1988 TOTAL 18859.15 MEAN 51.5 MAX 414 MIN .00 AC-FT 37410

e Estimated

Table 39.--Water-quality records for James River at Huron, SD (06476000)

PERIOD OF RECORD.--October 1948 to September 1952, October 1955 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1956 to October 1970, September 1971 to current year.
WATER TEMPERATURE: September 1956 to October 1970, September 1971 to current year.

REMARKS.--Water temperature and specific conductance samples collected once daily by observer. Daily records of water temperature are not published in this report due to uncertainty of their accuracy.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,170 microsiemens, Mar. 14, 1965; minimum daily, 175 microsiemens, Mar. 30, Apr. 2, 1960.
WATER TEMPERATURE: Maximum daily, 31.0°C, June 2, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,550 microsiemens, Sept. 13; minimum observed daily, 780 microsiemens, Oct. 16-17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT											
29...	0940	132	800	8.86	17.5	7.5	11	723	12.8	113	270
DEC											
02...	1200	206	850	9.12	-0.5	1.5	3.2	719	14.0	106	300
JAN											
21...	1100	45	1160	8.04	-9.0	1.0	4.5	731	9.3	68	420
MAR											
31...	1040	42	1000	8.85	9.5	6.0	4.6	737	13.0	108	360
APR											
19...	1100	13	1230	8.56	10.0	10.0	14	726	10.0	93	450
MAY											
17...	1030	18	1230	8.72	16.0	17.0	22	727	8.7	95	410

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
29...	7	55	33	66	33	2	14	267	120	24	22
DEC											
02...	45	61	35	63	30	2	15	252	150	26	12
JAN											
21...	64	90	48	84	29	2	19	359	220	32	12
MAR											
31...	130	78	40	77	31	2	9.0	233	260	30	--
APR											
19...	150	95	51	100	32	2	11	302	330	47	--
MAY											
17...	110	82	49	110	36	2	11	301	300	63	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT											
29...	539	15	495	0.73	192	<0.010	--	<0.100	--	--	--
DEC											
02...	531	15	513	0.72	295	<0.010	--	<0.100	--	--	--
JAN											
21...	726	2	722	0.99	88.2	<0.010	--	0.150	--	--	--
MAR											
31...	670	20	635	0.91	76.0	<0.010	<0.010	<0.100	<0.100	0.020	0.020
APR											
19...	826	29	817	1.12	29.0	--	--	0.120	--	--	--
MAY											
17...	814	33	797	1.11	39.6	<0.010	<0.010	<0.100	<0.100	0.030	0.030

Table 39.--Water-quality records for James River at Huron, SD (06476000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	PHOSPHOROUS DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)
OCT 29...	--	--	--	0.170	210	0.153	--	5	47	<0.5	<1
DEC 02...	--	--	--	0.040	160	0.006	--	3	54	<0.5	<1
JAN 21...	--	--	--	0.200	200	0.180	--	2	85	<0.5	<1
MAR 31...	0.03	1.4	0.180	--	180	0.055	0.062	2	--	--	<1
APR 19...	--	--	--	0.030	240	0.048	--	2	--	--	<1
MAY 17...	0.04	1.1	0.180	<0.010	310	0.033	0.089	4	--	--	<1

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	CYANIDE DISSOLVED (MG/L AS CN)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, DISSOLVED (UG/L AS NI)	ANTIMONY, DISSOLVED (UG/L AS SB)	SELENIUM, DISSOLVED (UG/L AS SE)
OCT 29...	<1	<3	2	--	5	<5	24	<0.1	4	1	<1
DEC 02...	1	<3	2	--	3	<5	5	<0.1	2	1	<1
JAN 21...	<1	<3	1	<0.01	7	<5	630	<0.1	2	<1	<1
MAR 31...	--	--	<1	<0.01	190	<5	380	<0.1	--	--	<1
APR 19...	--	--	3	<0.01	6	<5	1100	--	--	--	<1
MAY 17...	--	--	1	<0.01	3	<5	1300	<0.1	--	--	<1

DATE	SILVER, DISSOLVED (UG/L AS AG)	THALLIUM, DISSOLVED (UG/L AS TL)	ZINC, DISSOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CYANIDE TOTAL (MG/L AS CN)	SELENIUM, TOTAL (UG/L AS SE)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 29...	1.0	<1	<3	--	--	--	--	24	8.6	96
DEC 02...	<1.0	<1	4	--	--	--	--	19	11	78
JAN 21...	1.0	<1	6	--	--	--	--	89	11	70
MAR 31...	--	--	<3	2	1	<0.010	<1	27	3.1	90
APR 19...	--	--	<3	--	--	--	--	35	1.2	96
MAY 17...	--	--	5	4	2	--	<1	45	2.2	97

Table 39.--Water-quality records for James River at Huron, SD (06476000)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
17...	1030	18	1230	8.72	16.0	17.0	727	8.7	95	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
17...	0.10	<0.1	<0.1	0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY											
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
17...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
17...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.10	<0.01	<0.01

Table 39.--Water-quality records for James River at Huron, SD (06476000)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	850	810	820	930	1170	1320	1050	1270	940	---	---	---
2	860	800	830	940	1150	1240	1100	1280	890	---	---	---
3	860	800	840	950	1180	1060	1120	1270	890	---	---	---
4	850	810	820	940	1190	1060	1140	1260	910	---	---	---
5	850	820	830	930	1180	1120	1130	1260	970	---	---	---
6	840	800	840	940	1200	1120	1120	1200	1060	---	---	---
7	830	800	830	950	1220	950	1110	1260	1060	---	---	---
8	820	800	810	950	1230	1090	1080	1280	1100	---	---	---
9	820	810	790	960	1240	1060	1100	1290	1150	---	---	---
10	810	810	810	970	1240	970	1070	1320	1160	---	---	---
11	810	810	---	970	1240	830	1070	1300	1170	---	---	---
12	820	810	820	980	1240	1090	1090	1280	1200	---	---	---
13	810	810	820	990	1250	1090	1120	1280	1220	1390	---	1550
14	810	820	820	1010	1260	1090	1150	1280	1260	---	---	---
15	810	820	820	1010	1250	1080	1180	1280	1260	---	---	---
16	780	810	840	1020	1270	1100	1200	1260	1280	---	---	---
17	780	800	840	1040	1280	1100	1220	1260	1280	---	---	---
18	790	810	840	1060	1280	1110	1230	1250	1300	---	---	---
19	790	800	850	1070	1290	1150	1260	1240	1320	---	---	---
20	830	800	850	1060	1300	1160	1270	1220	1320	---	---	---
21	830	810	850	1100	1300	1180	1280	1250	---	---	---	---
22	800	820	860	1160	1300	1150	1290	1180	---	---	---	---
23	800	820	850	1200	1310	1040	1300	1160	---	---	---	---
24	800	810	870	1220	1310	1140	1300	1130	---	---	---	---
25	810	810	870	1320	1320	1220	1300	1100	---	---	---	---
26	810	810	870	1380	1340	1020	1300	930	---	---	---	---
27	820	810	880	1340	1340	1020	1300	1090	---	---	---	---
28	800	810	890	1280	1340	960	1300	870	---	---	---	---
29	810	810	900	1260	1360	950	1290	1030	---	---	---	---
30	800	810	900	1250	---	1000	1280	1100	---	---	---	---
31	800	---	910	1250	---	1000	---	1000	---	---	1520	---

Table 40.--Water-discharge records for James River near Scotland, SD (06478500)

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼SW¼ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek, and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,653 mi^2, of which about 4,148 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area. WDR SD-88-1: Datum.

GAGE.--Water-stage recorder and rock and earth control. Datum of gage is 1,168.02 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--60 years, 429 ft^3/s, 310,800 acre-ft/yr; median of yearly mean discharges, 210 ft^3/s, 152,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s, June 23, 1984, gage height, 20.45 ft; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 800 ft^3/s at 2315 hours, Mar. 12, gage height, 7.50 ft, backwater from ice; minimum daily discharge, 8.8 ft^3/s, Sept. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	186	270	e140	e100	e650	329	154	547	26	16	12
2	126	186	259	e130	e90	e650	311	136	501	30	13	12
3	129	189	234	e120	e85	e550	318	138	421	30	17	11
4	128	192	239	e110	e85	e350	333	151	346	27	33	9.9
5	135	190	229	e100	e85	e350	343	153	271	24	28	9.3
6	148	189	229	e100	e80	e350	339	137	211	21	25	9.1
7	147	190	234	e100	e80	e380	323	114	182	20	23	8.9
8	142	201	234	e100	e75	e400	300	118	166	19	22	9.9
9	136	211	243	e100	e75	e400	281	138	149	19	19	9.6
10	141	212	271	e100	e70	e450	262	150	128	21	17	8.8
11	146	203	283	e100	e70	e600	234	148	111	23	16	8.8
12	151	199	280	e100	e60	e700	215	144	93	23	15	10
13	155	201	265	e100	e65	e700	199	138	88	23	14	10
14	159	203	241	e100	e65	e550	192	130	91	21	12	11
15	162	203	e190	e100	e70	e540	187	127	85	21	12	14
16	165	210	e190	e110	e75	e470	173	127	75	19	11	16
17	167	222	e180	e120	e75	453	158	121	72	18	11	17
18	167	227	e180	e130	e80	405	152	107	63	18	11	16
19	169	227	e180	e130	e75	386	152	109	56	16	10	22
20	171	222	e180	e110	e75	407	138	129	51	17	10	25
21	170	233	e180	e100	e80	421	126	216	47	17	9.9	28
22	166	245	e170	e100	e85	421	126	443	43	17	12	29
23	166	258	e160	e100	e100	415	141	371	36	16	17	28
24	171	264	e160	e100	e110	418	148	337	34	15	18	23
25	173	253	e150	e100	e110	441	154	308	33	14	16	21
26	182	244	e150	e100	e130	441	163	289	29	14	14	20
27	192	244	e150	e100	e150	416	173	287	28	12	15	18
28	197	253	e150	e100	e200	394	182	345	27	11	14	20
29	193	272	e150	e100	e400	400	186	424	25	28	14	22
30	189	275	e150	e110	---	386	177	473	26	37	14	25
31	187	---	e150	e110	---	350	---	528	---	25	13	---
TOTAL	4959	6604	6331	3320	2900	14244	6515	6690	4035	642	491.9	484.3
MEAN	160	220	204	107	100	459	217	216	134	20.7	15.9	16.1
MAX	197	275	283	140	400	700	343	528	547	37	33	29
MIN	126	186	150	100	60	350	126	107	25	11	9.9	8.8
AC-FT	9840	13100	12560	6590	5750	28250	12920	13270	8000	1270	976	961

CAL YR 1987 TOTAL 331715 MEAN 909 MAX 11200 MIN 126 AC-FT 658000
WTR YR 1988 TOTAL 57216.2 MEAN 156 MAX 700 MIN 8.8 AC-FT 113500

e Estimated

Table 41.--Water-quality records for James River near Scotland, SD (06478500)

PERIOD OF RECORD.--October 1955 to September 1964, October 1966 to September 1973, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981; June 1985 to September 1988 (discontinued), seasonal records only.
pH: June to August 1985.
WATER TEMPERATURE: January 1953 to September 1969, October 1974 to September 1983; June 1985 to September 1988 (discontinued), seasonal records only.
DISSOLVED OXYGEN: June to August 1985.
SUSPENDED-SEDIMENT DISCHARGE: October 1981 to September 1983.

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen were determined at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from November 20, 1987 to March 16, 1988 for the winter. Other interruptions in record were due to malfunction of the sensors or recording instruments. Prior to October 1969, continuous temperature thermograph at station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 microsiemens, Jan. 9, 1977; minimum daily, 300 microsiemens, Mar. 19, 1977.
WATER TEMPERATURE: Maximum, 32.5°C, Aug. 1, 2, 1987; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 953 mg/L, June 21, 1983; minimum daily mean, 12 mg/L, Nov. 8, 1982.
SEDIMENT LOAD: Maximum daily, 5,890 tons, June 21, 1983; minimum daily, 1.7 tons, Oct. 2, 11, 1981.
pH: Maximum daily, 8.6, June 17, 19, 20, 1985; minimum daily, 7.5, June 30, 1985, July 2, 1985.
DISSOLVED OXYGEN: Maximum daily, 16.3 mg/L, June 30, 1985; minimum daily, 1.0 mg/L, June 27, 1985.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT											
08...	0915	147	1340	8.53	308	16.5	11.5	22	724	10.6	103
DEC											
09...	1035	246	1160	9.10	--	4.5	1.5	6.3	729	12.4	93
FEB											
18...	1120	78	1980	7.74	403	4.0	1.5	2.6	730	5.8	43
MAR											
16...	1230	453	1400	--	--	2.0	0.0	17	740	--	--
APR											
18...	1020	154	1800	8.49	--	4.0	11.0	16	740	11.2	105
MAY											
11...	1100	145	1990	8.38	250	23.5	19.0	27	732	12.4	140
JUL											
21...	0905	16	1800	8.10	--	28.0	23.0	19	736	13.1	159
AUG											
10...	1100	17	1800	8.32	210	31.0	27.0	16	727	6.2	82
SEP											
14...	1100	11	2040	8.22	--	23.0	19.0	7.3	734	8.8	99

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT											
08...	640	210	570	260	130	59	86	24	2	19	295
DEC											
09...	--	--	490	220	110	53	79	25	2	15	277
FEB											
18...	K4	K26	920	520	220	90	100	19	1	19	399
MAR											
16...	--	--	650	430	150	67	83	21	1	11	225
APR											
18...	--	--	800	530	180	85	110	23	2	13	268
MAY											
11...	K30	K50	910	660	200	98	120	22	2	9.0	236
JUL											
21...	--	--	780	560	160	93	130	26	2	16	224
AUG											
10...	100	230	820	610	180	90	110	22	2	13	215
SEP											
14...	--	--	980	760	210	110	120	21	2	14	222

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT											
08...	430	30	0.30	17	973	--	1000	1.32	386	<0.010	--
DEC											
09...	320	34	--	13	847	11	792	1.15	563	<0.010	--
FEB											
18...	700	71	0.40	21	1490	4	1470	2.03	314	0.020	--
MAR											
16...	560	35	--	--	1080	50	1040	1.47	1320	<0.010	0.020
APR											
18...	780	30	--	--	1390	52	1360	1.89	270	<0.010	--
MAY											
11...	870	42	0.40	5.5	1610	80	1520	2.19	630	<0.010	<0.010
JUL											
21...	780	47	--	--	1500	48	1360	2.04	64.8	0.010	--
AUG											
10...	810	43	0.30	24	1470	50	1410	2.00	67.5	0.010	0.010
SEP											
14...	970	41	--	--	1630	29	1600	2.22	48.4	<0.010	--

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)
OCT											
08...	<0.100	--	--	0.040	0.040	0.05	2.3	--	0.290	0.080	--
DEC											
09...	0.270	--	--	--	--	--	--	--	--	0.170	260
FEB											
18...	0.920	0.900	--	0.470	0.480	0.61	4.3	--	0.230	0.210	390
MAR											
16...	<0.100	--	<0.100	0.050	0.040	0.06	2.1	--	0.170	--	270
APR											
18...	<0.100	--	--	0.050	--	0.06	--	--	--	0.050	340
MAY											
11...	<0.100	--	<0.100	0.060	0.060	0.08	1.2	--	0.180	0.030	430
JUL											
21...	<0.100	--	--	0.090	--	0.12	--	--	--	0.210	530
AUG											
10...	<0.100	--	0.200	0.160	0.130	0.21	1.7	8.4	0.360	0.160	510
SEP											
14...	0.100	--	--	0.070	--	0.09	--	--	--	0.060	650

DATE	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)
OCT											
08...	0.060	--	<10	6	69	<0.5	<1	<1	<3	1	--
DEC											
09...	0.190	--	--	3	58	<0.5	<1	<1	<3	1	<0.01
FEB											
18...	0.170	--	<10	2	58	<0.5	<1	2	<3	1	<0.01
MAR											
16...	0.006	0.046	--	2	--	--	<1	--	--	1	<0.01
APR											
18...	0.038	--	--	3	--	--	<1	--	--	2	<0.01
MAY											
11...	0.010	0.052	<10	3	100	<0.5	<1	2	<3	<1	<0.01
JUL											
21...	0.002	--	--	10	--	--	<1	--	--	<1	<0.01
AUG											
10...	0.150	0.173	20	11	130	<0.5	<1	1	<3	<1	<0.01
SEP											
14...	0.036	--	--	6	--	--	<1	--	--	<1	<0.01

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)
OCT											
08...	6	<5	94	85	0.1	<10	6	--	<1	<1.0	--
DEC											
09...	3	<5	--	140	<0.1	--	3	1	1	<1.0	<1
FEB											
18...	10	<5	140	870	<0.1	<10	3	--	2	<1.0	--
MAR											
16...	7	<5	--	330	<0.1	--	--	--	3	--	--
APR											
18...	6	<5	--	1200	<0.1	--	--	--	4	--	--
MAY											
11...	5	<5	150	1700	<0.1	<10	2	--	1	<1.0	--
JUL											
21...	7	<5	--	2800	<0.1	--	--	--	<1	--	--
AUG											
10...	10	<5	150	2700	--	<10	4	--	1	<1.0	--
SEP											
14...	11	7	--	1800	--	--	--	--	<1	--	--

DATE	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CYANIDE TOTAL (MG/L AS CN)	SELE-NIUM, TOTAL (UG/L AS SE)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
08...	1100	<6	4	--	--	--	--	122	48	81
DEC										
09...	--	--	3	--	--	--	--	26	17	71
FEB										
18...	1800	<6	10	--	--	--	--	158	33	17
MAR										
16...	--	--	<3	<1	<1	<0.010	2	80	98	99
APR										
18...	--	--	<3	--	--	--	--	132	26	77
MAY										
11...	1800	<6	<3	4	1	<0.010	2	74	29	95
JUL										
21...	--	--	40	--	--	--	--	69	3.0	99
AUG										
10...	1700	<6	8	14	<1	<0.010	1	74	3.4	100
SEP										
14...	--	--	15	--	--	--	--	30	0.89	99

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
11...	1100	145	1990	8.38	23.5	19.0	732	12.4	140	<0.01	<0.010	<0.10
JUL												
21...	0905	16	1800	8.10	28.0	23.0	736	13.1	159	<0.01	<0.010	<0.10
SEP												
14...	1100	11	2040	8.22	23.0	19.0	734	8.8	99	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
11...	0.20	<0.1	<0.1	0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL												
21...	0.10	<0.1	<0.1	0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP												
14...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
11...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL												
21...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP												
14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY											
11...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
21...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
11...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
JUL											
21...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP											
14...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
11...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.27	<0.01	<0.01
JUL											
21...	<0.10	<0.02	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.10	<0.10	<0.02
SEP											
14...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.14	<0.01	<0.01

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1420	1410	1430	1390	1350	1370	---	---	---	---	---	---
2	1420	1400	1410	1410	1380	1390	---	---	---	---	---	---
3	1430	1400	1420	1410	1400	1410	---	---	---	---	---	---
4	1420	1400	1410	1420	1400	1410	---	---	---	---	---	---
5	1400	1370	1380	1400	1380	1390	---	---	---	---	---	---
6	1380	1360	1370	1380	1360	1370	---	---	---	---	---	---
7	1400	1380	1390	1360	1330	1340	---	---	---	---	---	---
8	1380	1370	1380	1320	1280	1300	---	---	---	---	---	---
9	1380	1320	1360	1300	1270	1280	---	---	---	---	---	---
10	1330	1320	1320	1300	1270	1280	---	---	---	---	---	---
11	1330	1300	1320	1290	1230	1270	---	---	---	---	---	---
12	1310	1300	1310	1290	1260	1280	---	---	---	---	---	---
13	1320	1310	1310	1300	1270	1280	---	---	---	---	---	---
14	1330	1300	1300	1320	1300	1310	---	---	---	---	---	---
15	1330	1300	1320	1330	1320	1330	---	---	---	---	---	---
16	1330	1320	1330	1340	1300	1320	---	---	---	---	---	---
17	1350	1330	1340	1320	1310	1320	---	---	---	---	---	---
18	1380	1350	1370	1330	1310	1320	---	---	---	---	---	---
19	1380	1350	1370	1320	1310	1310	---	---	---	---	---	---
20	1350	1320	1340	---	---	---	---	---	---	---	---	---
21	1330	1300	1320	---	---	---	---	---	---	---	---	---
22	1330	1300	1320	---	---	---	---	---	---	---	---	---
23	1330	1300	1330	---	---	---	---	---	---	---	---	---
24	1330	1300	1320	---	---	---	---	---	---	---	---	---
25	1330	1300	1310	---	---	---	---	---	---	---	---	---
26	1330	1310	1320	---	---	---	---	---	---	---	---	---
27	1330	1310	1320	---	---	---	---	---	---	---	---	---
28	1330	1320	1330	---	---	---	---	---	---	---	---	---
29	1330	1330	1330	---	---	---	---	---	---	---	---	---
30	1330	1310	1320	---	---	---	---	---	---	---	---	---
31	1350	1320	1340	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	1880	1850	1860
2	---	---	---	---	---	---	---	---	---	1900	1800	1880
3	---	---	---	---	---	---	---	---	---	1920	1820	1900
4	---	---	---	---	---	---	---	---	---	1950	1910	1930
5	---	---	---	---	---	---	---	---	---	1960	1920	1940
6	---	---	---	---	---	---	---	---	---	1990	1950	1970
7	---	---	---	---	---	---	---	---	---	1980	1950	1970
8	---	---	---	---	---	---	---	---	---	1970	1940	1960
9	---	---	---	---	---	---	---	---	---	1960	1920	1940
10	---	---	---	---	---	---	---	---	---	1930	1910	1920
11	---	---	---	---	---	---	---	---	---	1980	1930	1960
12	---	---	---	---	---	---	---	---	---	2020	1990	2010
13	---	---	---	---	---	---	---	---	---	2020	1990	2000
14	---	---	---	---	---	---	---	---	---	2000	1970	1980
15	---	---	---	---	---	---	---	---	---	1980	1960	1970
16	---	---	---	---	---	---	---	---	---	1980	1970	1980
17	---	---	---	1460	1450	1450	---	---	---	2010	1980	2000
18	---	---	---	1470	1450	1460	---	---	---	2020	2000	2010
19	---	---	---	1470	1460	1460	1770	1740	1750	2000	1990	2000
20	---	---	---	1480	1470	1470	1770	1750	1760	2000	1880	1980
21	---	---	---	1480	1470	1480	1770	1750	1760	1990	1940	1980
22	---	---	---	1490	1480	1480	1790	1760	1770	1960	1420	1850
23	---	---	---	1500	1480	1490	1800	1760	1780	1380	1200	1260
24	---	---	---	1500	1490	1490	1790	1770	1780	1590	1310	1440
25	---	---	---	1500	1490	1500	1800	1780	1790	1630	1590	1610
26	---	---	---	1500	1490	1490	1810	1800	1800	1720	1630	1670
27	---	---	---	1500	1480	1490	1810	1770	1790	1820	1720	1770
28	---	---	---	1500	1490	1490	1790	1740	1760	1910	1820	1870
29	---	---	---	1500	1480	1490	1830	1780	1810	1930	1910	1920
30	---	---	---	1490	1480	1490	1850	1830	1840	1910	1810	1860
31	---	---	---	---	---	---	---	---	---	1790	1690	1720

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1730	1620	1710	---	---	---	1760	1750	1750	2080	2060	2060
2	1650	1540	1580	---	---	---	1750	1720	1740	2130	2050	2080
3	1550	1520	1530	---	---	---	1730	1680	1710	2060	2020	2050
4	1550	1500	1530	---	---	---	1670	1600	1620	2060	2040	2050
5	1530	1520	1530	---	---	---	1630	1580	1600	2080	2060	2070
6	1530	1500	1520	---	---	---	1660	1630	1650	2070	2050	2060
7	1530	1500	1510	1680	1520	1600	1680	1650	1660	2070	2060	2070
8	1520	1500	1510	1680	1660	1670	1660	1630	1640	2080	2070	2080
9	1590	1520	1560	1680	1670	1680	1700	1650	1670	2110	2060	2090
10	1620	1590	1610	1700	1670	1680	1720	1700	1720	2130	2110	2120
11	1630	1600	1620	1700	1680	1690	1780	1750	1770	2120	2090	2110
12	1630	1600	1610	1710	1700	1700	1800	1780	1790	2110	2040	2070
13	1680	1630	1660	1730	1700	1720	1830	1780	1810	2070	2000	2040
14	1700	1670	1680	1730	1700	1720	1780	1710	1750	2050	1930	1990
15	1720	1690	1700	1730	1700	1710	1720	1670	1690	1940	1920	1930
16	1730	1700	1710	1730	1700	1710	1680	1650	1670	1920	1900	1910
17	1730	1700	1710	1730	1700	1710	1690	1630	1650	1930	1900	1920
18	1780	1710	1730	1730	1700	1720	1650	1620	1630	1930	1900	1910
19	1810	1740	1780	1730	1700	1710	1680	1640	1650	1930	1880	1920
20	---	---	---	1740	1700	1720	1740	1680	1710	1930	1890	1910
21	---	---	---	1780	1740	1760	1770	1740	1750	1960	1890	1930
22	---	---	---	1760	1730	1740	1840	1770	1800	2000	1950	1980
23	---	---	---	1760	1750	1750	1880	1830	1850	2000	1970	1990
24	---	---	---	1800	1760	1780	1940	1870	1900	2030	1990	2000
25	---	---	---	1800	1760	1780	1980	1950	1960	2040	2000	2020
26	---	---	---	1780	1750	1760	1990	1980	1980	2030	2000	2010
27	---	---	---	1780	1760	1770	2010	1980	2000	2030	2000	2010
28	---	---	---	1790	1770	1780	2020	2000	2010	2030	1980	2010
29	---	---	---	1790	1780	1790	2050	2020	2030	2020	2000	2010
30	---	---	---	1790	1730	1770	2040	2020	2030	2020	1980	2000
31	---	---	---	1780	1760	1770	2050	2030	2040	---	---	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.0	16.5	17.5	10.0	8.5	9.0	---	---	---	---	---	---
2	16.5	14.0	15.0	11.0	10.0	10.5	---	---	---	---	---	---
3	14.5	12.5	13.5	11.5	11.0	11.0	---	---	---	---	---	---
4	15.5	13.5	14.5	11.5	11.0	11.0	---	---	---	---	---	---
5	15.0	13.5	14.0	11.0	9.0	10.0	---	---	---	---	---	---
6	13.5	12.0	13.0	9.5	8.5	9.0	---	---	---	---	---	---
7	13.0	11.5	12.5	9.0	9.0	9.0	---	---	---	---	---	---
8	12.5	11.5	12.0	9.0	7.5	8.5	---	---	---	---	---	---
9	12.5	10.0	11.0	7.5	6.5	7.0	---	---	---	---	---	---
10	10.0	8.5	9.0	6.5	5.5	6.0	---	---	---	---	---	---
11	9.5	8.5	9.0	5.5	4.5	5.0	---	---	---	---	---	---
12	10.0	8.5	9.5	5.5	5.0	5.5	---	---	---	---	---	---
13	10.5	9.0	10.0	6.5	5.5	6.0	---	---	---	---	---	---
14	10.5	10.0	10.0	6.5	6.0	6.0	---	---	---	---	---	---
15	10.0	10.0	10.0	7.5	6.5	7.5	---	---	---	---	---	---
16	10.0	9.0	9.5	7.5	6.5	7.0	---	---	---	---	---	---
17	10.0	8.5	9.5	6.5	5.5	6.0	---	---	---	---	---	---
18	10.0	9.5	9.5	5.0	4.0	4.5	---	---	---	---	---	---
19	9.5	8.5	9.0	4.5	4.0	4.0	---	---	---	---	---	---
20	9.0	7.5	8.0	---	---	---	---	---	---	---	---	---
21	7.5	6.5	7.0	---	---	---	---	---	---	---	---	---
22	7.5	7.0	7.0	---	---	---	---	---	---	---	---	---
23	7.5	6.5	7.0	---	---	---	---	---	---	---	---	---
24	7.0	6.0	7.0	---	---	---	---	---	---	---	---	---
25	6.5	6.0	6.0	---	---	---	---	---	---	---	---	---
26	8.0	6.0	7.0	---	---	---	---	---	---	---	---	---
27	7.5	6.5	7.0	---	---	---	---	---	---	---	---	---
28	7.5	6.0	7.0	---	---	---	---	---	---	---	---	---
29	8.0	6.5	7.5	---	---	---	---	---	---	---	---	---
30	8.5	7.5	8.0	---	---	---	---	---	---	---	---	---
31	8.5	8.0	8.5	---	---	---	---	---	---	---	---	---

Table 41.--Water-quality records for James River near Scotland, SD (06478500)--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	7.0	6.5	7.0	17.0	15.5	16.5
2	---	---	---	---	---	---	7.0	6.5	7.0	16.5	15.5	16.0
3	---	---	---	---	---	---	8.0	7.0	7.5	16.0	14.5	15.0
4	---	---	---	---	---	---	10.5	8.0	9.0	16.0	13.5	14.5
5	---	---	---	---	---	---	11.0	10.0	10.5	18.0	14.5	16.0
6	---	---	---	---	---	---	12.0	10.0	11.0	16.5	16.0	16.5
7	---	---	---	---	---	---	14.0	11.5	12.5	17.5	15.5	16.5
8	---	---	---	---	---	---	15.0	13.5	14.0	17.5	16.0	17.0
9	---	---	---	---	---	---	14.5	13.0	13.5	16.5	15.0	16.0
10	---	---	---	---	---	---	13.0	12.0	12.5	18.0	15.5	16.5
11	---	---	---	---	---	---	13.0	11.5	12.0	---	---	---
12	---	---	---	---	---	---	14.0	12.0	13.0	20.0	17.5	18.5
13	---	---	---	---	---	---	14.0	12.5	13.5	20.0	18.0	19.0
14	---	---	---	---	---	---	12.5	11.5	12.0	19.0	17.0	18.5
15	---	---	---	---	---	---	13.0	11.5	12.0	19.0	18.0	18.5
16	---	---	---	---	---	---	13.0	11.0	12.0	20.0	17.5	18.5
17	---	---	---	1.0	.0	.5	13.5	12.0	13.0	19.0	17.5	18.5
18	---	---	---	2.5	.5	1.0	12.5	11.0	11.5	20.0	18.0	19.0
19	---	---	---	4.0	2.0	3.0	13.0	10.0	11.5	21.0	19.5	20.0
20	---	---	---	5.5	3.5	4.5	14.0	11.5	13.0	21.5	19.5	20.5
21	---	---	---	6.0	4.5	5.5	13.5	10.0	11.5	20.0	17.5	19.0
22	---	---	---	7.0	5.5	6.5	10.0	8.5	9.0	17.5	16.5	17.0
23	---	---	---	8.0	6.0	7.0	9.5	8.0	8.5	18.0	15.5	16.5
24	---	---	---	7.5	7.0	7.5	12.0	8.5	10.0	20.0	17.0	18.5
25	---	---	---	8.5	7.5	8.0	11.5	10.0	11.0	21.0	19.0	20.0
26	---	---	---	8.0	6.5	7.5	10.5	9.5	10.0	22.5	20.5	21.0
27	---	---	---	9.0	7.5	8.0	11.0	9.0	10.0	24.0	21.0	22.5
28	---	---	---	9.0	8.0	8.5	12.5	10.0	11.0	24.5	22.5	23.5
29	---	---	---	8.0	7.0	7.5	14.0	11.5	13.0	24.0	22.5	23.5
30	---	---	---	8.0	6.5	7.5	16.5	14.0	15.0	23.5	22.0	23.0
31	---	---	---	8.0	7.0	7.5	---	---	---	23.0	22.0	22.5
		JUNE			JULY			AUGUST			SEPTEMBER	
1	22.5	21.5	22.0	---	---	---	29.5	28.0	29.0	26.5	22.0	24.0
2	23.0	21.5	22.5	---	---	---	29.0	27.0	28.0	26.0	22.5	23.5
3	25.0	22.0	23.5	---	---	---	29.5	27.0	28.0	22.5	20.5	21.5
4	25.5	24.0	25.0	---	---	---	27.0	25.5	26.0	21.5	19.5	20.5
5	25.5	24.5	25.0	---	---	---	26.0	24.0	25.0	21.5	19.0	20.5
6	25.5	24.0	24.5	---	---	---	27.0	25.0	26.0	20.5	19.0	20.0
7	25.5	24.0	25.0	---	---	---	30.0	25.5	27.0	20.0	18.5	19.5
8	26.5	24.5	25.5	29.5	27.0	28.0	29.5	26.0	27.5	20.0	18.5	19.5
9	25.5	23.5	24.5	28.5	27.0	27.5	27.5	26.0	27.0	19.5	16.0	18.0
10	24.0	22.5	23.5	31.5	26.0	28.5	28.5	26.0	27.5	20.5	18.0	19.0
11	23.5	22.0	23.0	28.0	26.0	26.5	29.0	27.0	28.0	22.5	19.5	20.5
12	24.0	22.0	23.0	26.5	25.0	26.0	29.5	27.5	28.5	21.0	16.0	19.0
13	26.0	23.0	24.5	32.5	25.5	28.0	31.5	28.0	29.5	20.0	16.0	17.0
14	25.0	24.0	24.5	29.5	27.0	28.0	31.5	28.0	29.5	19.5	18.5	19.0
15	25.5	23.0	24.0	30.0	28.5	29.0	30.5	28.5	29.5	18.5	17.0	18.5
16	24.5	23.0	24.0	30.0	27.0	28.5	30.0	28.5	29.5	20.5	17.0	18.5
17	28.0	23.5	25.0	31.5	27.5	28.5	31.5	28.5	30.0	21.5	18.5	20.5
18	26.5	25.0	26.0	31.0	27.5	29.0	29.5	28.0	29.0	24.0	22.0	23.0
19	30.0	25.5	27.5	28.5	26.0	27.0	29.5	27.0	28.0	22.0	17.0	19.5
20	---	---	---	26.0	24.5	25.5	27.0	26.0	26.5	18.0	16.0	16.5
21	---	---	---	30.5	24.0	26.5	26.5	25.0	25.5	20.0	16.0	17.5
22	---	---	---	25.5	24.0	25.0	29.0	24.5	26.0	19.5	17.5	18.0
23	---	---	---	26.5	24.5	25.5	26.5	24.5	25.5	18.5	16.5	17.0
24	---	---	---	30.5	25.5	28.0	26.5	24.0	25.5	18.0	17.0	17.5
25	---	---	---	31.0	25.5	28.0	25.0	23.5	24.5	19.0	17.0	17.5
26	---	---	---	27.0	25.0	26.0	23.5	22.0	23.0	21.0	18.0	19.0
27	---	---	---	27.0	25.5	26.5	22.5	20.5	21.5	20.0	18.0	19.0
28	---	---	---	27.5	26.0	27.0	21.5	20.0	21.0	17.5	16.0	17.0
29	---	---	---	29.5	26.5	27.5	24.0	20.0	21.5	16.5	15.5	16.0
30	---	---	---	29.5	27.5	28.5	22.0	20.0	21.0	19.5	15.5	16.5
31	---	---	---	31.5	28.5	29.5	23.5	21.0	22.0	---	---	---